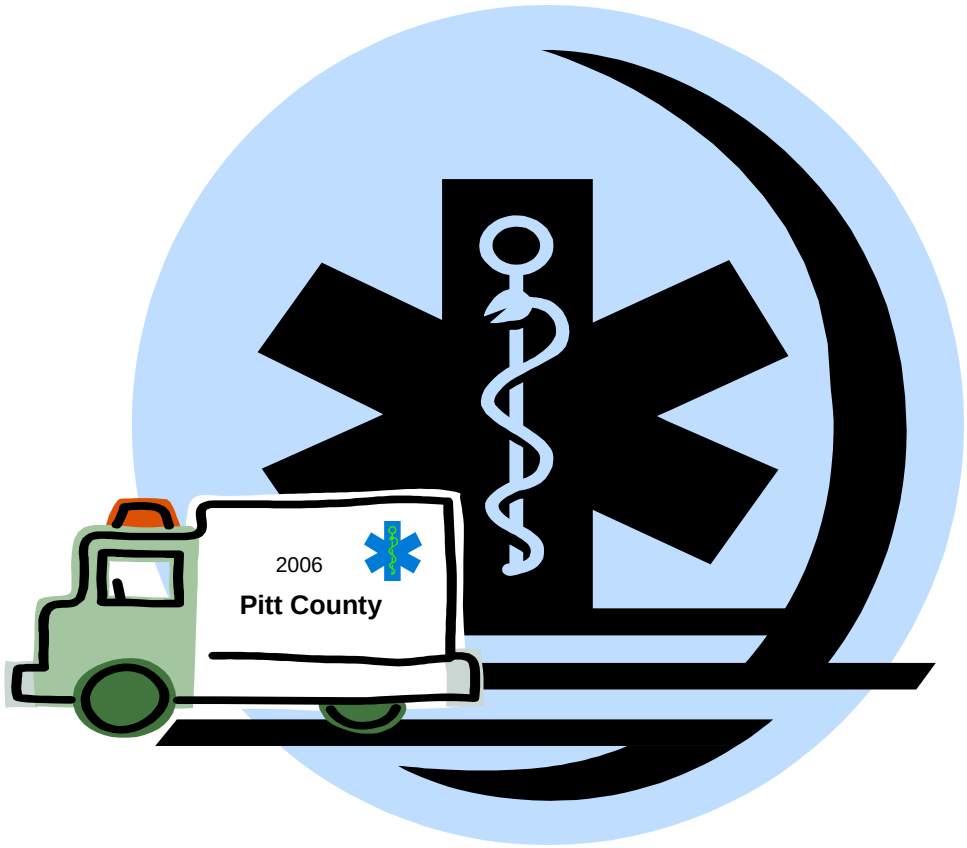


2006

EMS PROTOCOLS

Pitt County

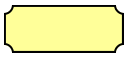
Division of Emergency Medical Services
Department of Emergency Medicine
Brody School of Medicine

Version: 2006

PROLOGUE

The EMS Protocols for Pitt County are developed and published by the Division of EMS, Department of Emergency Medicine, Brody School of Medicine of East Carolina University, Greenville, North Carolina. This current edition has been updated and replaces all previous protocols. The protocols are for use by all the EMS providers in Pitt County.

The following shapes indicate the level(s) of care:

EMT, EMT-Intermediates and Paramedics only 

EMT-Intermediates and Paramedics only 

EMT-Paramedics only 

We hope this format is useful. While these protocols are quite specific, they are not failsafe. It is the knowledge, skill and judgement of EMS personnel that will serve to provide the best prehospital care in all situations.

Mary Jane Pollock, EMT-P, EMD, EMD-Q
NC Level II EMS Instructor—EMT-Paramedic
Extension Education and Training Specialist
Department of Emergency Medicine
Division of EMS
Brody School of Medicine of East Carolina University

Juan A. March, MD, FACEP, Professor
Department of Emergency Medicine
Medical Director, Division of EMS
Brody School of Medicine of East Carolina University
University Health Systems of Eastern Carolina

Version: Pitt County 2006

TABLE OF CONTENTS

TABLE OF CONTENTS

Page

PATIENT CARE PROCEDURES (SKILLS) continued

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

Page

APPENDIX

North Carolina College of Emergency Physicians

Standards for EMS Equipment**

B. The baseline equipment required in all systems (including Model EMS Systems and Specialty Care Transport Programs) with EMS personnel credentialed at the specified level.

M. The equipment required in all Model EMS Systems and Specialty Care Transport Programs at the specified credentialed personnel level.

S. The equipment required in all Specialty Care Transport Programs. All Air Medical Specialty Care Transport Programs and dedicated Neonatal Transport Programs are required to carry and maintain equipment and medications specific to each mission, as defined by medical control and OEMS approved protocols.

O. The equipment, which is optional for any system with EMS personnel, credentialed at the specified level.

EMS Equipment	Conv.	EMT	EMT-I	EMT-P
Ventilation and Airway Equipment				
Bag Valve Mask	B	B	B	B
Bulb Syringe	O	B	B	B
Combitube			B	B[3]
Laryngeal Mask Airway (LMA)		O	O	B[3]
Cricothyroidotomy (Surgical) equipment				B[3]
Endotracheal tubes (ETT)			B	B
ETCO2 monitors or other ETT placement device			B[4]	B[4]
Laryngoscope blades			B	B
Laryngoscope handle with extra batteries, bulbs			B	B
McGill forceps or equivalent			B	B
Nasal cannula for Oxygen Delivery	B	B	B	B
Nasopharyngeal airways	O	B	B	B
Nebulizer			M, O	B
Oropharyngeal airways	B	B	B	B
Oxygen Mask	B	B	B	B
Oxygen Tubing	B	B	B	B
Portable Oxygen with variable flow regulator	B	B	B	B
Respirator*			O	O
Rigid pharyngeal suction device	B	B	B	B
Stylettes for Endotracheal tubes			B	B
Suction apparatus	B	B	B	B
Suction catheters	O	B	B	B
Ventilator (Pressure or Volume based with PEEP)*				S, O
Wide-bore suction tubing	O	B	B	B
Monitoring and Defibrillation				
Automatic External Defibrillator	O	B	B	O
End tidal CO2 (ETCO2) monitoring, continuous				O

Version: 2005

Standards 2
1

Adapted from NCCEP Protocols 2005
Version: **Pitt County 2006**

EMS Equipment	Conv.	EMT	EMT-I	EMT-P
Pacemaker- External				B
Pacemaker-Transvenous				S
Monitor with 12 lead EKG				M, O
Monitor/defibrillator with electrodes and pads or paddles				B
Pulse oximeter	O	O	M, O	M, O
Immobilization Devices				
Cervical spine immobilization device	O	B	B	B, S[1]
CPR Board	B			
Femur traction device	O	B	B	B, S[1]
Head immobilization device	O	B	B	B, S[1]
Pneumatic Anti-shock Garment (MAST)		O	O	O
Backboards, short and long (Radiolucent preferred) with appropriate restraints	O	B[11]	B[11]	B[11], S[1]
Spinal immobilization and extrication device	O	B	B	B, S[1]
Upper and Lower extremity immobilization devices	O	B	B	B, S[1]
Bandages				
Burn pack	O	B	B	B
Cold packs	O	B	B	B
Dressings, bandages, gauze rolls, adhesive tape	B	B	B	B
Heavy scissors for clothing removal	B	B	B	B
Occlusive dressing	O	B	B	B
Sterile saline solution for irrigation	O	B	B	B
Medication Administration				
Alcohol wipes	O	B	B	B
Intraosseous needles				B
IV administration sets			B	B
IV arm boards			B	B
IV catheters			B	B
IV pole/hook	O	O	B[11]	B[11]
Tourniquet			B	B
Obstetrical				
Sterile OB kit, scissors, bulb suction, cord clamps	O	B	B	B
Miscellaneous				
Bedpan and urinal	B	B[11]	B[11]	B[11]
Broselow Tape or equivalent	B	B	B	B
Cellular phone	O	O	M, O	M, O
Emesis basins	B	B	B	B
Lubricating jelly	O	B	B	B
Nasogastric tubes				M, O
Sheets, pillows, pillow cases, and towels	B	B[11]	B[11]	B[11]
Sphygmomanometer	B	B	B	B
Stair chair/folding stretcher	O	B[11]	B[11]	B[11], S[1]
Stethoscope	B	B	B	B
Thermometer with low temperature capability	O	O	O	M, O
Triage tags	O	B	B	B, S[1]
Wheeled cot with security for patient transport	B	B[11]	B[11]	B[11], S[1]
Injury Prevention Equipment				
Flashlight with extra batteries	B	B	B	B
Heat and cooling source for ambulance compartment	B[11]	B[11]	B[11]	B[11]
Thermal blanket or other heat conserving device	B	B	B	B

Version: 2005 Standards 2
2

Adapted from NCCEP Protocols 2005
Version: **Pitt County 2006**

EMS Equipment Infection Control	Conv.	EMT	EMT-I	EMT-P
Disinfectant hand wash	B	B	B	B
Disinfectant solution for cleaning equipment	B	B	B	B
Disposable biohazard trash bags	B	B	B	B
Eye protection	O	B	B	B
Gloves, non-sterile	B	B	B	B
Jumpsuits/gown	O	B	B	B
Latex Allergy Kit (If not using latex free equipment)****	O	B	B	B
Latex Free Gloves	B	B	B	B
Masks	B	B	B	B
Sharps containers	O	B	B	B
Shoe covers	O	B	B	B

Conv. = Convalescent Transport Program, EMT = Emergency Medical Technician, EMT-I = EMT-Intermediate, EMT-P = EMT-Paramedic

B[3] = All EMT-Paramedic Systems must have an airway backup. This can be a Combitube, Laryngeal Mask Airway (LMA) or Surgical Cricothyrotomy. Systems performing Rapid Sequence Induction must have the ability to perform Surgical Cricothyrotomy. Commercial Cricothyrotomy or Tracheostomy kits that create an airway comparable to a surgical Cricothyrotomy are acceptable.

B[4] = All EMT-Intermediate and Paramedic Systems must use either Capnometry (Color) or Esophageal Bulb devices to confirm every intubation. EMT-Paramedic systems performing Rapid Sequence Induction must use Capnometry (color) to confirm tube placement. Waveform Capnography is acceptable for this requirement.

B[11] = Equipment which is considered optional (not mandatory) to non-transport EMS vehicles.

S[1] = Specialty Care Transport Programs are not required to maintain this equipment on every response, but the equipment must be available on a case by case basis dependent on the patient care scenario.

All Specialty Care Transport Programs which are listed in a counties primary 911 response plan or provide backup 911 primary response service, are required to maintain the same level of skills, medications and equipment (Baseline or Model) which the county system maintains.

***For the purposes of this document, a "ventilator" is a ventilation device, which attaches to an endotracheal or tracheostomy tube. It is capable of ventilating by a pressure or volume delivery mechanism. It must have adjustments for respiratory rate, volume/pressure settings, and for assisted or full ventilation. It has the capabilities of PEEP or other pressure based manipulations. A "respirator" is any other device, which assists with ventilations during a respiratory/cardiac arrest.**

****All EMS Systems must carry at a minimum the equipment associated with the EMT Level unless functioning as a convalescent transport service.**

****All EMS Systems must carry at least one piece of equipment listed below, sized for each Broselow color. Items that require Pediatric sizes are shaded ORANGE.**

*****A Latex Allergy Kit should be composed of all the necessary personal protection equipment and materials necessary to obtain and maintain IV access.**

ADVANCED LIFE SUPPORT

Minimum Required Equipment and Supplies List for Paramedics

NCOEMS requires the baseline equipment in all EMS systems, including Model EMS systems. Please refer to that listing for required items.

EQUIPMENT:

Antishock trousers - 1 adult set (optional)
Bag-valve-mask (adult, child, infant)
Capnography (minimal front-line EMS unit)
Combitube®
CPAP with appropriate supplies (optional)
End-tidal CO2 Detector (Adult and Ped sizes)
Laryngoscope blades: Miller 0, 1, 2, 3 and MacIntosh 1(optional), 2, 3, 4
Laryngoscope handles (with spare batteries for each handle if battery model)
Laryngoscope bulbs (spares)
Magill forceps
Melker Emergency Cricothyrotomy Catheter Set (size 6.0 mm, uncuffed)
Monitor-Defibrillator-External Pacer Unit (12-Lead ECG capabilities)
Monitor-External Pacer cable
Pediatric and adult defibrillation pad sets or paddles
Peak Flow Meter
Pulse oximetry
Radios: 2-way VHF unit on 155.340 frequency and/or
2-way UHF unit with med channels and cell phones
Stylets (one adult, one pediatric)
Thermometer (low temperature capability — 86 F); Fever thermometer

SUPPLIES:

Quantity	Description
	Administration sets (IV):
4	Extension tubing
4 ea	Macrodrip (10 or 15 gtt/ml) and Microdrip (60 gtt/ml)
1	Pediatric with buretrol/volutrol
10	Alcohol pads
4	Bandaids
2	Benzoin swabs
1	Blood glucose reagent strips
1	Cardiac External Pacing pad set
2	Defibrillation pad sets (or 1 tube conductive gel)
3	ECG electrode pad sets (adult and peds)
2	ECG paper for monitor (rolls or pads)
	Endotracheal tubes (ETT):
1 ea	5.5 mm and 6.0 mm cuffed
2 ea	6.5 mm and 7.0 mm cuffed
2 ea	7.5 mm and 8.0 mm cuffed
1 ea	8.5 mm and 9.0 mm cuffed
2 ea	3.0 mm and 3.5 mm uncuffed
2 ea	4.0 mm and 4.5 mm uncuffed
2	5.0 mm uncuffed or cuffed
1	Feeding tubes, size 6 fr and 10 fr
	Gloves, Masks, Goggles, Gowns (varied sizes), Shoe covers
	Intravenous catheters:
4 ea	14 g; 16 g; 18 g; 20 g; 22 g
4	Intravenous start kits
4	Lubricant jelly, water soluble
2	Multi-adapters for Nebulizer
5	Nasogastric tubes (one of each: 8 fr; 10 fr; 12 fr; 14 fr; 18 fr)
3	Nebulizers for Albuterol

EMT-PARAMEDIC SUPPLIES (Continued)

Quantity	Description
	Needles:
4ea	18 g; 25 g; 25 g butterfly
2	Intraosseous
2	EZ-IO™ (adult intraosseous, large needle set, 40 kgs & up) (optional)
2	Saline irrigant, 1000 ml
4	Saline locks (Heparin lock)
1	Sharps container, puncture resistant
1	Stopcock, three-way
3	Suction catheters, 14 fr
1	Suction catheters, 6 fr (feeding tube); 10 fr
1	Meconium aspirator
	Syringes:
3 ea	5 ml; 10 ml; 20 ml
1	60 ml
2	Large bulb or Toomey
3	Tuberculin, 1 ml
1	Tubex holder
	Vacutainer:
2 ea	Needles; yellow top; sleeves

FORMULARY:

1	Acetaminophen (Tylenol), 650 mg (suppository)
2	Acetaminophen (Tylenol), 120 mg (suppository)
6	Acetaminophen (Tylenol), 325 mg (tablets)
2	Activated Charcoal in water, 25 gm
3	Adenosine, 6 mg or 12 mg
3	Albuterol solution for inhalation, 2.5 mg
6	Aspirin, 81 mg/tablets
3	Atropine, 1 mg/10 ml
1	Calcium chloride, 1gm
3	Cordarone (Amiodarone), 150 mg/3 ml
3	Dextrose 50% in water, 50 ml
2	Diazepam (Valium), 10 mg
1	Diltiazem (Cardizem), 25 mg/5ml
2	Diphenhydramine (Benadryl), 50 mg
1	Dopamine, 400 mg
2	Epinephrine (1:1,000), 1 mg/ml (may substitute anaphylaxis kit for one)
6	Epinephrine (1:10,000) 1 ml/10ml
2	Fentanyl citrate (Sublimaze), 50 mcg
6	Furosemide (Lasix), 20 mg
1	Glucagon, 1 mg
2	Haloperidol (Haldol), 5 mg/1ml
	Intravenous fluids:
1	Normal saline, 500 ml
1	Dextrose 5% in water, 500 ml
4	Normal saline, 1000 ml
4	Lactated Ringers, 1000 ml
2	Ipratropium (Atrovent), 2.5 ml
2	Ketorolac Tromethamine (Toradol), 30 mg
1	Labetalol, 20 mg/4ml
1	2% Lidocaine jelly
3	Lidocaine, 100 mg
1	Magnesium sulfate, 4 gram/100 ml (premixed bag)
2	Magnesium sulfate, 1 gram (premixed bag)

EMT-PARAMEDIC FORMULARY (continued)

Quantity	Description
2	Methylpredinsolone (Solu-Medrol), 125 mg
1	Midazolam (Versed), 5 mg
2	Morphine sulfate, 10 mg
3	Naloxone, 2 mg
1	Naloxone, 0.4 mg/ml
3	Nitroglycerin paste with applicators
2	Nitroglycerin sublingual tablet bottles, 1/150 gr (0.4 mg)
1	Nitrous oxide/oxygen delivery device (Nitronox) with demand valve and mask (optional)
1	Oxymetazoline (Afrin), 0.05% nasal spray
2	Promethazine hydrochloride, 25 mg
6	Saline, sterile 10 ml (for injection)
2	Sodium bicarbonate, 50 mEq
2	Thiamine, 100 mg
6	Water, sterile 10 ml (for injection)

SUBSTITUTE FORMULARY:

2	Dexamethasone (Decadron), 4 mg/ml (substitute if Methylpredinsolone unavailable)
2	Hydrocortisone (Solu-Cortef), 100 mg (substitute if Methylpredinsolone or Dexamethasone unavailable)
2	Lorazepam (Ativan), 2 mg (substitute if Diazepam unavailable)
2	Nalmefene (Revex), 1mg (substitute if Naloxone unavailable)

This replaces any list previously published.

May 1, 2006 _____

Juan A. March, MD
Pitt County EMS Medical Director

ADVANCED LIFE SUPPORT

Minimum Required Equipment and Supplies List for EMT-Intermediates

NCOEMS requires the baseline equipment in all EMS systems, including Model EMS systems. Please refer to that listing for required items.

EQUIPMENT:

Antishock trousers - 1 adult set (optional)
Automated/Semi-automated External Defibrillator
Automated/Semi-automated External Defibrillator pads (adult and pediatric*)
Battery charger with spare battery(ies) for AED/SAED
Bag-valve-mask (adult, child, infant sizes)
Capnography (minimal front-line EMS unit)
Combitube®
End-tidal CO2 Detector (Adult and Ped sizes)
Laryngoscope blades: Miller 0, 1, 2, 3 and MacIntosh 1 (optional), 2, 3, 4
Laryngoscope handles (with spare batteries for each handle if battery model)
Laryngoscope bulbs (spares)
Magill forceps
Peak Flow Meter
Pulse oximetry
Radio: 2-way VHF unit on 155.340 frequency and cell phone
Stylets (one adult, one pediatric)
Thermometer, fever; (low temperature capability — 86 F, optional)
*Pediatric defibrillation pads required only if manufacturer approved for the AED/SAED

SUPPLIES:

Quantity	Description
	Administration sets (IV):
4	Extension tubing
4 ea	Macrodrip (10 or 15 gtt/ml) and Microdrip (60 gtt/ml)
10	Alcohol pads
4	Bandaids
2	Benzoin swabs
1	Blood glucose reagent strips
2	Defibrillation pad sets
3	ECG electrode pad sets (optional)
	Endotracheal tubes (ETT):
1	5.5 mm and 6.0 mm cuffed
2	6.5 mm and 7.0 mm cuffed
2	7.5 mm and 8.0 mm cuffed
1	8.5 mm and 9.0 mm cuffed
2	3.0 mm and 3.5 mm uncuffed
2	4.0 mm and 4.5 mm uncuffed
2	5.0 mm uncuffed or cuffed
	Gloves, Masks, Goggles, Gowns (varied sizes), Shoe covers
	Intravenous catheters:
4 ea	14 g; 16 g; 18 g; 20 g; 22 g
4	Intravenous start kits
4	Lubricant jelly, water soluble
2	Multi-adapters for Nebulizer
3	Nebulizers for Albuterol
	Needles:
4 ea	18 g; 25 g; 25 g butterfly
2	Saline irrigant, 1000 ml
4	Saline locks (Heparin locks)
1	Sharps container, puncture resistant
3	Suction catheters, 14 fr
1	Suction catheters, 6 fr (feeding tube); 10 fr

EMT-I SUPPLIES (continued)

Quantity	Description
	Syringes:
3 ea	5 ml; 10 ml; 20 ml
1	60 ml
3	Tuberculin syringe, 1 ml
1	Tubex holder
	Vacutainer:
2 ea	Needles; yellow top; sleeves
1	Meconium aspirator

FORMULARY:

1	Acetaminophen (Tylenol), 650 mg (suppository)
2	Acetaminophen (Tylenol), 120 mg (suppository)
6	Acetaminophen (Tylenol), 325 mg (tablets)
2	Activated Charcoal in water, 25 gm
3	Albuterol solution for inhalation, 2.5 mg
6	Aspirin, 81 mg/tablets
3	Dextrose 50% in water, 50 ml
2	Diphenhydramine (Benadryl), 50 mg
2	Epinephrine (1:1,000), 1 mg/ml (may substitute anaphylaxis kit for one)
3	Epinephrine (1:10,000), 1 ml/10ml
1	Glucagon, 1mg
1	Glucose paste
	Intravenous fluids:
1	Dextrose 5% in water, 500 ml
4	Normal Saline, 1000 ml
4	Lactated Ringers, 1000 ml
2	Ipratropium (Atrovent), 2.5 ml
2	Ketorolac Tromethamine (Toradol), 30 mg
3	Naloxone, 2 mg
1	Naloxone, 0.4 mg/ml
3	Nitroglycerin paste and applicators
2	Nitroglycerin sublingual tablet bottles, 1/150 gr (0.4 mg)
1	Oxymetazoline (Afrin), 0.05% nasal spray
3	Saline, sterile 10 ml vial for injection
2	Thiamine, 100 mg vial
3	Water, sterile 10 ml vial for injection

SUBSTITUTE FORMULARY:

2	Nalmefene (Revex), 1 mg (substitute if Naloxone unavailable)

This list replaces any list previously published.

May 1, 2006 _____

Juan A. March, MD
Pitt County EMS Medical Director

Version: **Pitt County 2006**

ADVANCED LIFE SUPPORT

Minimum Required Equipment and Supplies List for EMT-Basic

NCOEMS requires the baseline equipment in all EMS systems, including Model EMS systems. Please refer to that listing for required items.

EQUIPMENT:

Antishock trousers - 1 adult set (optional)
Automated/Semi-automated External Defibrillator
Automated/Semi-automated External Defibrillator pads (adult and pediatric*)
Bag-valve-mask (adult, child, infant)
Battery charger with spare battery(ies) for AED/SAED
Combitube®
End-tidal CO2 Detector (Adult size)
Radio: 2-way VHF unit on 155.340 frequency and cell phone (optional)
Thermometer, fever; (low temperature capability — 86 F, optional)
*Pediatric defibrillation pads required only if manufacturer approved for the AED/SAED

SUPPLIES:

Quantity	Description
10	Alcohol pads
4	Bandaids
2	Benzoin swabs
1	Blood glucose reagent strips
2	Defibrillation pad sets
2	ECG electrode pad sets (optional)
	Gloves, Masks, Goggles, Gowns (varied sizes), Shoe covers
4	Lubricant jelly, water soluble
2	Nebulizers for Albuterol
1	Sharps container, puncture resistant

FORMULARY:

1	Acetaminophen (Tylenol), 650 mg (suppository)
2	Acetaminophen (Tylenol), 120 mg (suppository)
2	Acetaminophen (Tylenol), 325 mg tablets
2	Activated Charcoal in water, 25 gm
2	**Albuterol solution for inhalation, 2.5 mg
6	Aspirin, 81 mg/tablets (Baby ASA)
1	EpiPen 2-Pak (Epinephrine) Auto-injectors, 0.3/0.15 mg
1	Glucose paste
1	**Nitroglycerin sublingual tablet bottle, 1/150 grain (0.4 mg)
1	Oxymetazoline (Afrin), 0.05% nasal spray

Note:

** **"EMT use of beta-agonists and nitroglycerin is limited to patients who currently are prescribed the medication.** EMT's may administer these medications from EMS supplies. EMT use of beta-agonists may be through any inhaled method of medication administration." (North Carolina Medical Board, June 30, 2005)

This list replaces any list previously published.

May 1, 2006 _____

Juan A. March, MD
Pitt County EMS Medical Director

NON-TRANSPORTING QUICK RESPONSE VEHICLE (QRV) EQUIPMENT AND SUPPLY LIST (Paramedic)

Section A:

____ Provider name permanently displayed on each side
____ Vehicle body and function
____ Warning devices (lights/siren) (1 pt. each light out)
____ Two-way radio
____ Suction apparatus w/wide bore tubing
____ BVM (Adult w/mask; Child w/mask; Infant w/mask)
____ Oral pharyngeal airways (Infant to adult sizes)
____ Variable flow portable O2 regulator
____ Portable O2 cylinder
____ Aneroid or electronic BP cuffs (infant, child, adult)
____ Stethoscope (adult)
____ Automated or manual external defibrillator
____ C-collars (adult and pediatric sizes)
____ Adult spinal extrication device (KED, XP-One, SSB)
____ Pediatric immobilization device (Pedi-board, etc.)

Section B:

____ Cleanliness — interior
____ Equipment secured
____ Broselow tape or equivalent
____ Femur traction device
____ Extremity immobilization devices (splints) (both upper and lower)
____ Sterile OB Kit with supplies
____ Fire extinguisher mounted in quick release bracket
____ Infection control kit containing the following:
Disinfecting hand wash; sharps container; masks; disinfecting solution for cleaning Equipment; disposable biohazard trash bags; eye protection; shoe covers; jumpsuit or gown

Section C:

____ Cleanliness — exterior
____ Latex-free gloves/non-sterile gloves or Latex allergy kit
____ Heavy duty scissors
____ Suction catheters: adult and pediatric sizes
____ Rigid suction device (Yankauer) for machine operated suction device or
____ replacement containers with suction tip for handheld disposable suction device
____ Dressings; ____ Bandages; —— Gauze rolls; ____ Tape
____ Nasopharyngeal airways (various sizes)
____ O2 tubing; ____ O2 cannulas adult; ____ O2 masks (adult + pediatric sizes)
____ Occlusive dressing
____ Burn pack; ____ Cold pack
____ Sterile saline solution for irrigation
____ Blanket
____ Operational flashlight w/extra batteries

Section D:

____ Reflective tape on all sides
____ Emesis basin or sealable emesis container; ____ Triage tages
____ Alcohol wipes; ____ Bulb syringe or Toomey; ____ Lubricating jelly (water soluble)

NON-TRANSPORTING QUICK RESPONSE VEHICLE (QRV) EQUIPMENT AND SUPPLY LIST (Paramedic) (continued)

Expanded Scope:
Section A:

_____ (BIAD) — Combitube
____ Laryngoscope blades: Miller 0, 1, 2, 3 and MacIntosh 1 (optional), 2, 3, 4
____ Laryngoscope handle w/extra batteries/bulbs

Section B:

____ ET tubes: 1 each (2.5 mm—6.5 mm; 9.0mm) and 2 each (7.0 mm—8.0 mm)
____ ET CO2 monitor (adult and pediatric size)
____ Stylettes for ET tube (adult and pediatric size)
____ IV administration sets: 2 each, extension tubing and Macrodrip (10 or 15 gtt/ml) and 1 each, Microdrip (60 gtt/ml)
____ IV Catheters: 2 each (14 g — 24 g)
____ IO needle (pediatric and adult) (adult optional)
____ IV arm board
____ Tourniquet
____ Magill forcep
____ Nebulizer (2 each)
____ Alternative Airway Device (Melker Cric.Catheter Set/Needle Cric./BIAD)
____ Monitor/Defibrillator/Pacer w/accessories (adult and pediatric size)

EMT-P (Model System)
____ Capnography
____ Pulse oximeter
____ Cellular phone
____ Supplies/medications in date and stored in temperature controlled atmosphere per mfg. Specifications.
____ EKG monitor w/12 Lead capability
____ Nasogastric tubes (adult and pediatric sizes)
____ Hypothermic thermometer

Medication Formulary:

1 Acetaminophen (Tylenol), 650 mg (suppository)
2 Acetaminophen (Tylenol), 120 mg (suppository)
6 Acetaminophen (Tylenol), 325 mg (tablets)
2 Activated Charcoal in water, 25 grams
3 Adenosine, 6 mg or 12 mg
3 Albuterol solution for inhalation, 2.5 mg
6 Aspirin, 81 mg tablets
3 Atropine, 1 mg/10 ml
1 Calcium Choloride, 1 gram
3 Cordarone (Amiodarone), 150 mg/3 ml
3 Dextrose 50% in water, 50 ml
2 Diazepam (Valium), 10 mg
1 Diltiazem (Cardizem), 25 mg/5 ml
2 Diphenhydramine (Benadryl), 50 mg
1 Dopamine, 400 mg (premixed)
2 Epinephrine (1:1,000), 1 mg/ml (may substitute anaphylaxis kit for one)
6 Epinephrine (1:10,000), 1 ml/10 ml
2 Fentanyl Citrate (Sublimaze), 50 mcg
6 Furosemide (Lasix), 20 mg

Version: **Pitt County 2006**

NON-TRANSPORTING QUICK RESPONSE VEHICLE (QRV) EQUIPMENT AND SUPPLY LIST (Paramedic) (continued)

Medication Formulary (continued)

1	Glucagon, 1mg
2	Haloperidol (Haldol), 5 mg/1 ml
	Intravenous fluids:
1	Normal saline, 500 ml
1	Dextrose 5% in water, 500 ml
4	Normal saline, 1000 ml
4	Lactated Ringers, 1000 ml
2	Ipratropium (Atrovent) 2.5 ml
2	Ketorolac Tromethamine (Toradol), 30 mg
1	Labetalol, 20 mg/4 ml
1	2% Lidocaine jelly
3	Lidocaine, 100 mg
1	Magnesium sulfate, 4 gram/100 ml (premixed bag)
2	Magnesium sulfate, 1 gram (premixed bag)
2	Methylpredinsolone (Solu-Medrol), 125 mg
1	Midazolam (Versed), 5 mg
2	Morphine sulfate, 10 mg
3	Naloxone, 2 mg
1	Naloxone, 0.4 mg/ml
3	Nitroglycerin paste with applicators
2	Nitroglycerin sublingual tablet bottles, 1/150 gr (0.4 mg)
1	Oxymetazoline (Afrin), 0.05% nasal spray
2	Promethazine hydrochloride, 25 mg
6	Saline, sterile 10 ml (for injection)
2	Sodium bicarbonate, 50 mEq
2	Thiamine, 100 mg
6	Water, sterile 10 ml (for injection)

SUBSTITUTE FORMULARY:

2	Dexamethasone (Decadron), 4 mg/ml (if Methylpredinsolone unavailable)
2	Hydrocortisone (Solu-Cortef), 100 mg (if Methylpredinsolone or Dexamethasone unavailable)
2	Lorazepam (Ativan), 2 mg (if Diazepam unavailable)
2	Nalmefene (Revex), 1 mg (if Naloxone unavailable)

This replaces any list previously published.

May 1, 2006 _____

Juan A. March, MD
Pitt County EMS Medical Director

Version: **Pitt County 2006**

STANDARDS FOR EMS TREATMENT POLICIES

Patient Care Policies

Version: **Pitt County 2006**

Standards Policy

AIR TRANSPORT

Policy:

Air transport should be utilized whenever patient care can be improved by decreasing transport time or by giving advanced care not available from ground EMS services, but available from air medical transport services (i.e. invasive procedure, blood).

Purpose:

The purpose of this policy is to:

* Improve patient care in the prehospital setting
* Allow for expedient transport in serious, mass casualty settings
* Provide life-saving treatment such as invasive procedures, blood transfusion, etc.

Procedure:

1. Patient transportation via ground ambulance will not be delayed to wait for helicopter transportation. If the patient is packaged and ready for transport and the helicopter is not on the ground, or within a reasonable distance, the transportation will be initiated by ground ambulance.
2. Air transport should be considered if any of the following criteria apply:
   * High priority patient with > 15-20 minute transport time
   * Entrapped patient(s) with > 20 minute estimated extrication time
   * Automobile roll-over of unbelted passengers
   * Automobile versus pedestrian at > 10 mph
   * Falls from > 15 feet
   * Motorcycle victims ejected at > 20 mph
   * Multiple victims (leaving the ambulance with too many patients to transport)
   * Wilderness rescue
   * Ambulance egress or access impeded at the scene by road conditions, weather or traffic
3. If a potential need for air transport is anticipated, but not yet confirmed, an air medical transport service can be placed on standby.
4. If the scene conditions or patient situation improves after activation of the air medical transport service and air transport is determined not to be necessary, **"Only Fire Command can cancel EastCare prior to EMS arriving, but once EMS arrives, the decision for cancellation will be made by the EMS Officer in charge of the scene. The person cancelling EastCare will assume the liability for the cancellation. All cancellations of air transport must go through '911' dispatch."** (Per Pitt County Emergency Management, May 2006)
5. Minimal information which should be provided to the air medical transport service include:
   * Number of patients
   * Age of patients
   * Sex of patients
   * Mechanism of injury of complaint (MVC, fall, etc.)
6. Reference **EastCare Scene Response**, see Appendix L, pg 182.

Standards Policy

CHILD ABUSE RECOGNITION AND REPORTING

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 (often the person is someone who is responsible for the child's welfare, but it does not have to be). 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 harm and 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.

Procedure:

1. Assess for and document psychological characteristics of abuse, including excessive passivity, compliant or fearful behavior, excessive aggression, violent tendencies, excessive crying, fussy behavior, hyperactivity, or other behavioral disorders.
2. Assess for and document physical signs of abuse, including especially any injuries that are inconsistent with the reported mechanism of injury. (The back, buttocks, genitals, and face are common sites for abusive injuries.)
3. 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. Assess for and document signs of sexual abuse, including torn, stained, or bloody underclothing, unexplained injuries, pregnancy, or sexually transmitted diseases.
5. State law requires the reporting of any suspicious findings. Immediately notify both the receiving hospital (if transported) and the Department of Social Services (DSS). After office hours, the child protective services worker on call can be contacted by calling the Pitt County Social Services, Pediatric Protection Office at (252) 902-1110. 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.

Version: **Pitt County 2006**

Standards Policy

CHILDREN WITH SPECIAL HEALTH CARE NEEDS

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 health care needs.
* Promote and encourage parents and caregivers to complete forms provided by physicians and children hospitals/clinics that identifies the health care problems, needs, and issues of the child with a special healthcare need.

Procedure:

1. Parents and caregivers who call “911” to report an emergency involving a child with special health care needs may state that the situation involves a special needs child.
2. Responding EMS personnel should ask the parent or caregiver of a special needs child for a copy of the completed form (includes medical history and special care needs of the child).
3. EMS personnel should contact medical direction for assistance with specific conditions or devices or for advice regarding appropriate treatment and/or transport of the child in the specific situation.
4. 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 treatment is to be withheld only if the patient is obviously dead (see Procedure #1 below) or a valid North Carolina **DO NOT RESUSCITATE** form is present. (Sample DNR form, page 21)

Purpose:

The purpose of this policy is:

- Honor those who have obviously expired prior to EMS arrival.

Procedure:

1. If the patient is in **complete Cardiopulmonary Arrest** (clinically dead—with no pulse and no respirations) and meets one or more of the criteria herein, resuscitation attempts (CPR and ALS therapy) need not be initiated.

    * Dependent lividity (blood pooling)
    * Rigor mortis
    * Body (tissue) decomposition
    * Decapitation
    * Hemicorporectomy (body cut in half)
    * Massive open or penetrating trauma to the chest (intrathoracic) with obvious organ destruction (apparent on external examination)
    * Massive open or penetrating trauma to the head with major brain destruction (obviously apparent on external examination)
    * Third degree burns to greater than 60% of the body or body burned beyond recognition
    * Extended downtime with Asystole on the ECG (exception would be cold water drowning)

2. If a bystander or first responder has initiated CPR or automated defibrillation prior to an EMS paramedic's arrival and any of the above criteria (signs of obvious death) are present, the paramedic may discontinue CPR and ALS therapy. All other EMS levels must communicate with medical direction prior to discontinuation of the resuscitative efforts.

3. Sometimes patient's family member/nursing home staff may want you to withhold resuscitation and in these situations follow the **DNR Protocol,** page 157**.**

4. If doubt exists, start resuscitation immediately. Once resuscitation is initiated, continue resuscitation efforts until either:

    * Resuscitation efforts meet the criteria for implementing the **Discontinuation of Prehospital Resuscitation Policy** (see Policy 6, page 19).
    * Patient care responsibilities are transferred to the destination hospital staff.

IMPORTANT NOTE: Cyanosis (blue color) and cold skin does not mean the patient is dead.

Standards Policy

DECEASED SUBJECTS

Policy:

EMS handling of "death-on-arrival" (DOA) patient(s) and pronouncing death in the out-of-hospital setting will be conducted in a uniform timely consistent manner.

Purpose:

The purpose of this policy is to:

* Maintain respect for the deceased and the family
* Organize a timely disposition of any deceased subject
* All EMS to return to service in a timely manner

Procedure:

1. Once a person is pronounced dead, a variety of statutory obligations are triggered. One obligation is the requirement that a death certificate be filed within five days of the death. When a physician pronounces the death, the physician must make several determinations with the following responsibilities:

    * Is the death unnatural?
      Only 7-8% of deaths in our jurisdiction is unnatural. EMS should notify the Medical Examiner immediately, contact law enforcement, secure and do not disturb a potential crime scene.

    * Is the death natural?
      Generally 92-93% of deaths in our jurisdiction is due to natural causes. If so, determine:

        * Is there a family physician who will sign the death certificate? In our jurisdiction the answer is "yes" 85% of the time. The pronouncing physician should make this information known to the family and the funeral home. This informing process may be completed by simply notifying the nursing staff, who in turn should record it on the Body Release Form.
        * If there is no family physician, notify the Medical Examiner (perhaps 7% of the deaths in our jurisdiction).

2. Other issues may include: notification of the family of the fact of death and the transfer of personal belongings to the family, if appropriate.

    * EMS should never terminate efforts after ambulance leaves the scene. If the patient expires enroute to the hospital all aspects of obligation are better handled in the Emergency Department than in the morgue.

    * Furthermore, the morgue is not staffed for the admission of dead bodies from outside Pitt County Memorial Hospital/UMC Morgue without prior permission from the Forensic Division/PCMH Autopsy Division.

    * Forensic Division/PCMH Autopsy Division 24-hour telephone number is (252) 847-4655. (See **Transport of Deceased Victims Protocol, page 166)**

Standards Policy

DISCONTINUATION OF PREHOSPITAL RESUSCITATION

Policy:

Unsuccessful cardiopulmonary resuscitation (CPR) and other advanced life support (ALS) interventions may be discontinued prior to transport when approved by standing orders or Medical Direction.

Purpose:

The purpose of this policy is to:

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

Procedure:

1. Discontinuation of resuscitative intervention may be implemented after contacting **Medical Direction <u>if most or all</u>** of the following criteria have been met:

    * Patient must be 18 years of age or older
    * Adequate CPR has been administered
    * Airway has been successfully managed with verification of device placement. Acceptable management techniques include orotracheal intubation, nasotracheal intubation, Combitube® placement, or cricothyrotomy.
    * Intravenous access has been achieved
    * No evidence or suspicion of any of the following:
        -Drug/toxin overdose -Active internal bleeding
        -Hypothermia -Preceding trauma
    * Rhythm appropriate medications and defibrillation have been administered according to local EMS Protocols for a total of three (3) cycles of drug therapy without return of spontaneous circulation (palpable pulse)
    * All EMS paramedic personnel involved in the patient's care agree that discontinuation of the resuscitation is appropriate
    * The ambulance has not begun transport to the receiving medical facility.

2. The **Deceased Subjects Policy** (page 18) should be followed.

Document all patient care and interactions with the patient's family, personal physician, medical examiner, law enforcement and medical direction on the EMS patient care report form.

Standards Policy

DISPOSITION
(PATIENT DISCHARGE INSTRUCTIONS)

Policy:

All patient encounters responded to by EMS will result in the accurate and timely completion of the appropriate patient care report and/or patient discharge instruction (disposition) form.

Purpose:

To provide for the documentation of:

* The evaluation and care of the patient
* The patient's refusal of evaluation, treatment, and/or transportation
* The patient's discharge (disposition) instructions
* The patient's encounter to protect the local EMS system and its personnel from undue risk and liability.

Procedure:

1. All patient encounters, which result in some component of an evaluation, must have a patient care report completed.

2. All patients who refuse any component of the evaluation or treatment, based on the complaint, must have a disposition (patient discharge instruction form in the absence of a computerized document) completed.

3. All patients who are not transported by EMS must have a disposition (patient discharge instruction form in the absence of a computerized document) completed including the patient instruction section.

Standards Policy

NORTH CAROLINA DO NOT RESUSCITATE FORM

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 Cardiopulmonary resuscitation attempts withheld in the event of cardiac arrest.

Purpose:

* To honor the terminal wishes of the patient
* To prevent the initiation of unwanted resuscitation

Procedure:

1. When confronted with a patient or situation involving a DNR, the following conditions must be present in order to honor the DNR form and withhold resuscitation attempts:

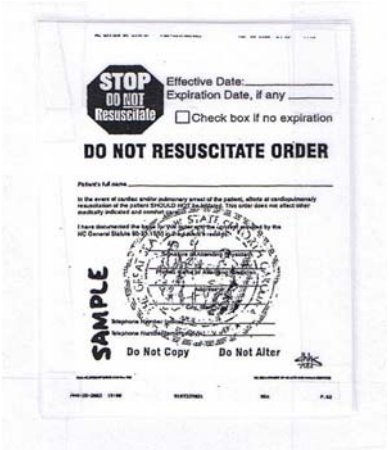
    * Original North Carolina DNR form (not a copy) (Form NC.DHHS/DFS/EMS/ 1110Rev. 4/04)
    * Effective date and expiration date (if applicable) filled out and current
    * Form signed by attending physician/physician assistant/nurse practitioner
    * Printed name of attending physician
    * Patient in cardiac arrest

2. A valid DNR form may be overridden by the request of:

    * the patient
    * the parent or guardian of the patient (if a minor)
    * an on-scene physician
    * patient's representative ("means an individual from the list of persons authorized to consent to the withholding of extraordinary care pursuant to G.S. 90-322 or an individual who has an established relationship with the patient, who is acting in good faith on behalf of the patient, and who can reliably convey the patient's wishes.") (Reference General Assembly of NC, Section 1, Article 1B, Chapter 90 of General Statutes "§90-21.16. Portable do not resuscitate order.")

3. A living will or other legal document that identifies the patient's desire to withhold CPR or ALS therapy may be honored with the approval of **Medical Direction.** This should be done when possible in consultation with the patient's family and personal physician.

SAMPLE DNR FORM →



Version: **Pitt County 2006**

Standards Policy

DOCUMENTATION OF THE PATIENT CARE REPORT

Policy:

An EMS patient care report form (PCR) will be completed accurately and legibly to reflect the patient assessment, patient care and interactions between EMS and the patient, for each patient contact which results in some assessment component.

Purpose:

To document:

* The total patient care provided including:
    (1) Dispatch information regarding the dispatch complaint
    (2) Care provided prior to EMS arrival and who provided that care
    (3) Focused exam of the patient
    (4) Past medical history, medications, allergies, living will/DNR, and personal physician
    (5) All times related to the event
    (6) All procedures, their associated time, successful and/or unsuccessfulness, and reassessment
    (7) All medications administered with their associated time and follow-up reassessment(s)
    (8) All reassessments of patient
    (9) Disposition and/or transport information
    (10) All communication with medical direction (includes physician and/or MICN name[s])
    (11) Signature of technicians providing care
    (12) Signature of physician authorizing any deviation from protocol
    (13) Signature of receiving individual assuming patient care at the medical facility
    (14) Signature of physician authorizing patient care orders (including orders received from MICN's) (some toughbooks may not permit this requirement)
    (15) Document reason for scene times longer than 20 minutes

* Reason for inability to complete or document any above item.

Procedure:

1. The patient care report should be completed as soon as possible after the time of the patient encounter.
2. All patient interactions are to be recorded on the patient care report form or the disposition form (if refusing care).
3. The patient care report form must be completed with the above information.
4. A copy of the patient care report form shall be provided to the receiving medical facility.
5. Documentation will be completed prior to leaving the destination facility unless call demand dictates otherwise, in which case documentation must be completed prior to the end of the personnel's shift. (Note: If call demand does prevent completion of documentation, please be sure a copy of the patient care report does reach the destination facility).

Standards Policy

DOCUMENTATION OF VITAL SIGNS

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 received some assessment component. (If a complete set of vital signs is not obtainable, documentation explaining why needs to be placed on the patient care report.)

Purpose:

To ensure:

* 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 (taken manually, not mechanically) includes:
   * Pulse rate
   * Systolic **AND** diastolic blood pressure (if both are not obtainable, document why)
   * Respiratory rate and lung sounds
   * Pain and severity (when appropriate to patient complaint)
   * Repeat vital signs may be taken mechanically

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:
   * Oxygen saturation (using pulse oximetry)
   * Temperature
   * CO2 levels (use of capnography)

4. If the patient refuses this evaluation, the patient's mental status and the reason for refusal of evaluation must be documented. A patient disposition form or appropriate computerized document (screen) must also be completed.

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

6. Record the time vital signs were obtained.

7. Any abnormal vital sign should ideally be repeated every 5-minutes and monitored closely.

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.
* 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. (The back, chest, abdomen, genitals, arms, legs, face, and scalp are common sites for abusive injuries.) 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 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. State law requires the reporting of any suspicious findings. Immediately notify both the receiving hospital (if transported) and the Department of Social Services (DSS). If an elder or disabled adult is involved, also **contact the Department of Social Services (DSS**). After office hours, the adult protective social services worker on call can be contacted by calling the **Pitt County Social Services, (252) 902-1110.** 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 fatality, law enforcement must also be notified.
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.**

Standards Policy

INFANT ABANDONMENT

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 seven (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 healthcare 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 the Newly Born Protocol as appropriate.
3. Initiate other treatment protocols as appropriate.
4. Keep infant warm.
5. Call the local Department of Social Services as soon as infant is stabilized. In the event of after hours for the Department of Social Services, please contact the **Pitt County Social Services, Pediatric Protection at (252) 902-1110.**
6. Transport infant to medical facility (exception, Medical Direction has been contacted regarding a "No Transport" because the infant is stable, DSS is present and wishes to transport the infant—Medical Direction shall speak with the DSS caseworker and then with the EMS provider regarding "No Transport" approval).
7. Assure infant is secured in appropriate child restraint device for transport.
8. Document protocols, procedures, and agency notifications.

Standards Policy

PATIENT WITHOUT A PROTOCOL

Policy:

Anyone requesting EMS service will receive emergency evaluation, care, 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 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 contact Medical Direction for further instructions/orders if needed.

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 there is a physician licensed to practice medicine at the scene of a medical/traumatic emergency and that physician chooses to assume medical responsibility for the patient(s), the field technicians at the scene shall:
    * require and allow that physician to contact the on-line medical direction at the hospital and the physician who receives the call shall make the decision as to whether or not the physician on the scene is to be allowed to take charge of the patient(s) and given orders
    * if the physician on the scene is allowed to take charge, field technicians on the scene shall permit the physician's orders to take precedence over all other procedures and/or protocols normally utilized within that emergency care program. Such orders should be consistent with the prehospital technician's level of credentials and the level of care provided by the squad.
    * EMS personnel must review the "On-scene Physician" form with the physician. All requisite documentation must be verified (the physician must be approved by on-line medical direction).
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/protocols, and if the physician signs the patient care report. Notify medical direction at the earliest opportunity. Any deviation from local EMS protocols requires the physician to accompany the patient to the hospital.
3. EMS personnel may accept orders from the patient's physician over the phone with the approval of medical direction. The EMS provider shall obtain the specific order and the physician's phone number for relay to medical direction so that medical direction can discuss any concerns with the physician directly.
4. Even though a physician on the scene may be giving ALS orders, the EMS provider should still give a complete radio report to the on-line medical direction physician/MICN or telecommunication specialist prior to arrival at the hospital.

Important Note: Radio equipment malfunction: In the unusual event that radio communication equipment fails, it is the responsibility of the prehospital provider to use other resources available. Most vehicles carry either one or both UHF and VHF or a cellular phone, which can be used as a backup. The telephone landline number for University Health Systems of Eastern Carolina (Pitt County Memorial Hospital) for this purpose is: (252) 752-1919. Failure of equipment does not authorize the prehospital provider to initiate ALS procedures that require on-line physician/MICN orders.

Standards Policy

STATE POISON CENTER

Policy:

The state poison center (**Carolinas Poison Center, toll free number: 1-800-222-1222**) may be utilized by the "911" center 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" communication 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. "911" may directly contact the state poison center for consultation if appropriate.
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. EMS personnel must contact Medical Direction for "No Transport" approval. (If possible, dispatch personnel should remain on the phone 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" communication center and communicate these recommendations. (EMS providers: variance from protocol requires Medical Direction approval.)
4. If the patient is determined to need EMS transport, the poison center specialist will contact the receiving hospital (if not already contacted by EMS) and provide information regarding the poisoning, including treatment recommendations. EMS shall contact medical direction 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 the patient. (Remember: "No Transports" require Medical Direction approval.)
6. Minimal information that should be obtained from the patient for the state poison center includes:
   * name and age of patient * time of exposure * signs and symptoms
   * substance(s) involved * any treatment given
7. Minimal information which should be provided to the state poison center for mass poisonings, including biochemical terrorism and HazMat, includes:
8. * substance(s) involved * signs and symptoms
   * time of exposure * any treatment given

Version: **Pitt County 2006**

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 (**approved infant and/or child passenger safety seat or immobilization device** that is properly secured to the "captain seat" in the patient compartment area or stretcher).
* 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. Ensure EMS personnel, the patient, and any other occupants use available restraint systems.
4. Transport adults and children who are not patients, properly restrained, in an alternate passenger vehicle, whenever possible.
5. Do not allow parents, caregivers, or other passengers to be unrestrained during transport.
6. Do not have the child/infant held in the parent's, caregiver's, or EMS personnel's arms or lap during transport.

Standards Policy

TRANSPORT

Policy:

All individuals served by the EMS system will be evaluated, furnished transportation (if indicated) in the most timely and appropriate manner for each individual situation.

Purpose:

To provide:

* Rapid emergency EMS transport when needed.
* Appropriate medical stabilization and treatment at the scene when necessary.
* Protection of patients, EMS personnel, and citizens from undue risk when possible.

Procedure:

1. All trauma patients with mechanisms or history for multiple system trauma will be transported as soon as possible (exception would be if the patient refuses transport, refer to the “No Transport” protocol, page 161). Justification for scene times greater than 20 minutes should be documented.
2. Medical patients will be transported in the most efficient manner possible considering the medical condition. Advanced life support therapy should be provided at the scene if it would positively impact patient care. Justification for scene times greater than 20 minutes should be documented.
3. No patients will be transported in initial response non-transport vehicles (i.e. QRV).
4. In unusual circumstances, transport in other vehicles may be appropriate and will be directed by EMS personnel.

Standards Policy

MEDICAL ERRORS

Policy:

As humans we all make mistakes, but as healthcare professionals when a medical error is identified it is not something we can simply ignore. The most common errors in health care are medication administration errors (usually related to the wrong medication being given, the wrong route the medication is delivered, or the wrong dosage being administered).

Purpose:

* To prevent medication errors
* To state the procedure should a medication error occur

Procedure:

1. Prior to drug administration every prehospital professional should confirm the correct medication, the route, and the dose as well as expiration date. Recommend that this "checklist" be done at least twice before any medication is delivered.
2. Critically important is when a medical error occurs prehospital, the information is shared immediately with both the primary nurse as well as the attending physician who are taking care of that patient. Only by doing so, can it be assured that the error that occurred does not have further impact on the patient and result in secondary injury. Also immediately notify your supervisor (ie.—captain, first lieutenant, etc.)
3. Also critically important from a system standpoint, the medical error be shared with quality management. Call the Medical Director's office at (252) 744-2154. Only by notifying all of these key individuals can we be assured that medical errors are properly addressed and taken care of both in the immediate term, as well as long term to improve the system.

Standards for EMS Procedures

PATIENT CARE PROCEDURES (SKILLS)

Version: **Pitt County 2006**

Standards for EMS Procedures

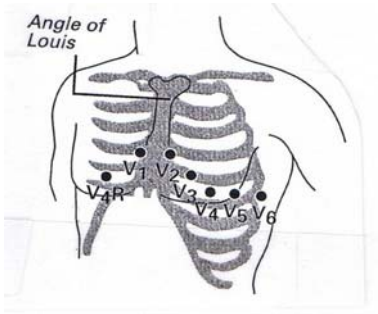
PATIENT CARE PROCEDURES (SKILLS)

Version: **Pitt County 2006**

Standards Procedure (Skill)

12-LEAD ECG

EMT-Paramedics
EMT-B and EMT-I: acquire and transmit only



Clinical Indications:

* Suspected cardiac patient
* Suspected tricyclic overdose
* Electrical injuries
* Syncope
* Diabetics

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.
4. Prepare ECG monitor and connect patient cable with electrodes.
5. Expose chest and prep as necessary. Modesty of the patient should be respected.
6. Apply chest leads and extremity leads using the following landmarks:
   * RA -Right arm (inside aspect of patient's right wrist)
   * LA -Left arm (inside aspect of patient's left wrist)
   * RL -Right leg (inner aspect of the right ankle)
   * LL -Left leg (inner aspect of the left ankle)
   * 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

   NOTE: Limb lead placement (as noted above) is important for accurate diagnosis and location of ischemia and myocardial infarction. In the event a wrist(s) or ankle(s) would not be accessible (i.e. injury, amputation, muscle tremor/movements), position the electrode(s) as close to the appropriate limb as possible.
7. Instruct patient to remain still.
8. Press the appropriate button to acquire 12-Lead ECG.
9. If the monitor detects signal noise (patient motion or disconnected electrode), the 12-Lead acquisition may be interrupted until the noise is removed (depends on monitor model).
10. Once acquired, contact the receiving hospital if ST-elevation is noted. **For STEMI: Request the telecommunicator announce: "Attention charge nurse and attending, EMS unit XXXX possible STEMI, ETA XX minutes."** Transmit the ECG and data information to the appropriate receiving hospital, if possible.
11. Contact the receiving hospital to notify them the ECG was sent (if applicable).
12. Monitor the patient while continuing with the treatment protocol.
13. Document the procedure, time, and results on/with the patient report
14. Attach a copy of the 12-Lead ECG with the patient report. Be sure the patient's name, age and gender are written on the ECG.

Local Requirements:

* **C**omplete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

AIRWAY CHANGE-TRACHEOSTOMY TUBE

EMT-Paramedics

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. Don appropriate protective gloves, mask and eye protection.
2. Have all airway equipment prepared for standard airway management, including equipment of orotracheal intubation and failed airway.
3. 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).
4. Lubricate the replacement tube(s) and check the cuff.
5. Remove the tracheostomy tube from mechanical ventilation devices and use a bag-valve-apparatus to pre-oxygenate the patient as much as possible.
6. Once all equipment is in place, remove devices securing the tracheostomy tube, including sutures and/or supporting bandages.
7. 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.
8. Remove the tracheostomy tube.
9. Insert the replacement tube. Confirm placement via standard measures except for esophageal detection (which is ineffective for surgical airways).
10. If there is any difficulty placing the tube, re-attempt procedure with the smaller tube.
11. If difficulty is still encountered, use standard airway procedures such as oral BVM 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. **Great caution should be exercised in attempts to change immature tracheotomy sites.**
12. Document procedure, confirmation, patient response, and any complications on the patient report.

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

AIRWAY-COMBITUBE®

EMT, I and Paramedics

Clinical Indications:

* Pulseless and nonbreathing patient when endotracheal intubation is not possible or not available

Contraindications:

* Patient ≤ 5 feet and ≤ 16 years old
* Patient who is responsive with a intact gag reflex
* Patients with known esophageal disease
* Patients who have ingested caustic substances

Procedure:

1. Don appropriate protective gloves, mask and eye protection (gown if applicable).
2. Preoxygenate and hyperventilate the patient for approximately 3-5 mins.
3. Lubricate the tube with a water-soluble lubricant.
4. Patient's head should be in a neutral position. Grasp the patient's tongue and jaw with your gloved hand and pull forward.
5. Gently insert the tube through the mouth along the natural curve of the pharynx and until the teeth are between the printed black rings on the tube.
6. Inflate blue port balloon leading to the pharyngeal cuff with 100 cc of air.
7. Inflate white port balloon leading to the distal cuff with 15 cc of air.
8. Ventilate the patient using a bag-valve-device through the blue port tube first. Auscultate for breath sounds and sounds over the epigastrium. Look for the chest to rise and fall.
9. If breath sounds are positive and epigastric sounds are negative, continue ventilation through the blue port tube. The tube is in the esophagus. In the esophageal mode, stomach contents can be aspirated through the #2, white port tube relieving gastric distention.
10. If breath sounds are negative and epigastric sounds are positive, attempt ventilation through the shorter, #2 white port tube and reassess for lung and epigastric sounds. If breath sounds are present and the chest rises, you have intubated the trachea and continue ventilation through the shorter tube.
11. **Confirm tube placement using capnography.** (ETCO2 detector device for indicating tube placement by color change should only be used if capnography is not available.)

    Should patient regain consciousness or develop a gag reflex, remove tube as soon as possible. Have suction ready, deflate the balloons and quickly withdraw the airway device. Be prepared for vomiting after removal.

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique, and possible complications of the procedure.

Standards Procedure (Skill)

AIRWAY INTUBATION CONFIRMATION—End-Tidal CO2 Detector

EMT, I and Paramedics

Clinical Indications:

* The End-Tidal CO2 detector shall **ONLY** be used with endotracheal, nasotracheal or Combitube® airways if capnography is not available.

Procedure:

1. Don appropriate protective gloves, mask and eye protection (if not already applied).
2. Attach End-Tidal CO2 detector to endotracheal, nasotracheal or Combitube® airway. If the End-tidal CO2 detection device is contaminated with either vomit or secretions, dispose of it and use a new detection device.
3. Note color change. **At least six breaths are needed to confirm color change.** The color of the indicator changes with elevated carbon dioxide concentrations, such as would be expected in tracheal but not the esophageal environment. Color change indicates tracheal placement; no color change suggests esophageal intubation.
4. The End-tidal CO2 detector device shall remain in place with the airway and monitored throughout the prehospital care and transport. Any loss of CO2 detection or color change on each respiratory failure or cardiac arrest patient is to be documented and monitored as procedures are done to verify or correct the airway problem.
5. Tube placement should be reassessed frequently and always with each patient move or color loss on the CO2 detector.
6. Remember to document the procedure and the results on the patient report.

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

AIRWAY INTUBATION CONFIRMATION—Esophageal Bulb

EMT-I and Paramedic

Clinical Indications:

* To assist in determining and documenting the correct placement of an endotracheal or nasotracheal tube.

Procedure:

1. Don appropriate protective gloves, mask and eye protection (if not already applied).
2. Complete intubation as per Airway Intubation-Oral or Airway Intubation– Nasal protocols.
3. Squeeze the bulb to remove air prior to securing the bulb on the tube. Place the bulb Device over the proximal end of the ETT or NTT.
4. Once secured on the tube, release the bulb.
5. If the bulb expands evenly and easily (< 10 seconds), this indicates probable tracheal intubation.
   Assessment of the patient's breath sounds bilaterally shall also be performed.
6. If the bulb does not expand easily, this indicates possible esophageal intubation and the need to reassess the airway.
7. Remember to document the time and result of this procedure on the patient report.
8. **Important note:** This device **is not** recommended in children under one (1) year of age.

Local Requirements:

* Those EMS providers utilizing this device shall annually review the indications, contraindications, technique and possible complications of this procedure.

Standards Procedure (Skill)

AIRWAY—Laryngeal Mask Airway (LMA)

E**MT, EMT-I and Paramedic**

Clinical Indications:

* Inability to secure an endotracheal tube in a patient who does not have a gag reflex where at least one failed intubation attempt has occurred.
* Appropriate intubation is impossible due to patient access or difficult airway anatomy.
* **This airway does not prevent aspiration of stomach contents.**

Clinical Contraindications:

* Pulmonary Fibrosis
* Morbid Obesity
* Massive maxillofacial trauma

Procedure:

1. Don appropriate protective gloves, mask and eye protection.
2. Check the tube for proper inflation and deflation.
3. Lubricate with a water-soluble jelly.
4. Pre-oxygenate the patient with 100% oxygen.
5. Insert the LMA into the hypopharynx until resistance is met.
6. Inflate the cuff until a seal is obtained.
7. Connect the LMA to an ambu bag and assess for breath sounds, air entry, and ETCO2.
8. Monitor oxygen saturation with pulse oximetry and heart rhythm with ECG.
9. Re-verify LMA placement after every move and upon arrival in the emergency department.
10. Document the procedure, time, and result (success/unsuccess) on the patient care report (PCR).

Local Requirements:

Not applicable to Pitt County EMS Protocols.

Standards Procedure (Skill)

AIRWAY—Nasotracheal Intubation

Paramedic

Clinical Indications:

* Patient needing intubated, but has spontaneous respirations (e.g. OD; CHF; asthma).

Contraindications:

* Infants and small children (under 12 years of age)
* Apnea
* Foreign body airway obstruction
* Severe facial injuries; basilar skull fracture
* Bleeding disorders

Procedure:

1. Don appropriate protective gloves, mask and eye protection (a gown if applicable).
2. Select ETT (usually: 7.0 mm females; 7.5 mm males).
   Check cuff; lubricate tube with 2% Lidocaine jelly (or water-soluble lubricant); insert distal end of ETT into adapter (proximal end) to form a circle.
   Note: May premedicate patient with nasal spray in place of 2% Lidocaine jelly, but use a water-soluble lubricant on the tube for easier insertion.
3. Have suction on hand.
4. Release "circle", do not straighten tip of tube. Gently insert tube into the left or right nostril (keep tube bevel towards septum) until tip is in nasopharynx.
5. Continue inserting, listening for breath sounds and looking for vapor condensation on the tube.
6. As tube approaches larynx, louder breath sounds will be heard. During inspiration, gently and evenly push tube into larynx.
7. Adapter of ETT usually rests close to the nasal opening.
8. **Precaution**: gag reflex may be stimulated, making patient cough and buck. Prepare for cervical-spine control and possible vomiting.
9. Auscultate for bilateral equal breath sounds and absent sounds in the epigastrium. Observe for symmetrical chest expansion.
10. If esophagus intubated, patient may moan. Withdraw the tube until the tip is in the pharynx and try again. Push tube down during patient inspiratory efforts. Do Not "jab" tube through vocal cords!!
11. If difficulty is encountered in obtaining placement, sometimes a minimal 5-10 degree rotation of the adapter (proximal end) may facilitate placement.
12. Inflate the cuff with 10 cc of air.
13. Confirm tube placement using capnography. (End-tidal CO_2 detector monitoring or esophageal bulb device only if capnography is not available.)
14. Secure the tube.
15. Remember to document the time and result of this procedure on the patient report.

Complications:

* Bleeding from the nostril; nasal septum tears
* Cranial perforation (basilar skull fx); injury to the pyriform sinus; epiglottis; vocal cords
* Infection; subglottic stenosis
* Unrecognized foreign body maybe pushed down into the trachea, bronchus or lungs

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

AIRWAY—Nebulizer Inhalation Therapy

EMT, EMT-I and Paramedic

Clinical Indications:

* Patients experiencing bronchospasm (e.g. asthma; COPD)

Contraindications:

* Acute pulmonary edema. **Not all wheezes are asthma or COPD.**

Procedure:

1. Don appropriate protective gloves, mask and eye protection.
2. Assemble the nebulizer equipment.
3. Place the premixed Albuterol into the reservoir well of the nebulizer.
4. Connect the nebulizer device to oxygen at 6—8 lpm or adequate flow to produce a steady, visible mist.
5. Instruct the patient to inhale breaths deeply and slowly through the mouthpiece of the nebulizer. The patient needs to have a good lip seal around the mouthpiece.
6. The treatment should last until the medication solution is depleted in the reservoir well. Tapping the reservoir well near the end of the treatment will assist in utilizing all of the medication solution.
7. Monitor the patient for medication effects. This process should include assessing the patient's response to the treatment and reassessment of breath sounds, vital signs and ECG.
8. If utilizing a "peak flow meter", assess and document peak flows before and after nebulizer treatments.
9. Remember to document the treatment, time, dose, and result on the patient report.
10. **Note**: Use nebulization facemasks (or a non-rebreather mask with the oxygen bag removed and the nebulizer reservoir well attached where the oxygen bag was removed) for pediatric or adult patients who cannot hold the nebulizer. For patients with a poor tidal and/or respiratory rate who cannot pull the medication into their lungs, consider connecting the nebulizer to a BVM or endotracheal tube.

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

AIRWAY—Needle Cricothyrotomy

Paramedic

Clinical Indications:

* Inability to secure the airway by other noninvasive procedures. Oropharyngeal obstruction: foreign bodies, epiglottitis, edema (allergic reactions or inhalation injury).

Contraindications:

* Acute laryngeal disorders (e.g. laryngeal fx; injury or obstruction below the cricothyroid membrane).

Procedures:

1. Don appropriate protective gloves, mask and eye protection (a gown if applicable).
2. Palpate the thyroid cartilage, cricothyroid membrane and suprasternal notch.
3. Prep skin with povidone-iodine swabs and/or alcohol swabs.
4. Puncture the skin over the cricothyroid membrane with a 14 or 16 gauge, 2 1/4" catheter needle that has a 5–10 cc syringe attached.
5. Advance the needle at a 45 degree angle towards the feet.
6. Carefully push the needle until it "pops" into the trachea.
7. Aspirate for air with the syringe. If air returns easily, the catheter is in the trachea. If blood returns or you feel resistance to return, reevaluate needle placement.
8. Hold the needle steady and advance the catheter (only until it rests against the skin).
9. Securely hold catheter and remove needle.
10. Reconfirm placement by again withdrawing air from the catheter with the syringe. Stablize/secure catheter with tape to skin.
11. Check for adequacy of ventilations. Look for chest rise with each ventilation and listen for bilateral breath sounds in the chest.
12. Attach a 3-way stopcock to catheter hub and one end of the oxygen supply tubing to the stopcock. Keep the oxygen flow open to the patient.
13. Connect Y-connector to the other end of the oxygen supply tubing. Attach the second oxygen supply tubing to the other Y-connector port, which already has been connected to the oxygen cylinder flowmeter.
14. With oxygen flowmeter at maximum rate, alternate occluding and releasing pressure with your thumb on the open port of Y-connector, to ventilate patient at a ratio of 1:4.
15. Constantly monitor breath sounds, color and ventilation status. Caution: adequate exhalation never fully occurs.
16. Notify the hospital at the earliest possible time of a surgical airway emergency.
17. Remember to document time, procedure, confirmation, change in patient condition on the patient report.

Complications:

* Pneumothorax, subcutaneous emphysema, catheter dislodgement, hemorrhage, hypercarbia, esophageal or mediastinal injury.

Optional:

* Usage of a 3.5 mm ETT adapter will fit the hub of the catheter and a BVM (with oxygen source), so ventilation can be performed. Caution: ensure adequate exhalation of air.
* Tubings and connectors maybe prepared ahead of time and stored.

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards of Procedure (Skill)

AIRWAY OROTRACHEAL INTUBATION

EMT-I and Paramedic

Clinical Indications:

* Unconscious patient without a gag reflex who is apneic.
* Patient demonstrating inadequate respiratory effort.
* Any patient medicated for RSI (not performed in Pitt County).

Procedure:

1. Don appropriate protective gloves, mask and eye protection (a gown if applicable).
2. Assure adequate oxygenation by bag-mask ventilation. The patient needs to be hyperoxygenated in order to tolerate the 20-40 seconds without ventilation that occurs during insertion of the endotracheal tube.
3. Assemble and check equipment: Suction, laryngoscope (check light), ETT (check balloon), syringe, lubricant, stylet (if preferred), and tape (or approved tube holder).
4. Have assistant administer ten full, rapid ventilations with 100% oxygen immediately prior to mask removal.
5. **Paramedic** may consider contacting Medical Direction for the use of Midazolam hydrochloride 1mg SIVP to facilitate intubation.
6. Position patient: flex the neck forward and head backward. If this is a trauma victim, an assistant MUST maintain continuous axial stabilization of the head during the entire procedure (two-person intubation technique).
7. Laryngoscope in left hand, insert along right side of mouth and bring the blade to the midline, pushing the tongue aside.
8. Advance the blade (curved-above the epiglottis, straight-below the epiglottis) and push up and away on the handle until the vocal cords come into view. Suction as needed. You should not touch the upper teeth with the blade if proper technique is used.
9. With the ETT in your right hand, insert it along the right side toward the vocal cords. Under direct vision, insert the tube between the vocal cords so that the tip is about three inches beyond the cords.
10. Remove the laryngoscope. While holding the ETT in place, ventilate.
11. Do a 3-point check (minimum): listen to the right lung, left lung and abdomen for ventilation sounds. If the abdomen is louder than either lung, immediately remove the ETT and ventilate with a BVM. Attempt procedure again if time permits. If one lung seems louder than the other, the ETT may have entered a bronchus. Gently pull back on the tube until sounds are equal.
12. Inflate cuff (unless patient is under 8 years old) with 10ml of air, and secure with tape.
13. Reassess for tube placement again by using capnography (use End-tidal CO2 detector device or esophageal bulb if capnography is unavailable). Reassess for tube placement after every patient transfer.
14. Remember to document time, procedure, breath sounds and result on the patient report. All reassessments of breath sounds and tube placement need to be documented as well.

TIPS:

1. Hold your own breath while patient is not being ventilated. If procedure is difficult, you will feel the urge to breathe, indicating the need to ventilate your patient.
2. Most adults can be intubated with a 7.5 mm ETT. Large men may require an 8.0 - 9.0 mm tube to obtain an adequate seal.
3. Use of a C-collar has been shown to decrease the movement of the ETT following placement.
4. Provide the patient with six ventilations prior to confirming good color change on the end-tidal CO2 device.

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

AIRWAY RESPIRATOR OPERATION

EMT, EMT-I, and Paramedic

Clinical Indications:

* Transport of an intubated patient.

Procedure:

1. Don appropriate protective gloves, mask and eye protection.
2. Confirm the placement of tube as per airway protocol.
3. Ensure adequate oxygen delivery to the respirator device.
4. Preoxygenate the patient as much as possible with BVM.
5. Remove BVM and attach tube to respiration device.
6. Per instructions of device, set initial respiration values (e.g., set an inspiratory: expiratory ratio of 1:4 {for every one second of inspiration, allow four seconds of expiration} with a rate of 12 to 20).
7. Assess breath sounds. Allow for adequate expiratory time. Adjust respirator setting as clinically indicated.
8. If any worsening of patient condition, decrease in oxygen saturation, or any question regarding the function of the respirator, remove the respirator and resume BVM ventilations. Consider suctioning the patient.
9. Remember to document time, complications and patient response on the patient report.

Local Requirements:

* Those EMS providers utilizing an airway respirator operation device shall annually review the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

AIRWAY—Rapid Sequence Induction

Not applicable to Pitt County EMS Protocols.

Paramedic

Clinical Indications:

* Patient's clinical condition requires emergency intubation, but to awake or combative to tolerate the procedure.
* Head-injured patient with GCS 8 or less.
* Maxillofacial trauma (burns or fractures with airway compromise.
* Patients with decreased LOC.
* Patients with hypoxia refractory to oxygen.

Clinical Contraindications:

* Potential inability to ventilate the patient with BVM ventilation; anticipated difficulty intubation.
* Severe maxillofacial trauma; tracheo-bronchial injury.
* Bleeding from the upper airway; active vomiting
* Known hypersensitivity to the paralytic or other drugs employed

Complications:

* Inability to accomplish actual endotracheal intubation after patient is paralyzed—requires continued ventilation and the risk of pulmonary aspiration is high.
* Increased intraoccular pressure; increased intracranial pressure; hypotension; bradycardia
* Increase intragastric pressure (emesis); malignant hyperthermia

Factors to consider before using paralytic: (muscle relaxant)

* Examine airway for feasibility of intubation (easy or difficult).
* Ability of bag-valve-mask ventilation (if intubation unsuccessful).
* Suspect difficult intubation, consider alternate intubation method.

Anatomical features that would predict tracheal intubaton difficulty:

* Short or muscular neck; C-spine precautions
* Receding mandible; prominent upper incisors; narrow mouth width; large tongue; tracheal deviation
* Hx of foreign body obstruction, heavy secretions or bleeding; trauma and burns to the airway

Procedure:

Time (mins/secs)	Procedure/drug/dose	Comments
-3 mins 00 secs	Prepare equipment	
-2 mins 30 secs	Preoxygenate	
-2 mins 15 secs	Administer Lidocaine 1.5 mg/kg (100 mg)	Decreases vagal response
-2 mins 00 secs	Administer Vecuronium 0.01 mg/kg (1 mg)	Prefasiculation dose
-1 min 00 secs	Administer Etomidate 0.15 mg/kg (10 mg)	Given instead of high dose Versed, decrease ICP, hypnotic with no adverse profile
-0 min 50 secs	Begin Sellick maneuver	Decreases aspiration/increased success
-0 min 45 secs	Succinylcholine 1.5 mg/kg (100 mg)	
-0 min 00 secs	Intubate	
+0 min 30 secs	Assess tube placement/End-tidal CO2/Capnography	
+0 min 45 secs	Discontinue Sellick maneuver after confirmed endotracheal intubation	
+1 min 00 secs	Administered long term paralysis/analgesia/sedation Vercuronium 0.1 mg/kg, MS 2-6 mg, Versed (low dose 1-2 mg) Secure ETT and monitor patient	

Local Requirements:

* A annual review during the ALS continuing education Medical Director's class.

AIRWAY, RSI

Contact Medical Direction

1. Obtain a brief history and perform an assessment
2. Assess indications and contraindications for RSI
3. Determine adequacy of patient's respirations
4. Assess for signs of difficult intubation
5. Place on monitor and pulse oximeter

TIME (mins/secs)	Procedure/drug/dose	Comments
-3 mins 00 secs	Prepare equipment	
-2 mins 30 secs	Preoxygenate	
-2 mins 15 secs	Lidocaine 1.5 mg/kg (100 mg)	Decreases vagal response
-2 mins 00 secs	Vecuronium 0.01 mg/kg (1 mg)	Prefasiculation dose
-1 min 00 secs	Etomidate 0.15 mg/kg (10 mg)	Given instead of high dose Versed, decrease ICP, hypnotic with no adverse profile
-0 min 50 secs	Begin Sellick maneuver	Decreases aspiration/increased success
-0 min 45 secs	Succinylcholine 1.5 mg/kg (100 mg)	
-0 min 00 secs	Intubate	
+0 min 30 secs	Assess tube placement/End-tidal CO2/ Capnography	
+0 min 45 secs	Discontinue Sellick maneuver after confirmed endotracheal intubation	
+1 min 00 secs	Administered long term paralysis/ analgesia/sedation Vercuronium 0.1 mg/kg, MS 2-6 mg, Versed (low dose 1-2 mg)	
	Secure ETT and monitor patient	

IMPORTANT: **RSI IS NOT APPICABLE TO PITT COUNTY EMS PROTOCOLS!**
Once a patient has been given a paralytic drug, YOU ARE RESPONSIBLE FOR VENTILATIONS!!

Standards Procedure (Skill)

AIRWAY SUCTIONING—Advanced

EMT-I and Paramedic

Clinical Indications:

* Obstruction of the airway (secondary to secretions, blood or any other substance) in a patient currently being assisted by an airway adjunct (e.g., nasotracheal tube, endotracheal tube, Combitube, tracheostomy tube or a cricothyrotomy tube.

Clinical Complications:

* hypoxia; cardiac arrhythmias; hypotension
* pulmonic collapse; direct mucosal injury
* possible ICP increase during endotracheal suctioning
* mechanical obstructions from tumors, vascular malformations

Procedure:

1. Don appropriate protective gloves, mask and eye protection (a gown if applicable).
2. Ensure the suction device is in proper working order.
3. Preoxygenate the patient if possible to avoid transient desaturation.
4. Suctioning the nasopharynx and tracheobronchial tree, use a well lubricated (water-soluble lubricant), soft, curved-tip catheter. Straight catheters will usually pass into the right mainstem bronchus.
5. Curved-tip catheter, turning head (non-trauma, trauma patient would require C-spine stabilization) to the right in addition to catheter rotation will facilitate passage into the left bronchus.
6. Select suction catheter of a size no larger than half the diameter of the tube to be suctioned (this will help prevent pulmonic collapse from insufficient ventilation during suctioning).
7. Insert suction catheter without suctioning.
8. Suction while withdrawing the catheter (suctioning with rotation $\leq$ 10 seconds).
9. If suctioning out extremely viscuous or thick secretions, which can obstruct fluid flow through the tubing, suction (flush) water through the tubing between suctioning attempts. This procedure will dilute the secretions and facilitate flow to the suction canister.
10. Oxygenate the patient to avoid transient desaturation.
11. Reassess. Repeat process if suctioning is still necessary to clear airway.
12. Remember to document time, complications and patient response to procedure on the patient report

Neonatal Situation:

* An infant born through thick, “pea-soup” meconium-stained fluid.
* Intubate immediately, prior to first ventilation.
* Apply suction with a meconium aspirator attached to an endotracheal tube.
* Connect to suction at 100 cm/H2O or less to remove meconium from the airway.
* Withdraw endotracheal tube as suction is applied (suction no longer than 10 seconds).
* Repeat intubation with a new endotracheal tube and suction until meconium clears, usually not exceeding two times.
* Once airway is clear, infant should be able to breath, ventilate with 100% oxygen.
* Remember to document time, complications and patient response to procedure on the patient report.

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

AIRWAY SUCTIONING—Basic

EMT, EMT-I, and Paramedic

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.

Clinical Complications:

* Hypoxia (brought on by lengthy suctioning attempts)
* Cardiac dysrhythmias (due to decreases in myocardial oxygen supply)
* Stimulation of the vagus nerve, causing hypertension and tachycardia or hypotension and bradycardia.
* Stimulation of the airway's mucosa thus starting the patient coughing. This can increase ICP and reduce cerebral blood flow.

Procedure:

1. Don appropriate protective gloves, mask and eye protection (a gown if applicable).
2. Ensure suction device is in proper working order.
3. While maintaining ventilatory support, attempt to hyperventilate the patient.
4. Determine the depth of catheter insertion by measuring from the patient's earlobe to his/her lips.
5. Insert the catheter into the patient's pharynx to the predetermined depth (without suctioning).
6. Begin suctioning while withdrawing, limiting suction to ten seconds.
7. When using a whistle tip catheter, rotate it between your fingertips when suctioning.
8. While maintaining ventilatory support, hyperventilate the patient with 100% oxygen.
9. If suctioning out extremely viscous or thick secretions, which can obstruct fluid flow through the tubing, suction (flush) water through the tubing between suctioning attempts. This procedure will dilute the secretions and facilitate flow to the suction canister.
10. NOTE: The "Yankauer tip" or "tonsil tip" suction catheter is rigid and provides a larger tip and multiple holes at the distal end to help facilitate suctioning larger particles and greater quantities of secretions. However, it can only be used to suction the upper airway and cause lacerations and other injuries with vigorous insertion.
11. Remember to document time, complications and patient response to the procedure on the patient report.

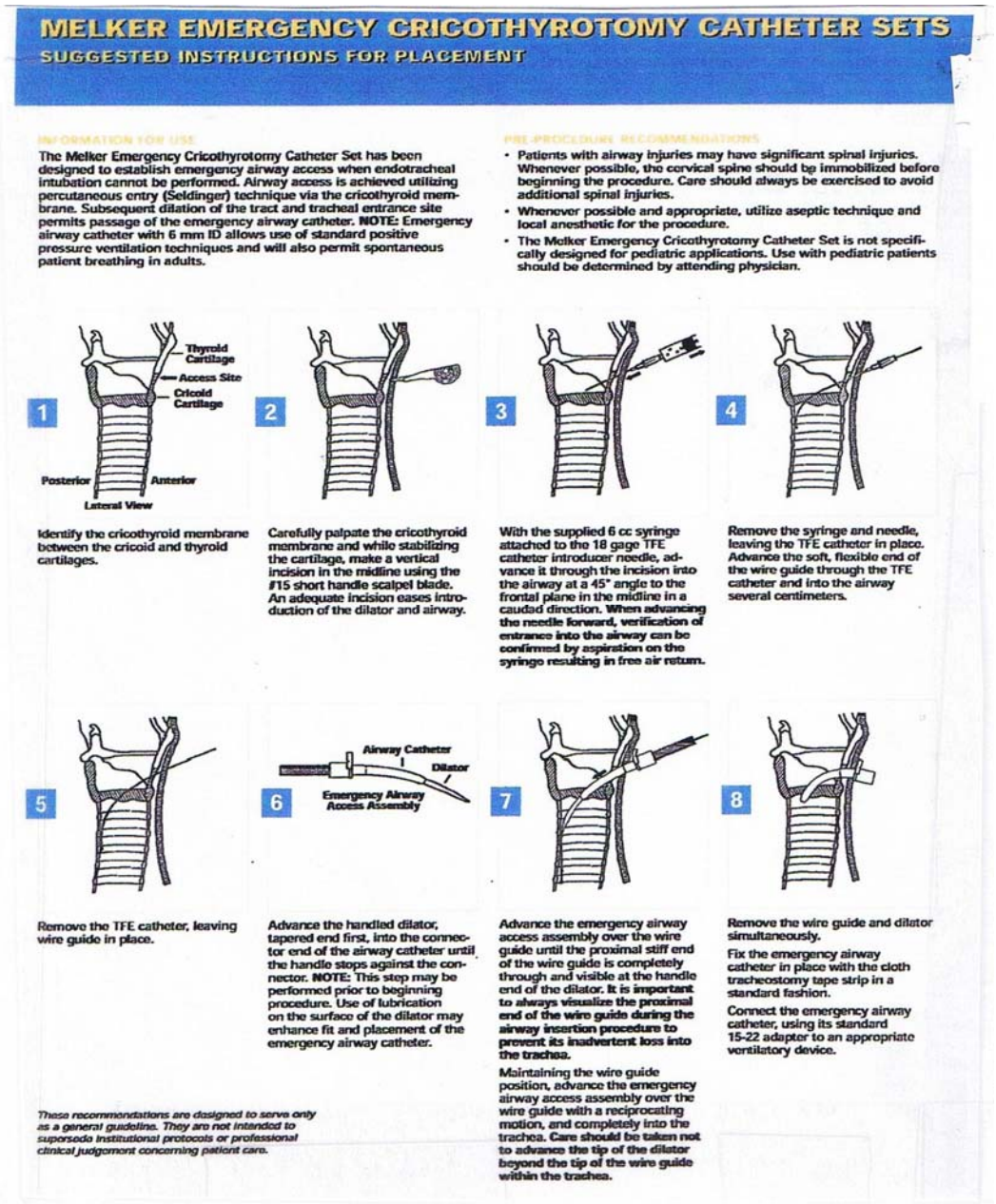
Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

AIRWAY SURGICAL CRICOTHYROTOMY

Paramedic **Don appropriate protective gloves, mask and eye protection (a gown if possible).**



Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Version: **Pitt County 2006**

Standards Procedure (Skill)

AIRWAY—Ventilator Operation

Paramedic

Not applicable to Pitt County EMS Protocols.

Standards Procedure (Skill)

AIRWAY—Ventilator PEEP/CPAP

Paramedic

Clinical Indications:

* Adult Respiratory Distress Syndrome (ARDS), Severe Pulmonary Edema

Contraindications:

*COPD

Symptoms and signs of Acute Respiratory Failure (ARDS):

* Dyspnea; air hunger; agitation; confusion; disorientation; panic; obtundation; cyanosis
* Tachypnea; use of accessory muscles of respiration

Conditions associated with Acute Respiratory Failure and Adult Respiratory Distress Syndrome (ARDS):

* Infections: pneumonia, sepsis
* Toxins: transfusion reactions, oleic acid preparations, paraquat, ozone, smoke
* Embolism: fat, amniotic fluid, air
* Immunologic reactions: hypersensitivity pneumonitis
* Shock
* Miscellaneous: aspiration, high altitude pulmonary edema, pancreatitis
* Direct pulmonary contusion; near drowning

"Shunting"

* Ventilation/perfusion mismatching because of alveolar collapse or alveolar edema, or altered diffusion capacity (from gravity, altered pulmonary compliance).
* Areas ventilated but not perfused: Dead space
* Areas perfused but not ventilated: Shunt space
* Even with 100% oxygen, if the area of shunt is great enough, hypoxia may not be reversible, if the alveoli cannot be opened or if they are filled with fluid.

PEEP: Positive end expiratory pressure added to mechanical ventilation.
CPAP: Continuous positive airway pressure applied to spontaneous ventilation.
PEEP: Increases oxygenation and functional residual capacity (FRC).

Clinical Complications (Precautions):

* Decreases cardiac output.
* Decreased ventricular preload, compression of ventricles, increased pulmonary resistance leading to right ventricular dysfunction, direct impingement of the left ventricle by displaced septum.
* Barotrauma; pneumothorax, pneumomediastinum, subcutaneous emphysema.

GUIDELINES:

Don appropriate protective gloves, mask and eye protection.

Is the patient in respiratory distress?

Yes — No

Are there signs of CHF/pulmonary edema?

Yes — No (NO PEEP/CPAP)

Is the patient improving with 100% oxygen; BVM or endotracheal intubation?

Yes (NO NEED FOR PEEP/CPAP) — No

Continue treatment and **Transport.** Contact Medical Direction

Institute PEEP at 5-10 cm/ water or CPAP at 2.5-5 cm/ water **(Hx of Asthma, emphysema, COPD or other chronic lung disease, institute PEEP or CPAP ONLY after consulting Medical Direction)**

Local Requirements: Complete an annual review of the indications, contraindications, technique and possible complications of the procedure.
Version: **Pitt County 2006**

Standards Procedure (Skill)

ARTERIAL ACCESS—BLOOD DRAW

Paramedic

Not applicable to Pitt County EMS Protocols.

Standards Procedure (Skill)

ARTERIAL LINE MAINTENANCE

Paramedic

Not applicable to Pitt County EMS Protocols.

Standards Procedure (Skill)

ASSESSMENT ADULT

EMT, EMT-I and Paramedic

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 don appropriate protective gloves, mask, eye protection and a gown if applicable, scene safety, environmental hazards assessment, need for additional resources, by-stander safety, and patient/caregiver interaction.
2. Assess need for additional resources.
3. Initial assessment includes a general impression as well as the status of a patient's airway, breathing, circulation.
4. Assess mental status (e.g., AVPU) and disability (e.g., GCS).
5. Establish spinal immobilization if there is a suspicion of spinal injury.
6. Control major hemorrhage and assess overall priority of patient.
7. Perform a focused history and physical exam based on the patient's chief complaint. Obtain an AMPLE history.
8. Assess need for critical interventions. On trauma victims consider exposing the patient while maintaining normothermia, heating the back of the EMS unit to 80 degrees.
9. Complete critical interventions and perform a complete focused exam, to include a baseline set of vital signs as directed by protocol.
10. 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.

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and the possible complications of the procedure.

Standards Procedure (Skill)

ASSESSMENT PEDIATRIC

EMT, EMT-I, and Paramedic

Clinical Indications:

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

Procedure:

1. Scene size-up, including don appropriate protective gloves, mask, eye protection and a gown if applicable, scene safety, environmental hazards assessment, need for additional resources, by-stander safety, and patient/caregiver interaction.
2. Establish responsiveness appropriate for age (AVPU, GCS, etc.)
3. Assess patient using the pediatric triangle of ABC's.
   A: **Airway and appearance:** speech/cry, muscle tone, inter-activeness, look/gaze, movement of flaring, body positioning.
   B: **Work of breathing:** absent or abnormal airway sounds, use of accessory muscles, nasal flaring, body positioning.
   C: **Circulation to skin:** pallor, mottling, cyanosis
4. Establish spinal immobilization if suspicion of spinal injury.
5. Color code using Broselow-Luten tape (consider use of the Pediatric color code drug list, Appendix P, page 186, may be used if the Broselow-Luten tape is not available).
6. Assess disability (pulse, motor function, sensory function, papillary reaction).
7. Perform a focused history and physical exam. Remember that pediatric patients easily experience hypothermia and thus should not be left uncovered any longer than necessary to perform an exam.
8. Record vital signs (BP > 3 years of age, capillary refill < 3 years of age).
9. Include allergies, medications, past medical history, last meal and events leading up to injury or illness where appropriate (immunizations if applicable).
10. Treat chief complaint per protocol.
11. Maintain an on-going assessment throughout transport, include patient response or possible complications of interventions on the patient report.

Local Requirements:

* Complete an annual review of the indications, contraindications, technique, and possible complications of the procedure.

Standards Procedure (Skill)

BLOOD GLUCOSE ANALYSIS

EMT, EMT-I, and Paramedic

Clinical Indications:

* Patients with suspected hypoglycemia or hyperglycemia (diabetic emergencies, change in mental status, bizarre behavior, CODE situation, etc.)

Procedure:

1. Gather and prepare equipment, including the don of appropriate protective gloves, Mask and eye protection (a gown if applicable).
2. Blood samples for performing glucose analysis should be obtained simultaneously with IV access.
3. Place correct amount of blood on reagent strip or site on glucose meter per the manufacturer's instructions.
4. Time or await the analysis as instructed by the manufacturer.
5. Document the glucose meter reading and time. Treat the patient as indicated by the analysis and protocol.
6. Repeat glucose analysis as indicated for reassessment after treatment and as per protocol.

Local Requirements:

* EMS providers shall review and maintain current updates on glucose meter equipment carried on their EMS units per manufacturer recommendations. **CLIA requires following "manufacturers recommendations."**

TIPS:

1. Remember when using the patient's fingers for glucose testing, the fingers need to be warm, not cold.
2. Be sure to cleanse the "finger stick" area well prior to obtaining your glucose sample. Any sugar/glucose residue on the sample site can alter your test results, thus preventing a possible hypoglycemic patient from receiving appropriate patient care.

Standards Procedure (Skill)

CAPNOGRAPHY

EMT-I and Paramedic

Clinical Indications:

* Continuous capnography shall be used when available with all endotracheal, nasotracheal or Combitube® airways.
* Consider attaching capnography sensor to all CHF and COPD non-intubated patients that present with oxygen saturations that fall below 95% (severe respiratory distress). If capnography is not on the EMS unit, document "capnography not available" on the ambulance call report.
* A capnography mask is approved for patient use.

Procedure:

1. Don appropriate protective gloves, mask and eye protection if applicable.
2. Attach capnography sensor to the endotracheal or nasotracheal tube or the Combitube®.
3. Note CO2 level and waveform changes. These will be documented on each respiratory failure or cardiac arrest patient.
4. The capnometer shall remain in place with the airway and be monitored throughout the prehospital care and transport. Remember, normal ranges are: Arterial Pa CO2 = 38-45mmHg; Capnography EtCO2 = 35-45mmHg.
5. Any loss of CO2 detection or waveform indicates a possible airway problem and should be documented.
6. The capnogram should be monitored as procedures are performed to verify or correct the airway problem.
7. Document the procedure, times, and results on the patient report.

Local Requirements:

* Complete an **annual review** within the continuing education programming of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

CARDIOVERSION

Paramedic

Clinical Indications:

* Unstable patient with a tachydysrhythmia (rapid atrial fibrillation, atrial flutter, supraventricular tachycardia due to reentry, monomorphic ventricular tachycardia).
* **Patient is** NOT pulseless (the pulseless patient requires unsynchronized cardioversion, e.g., defibrillation).

Procedure:

1. Ensure the patient is attached properly to a monitor/defibrillator capable of synchronized cardioversion.
2. Interpret rhythm via 12-Lead, Lead II (not paddles) or lead with tallest QRS.
3. Often the patient will be awake and may ask questions about the procedure.
4. Consider the use of pain or sedating medications. (Consider sedation with Midazolam 2 mg SIVP or Diazepam 5 mg SIVP.) (May consider Lorazepam 1 mg SIVP if Midazolam or Diazepam is not available.)
5. Set energy selection:
   Atrial fibrillation: 100-200 joules monophasic waveform
   100-120 joules biphasic waveform (rectilinear and truncated)
   Atrial flutter SVT: 50-100 joules monophasic waveform**
   Monomorphic VT: 100 joules monophasic and biphasic waveform**
   **Biphasic waveform: AHA 2005 guidelines state more data is needed for the comparison of biphasic to monophasic dose. (Refer to your manufacturer's recommendation for energy selection for biphasic rectilinear and truncated exponent tial waveform or contact Medical Direction for energy selection order).
6. Set monitor/defibrillator to synchronized cardioversion mode. Look for markers on R waves indicating sync mode. If necessary adjust monitor gain until sync markers occur with each R wave.
7. Turn systole volume off if applicable.
8. Make certain all personnel and by-standers are clear of patient.
9. Press and hold the 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.
10. Immediately check for patient response, pulses and check monitor.
11. If the patient's rhythm has deteriorated into pulseless ventricular tachycardia or ventricular fibrillation, immediately follow the procedure for Defibrillation-Manual.
12. If the patient's condition is unchanged, treat in accordance to protocol and contact Medical Direction to repeat or request additional orders.
13. Remember to document the time, response and procedure in the patient report.

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

CAROTID MASSAGE

Paramedic

Clinical Indications:

* Treatment of supraventricular tachycardia dysrhythmias

Procedure:

1. Oxygen, ECG monitoring and IV therapy must be established prior to performing carotid sinus massage. Emergency medications and equipment should be immediately available.
2. Record the patient's ECG rhythm continuously while performing all vagal maneuvers.
3. Try Valsalva's maneuver first if patient is able to cooperate.
4. If Valsalva's maneuver does not work, **contact Medical Direction to perform a carotid sinus massage.**
5. Gently palpate both carotid arteries **separately** to assess the quality of the carotid pulses. Auscultate both carotid arteries for the presence of bruits (murmur sound {swoosh}). If the pulses are grossly unequal, consult Medical Direction prior to per forming carotid sinus massage. If a bruit is detected, use the opposite artery (if bruit free) for this procedure.
6. Locate the carotid pulse near the angle of the jaw using the flat side of two fingers and press firmly against the carotid artery toward the cervical vertebrae.
7. Massage the area using either a circular or vertical motion until the heart rate starts to slow or for a maximum of 1-2 minutes. **Never massage both carotid arteries at the same time.**
8. Continuously monitor the ECG rhythm visually.
9. If unsuccessful, administer an appropriate pharmacological agent, and if necessary, repeat carotid sinus massage on the same side.
10. The maximum number of attempts using carotid sinus massage is three—using the same side only.

Local Requirements:

* Complete an annual review within the continuing educational programming of the indications, contraindications, technique, and possible complications of the procedure.

Standards Procedure (Skill)

CHEST COMPRESSION—External Device

EMT, EMT-I, and Paramedic

Clinical Indications:

* Cardiac Arrest
* Need for the automated performance of chest compressions
* Patient age appropriate to manufacturer's recommendations

Procedure:

1. Place the patient supine and position the AutoPulse ® device under him/her in accordance to manufacturer's recommendations.
2. Adjust the chest band
3. Adjust the rate of compressions/minute.
4. Ensure you have a carotid pulsation with the device-provided compressions.
5. If there are any difficulties, resume manual chest compressions as directed under the cardiopulmonary resuscitation procedure.

Local 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, continuing education classroom demonstrations, or other mechanisms as deemed appropriate by the local EMS system.

Standards Procedure (Skill)

CHEST DECOMPRESSION

Paramedic

Clinical Indications:

* Tension pneumothorax

Procedure:

1. Confirm presence of a tension pneumothorax or identify a strong clinical evidence in a rapid deteriorating patient in the setting of a major trauma. If patient is not already intubated, note increasing respiratory distress, absent unilateral breath sounds and hypotension. There may also (but not necessarily) be subcutaneous emphysema, tracheal deviation, neck vein distension or hyperresonance. In the intubated patient, note increased difficulty bagging, with pressure valve popping and hypotension. Also note unequal breath sounds but make sure that the ETT is in the trachea and not a mainstem bronchus. Again, such finding as subcutaneous emphysema and tracheal deviation may or may not present.
2. Don the appropriate protective gloves, mask and eye protection (a gown if applicable). Assemble equipment: 14 or 16 gauge angiocath, 2 1/4 inch (18 gauge angiocath, 1 1/4 inch in patients < 8 years); 5 or 10 cc syringe (may be filled with sterile water or saline)(optional); betadine prep; dressing; flutter valve may be made by cutting off a finger portion of a clean latex/non-latex glove (a commercially manufactured flutter valve is also acceptable).
3. Locate and prep the insertion site with betadine.
4. Insert the appropriate angiocath through the flutter valve, then direct the needle just over the top of the third rib (2nd intercostal space) to avoid intercostal nerves and vessels located on the inferior rib borders, midclavicular line perpendicular to the skin.
5. Advance the catheter 1-2 inches (3/4-1 inch in patients < 8 years) through the chest wall. (If a syringe is used, pull back on the plunger of the syringe as the needle is advanced. Tension should be felt until the needle enters the pleural space.) A “pop” or “give” may be felt at it enters the thoracic cavity. Do not advance the needle any further.
6. While stabilizing the catheter, withdraw the needle and advance the catheter until flush with the skin. Listen for a gush or “hiss” of air which confirms placement and diagnosis. Caution: this is frequently missed due to ambient noise. (NOTE: If a syringe filled with sterile water or saline was used, as the needle enters the pleural space a pop should be felt and noted bubbling air should be seen in the fluid in the syringe which will confirm placement.)
7. Dispose of the needle and syringe (if used) properly and **never reinsert into the catheter.**
8. The catheter shall have a flutter valve placed and secured around it (if not already done).
9. Secure the catheter and loosely apply a 3-sided dressing around the site, rapidly transport the patient providing appropriate airway assistance.
10. Monitor patient’s respirations and breath sounds for recurring tension pneumothorax. The initial catheter frequently will clog or kink necessitating replacement by another catheter.
11. Remember to document the time, procedure, results of the patient’s response on the patient report.

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

CHILDBIRTH

EMT, EMT-I, and Paramedic

Clinical Indications:

* Imminent delivery with crowning

Procedure:

1. Most babies deliver themselves with no assistance, however, controlling an abrupt delivery will help prevent injury to the mother and infant. Remember to don protective gloves, mask, eye wear and a gown.
2. Allow the mother to push the infant's head out of the vaginal opening. Keep a gloved hand near the crowning head to keep a control on an abrupt delivery. Reminder: the baby is VERY SLIPPERY!
3. With one finger, gently feel the infant's neck for the umbilical cord. If it is there, gently lift it over the baby's head. Caution: Do not pull hard on the cord as it could avulse and cause a severe hemorrhage. If the cord is wrapped around the baby's neck, gently slip it over the shoulder and head. If this cannot be done because it is tightly wrapped, carefully place two umbilical cord clamps approximately 2 inches apart and cut the cord between the clamps.
4. As soon as the baby's head clears the vagina, instruct the mother to stop pushing. While supporting the baby's head, using a bulb syringe, suction the baby's mouth, then nose. If meconium stained fluid is noted, suction the mouth, nares and pharynx. If thick "pea soup" meconium-staining is present and noted at the vocal cords, the meconium aspirator (EMT-I and Paramedic skill) will be need to be utilized (see Airway—Suctioning Advanced, Standards Procedure Skill).
5. Have the mother resume pushing as you support the baby's head as it rotates. Gently guide the baby's head downward to allow delivery of the upper shoulder. Gently guide the baby's body upward to allow delivery of the lower shoulder. Once head and shoulders are delivered, the rest of the body will deliver rapidly. Be prepared to support the baby's body as it emerges. Remember: baby's are VERY SLIPPERY!!
6. Do not hold the baby higher than the uterus or womb prior to clamping the cord because it may lead to a decrease in the infant's blood volume (due to transfusion of blood from the baby to the placenta). Do not hold baby too low as excess blood may drain from the placenta and cause a fluid overload.
7. Supporting the baby, place the first clamp 8 inches from the baby. Place the second clamp approximately 2 inches above the first clamp. Carefully cut the cord between the two clamps. Be sure to assess the cord (portion attached to the infant) for any active bleeding. If active bleeding is noted, another clamp will need to be placed beside the first clamp.
8. Wipe the baby's face clean of blood and mucus; repeat suctioning the mouth and nose with the bulb syringe. Dry the infant thoroughly and then cover with warm, dry blankets/towels and position the baby on it's side with it's head and upper body lower than it's lower body (helps facilitate fluid drainage).
9. The placenta should delivery naturally within 20 minutes of the infant's birth. DO NOT pull on the umbilical cord to hurry the placenta delivery.
10. An APGAR scoring needs to be completed on the infant at 1 minute and 5 minutes after delivery. Document the time of birth and procedure on the patient record. Abnormal, multiple deliveries, pre-term deliveries, rapid transport and contact Medical Direction.

    NOTE: If sores or lesions are noted on the genital area when birth is imminent, with your gloved hands try to keep the newborn from contacting the sores/lesions during delivery. Be sure to ask the patient if she is being treated for the sores/lesion.

Local Requirements:

* Complete an annual review of childbirth procedures and complications.

Standards Procedure (Skill)

CNS CATHETER—Epidural Maintenance

Paramedic

Not applicable to Pitt County EMS Protocols.

Standards Procedure (Skill)

CNS CATHETER—Ventricular Catheter Maintenance

Paramedic

Not applicable to Pitt County EMS Protocols.

Standards Procedure (Skill)

CARDIOPULMONARY RESUSCITATION (CPR)

EMT, EMT-I, and Paramedic

Clinical Indications:

* Pulseless, non-breathing infant (<1 yo), child (>1 yo-puberty), adult (puberty-adult)

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 procedure and look, listen and feel for respiratory effort. If the patient has possibly sustained a C-spine injury, use the jaw thrust to open the airway while maintaining C-spine immobilization. For infants, placing the head in a neutral position is most effective for opening the airway. Remember an infant's head is larger in proportion to other parts of their body, so padding or a phone book under the shoulders, upper back will facilitate in maintaining the head's neutral positioning.
3. If no respiratory effort, give two regular (not deep) breaths (**infant, child and adult: 1 second breaths**) (e.g., pocket mask or an appropriately sized BVM—infant, child, or adult).
4. Check for a pulse (carotid for adults and children > 1 year old, brachial for infants 0-1 years old) for a least 5-10 seconds. Infant and Child with heart rate or pulse < 60 beats/min. with signs of poor perfusion, begin CPR.
5. If no pulse, begin chest compressions **"push hard, push fast"** based on the chart below.

   (**Note: 2-rescuer CPR for an infant and child-puberty, 15 compressions to 2 breaths.) Puberty and older is treated as an adult., 30 compressions to 2 breaths. (Healthcare provider 2-rescuer infant CPR: two thumb-encircling hands technique.)**

   Infant: Location — one finger width below the nipple line, 2-finger technique
   Depth — one third to one half the depth of the chest
   Rate — 100/minute
   Ratio — 30 compressions to 2 breath (Newborn: 3 compressions to 1 breath)

   Child: Location — lower half of sternum, at the nipple line, using heel of one hand (small child) or both hands with interlocked fingers
   Depth — one third to one half the depth of the chest
   Rate — 100/minute
   Ratio — 30 compressions to 2 breath

   Adult: Location — lower half of sternum, at the nipple line, both hands with interlocked fingers
   Depth — 1 1/2 to 2 inches
   Rate — 100/minute
   Ratio — **30 compressions to 2 breaths**

6. Reassess every 2 minutes (5 cycles).
7. Document the time, procedure and results on the patient report.

Local Requirements:

Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

DECONTAMINATION

EMT, EMT-I, and Paramedics

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 and training.
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 treatment 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 patient with technical decontamination (unless contraindicated based on Step #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 personal affects for law enforcement.
7. Monitor all patients for environmental illness.
8. Transport patients per local protocol.

Local 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, skill stations, or other mechanisms as deemed appropriate by the local EMS System.

Standards Procedure (Skill)

DEFIBRILLATION MANUAL

Paramedic

Clinical Indications:

* Cardiac arrest with ventricular fibrillation or pulseless ventricular tachycardia.

Procedure:

1. Clinically confirm the diagnosis of cardiac arrest and identify the need for defibrillation.
2. Place the patient in a safe environment if initially in contact with some electrically conductive material such as metal or water.
3. After application of an appropriate conductive agent if needed, apply hands free pads or defibrillation paddles to the patient's chest in the proper position (one on the right of the upper sternum just below the clavicle and the other one to the left of the left nipple in an anterior axillary line immediately over the apex of the heart). (Note: anterior - posterior pad or paddle placement is also acceptable.) Do not place pads/paddles over the generator of an implanted automatic defibrillator or pacemaker. Do not place pads/paddles over medicated patches/devices. Medication patches should be removed and the medication wiped off with a dry towel or gauze and then the pad or paddle placed.
4. Set the appropriate energy level:
   Monophasic: Adult: 360 joules (initially and repeat defibrillations)
   Peds: 2 joules/kg initially with repeat at 4 joules/kg)
   Biphasic: Truncated exponential waveform: Adult: 150 joules to 200 joules
   Rectilinear biphasic waveform: Adult: 120 joules
   Peds: 2 joules/kg initially with repeat at 4 joules/kg
   (If biphasic waveform unknown, default adult setting is 200 joules)
   Biphasic devices, always refer to manufacturer's recommendations for appropriate joule settings.
5. Assure proper placement of pads or paddles.
6. Charge the defibrillator to the selected energy level.
7. Assure defibrillation pads have good skin contact or proper contact of 25 lbs. of pressure on each paddle applied.
8. **Assertively state, "CLEAR" and visualize that no one, including yourself, is in contact with the patient.**
9. Deliver the countershock by depressing the **shock button** for hands free operation or depressing the discharge button(s) when using paddles.
10. Assess the patient response.
11. Repeat the procedure as indicated by patient response and ECG rhythm.
12. Document the dysrhythmia and the response to defibrillation with ECG strips on the patient report.

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Version: **Pitt County 2006**

Standards Procedure (Skill)

DEFIBRILLATION—AUTOMATED

EMT, EMT-I, and Paramedic

Clinical Indications:

* Cardiac arrest with ventricular fibrillation or pulseless ventricular tachycardia. (Follow manufacturer's recommendations regarding defibrillation and defibrillation pads for children. Not all SAED/AED's are recommended for use on children.)

Procedure:

1. Confirm cardiac arrest. Instruct partners or First Responders to initiate CPR while the defibrillator is set up. If defibrillation is underway by First Responders, 5 cycles or approximately 2 minutes of CPR should immediately follow the defibrillation. Follow steps 4-12 next.
2. Turn the defibrillator on.
3. Attach the cables to the pads and then apply the pads to the patient's chest in the proper position (one on the right of the upper sternum just below the clavicle and the other one to the left of the left nipple in an anterior axillary line immediately of the apex of the heart). Do not place pads over the generator of an implanted automatic defibrillator or pacemaker. Do not place pads over medicated patches/devices. Medication patches should be removed and the medication wiped off with a dry towel or gauze then the pad placed.
4. **Stop CPR and clear the patient** prior to rhythm analysis.
5. Analyze the patient's rhythm by pushing the "analyze" button if not voice prompted.
6. **Assertively state "CLEAR" and visualize that no one, including yourself, is in contact with the patient prior to defibrillation.** Defibrillate if appropriate by depressing the "shock" button. The sequence of defibrillation charges is preprogrammed for monophasic and biphasic defibrillators. Biphasic defibrillators will determine the correct joules (Initially at 120 J — 200 J with additional defibrillations at 200 or 360 J for an adult) accordingly. (Children, initial defibrillation of 2 J/kg; additional defibrillations at 2 J/kg to 4 J/kg both monophasic and biphasic.)
7. Resume CPR (beginning with chest compressions) immediately after defibrillation.
8. Reassess the patient after about 5 cycles or approximately 2 minutes of CPR.
9. If the patient remains pulseless, then repeat steps 4-8 in accordance to protocol or Medical Direction orders.
10. If "No Shock Indicated or No Shock Advised" appears, perform CPR for 5 cycles or approximately 2 minutes and then reanalyze.
11. Transport and continue treatment as indicated.
12. Document the response to defibrillation on the patient report.

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

EXTERNAL CARDIAC PACING

Paramedic

Clinical Indications:

* Patients with symptomatic bradycardia (HR , < 60/min.) and one of the following: hypotension; chest pain that is unresponsive to atropine.
* Unstable, symptomatic 2nd degree type 2 or 3rd degree AV block rhythms (consider atropine as a temporary measure while awaiting pacer)
* Pediatric patients requiring external transcutaneous pacing require the use of pads appropriate for pediatric patients per the manufacturer's recommendations.

Procedure:

1. Oxygen, ECG monitor, IV (if possible) should be in place prior to pacing.
2. Confirm the presence of the dysrhythmia (include a copy of the ECG strip with patient report) and evaluate the patient's hemodynamic status.
3. If applicable, adjust the QRS amplitude so the machine can sense the intrinsic QRS activity.
4. Consider the use of sedation Midazolam 2 mg SIVP or Diazepam 5 mg SIVP if patient is conscious and uncomfortable.
5. Apply pacing pads to the patient's chest in either of the following positions: anterior—anterior or anterior—posterior (follow manufacturer's recommendations).
6. Turn the pacer on. Set the desired pacing rate at 80/min.
7. Observe the ECG screen for a "sense" marker on each QRS complex. If a "sense" marker is not present, re-adjust ECG size or select another lead.
8. Start at the lowest setting and increase the current slowly while observing the ECG screen for evidence of electrical pacing capture. Initiate current at 60 mA in unstable bradycardia (increase current (mA) until capture). Continue to pace the patient at an output level that is about 10% higher than the threshold of initial capture.
9. Assess the patient's response to the pacing therapy (check a pulse).
10. Document the time, procedure, patient response, complications and attach copies of the ECG on the patient report.

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

INJECTIONS—Subcutaneous, Intramuscular

Auto-injector: EMT, EMT-I, and Paramedic (follow manufacturer's recommendations)
SQ Injections: EMT-I, and Paramedic
IM Injections: EMT-I and Paramedic

Clinical Indications:

* When medication administration is necessary and the medication must be given via the SQ or IM route or as an alternative route in selected medications.

Procedure:

1. Perform according to protocols or receive and confirm medication order with Medical Direction.
2. Wear appropriate universal precautions (protective gloves, mask, eye protection and a gown if applicable), prepare equipment and medication (check for correct name of medication, dose, concentration, clarity, expiration date) expelling air from the syringe. (If medication is in an ampule, use a filtered needle to draw out the medication, then switch to a regular needle for injection.)
3. Explain the procedure to the patient and reconfirm patient allergies.
4. The most common site for SQ injection is the arm. If using the auto-injector, use the thigh as recommended by manufacturer. The possible injection site for intramuscular also includes the arm.
5. Expose the injection site and cleanse the site with alcohol or betadine.
6. Insert the needle into the skin with a smooth, steady motion:
   SQ: gently pinch a 1" fold of skin, 45 degree angle with the bevel up.
   IM: gently flatten the skin, 90 degree angle with the bevel up.
7. Aspirate for blood.
8. Inject the medication.
9. Withdraw the needle quickly and dispose in a sharps container without recapping.
10. Apply some pressure at the site.
11. Monitor the patient for the desired therapeutic effects as well as any possible side effects.
12. Document the medication, dose, route, time, and patient response on the patient report.

Local Requirements:

* Successfully complete an annual skill review/evaluation inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

MAST

EMT, EMT-I, and Paramedic

Clinical Indications:

* Suspected pelvic or long bone leg injury.

Clinical Contraindications:

***Absolute:** Pulmonary edema or congestive heart failure

***Relative:** Extensive chest trauma; central nervous system injury; pregnancy (do not inflate abdominal compartment)

Procedure:

1. Record patient's vital signs.
2. Unfold the MAST suit and lay flat on the long spine board. The patient's pants should be removed and the pockets emptied before application.
3. Carefully slide the MAST suit with the long spine board under the patient maintaining spinal immobility. Consider using a sheet pulled across the Iliac crest to provide pelvic stabilization to the open-book pelvic fx.
4. Close the leg compartments around each leg.
5. Close the abdominal compartment.
6. Attach the air tubes to the connections on the MAST suit and open all valves.
7. Inflate the legs first and the abdomen last.
8. Inflate the MAST suit with enough air to provide adequate splinting without compromising the neurovascular status distally in the lower extremities.
9. Close the valves on the MAST suit.
10. Monitor the amount of air in the MAST suit and monitor patient status.
11. Document the procedure, time and patient response on the patient report.

Local Requirements:

* This is an optional equipment item for Pitt County. Squads maintaining MAST suits on their EMS units should review the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

NASOGASTRIC TUBE INSERTION

Paramedic

Clinical Indications:

* Cases where evacuation or lavage of the stomach contents is ordered, or for administration of activated charcoal in an obtunded patient.

Clinical Contraindications:

* Severe facial trauma; epiglottitis; croup; caustic ingestions; esophageal cancer

Equipment:

* Salem sump 12-18 French; 50 ml bulb syringe or Toomey; water soluble jelly (K-Y); adhesive tape; saline for irrigation; suction; emesis basin

Procedure:

1. Don appropriate protective gloves, mask and eye protection.
2. Assess the patient and contact Medical Direction to request an order for the insertion of an NG Tube.
3. Explain the procedure to the patient, if awake.
4. Assemble the equipment.
5. Measure tube by measuring from the earlobe to the bridge of the nose and from the bridge of the nose to the xiphoid process.
6. Examine nose for septal deviation and a patent nostril.
7. Place patient in an upright, semi-sitting position if not contraindicated.
8. Slightly flex patient's head/neck to facilitate esophageal passage.
9. Lubricate 6-8 inches of distal portion of tube with water soluble jelly.
10. Insert tube through the nose into the oropharynx (have suction available as some patients may experience gagging and vomiting).
11. Instruct patient to swallow as tube enters the oropharynx.
12. Pass the tube to the previously marked length.
13. Check placement of the tube by aspirating gastric contents and by auscultation of the stomach after inserting 20-30 cc's of air.
    NOTE: If breath sounds are heard through the tube, patient is coughing, gasping or cyanotic, remove the tube immediately.
14. Tape the tube in place.
15. Document the procedure, time and result (success) on the patient report.

Local Requirements:

* Complete an annual review of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

ORTHOSTATIC BLOOD PRESSURE MEASUREMENT

EMT, EMT-I, and Paramedic

Clinical Indications:

* Patient situations with suspected blood/fluid loss/dehydration.
* Patients $\geq$ 8 years of age, or patients larger than the Broselow-Luten tape.

Procedure:

1. Assess the need for orthostatics.
2. Obtain patient's pulse and blood pressure while supine.
3. Have patient stand for one minute.
4. Obtain patient's pulse and blood pressure while standing.
5. If pulse has increased by 20 BPM or systolic blood pressure decreased by 20 mmHg, the orthostatics are considered positive.
6. If the patient is unable to stand, orthostatics may be taken while the patient is sitting with his/her feet dangling.
7. If positive orthostatic changes occur while sitting, **DO NOT** continue to the standing position.
8. Document the time and vital signs for supine and standing positions on the patient report.
9. Determine appropriate treatment based on protocol.

Local Requirements:

* Review the indications, contraindications, technique and possible complications of the procedure in the ongoing continuing education program.

Standards Procedure (Skill)

PAIN ASSESSMENT AND DOCUMENTATION

EMT, EMT-I, and Paramedic

Clinical Indications:

* Any patient with pain.

Definitions:

* Pain is an unpleasant sensory and emotional experience associate 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 during initial assessment, before starting pain control treatment, and with each set of vitals.
3. Pain should be assessed using the appropriate approved scale.
4. Two pain scales are available: the 0-10 and the Wong-Baker "faces" scale.

   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 or the textual pain description.

Local Requirements:

* Review the indications when the pain scale is indicated and the procedure in the ongoing continuing education program.

Version: **Pitt County 2006**

Standards Procedure (Skill)

PULSE OXIMETRY

EMT, EMT-I, and Paramedic

Clinical Indications:

* Patients with suspected hypoxemia.

Procedure:

1. Turn the machine on and allow for self-tests.
2. Apply probe to patient's finger or any other digit as recommended by the device manufacturer. (Pediatric patients need a pediatric probe size.)
3. Allow machine to register saturation level.
4. Record time and initial saturation percent on room air if possible on the patient report.
5. Verify heart rate on machine with actual pulse rate of the patient.
6. 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.
7. Document percent of oxygen saturation every time vital signs are recorded and in response to therapy to correct hypoxemia.
8. In general, normal saturation is 97%-99%. Below 94%, suspect a respiratory compromise.
9. Use the pulse oximetry as an added tool for patient evaluation. Treat the patient, not the data provided by the device.
10. 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.
11. 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
    * Taking blood pressure on same side as the pulse oximetry
    * Smoke inhalation

Local Requirements:

***** Those EMS squads using pulse oximetry should review the indications, contraindications, technique and possible complications of the procedure on annual basis.

Standards Procedure (Skill)

RESTRAINTS

EMT, EMT-I, and Paramedic

Clinical Indications:

Patients with actual or potential threat to self or others.

Procedure:

1. **Scene safety** is the most important for you and the patient.
2. Evaluate the need for restraints. Restraints should be considered only as a last resort after verbal techniques have failed.
3. Request law enforcement assistance.
4. Contact Medical Direction.
5. The least amount of restraint necessary to accomplish the desired purpose should be used.
6. The restraints should not be limiting to the patient's peripheral or central circulation or respiratory status.
7. Soft restraints such as cravats or roller bandages can be used for extremity restraints. Sheets may be used to limit upper body or lower extremity movement.
8. The restraints should be frequently monitored during transport. Respiratory and neurovascular status of restrained parts should be assessed frequently or preferable with continuous ECG monitoring.
9. Documentation on the patient report should include the reason for the use of restraints, the type of restraints used, and the time restraints were placed. Recommend completing and attaching the Restraint checklist.

Local Requirements:

* Annually review the indications, contraindications, technique and possible complications of the restraint procedure.

Standards Procedure (Skill)

SPINAL IMMOBILIZATION

EMT, EMT-I, and Paramedic

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 immobilizer, 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.
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. Place the patient on a long spine board with the log-roll technique (straddle-lift or other approved technique) if the patient is supine or prone. For the patient in a vehicle or otherwise unable to be placed prone or supine, place them on a backboard by the safest method (i.e. short spine board or extrication device) available that allows maintenance of in-line spinal stability.
6. Stabilize the patient with straps and head immobilization device, head rolls/tape or 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.
8. Document the time of the procedure in the patient report.

Local Requirements:

* Complete a skill review inclusive of the indications, contraindications, technique and possible complications of the procedure should be completed as part of the continuing education program.

Standards Procedure (Skill)

SPLINTING

EMT, EMT-I, and Paramedic

Clinical Indications:

* Immobilization of an extremity for transport, either due to suspected fx, 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 fx is suspected, consider reduction of the fx 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 the suspected injury or the area where the medical device will be placed (consider splinting in the position of function if neurovascular compromise).
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 fx is suspected and there is no evidence of pelvic fx 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 the genitalia or open wounds. Make certain the splint extends proximal to the suspected fx. 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.

    The above steps may vary in accordance to the device utilized (i.e. Thomas half or full ring; Sager; Hare Traction; etc.).
8. Document the time, type of splint, and the pre and post assessment of pulse, sensation, and motor function in the patient report.

Local Requirements:

* Complete a skill review/evaluation inclusive of the indications, contraindications, technique and possible complications of the procedure should be completed as part of the continuing education program.

Standards Procedure (Skill)

STROKE SCREEN—LA Prehospital

EMT, EMT-I, and Paramedic

Clinical Indications:

* Suspected stroke patient

Procedure:

1. Assess and treat suspected stroke patients as per protocol.
2. The Los Angeles Prehospital Stroke Screen (LAPSS) form will be completed for suspected stroke patients (see appendix).
3. There are six screening criteria items on the LAPSS form.
4. Screen the patient for the following criteria:
   * age over 45 years
   * no history of seizure disorder
   * new onset of symptoms in last 24 hours
   * patient ambulatory prior to event
   * blood glucose between 60-400
5. The final criterion consists of performing a patient exam looking for facial droop, unilateral grip weakness/absence, or unilateral arm weakness. One of these exam components must be positive to answer “yes” on the screening form.
6. If all of the LAPSS screening criteria are met (“yes” to all criteria), alert the receiving hospital of a possible stroke patient as early as possible.
7. All sections of the LAPSS form must be completed.
8. Recommend completion of the LAPSS form and attach it to the patient report.

Local Requirements:

* A skill review inclusive of the indications, contraindications, technique and possible complications of the procedure will be included in the continuing education program.

Standards Procedure (Skill)

TEMPERATURE MEASUREMENT

EMT, EMT-I, and Paramedic

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. For example, the temperature of a child or infant that has been heavily bundled is often inaccurate, so "unbundling" the child for 3 to 5 minutes before obtaining a temperature.
2. For adult patients that are conscious, cooperative, and in no respiratory distress, an oral temperature is preferred (steps 3 to 5 below). For infants or adults that do not meet the criteria above, a rectal temperature is preferred (steps 6 to 8 below).
3. To obtain an oral temperature, ensure the patient has no significant oral trauma and place the thermometer under the patient's tongue with appropriate sterile cover.
4. Have the patient seal their mouth closed around the thermometer.
5. If using an battery/digital thermometer, leave the device in place until there is indication an accurate temperature has been recorded (per "beep" or other indicator specific to the device). If using a traditional thermometer, leave it in place until there is no change in the reading for at least 30 seconds (usually 2 to 3 minutes). Proceed to step 9.
6. Prior to obtaining a rectal temperature, assess whether the patient suffered an rectal trauma by history and/or brief examination as appropriate for patient's complaint.
7. To obtain a rectal temperature, cover the thermometer with an appropriate sterile cover, apply water soluble lubricant, and insert into rectum no more than 1 to 2 cm (1/2 to 3/4 inches) beyond the external anal sphincter.
8. Follow guidelines in step 5 above to obtain temperature.
9. Record time, temperature, method (oral, rectal), and scale (C˚ or F˚) in the patient report.

Note: Normal temperature ranges: 97.5 ° F — 99.5 ° F

1. Oral: 98.6 °F (37 °C)
2. Axillary: 97.6 ° F (36.4 ° C)
3. Rectal: 99.6 ° F (37.6 ° C)

Local Requirements:

* Each EMS agency should periodically review the inclusive indications, contraindications, technique and the possible complications of the procedure. (Review the manufacturer's recommendations for the device that is used by the EMS agency.)

Standards Procedure (Skill)

THROMBOLYTIC SCREEN

EMT, EMT-I, and Paramedic

Clinical Indications:

* Rapid evaluation of a patient with suspected acute stroke, acute myocardial infarction, or acute pulmonary embolus who may benefit from thrombolysis.
* **Screening to be completed on ALL acute strokes that are less than 3 hours.**

Procedure:

1. Follow the appropriate protocol for patient's complaint to assess need for thrombolysis (e.g., LAPSS or other instrument for suspected stroke, 12-Lead ECG for suspected MI, etc.). If the screen is positive, proceed to step 2 below.
2. By history from the patient and/or family members, obtain and record the following information:
   * History of active internal bleeding?
   * History of CNS neoplasm, arteriovenous (AV) malformation, or CNS aneurysm?
   * History of CNS surgery in the past 2 months?
   * History of severe, uncontrolled hypertension (> 200/130)?
   * History of bleeding disorder?
   * History of aortic dissection?
   * History of allergy to tPA?
3. Document all findings on the patient report.

Local Requirements:

* Complete a review of the indications, contraindications, technique, and possible complications of the procedure within the continuing education program.

Standards Procedure (Skill)

URINARY CATHETERIZATION

Paramedic

Clinical Indications:

* Monitoring a patient's fluid status and/or response to therapy during transport.
* Patient's with medical (but **NOT TRAUMA**) complaints over the age of 16 that would be requested by Medical Direction.
* **Medical Direction order required for the paramedic in Pitt County to perform the procedure.**

Procedure:

1. Explain the procedure to the patient. Maximize patient privacy. Have a second crew member or other chaperone if performing the procedure on a member of the opposite sex.
2. If there is any question of traumatic injury in the genitourinary region, **DO NOT** perform this procedure.
3. Open the catheter kit. 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. Place sterile sheet(s). Test the balloon at the catheter tip. Connect the catheter to the urine collection system. Maintain the sterility of contents.
   Recall that once your hand touches the patient, it is no longer sterile and cannot be used to obtain items from the kit.
4. Using the cotton balls with betadine applied 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.
5. Once the patient has been prepped with betadine.
6. Lubricate the tip of the catheter.
7. Advise the patient they may feel some pressure/discomfort and 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.
8. Once urine is returned, gently inflate the balloon and secure the urine collection device.
9. Document the physician/MICN's name that gave the order, time of the procedure, complications, and amount of urine collected on the patient report.

Local Requirements;

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

VENOUS ACCESS—Blood Draw

EMT-I and Paramedic

Clinical Indications:

* Collection of a patient's blood for laboratory analysis.
* Collection of patient's blood will be done ONLY under Medical Direction order.

Procedure:

1. Don appropriate protective gloves, mask and eye protection. Gowns may also be appropriate protective wear. (Utilize universal precautions as per OHSA.)
2. Select appropriate vein and prep as usual.
3. Select appropriate blood-drawing devices.
4. Draw appropriate tubes of blood for lab testing.
5. 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(s) was/were collected).
6. Document the time, procedure and who the blood was delivered to at the hospital on the patient report.

Local Requirement:

* Complete an annual skill review/evaluation inclusive of the indications, contraindications, technique and the possible complications of the procedure.

Standards Procedure (Skill)

VENOUS ACCESS—Central Line Maintenance

Paramedic

Clinical Indications:

* A peripheral IV site is not available or IV attempts are unsuccessful and IV fluids or medications need to be provided for patient care.
* Paramedics may use semi-permanent pre-existing central venous catheters.

Complications:

* Air embolism and infection

Procedure:

1. Don appropriate protective gloves, mask and eye protection. Gowns may also be appropriate (utilize universal precautions as per OSHA).
2. Assemble equipment and set-up an IV fluid.
3. Locate the "distal" port and cleanse the catheter port thoroughly with betadine and/or alcohol prep.
4. Insert IV catheter into port, be sure the CV-catheter line has been locked close. **DO NOT USE an IV catheter in a needleless system as it will cause leaking. Please use the appropriate needleless needle or consider using a blunt tip on a syringe.**
5. Attach a saline filled syringe, unlock/unclamp the CV-catheter line and aspirate to see if blood returns and then flush the catheter. (If a blood draw is needed, aspirate about 5-10 ml's of blood, close lock/clamp, discard the 5-10 ml's of blood and attach another syringe to accommodate the amount of blood needed to be drawn, unlock/unclamp the CV-line tubing and draw up the blood needed, lock/clamp the CV-catheter line, attach a saline syringe, open the lock/clamp and flush the CV-line to assure patency. Lock/clamp the CV-line tubing, attach the assembled IV set-up, unlock/unclamp the CV-line tubing and adjust IV flow rate in accordance to protocol. Blood that was drawn will need to be placed in appropriate blood tubes and labeled).
6. If the site is patent, flushes well, lock/clamp the CV-catheter line and then attach the IV tubing. Once the IV tubing has been attached, unlock/unclamp the IV tubing and adjust the IV flow rate in accordance to protocol.
7. Document the time, procedure, patient response and any complications on the patient report.

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

VENOUS ACCESS—Existing Catheters

Paramedics

Clinical Indications:

* Access of an existing peripheral venous catheter for medication or fluid administration.

Procedure:

1. Don appropriate protective gloves, mask and eye protection.
2. Clean the port of the catheter with alcohol wipe.
3. Insert a needleless needle (may consider using a blunt tip on a syringe) into the port and aspirate 5 ml of blood first, because the catheter may have Heparin in it. Discard the 5 ml of blood. **DO NOT USE IV catheters unless you know the catheter ports are a non-needleless system. Use of an IV catheter into a needleless system will cause leaking.**
4. Using 5 ml 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 4. 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. Document procedure, any complications, and fluids/medications administered on the patient report.

Local Requirements:

* Complete a review of the procedure within the continuing education program.

Standards Procedure (Skill)

VENOUS ACCESS—External Jugular Access

EMT-I and Paramedic

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 is not obtainable**.
* External jugular cannulation can be attempted initially in **life-threatening events** where **no obvious peripheral site** is noted.

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. Place one gloved finger on the proximal portion of the external jugular vein, just above the clavicle to occlude blood flow.
5. Using a 14-, 16– or 18-gauge catheter, align the catheter with the vein. The catheter should be pointing in the direction of the patient's shoulder. Puncture the vein midway between the angle of the jaw and your finger, which is acting as a tourniquet.
6. Attach the IV and secure the catheter avoiding circumferential dressing or taping.
7. Document the procedure, time, and result (success) on the patient report.
8. Note: Some individuals like to attach a syringe to the needle so they can check IV placement.

Local Requirements:

* Review the inclusive indications, contraindications, technique and possible complications of the procedure periodically during the continuing education program.

Standards Procedure (Skill)

VENOUS ACCESS—Extremity

EMT-I and Paramedic

Clinical Indications:

* Any patient where intravenous access is indicated (significant trauma or mechanism, emergent or potentially emergent medical condition).

Procedure:

1. Don appropriate protective gloves, mask, eye protection and a gown (utilize universal precautions as per OHSA). Explain the procedure to the patient.
2. Choose the appropriate IV fluid bag. Inspect the IV solution for expiration date, cloudiness, discoloration, leaks, or the presence of particles.
3. 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.
4. Apply venous constricting band (tourniquet) to the arm above the venipuncture site (usually in the middle of the upper arm or just below the elbow in the forearm) to restrict venous flow only.
5. Select a vein and an appropriate gauge catheter for the vein and the patient's condition. Prep the skin thoroughly alcohol swabs (antiseptic solution).
6. Insert the needle with the bevel up into the skin in a steady, deliberate motion until the bloody flashback is visualized in the catheter, thread the catheter into the vein. Occlude the vein with your finger just proximal to the catheter tip and remove the needle. **NEVER** reinsert the needle through the catheter. Dispose of the needle into the proper container without recapping.
7. If appropriate per protocol, blood samples may be drawn from the catheter using a 20 cc syringe or vacutainer needle/adapter, a vacutainer sleeve, and blood collection tube prior to connecting the IV infusion set. (Blood in the syringe should be transferred to blood collection tubes as soon as possible.)
8. Connect the IV infusion set to the catheter hub making sure it is firmly connected. Remove the constricting band.
9. Open the IV and make sure the fluid runs in freely. Ascertain that he fluid does not "infiltrate" into the subcutaneous tissues. Adjust the IV flow rate by rotating the roller clamp to the desired level per protocol.
10. Secure the catheter and IV tubing with tape or appropriate sterile IV start-kit dressing/tape supply.
11. Document the procedure, time and result (success) on the patient report.
12. Remember to label the blood collection tubes with the patient's name, time of sample collection and date (minimum).
13. **NOTE: If after two attempts the IV is unsuccessful, transport the patient. Additional attempts may be performed enroute. Do not spend any more than 5-10 minutes at the scene attempting IV cannulation.**

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and the possible complications of the procedure.

Version: **Pitt County 2006**

Standards Procedure (Skill)

VENOUS ACCESS—Femoral Line

Paramedic

Not applicable to Pitt County EMS Protocols.

Standards Procedure (Skill)

VENOUS ACCESS—Intraosseous Adult

Paramedic

Clinical Indications:

* Alternative means of vascular access into the bone marrow proximal tibia in critically unstable adults.
* EZ-IO™ —optional venous route for Pitt County paramedics (for rapid emergency vascular access when traditional intravenous routes are difficult or impossible—i.e. cardiac arrest).

Clinical Contraindications:

* Fracture of the tibia or femur
* Previous orthopedic procedures
* Pre-existing medical condition
* Infection at area of insertion
* Absence of adequate anatomical landmarks
* Inability to locate landmarks
* Burns to lower extremities

Equipment: to position extremity. the EZ-IO™ hand held battery powered device with IO needle (large set, 40 kgs and up); povidone-iodine (betadine); 10 cc syringe with saline flush solution; tape; 2x2 or 4x4 gauze pads; IV solution; IV infusion set; towel rolls

Procedure:

1. Adult (40 kgs and up) placed in a supine position with a towel roll behind the knee for support.
2. Identify and locate the tibia, medial from the tibial tuberosity, on the flat anterior aspect of the tibia.
3. Ensure all equipment is ready for use and immediate access available when procedure is started. Put on sterile gloves and prep the sire with betadine. Be sure to maintain aseptic technique at all times, as infection of the infusion site is one of the primary risks of this procedure.
4. Select your EZ-IO™ device to be used and follow manufacturer's recommendations for needle-set preparation.
5. Direct and insert the EZ-IO™ the needle-set in place perpendicular to the bone, or angled away from the joint. Caution: DO NOT place the hand under the leg while inserting the EZ-IO™.
6. Remove the stylet from the catheter and confirm placement of the needle by the following techniques:
   * Aspirate with syringe, looking for blood with marrow particulate matter (Caution: the needle may become obstructed when using this technique.)
   * An injection of 10 cc of NS is not met with resistance or infiltration at site.
7. Remove the syringe and immediately attach the IV tubing or IV extension tubing and IV fluids for infusion to avoid clotting. Stablize the catheter with tape or gauze to prevent the needle from moving.
8. Adjust infusion flow rates and reassess placement of site and check for extravasation continually.
9. Document the procedure, time, result (success) and any complications on the patient report.

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

VENOUS ACCESS—Intraosseous-Pediatric

Paramedic

Clinical Indications:

* Alternative means of vascular access into the bone marrow of the proximal tibia or distal femur in critically unstable infants or children ≤ 6 years of age (72 months). Medications or fluid resuscitation of an infant or young child in need of immediate life-saving intervention is indicated in the following situations:
    * **Pediatric cardiopulmonary arrest**: after effective ventilation is established and after two unsuccessful attempts to establish peripheral venous access. (Venous access attempts should not exceed 90 seconds.)
    * **Shock/Trauma** when prolonged transport times are anticipated: after effective ventilation is established, after two unsuccessful attempts to establish peripheral venous access. (Venous access attempts should not exceed 90 seconds.)
    * For pediatric codes, shock, and cases of obtunded and severely ill or injured pediatric patients where prolonged transport is anticipated and vascular access cannot be achieved by conventional means.

Clinical Contraindications:

* Osteogenesis imperfecta (inherited disorder of connective tissue) (e.g., multiple fractures with minimal trauma)
* Placement in or distal to a fractured bone
* Placement through a burn site or infected area
* Dermatitis at the insertion site
* Hypertonic medications and solutions

Equipment: bone marrow aspiration needle or other needle approved by the Medical Director; povidone-iodine (betadine); 10 cc syringe with saline flush solution; tape; 2x2 or 4x4 gauze pads; IV solution (NS or LR); stopcock, T-connector, and IV infusion set; 60 cc syringe; towel rolls to position extremity (may substitute Kerlix or equivalent for towel roll).

Procedure:

1. Infant or child ≤ 6 years old is placed in a supine position with a small rolled towel behind the knee for support.
2. Identify and locate the bony landmarks, then select site according to the following criteria for site selection: Optimal site: proximal tibial site—midline on medial flat surface of anterior tibia, approximately 1-3 cm (one finger width) below the tibial tuberosity. Direct the needle entry perpendicular to the surface of the bone.
3. Ensure all equipment is ready for use and immediate access available when procedure is started. Put on sterile gloves and prep the site with betadine. Be sure to maintain aseptic technique at all times, as infection of the infusion site is one of the primary risks of this procedure.
4. Select needle to be used in procedure and follow manufacturer's recommendations for needle preparation.

Standards Procedure (Skill)

VENOUS ACCESS—Intraosseous-Pediatric

Paramedic

Procedure: (continued)

5. Direct and insert the needle with the stylet in place perpendicular to the bone, or angled away from the joint, avoiding the epiphyseal plate. Insert with pressure and a boring or screwing motion until penetration into the marrow is evidenced by a sudden "pop" or "give", which correlates with a lack of resistance. The needle will stand alone firmly. Caution: DO NOT place the hand under the leg while inserting the IO needle as the needle could pass through the leg and cause the hand to be punctured.
6. Remove the stylet while stabilizing the intraosseous infusion needle and confirm placement of the needle by the following techniques:
   * Aspirate with syringe, looking for blood with marrow particulate matter (Caution: the needle may become obstructed when using this technique.)
   * An injection of 10 cc of NS is not met with resistance or infiltration at site.
7. Remove the syringe and immediately attach the IV tubing, stopcock, or IV extension tubing and IV fluids for infusion to avoid clotting. If the needle has a flange, adjust the flange by screwing it down until the hub makes contact with the skin. Stabilize the needle with tape or gauze to prevent the needle from moving.
8. Adjust infusion flow rates while considering the following: gravity controlled flow rates may be unacceptably low in which case (a) the IV solution may placed in a pressure bag inflated to 300 torr, or (b) "push" the IV bolus with a syringe attached to the tub of the intraosseous infusion needle. Note: Hypertonic and alkaline solutions should be diluted prior to intraosseous infusion (e.g., dilute D50W 1:1 with sterile water for a D25W solution).
9. Reassess placement of site and check for extravasation continually.
10. Document the procedure, time, result (success) and any complications on the patient report.

Local Requirements:

* Complete an annual skill review inclusive of the indications, contraindications, technique and possible complications of the procedure.

Standards Procedure (Skill)

VENOUS ACCESS—Swan-Ganz Maintenance

Paramedic

Not applicable to Pitt County EMS Protocols.

Standards Procedure (Skill)

WOUND CARE

EMT, EMT-I, and Paramedic

Clinical Indications:

* Protection and care for open wounds prior to and during transport.
* Protection and care of burns prior to and during transport.

Procedure:

1. Use personal protective equipment, includes gloves, mask, eye protection, and a gown if applicable.
2. If active bleeding, hold direct pressure and elevate the affected area if possible. Do not rely on "compression" bandage to control bleeding. Direct pressure is much more effective. Consider pressure points to control bleeding and in extreme cases the use of a tourniquet.
3. Cover wounds with sterile gauze/dressings. Check distal pulses, sensation, and motor function to ensure the bandage is not too tight.
4. Monitor wounds and/or dressings throughout transport for bleeding.
5. If the wound(s) is/are from burns, first stop the burning process (put out any fire), remove clothes (if possible) and keep patient normothermic. If product source is dry chemical, brush chemical off first and then flush with copious amounts of water. Place patient in clean (sterile if possible), dry dressings, towels or sheets.
6. Burn dressings: wet dressings recommended for burns < 10% which is equal to an upper extremity. Burns more than 10% pose a greater risk of hypothermia if wet dressings are used, so dry dressings shall be applied. NO creams, ointments, Silvadene or other commercially available creams should be applied (prehospital) because of limited exposure time—really doesn't help wound and can cause more pain for the patient when they would need to be removed in the hospital.
7. Document the wound(s) and assessment (and reassessment) on the patient report.

Local Requirements:

* Review periodically the inclusive indications, contraindications, technique and possible complications of the procedure in the continuing education program.

(Thanks to Scott Sagraves, MD, FACS, Associate Professor, BSOM/ECU/Dept. of Surgery, Trauma Director, for his comments regarding wound care and burn dressings.)

Version: **Pitt County 2006**

Standards Procedure (Skill)

NITRONOX® ADMINISTRATION

Paramedics

Note: This procedure skill is applicable to those Pitt County Squads that have access to Nitronox® on their EMS units.

Clinical Indications:

* Useful for relief of pain and anxiety from extremity trauma, burns and acute MI. It is self-administered which prevents overdosage, since the sedated patient will no longer be able to hold the mask. Assure that the area is well ventilated so that bystanders and EMS personnel do not become intoxicated by the fumes.

Clinical Contraindications:

* Altered mental status; alcohol intoxication; head injury
* Abdominal or chest trauma
* Shock
* Pneumothorax or pulmonary disease such as COPD or asthma

Procedure:

1. Record the tank pressures on the Nitronox® unit as both tanks are opened.
2. The Nitronox® unit delivers a 50:50 mixture of nitrous oxide and oxygen to the demand valve.
3. Instruct the patient to hold the mask tightly to his/her face and breath in the gas. You should hear the valve open with inhalation. Allow the patient to titrate himself/herself. DO NOT hold the mask for him/her.
4. Monitor vital signs closely.
5. Upon arrival at the hospital, close the nitrous oxide valve first. Have the patient continue inhaling to "clear the line." Then close the oxygen valve and record the tank pressures.
6. Document the time, procedure and patient response on the patient report.

Local Requirements:

* Those Paramedic squads utilizing Nitronox® should periodically review the indications, contraindications, technique and possible complications of the procedure with all of their paramedics.

Standards Procedure (Skill)

RECTAL ADMINISTRATION

Paramedics
EMT and EMT-I: (suppository administration only)

Clinical Indications:

*When an IV cannot be placed, some medications are approved to be given rectally.
*Frequently used in infants and children who may not be able to swallow oral medications.
*Absorption of rectally administered drugs is generally somewhat slower than the oral route.

Procedure:

1. The medication should be drawn up into a syringe after checking for appropriate medication, dose, expiration date, purity, and clarity. (If medication to be administered is a suppository, go to step 9 below.)
2. For pediatrics, a 6 fr or 10 fr pediatric feeding tube should be attached to the syringe.
3. Cut the tubing so there is about 4 centimeters (1 1/2 inches) of tubing from where it attaches to the syringe (this eliminates a lengthy tubing).
4. Lubricate the tubing end with water soluble lubricant (i.e., KY jelly)
5. Insert the feeding tube approximately 2 centimeters into the rectum.
6. The medication may be administered (appropriate dose per route) followed by a 2 ml saline flush.
7. Often it is necessary to hold the buttocks together to help retain the medication in the patient. Sometimes elevating the hips slightly on a non-trauma victim will assist in retention of medication.
8. Reassess
9. If medication to be rectally administered is a suppository, check for appropriate medication, dose, expiration date, purity, and clarity. Suppositories will liquefy down if placed in a warm, heated environment or held in the hand/fingertips very long. If the suppository supplied is double the quantity needed for administration, using a sterile technique, divide the suppository in half. Place the suppository dose to be administered in between the thumb tip and index fingertip and insert the suppository up into the rectum. After insertion, it will be necessary to hold the buttocks together to help retain the medication in the patient. Sometimes elevating the hips slightly on a non-trauma victim will assist in retention of medication. Reassess.
10. Document the time, procedure, medication dose, any complications, and patient response on the patient care report.

Local Requirements:

*Review the indications and the procedure in the ongoing continuing education program.

Standards Procedures

BUS CRASH

EMT, EMT-I, and Paramedic

Clinical Indications: The purpose of this procedure is to:

* Provide an organized system of treating victims of a bus crash.
* Assure all victims are properly assessed, triaged, treated and transported in accordance to applicable standards and protocols.
* Provide good care to all victims.

Procedure:

1. Establish “Command”, secure the scene and size it up for all possible hazards.
2. Give a brief report to the 911 Communication Center describing the conditions of the incident along with a request for any additional required resources.
3. Resolve any immediate concerns of threats to life safety.
4. “Command” will notify the PCMH Emergency Department once it is determined that there are more than five victims to be transported.
5. Triage, treat and transport all victims in accordance with standardized protocol(s).
6. Follow the “No Transport” protocol for all adult victims (>18 years of age) that are refusing treatment and/or transportation.
7. Minors (<18 years of age) that do not require treatment and/or transportation will require either a parent or legal guardian to accept medical responsibility and sign the refusal document.
8. A) In the event that a school/church designee is present and is willing to accept medical responsibility and guardianship for the minors that are not being treated and/or transported, you may list the names and ages of all the minors in the “comments/narrative” section of the ambulance call report and allow the refusing official to sign just one refusal document on behalf of all the names listed in the ambulance call report.
   B) In the event a representative/principal will not sign or come to the scene, go to Item 9.
9. Contact via 911 the Medical Director or his/her designee regarding transport or non-transport to the hospital.

Local Requirements:

* Squads periodically review the indications and procedure with all EMS personnel.

Standards Procedure (Skill)

INTRADERMAL INJECTION

Paramedic

Clinical Indications:

* When a PPD (purified protein derivative) skin test is necessary to effectively identify early individuals for prophylactic drug therapy (prevent active TB).
* EMS agencies typically require annual skin testing.

Procedure:

1. Perform according to protocol or receive and confirm medication order with Medical Direction.
2. Wear appropriate universal BSI precautions, prepare equipment and medication (check for correct name of medication, dose, concentration, clarity, expiration date) expelling air from the tuberculin syringe (1 cc, 25– to 27-gauge needle, 3/8 to one inch long). (If medication is in an ampule, use a filtered needle to draw out the medication, then switch to a regular needle for injection.)
3. Explain the procedure to the patient and reconfirm patient allergies and ask whether a past positive skin testing has ever occurred. Any positive skin testing history would nullify giving this patient a PPD test. The patient should be directed to contact the squad/agency's Infection Control officer and follow their Standard Operating Procedures.
4. Prepare site (about 2 inches below elbow crease on inner aspect of arm) by cleansing with alcohol. Allow site to dry completely.
5. Pull the patient's skin taunt with your non-dominant hand.
6. Insert needle, bevel up, just under the skin, at a 10—15 ° angle.
7. Slowly inject the medication (PPD, 0.10 ml); look for a small wheal/bump to form as medication is deposited and collects in the intradermal tissue.
8. Withdraw the needle and dispose in the sharps container without recapping.
9. Do not rub, scratch, or massage the injection site (remind patient) as it promotes systemic absorption and nullifies the advantage of localized effect.
10. Monitor the patient for any possible side effects.
11. Document the medication, dose, route, time, and patient response on a patient report. This report should note the due date for reading the testing results and then the testing results.
12. The **injection site must be reassessed in 48-72 hours** to note negative or positive results. Any 5 mm induration or greater is positive for routine and immuno-suppressed patients. The patient would need to follow-up with the agency's Infection Control Officer and their respective Standard Operating Procedures. The agency's Infection Control Officer should contact the Medical Director and the Pitt County Health Department should the patient have a positive skin test.

Local Requirement:

* Optional procedure for those EMS agencies choosing to maintain an early identification of TB exposure and drug prophylaxis—key to preventing active TB in EMS professionals.
* Those EMS agencies choosing the PPD skin testing option must review the indications, contraindications, technique and possible complications of the procedure. Appropriate documentation records **must** be maintained for PPD skin testing.

Version: **Pitt County 2006**

Standards Procedure (Skill)

HEPATITIS B VACCINE

Paramedic

Clinical Indications:

* Optional procedure for those squads/agencies wishing to maintain in-house Hepatitis B vaccination programs. The recommended 3-dose regimen produces active immunity against Hepatitis B infection by indicuing protective antibody formulation.
* To promote active immunity in individuals at high risk of potential exposure to Hepatitis B virus or HBsAg-positive materials.
* Trade names for Hepatitis B vaccine (Recombinant): Engerix-B, Recombivax HB

Contraindications/Precautions:

* History of allergic reaction to Hepatitis B vaccine or to any hypersensitivity to it's formulated ingredients.
* HBsAg carriers. Safe use during pregnancy (category C) and in nursing mothers is not established.
* Compromised cardiopulmonary status, serious active infection or fever; thrombocytopenia or other bleeding disorders.

Adverse/Side Effects:

* Mild local tenderness, swelling, heat, redness, pain at the injection site; fever, malaise, fatigue, headache, dizziness, leg cramps, nausea, vomiting; urticaria, diarrhea, rash.

Procedure:

1. Wear appropriate universal BSI precautions (gloves, mask and possible eye protection), prepare equipment and medication (check for correct name of medication, dose, concentration, clarity, expiration date).
2. Shake vial well before withdrawing dose to assure uniform suspension of drug. Draw up 1 ml (10 mcg) of Recombivax or 1 ml (20 mcg) of Engerix B vaccine in a 3 cc syringe for IM injection, expelling air from the syringe. (If medication is in an ampule, use a filtered needle to draw out the medication, then switch to a regular needle for injection.)
3. Explain the procedure to the patient and reconfirm patient allergies and if there is any contraindications/precautions present.
4. Prepare injection site (deltoid muscle of the upper extremity) by cleansing with an alcohol prep. Allow site to dry completely.
5. Pull the patient's skin taunt with your non-dominant hand.
6. Insert the needle, bevel up, at a 90° angle and carefully aspirate to prevent inadvertent intravascular injection,
7. Slowly inject the medication. Withdraw the needle and dispose in the sharps container without recapping the needle. Monitor the patient for any possible side effects. Have Epinephrine 1:1,000 available to treat anaphylaxis should it occur.
8. Document the patient's name, date, medication, dose, route, time, and patient response on a vaccination report maintained by your squad/agency. The patient will need to follow-up with squad/agency's Infection Control Officer and their Standard Operating Procedures for the two additional vaccinations that need to be administered at one month and at six months.
9. A Hepatitis B titer test is recommended between 1-2 months after the last dose of vaccine. An additional Hepatitis B vaccination may be required (dependent on the titer results).

Local Requirements:

* Optional procedure for those EMS agencies choosing to maintain Hepatitis B vaccinations in-house.
* Those EMS agencies choosing the Hepatitis B option must review the indications, contraindications, technique and possible complications of the procedure. Appropriate documentation records must be maintained for the Hepatitis B vaccinations.

Version 2006

STANDARDS FOR EMS TREATMENT PROTOCOLS

General Protocols

Medical Protocols

STANDARDS FOR EMS TREATMENT PROTOCOLS

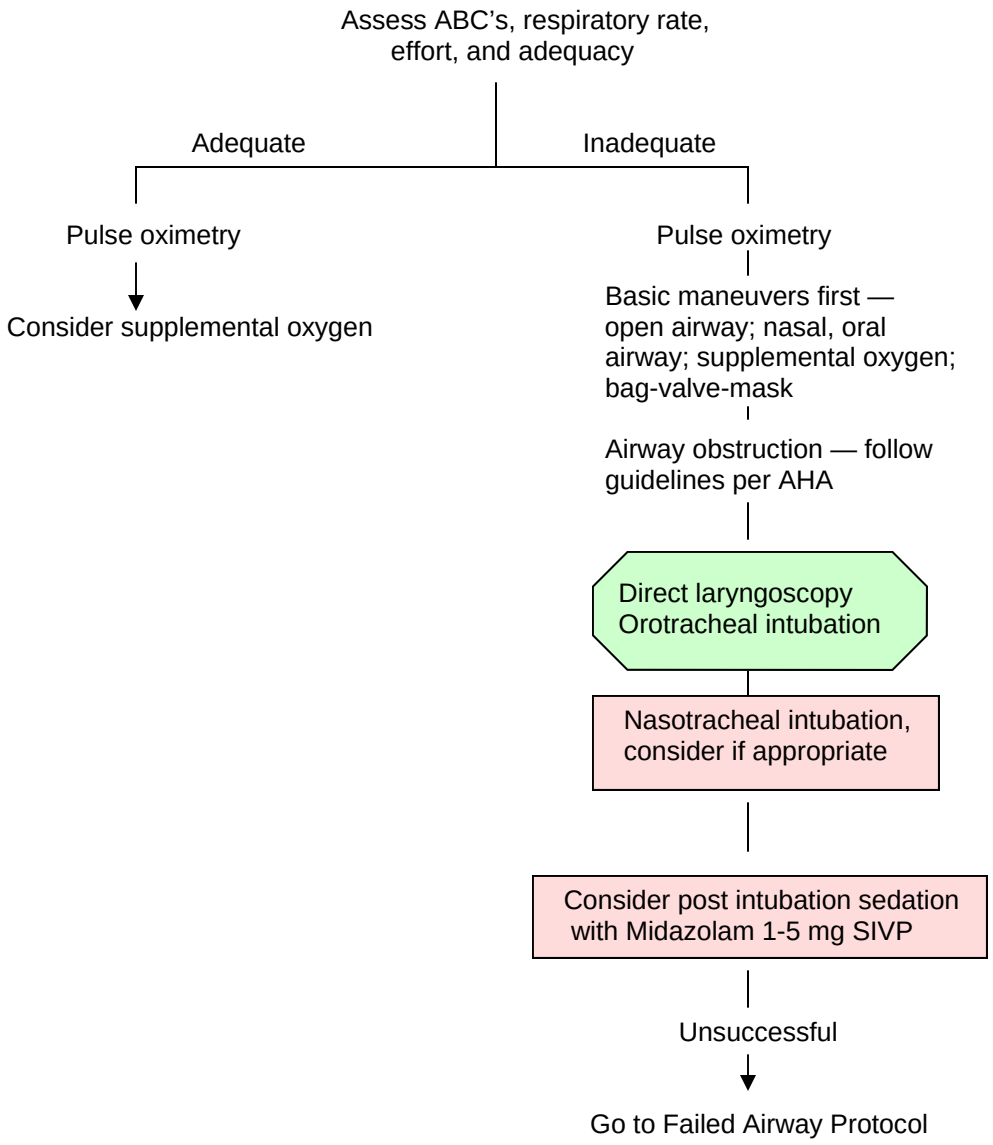
Pediatric and OB Protocols

Trauma Protocols

Other Protocols

Version: **Pitt County 2006**

AIRWAY, ADULT

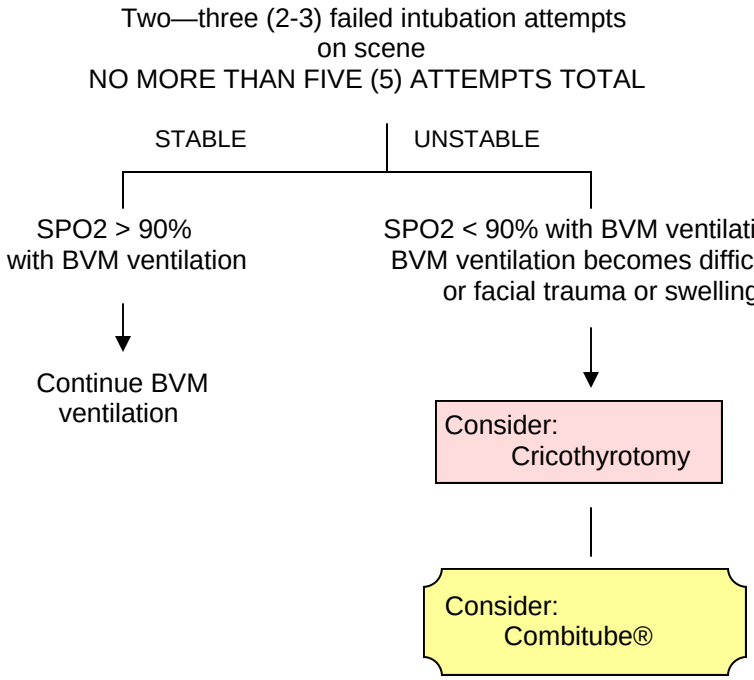


IMPORTANT:
This protocol, adult is defined as 12 years old or greater.
Capnometry, esophageal bulb or capnography is mandatory with all methods of intubation.
Document results, including method of tube placement.
Place c-collar to maintain ETT placement for all intubated patients.
Maintain C-spine immobilization for patients with suspected spinal injury.

Sellick's maneuver should be used to assist with difficult intubations.
Hyperventilation, see Hyperventilation Protocol.
Paramedics: If NG tube placement is deemed necessary for patient care, contact Medical Direction. **(Exception:** cardiac arrest)

Version: **Pitt County 2006**

AIRWAY, ADULT--FAILED



IMPORTANT:
Failed "open airways" due to foreign body, continue to follow the AHA guidelines for airway obstruction.
If first intubation attempt fails, make an adjustment and then try again:

- different laryngoscope blade
- different ETT size
- change cricoid pressure (Sellick's maneuver should be used to assist with difficult intubations)
- change head positioning (non-trauma)

Continual **Reassessment**. **Document results.**
If available, continuous pulse oximetry and capnography should be utilized in all patients with an inadequate respiratory function.
Notify Medical Direction AS EARLY AS POSSIBLE about a patient with difficult/failed airway.

Combitube® contraindications:

- responsive patients with an intact gag reflex
- patients with known esophageal disease
- patients who have ingested caustic substances
- patients under 5 feet tall

*****Consider needle decompression (possible tension pneumothorax)

Version: **Pitt County 2006**

AIRWAY, RSI

Not applicable to Pitt County EMS Protocols

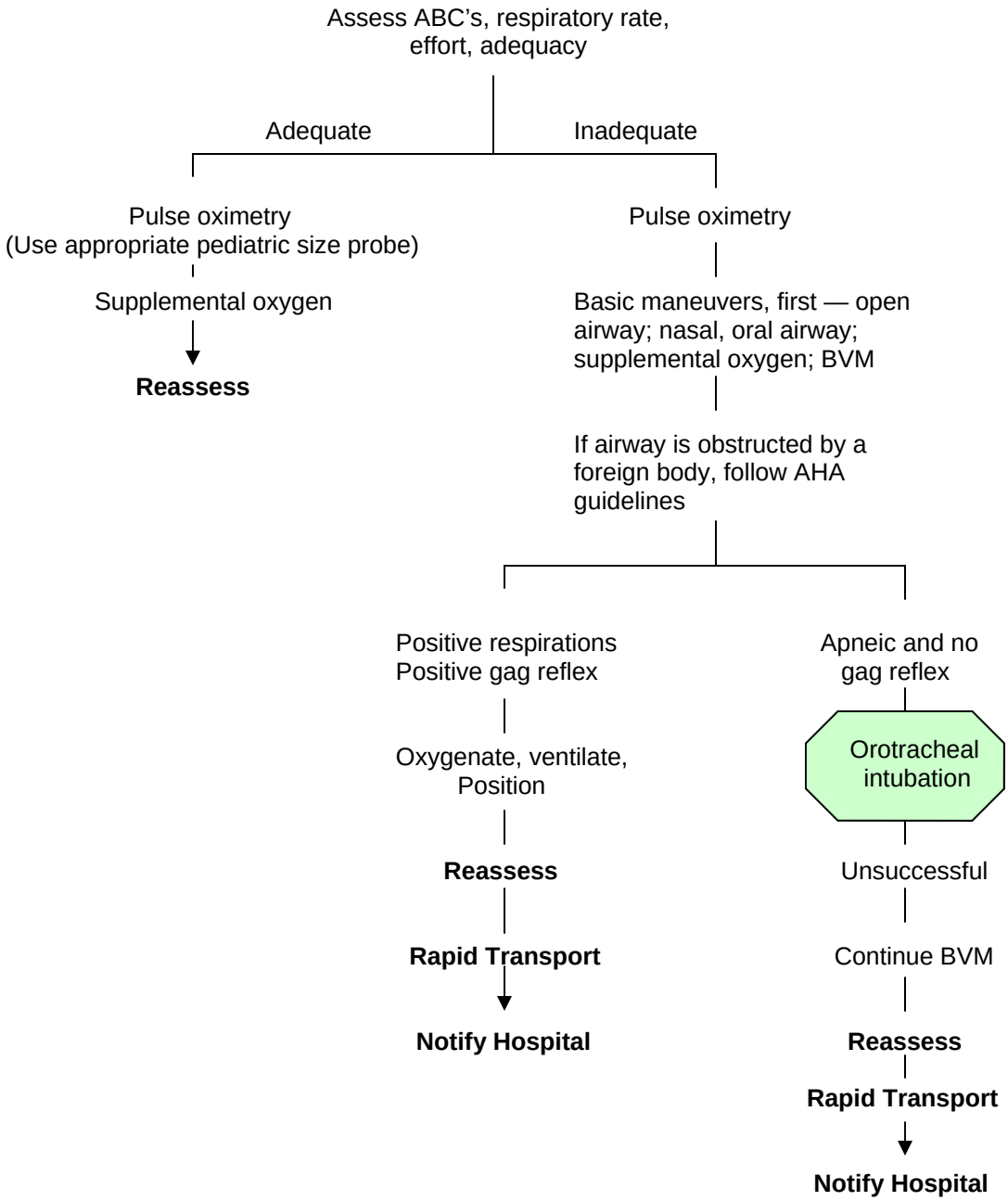
Contact Medical Direction

1. Obtain a brief history and perform an assessment
2. Assess indications and contraindications for RSI
3. Determine adequacy of patient's respirations
4. Assess for signs of difficult intubation
5. Place on monitor and pulse oximeter

TIME (mins/secs)	Procedure/drug/dose	Comments
-3 mins 00 secs	Prepare equipment	
-2 mins 30 secs	Preoxygenate	
-2 mins 15 secs	Lidocaine 1.5 mg/kg (100 mg)	Decreases vagal response
-2 mins 00 secs	Vecuronium 0.01 mg/kg (1 mg)	Prefasiculation dose
-1 min 00 secs	Etomidate 0.15 mg/kg (10 mg)	Given instead of high dose Versed, decrease ICP, hypnotic with no adverse profile
-0 min 50 secs	Begin Sellick maneuver	Decreases aspiration/increased success
-0 min 45 secs	Succinylcholine 1.5 mg/kg (100 mg)	
-0 min 00 secs	Intubate	
+0 min 30 secs	Assess tube placement/End-tidal CO2/ continuous Capnography required	
+0 min 45 secs	Discontinue Sellick maneuver after confirmed endotracheal intubation	
+1 min 00 secs	Administered long term paralysis/ analgesia/sedation Vercuronium 0.1 mg/kg, MS 2-6 mg, Versed (low dose 1-2 mg)	
	Secure ETT and monitor patient	

IMPORTANT: Once a patient has been given a paralytic drug, YOU ARE RESPONSIBLE FOR VENTILATIONS!!

AIRWAY, PEDIATRIC



IMPORTANT:

For this protocol, pediatric is defined as < 14 years old.

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

Esophageal bulb is not recommended in pediatric patients.

Limit intubation attempts to three (3) per patient.

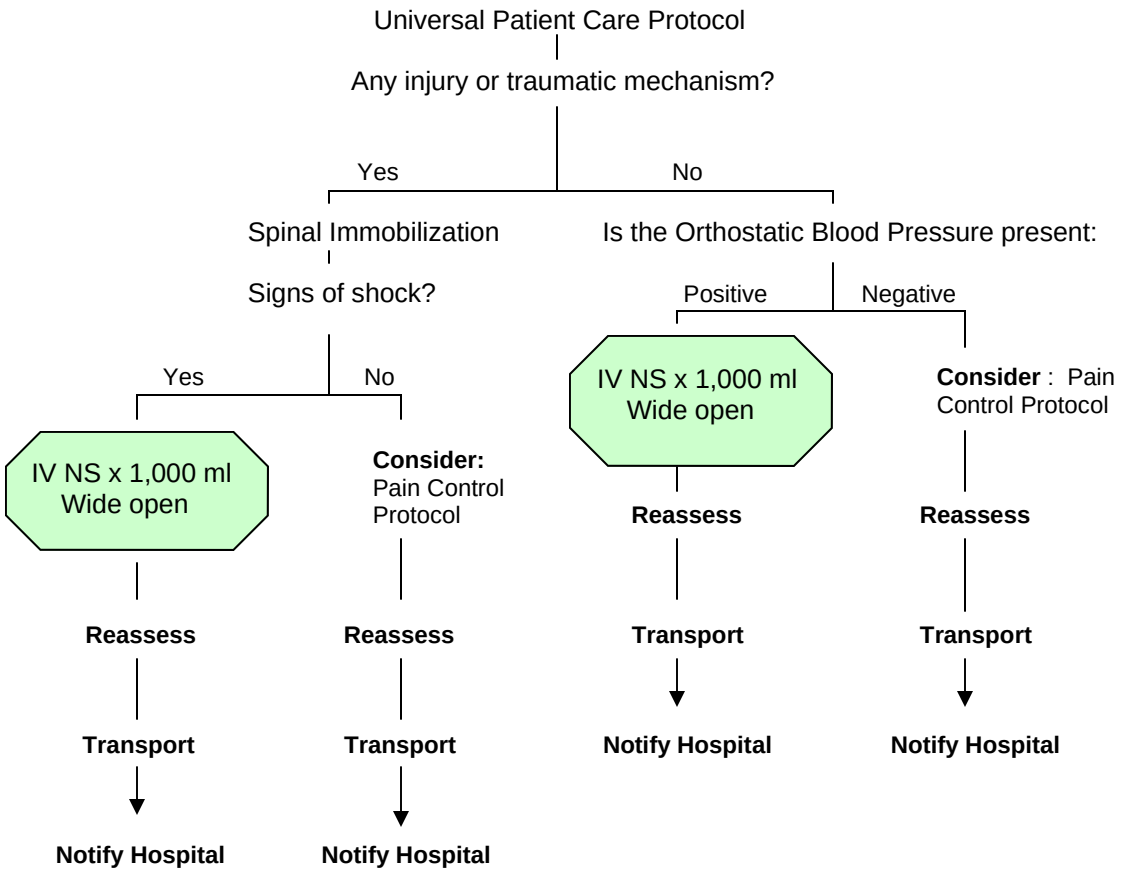
Maintain C-spine immobilization for patients with suspected spinal injury.

Consider c-collar to maintain ETT placement for all intubated patients.

Nasogastric tube placement requires Medical Direction order.

Perform needle cricothyrotomy if necessary in children > 8 years old.

BACK PAIN



IMPORTANT:
Abdominal aneurysms are a concern in patients > 50 years old.
Kidney stones typically present with acute onset of flank pain, radiates around the groin area.
If pain on palpation of the vertebrae in the midline, spinal immobilize patient
If any bowel or bladder incontinence, consider cord lesion which requires medical evaluation.

Patients with ankylosing spondylolysis or curvature of the spine: immobilize patient in curvature position, **DO NOT** straighten.

BEHAVIORAL

Scene Safety First!

Universal Patient Care Protocol

Remove patient from stressful environment if possible
Verbal techniques: reassurance, calmness, establish rapport

If possible, treat suspected medical or trauma problems per appropriate protocol.

Refusal of care

Patient Restraint

Evaluate restraint need
Actual/potential threat to self/others
(last resort consideration if verbal technique fails)

Request law enforcement assistance

Contact Medical Direction

Restraints should:

1. Not limit patient respiratory effort or peripheral/central circulation.
2. Be limited to the least amount necessary to accomplish desired purpose.
3. Be soft (ex. cravats or roller bandages) used for extremities; sheets for limiting upper body or lower extremity movement
4. Be frequently monitored during transport. Reassess neurovascular status of restrained areas, and overall cardio-respiratory status frequently.

Documentation should include the reason for restraint usage and the type of restraints utilized.

Chemical Restraint

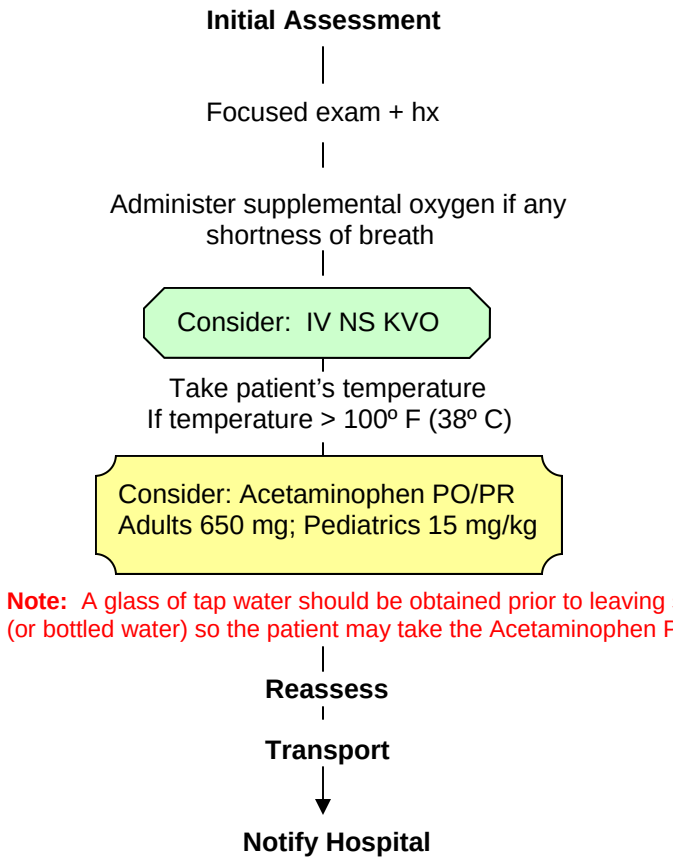
Consider: If the failure of preceding methods to protect the patient and EMS professionals from injury/harm would occur.

Consider:
Haldol 5—10 mg IM or
Lorazepam 1 mg IM or Midazolam 2 mg IM

Contact Medical Direction

IMPORTANT:
Be sure to consider possible medical/trauma causes for behavior (hypoglycemia, OD, substance abuse, hypoxia, head injury).
DO NOT irritate patient with prolonged exam.
DO NOT overlook possible child abuse and domestic violence.

FEVER



Hx: age
duration and severity of fever
immunocompromised (transplant, HIV, diabetes, cancer)
environmental exposure

S/S: warm; flushed; sweaty; chill/rigors

Associated Symptoms: myalgias, cough, CP, headache, dysuria, abdominal pain, mental status changes, rash

Differential: infections/sepsis; cancer/tumors/lymphomas; medication or drug reaction; hyperthyroidism; heat stroke

IMPORTANT:

Febrile seizures: more likely in children with hx of febrile seizures and rapid elevation in temperature.

Rehydration with fluids increased the patients ability to sweat and improves heat loss.

NSAID's should not be used in the setting of environmental heat emergencies.

Aspirin should not be used for viral syndromes (Reye's Syndrome).

Allergies to NSAID's are a contraindication to Ibuprofen.

Temperature may be decreased by a combination of four methods:

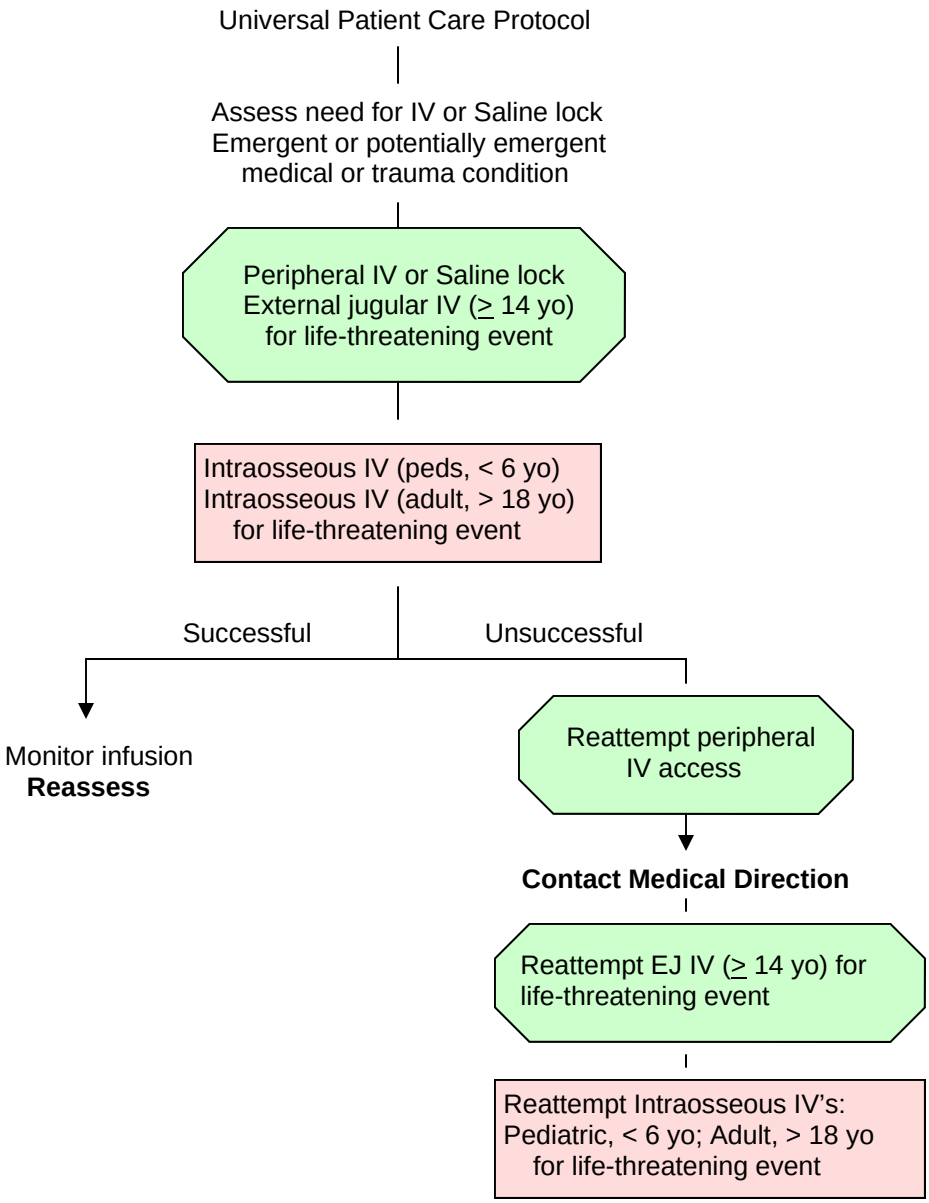
Radiation: heat loss to air (unwrap or remove clothing)

Evaporation: heat loss through evaporation of sweat or liquid from the skin (tepid water bath to skin)

Convection: heat loss through movement of air currents over the skin (increase air movement to skin)

Conduction: heat loss through contact with solid substances (with heat stroke use cool packs per protocol)

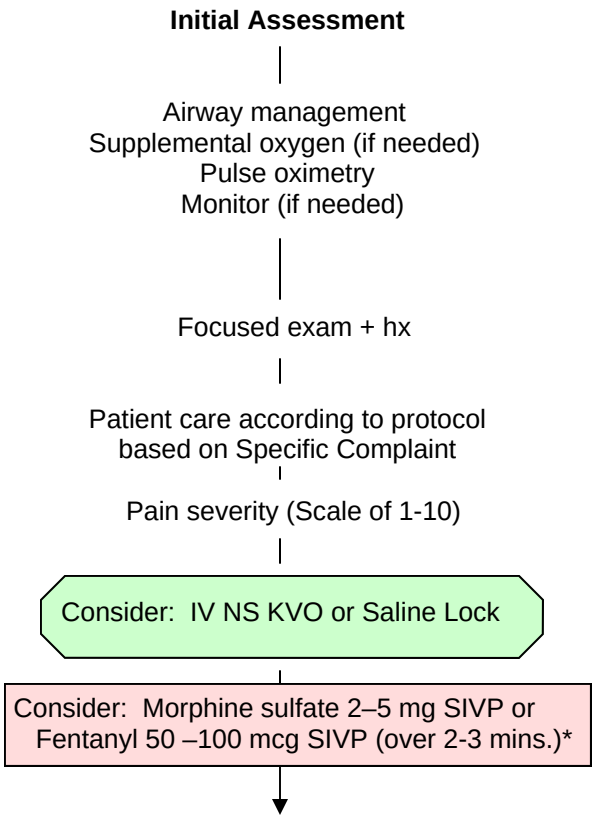
IV



IMPORTANT:
Any prehospital fluids or medications approved for IV use, may be given through an intraosseous IV.
Use microdrips for all patients 6 years old or younger.
EJ lines can be attempted initially in life-threatening events where no obvious peripheral site is noted.
Paramedics: In the setting of **cardiac arrest**, any preexisting dialysis shunt or external CV catheter may be used for IV access. However in patients who have a pulse, and are hemodynamically unstable or in extremis, **Contact Medical Direction** prior to accessing dialysis shunts or external CV 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 contraindicated in patients with vascular disease or diabetes.
In **post-mastectomy patients**, avoid IV, blood draw, injection, or BP in arm on affected side.

Version: **Pitt County 2006**

PAIN CONTROL



S/S: severity (0-10 pain scale)
quality (sharp, dull, stabbing, etc.)
radiation
related to movement, respiration
increased with palpation of area

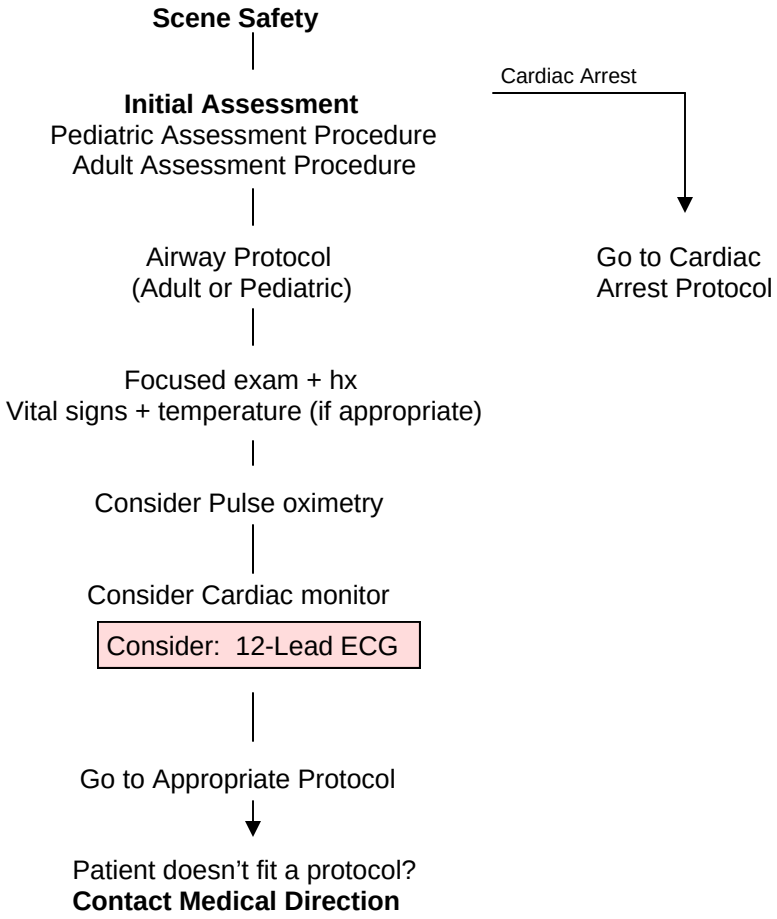
Differential: musculoskeletal; visceral (abdominal); cardiac; pleural/respiratory; neurogenic; renal

IMPORTANT:
Pain severity (0-10) should be recorded pre and post IV or IM medication delivery.
Vital signs should be obtained pre, 15 mins. post, with all pain medications.
All patients should have drug allergies documented prior to administering pain medications.
All patients who receive IM or IV medications must be observed 15 mins. for drug reaction.
Contraindications to Morphine sulfate use include hypotension, head injury, respiratory distress or COPD.
Ketorolac (Toradol) 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), or in patients who may need surgical intervention such as open fractures, fracture deformities, head injury, headaches, abdominal pain and back pain.
* If Fentanyl is administered, also give Promethazine hydrochloride 12.5 mg SIVP or IM.

SPINAL IMMOBILIZATION CLEARANCE

Spinal immobilization clearance is not approved for Pitt County.

UNIVERSAL PATIENT CARE PROTOCOL



IMPORTANT:

*__Always remember your personal protection equipment (PPE)/Body Substance Isolation (BSI) equipment.__ Have latex-free items available for those providers and patients who have an allergy to latex.

Any patient contact which does not result in EMS transport must have a "No Transport" disposition) form completed.

Exam: Minimal exam if not noted on the specific protocol is vital signs, mental status, and location of injury or complaint.

Pulse oximetry and temperature documentation is dependent on the specific complaint.

A **pediatric patient may be defined by using 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.

Orthostatic vital sign procedure should be performed in situations where volume status is in question.

Pediatric protocols are for ages less than 14 (unless stated otherwise.).

Version: **Pitt County 2006**

ABDOMINAL PAIN

Initial Assessment
Apply oxygen and monitor
Vital Signs
Focused exam + hx

Hx:
HTN, AAA, kidney stones
GI problems
Alcohol abuse
Medications: Tagamet, Zantac, etc.
Recent consumption fatty foods
Constipation
Pregnancy, ovarian cyst, ectopic pregnancy
Sickle Cell Anemia

Pain severity? (1-10 pain scale)

Transport
Check blood glucose

IV NS KVO

Contact Medical Direction

Consider:
Fentanyl 50-100 mcg SIVP over 2-3 mins. or Morphine sulfate 2-5 mg SIVP and Promethazine hydrochloride 12.5 mg SIVP or IM

S/S: pain (region, quality, radiation, referred, rebound, guarded)
tenderness; N/V; diarrhea; dysuria; constipation
vaginal bleeding/discharge; pregnancy
Associated S/S: fever; headache, weakness, rash, mental status change, etc.

IMPORTANT:
Abdominal pain in women of childbearing age should be treated as an ectopic pregnancy until proven otherwise.
Dx of AAA should be considered with abdominal pain in patients over 50 yrs of age.

ALLERGIC REACTION

Hx: insect sting/bite, food or medication allergy/exposure
S/S's: dyspnea, hypotension, hives, facial swelling/wheezing or difficulty swallowing.

Initial Assessment
Apply 100% Oxygen

Is patient in severe respiratory distress or hypotensive?

No | **Yes**

STABLE

Focused exam + hx
Hives or Rash

Monitor

Transport

IV NS KVO

Consider:

Diphenhydramine 25 mg PO

Diphenhydramine 25 mg SIVP or IM

**Methylpredinsolone 125 mg SIVP

Reassess

Notify Hospital

UNSTABLE

Transport

*Epinephrine (1:1,000) 0.3 mg SC (may Repeat q 5 mins.) **I's & P's: give IM**

Intubation (if needed)

Monitor/SAED/AED

IV NS wide open
Diphenhydramine 50 mg SIVP or IM

**Methylpredinsolone 125 mg SIVP

Focused exam + hx

Consider:
2nd IV NS wide open
*Epinephrine (1:10,000) 0.1 mg SIVP (over 5 mins.), repeated as needed

Reassess

Consider:
Dopamine drip 5 mcg/kg/min. May Double rate after 5 mins. if still hypotensive

Notify Hospital

NOTE:
If Patient Becomes UNSTABLE at any time, Follow the "Unstable" portion of this protocol.

IMPORTANT:
*Epinephrine may precipitate cardiac ischemia. Use with **EXTREME** caution for a patient with history of cardiac disease. Use caution for **ALL** patients ≥ 40 yrs of age or HR >150. These patients should receive a 12-Lead ECG.
EMT-Basic use EpiPen ONLY.
Epinephrine IM may be repeated q 5-15 mins. but do not exceed a total of 1 mg.
**Dexamethasone (Decadron) 4 mg SIVP or Hydrocortisone (Solu-Cortef) 100 mg SIVP are alternative medications for Methylpredinsolone.
Version: **Pitt County 2006—Revised 1-4-07 (Approved: 1-31-07)**

ALTERED MENTAL STATUS

All patients with altered level of consciousness *should have a field glucose test.* ***Extremely low or extremely high glucose levels are medical emergencies.*** *Both may also result in drunken or psychotic behavior.*

Initial Assessment
Assure Patent Airway/Ventilation (if needed, go to appropriate Airway Protocol)
Apply oxygen and check blood glucose level
Monitor/SAED

Glucose LOW
(below 60 mg/dL)

Vital Signs
Focused exam + hx
Assess skin for coolness, diaphoresis

Oral glucose under the tongue
(if patient is conscious)

IV NS KVO
Thiamine 100 mg IV
D50 50 ml IVP

Transport

Consider:
Glucagon 1 mg IM (**Only** if unable to obtain IV access)

Reassess

Repeat D50 50 ml IVP if not fully alert

Notify Hospital

Glucose NORMAL
(60 - 240 mg/dL)

Consider 12-Lead ECG

Focused exam + hx
Go to appropriate protocol
Arrhythmia
Head injury
Hypotension
Hypoxia
Overdose
Seizure
Stroke

Transport

IV NS KVO or Saline Lock

Contact Medical Direction
for consideration

Oral glucose under the tongue

D50

Notify Hospital

Glucose HIGH
(above 240 mg/dL)

Consider 12-Lead ECG

Vital Signs
Focused exam + hx
Assess for:
labored breathing
fruity breath
dehydration/shock
warm/dry skin

IV NS 250 ml wide open then to KVO

Tr**ansport**
Reassess

Notify Hospital

S/S: decreased mental status; bizarre behavior; change baseline mental status
hypoglycemia (cool, diaphoretic skin)
hyperglycemia (warm, dry skin; fruity breath; Kussmaul respirations; signs of dehydration)

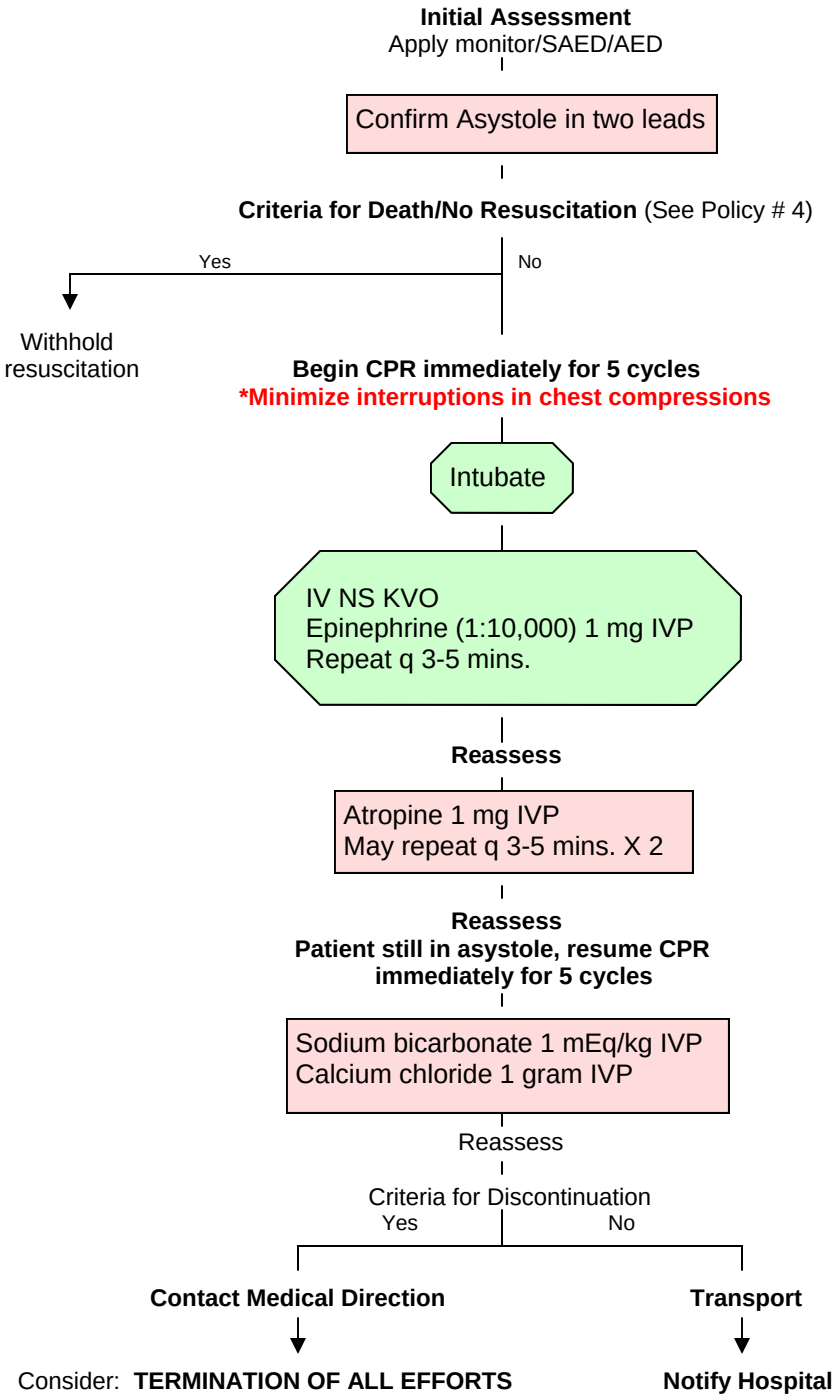
Differential: head trauma; CNS (stroke, tumor, seizure, infection); pulmonary; cardiac (MI, CHF) thyroid (hyper/hypo); shock (septic, metabolic, traumatic); diabetes (hyper/hypo); toxicologic acidosis/alkalosis; environmental exposure; electrolyte imbalance; psychiatric disorder

IMPORTANT:
Diabetics are prone to acute MI's without being aware of chest pain. If the chemstrip is above 60 but the patient is cool and clammy, often dyspneic or nauseated, **CONSIDER SILENT MI.**
Reassess frequently and document response to IV fluids and medications.
Reminder: alcoholics frequently develop hypoglycemia.
Glucagon will have a delayed onset action of 15-20 minutes.

ALMENST2006.PUB

Version: **Pitt County 2006**

ASYSTOLE



S/S: pulseless, non-breathing, no electrical activity on ECG
Differential: preexisting acidosis; hypoxia; drug overdose (tricyclic antidepressants); hyper/hypokalemia; hypothermia
IMPORTANT: Use ETT or IO for drug orders if the IV is unsuccessful. ETT dose would be doubled followed by a 10 ml NS flush. **If pulses return, go to the post-resuscitation protocol. If the monitor changes but the patient has no pulse, go to the appropriate protocol.**
*** After advanced airway is placed, rescuers no longer do cycles of CPR, but continuous compressions without pauses for breaths. Give 8-10 breaths/minute. Check rhythm every 2 minutes.**

BRADYCARDIA

Consider possible causes: AMI, hypoxia, hypothermia, athletes, head injury, stroke, AV blocks, hypoglycemia, toxins, and spinal cord lesions

Initial Assessment
Vital Signs (indicating **HR < 60 min**.)
Appy oxygen
Monitor/SAED/AED

Focused exam + hx

Does patient have any one of the following?
—altered mental status; syncope
—hypotension < 90 systolic
—chest pain
—pulmonary edema
—ventricular escape complexes

No / **Yes**

STABLE

12-Lead ECG

IV NS KVO

For Sinus junctional and 2° AVB, Type I rhythms OBSERVE

Consider:
Transcutaneous external pace for 2° AVB, Type II and 3° AVB rhythms. Premedicate with Midazolam 2 mg SIVP and/or Diazepam 5 mg SIVP

Reassess enroute

Notify Hospital

UNSTABLE

Transcutaneous external pace. Use **WITHOUT DELAY** for 2° AVB, Type II and 3° AVB.

IV NS KVO

Consider:
Atropine 0.5 mg IVP q 5 mins. (max. 3 mg)
If not effective, begin pacing.
or,
Dopamine 5 mcg/kg/min. (while awaiting pacing or ineffective pacing)

Reassess patient

Consider:
If **HR increases** but patient continues to have chest pain or pulmonary edema, go to appropriate algorithm.

If **HR increases** above 60/min. but patient remains hypotensive,

Fluid challenge NS 250 ml bolus, repeat once.

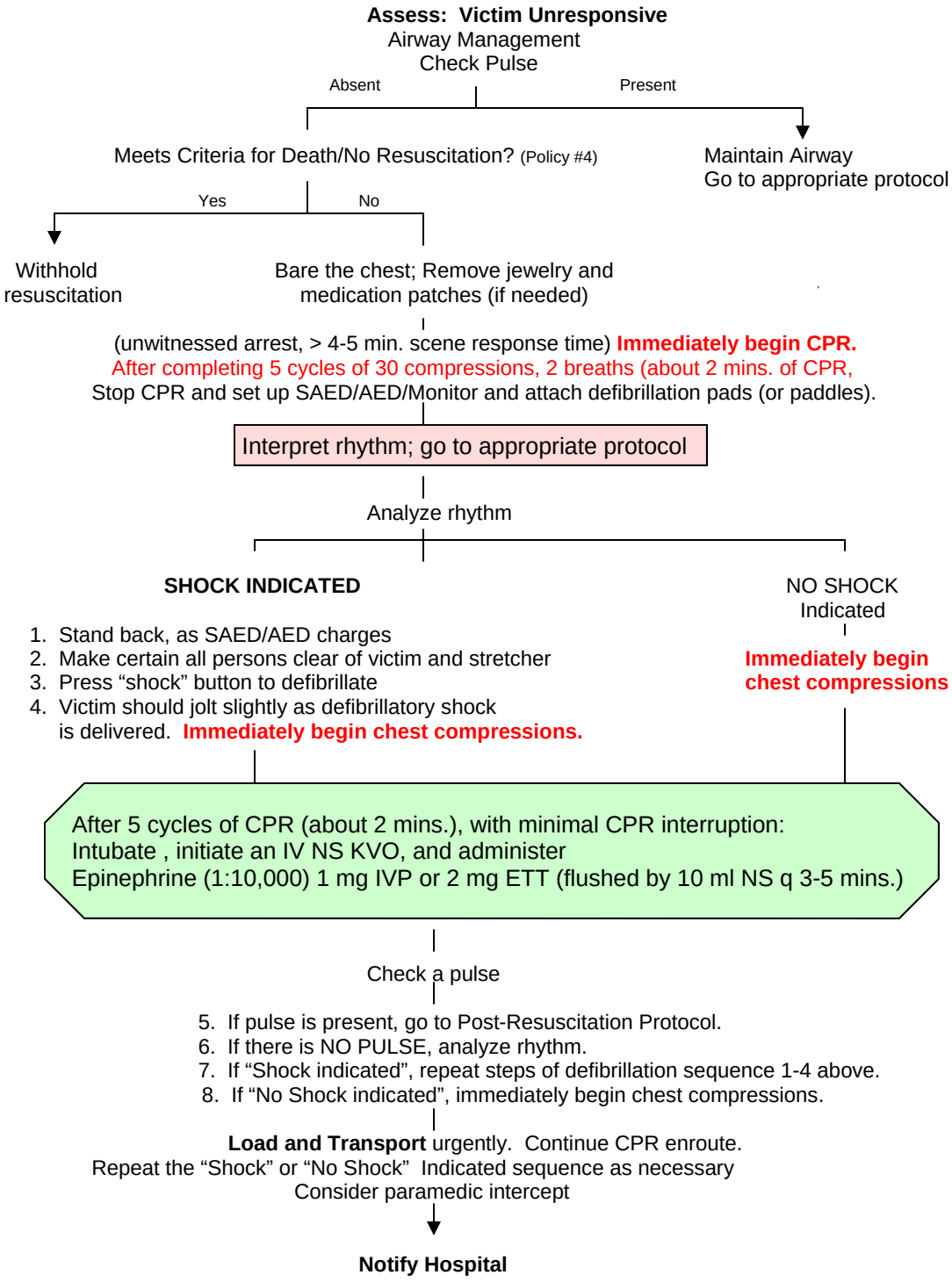
Consider 12-Lead ECG

Contact Medical Direction

IMPORTANT:
Use of Lidocaine in heart blocks can worsen bradycardia and lead to Asystole and death.

CARDIAC ARREST

USERS OF SAED/AED: **A child ≥ 1 years old** should be defibrillated. **Pediatric pads should be used on children.** (**Always refer to your manufacturer's recommendations for pediatric use.)**

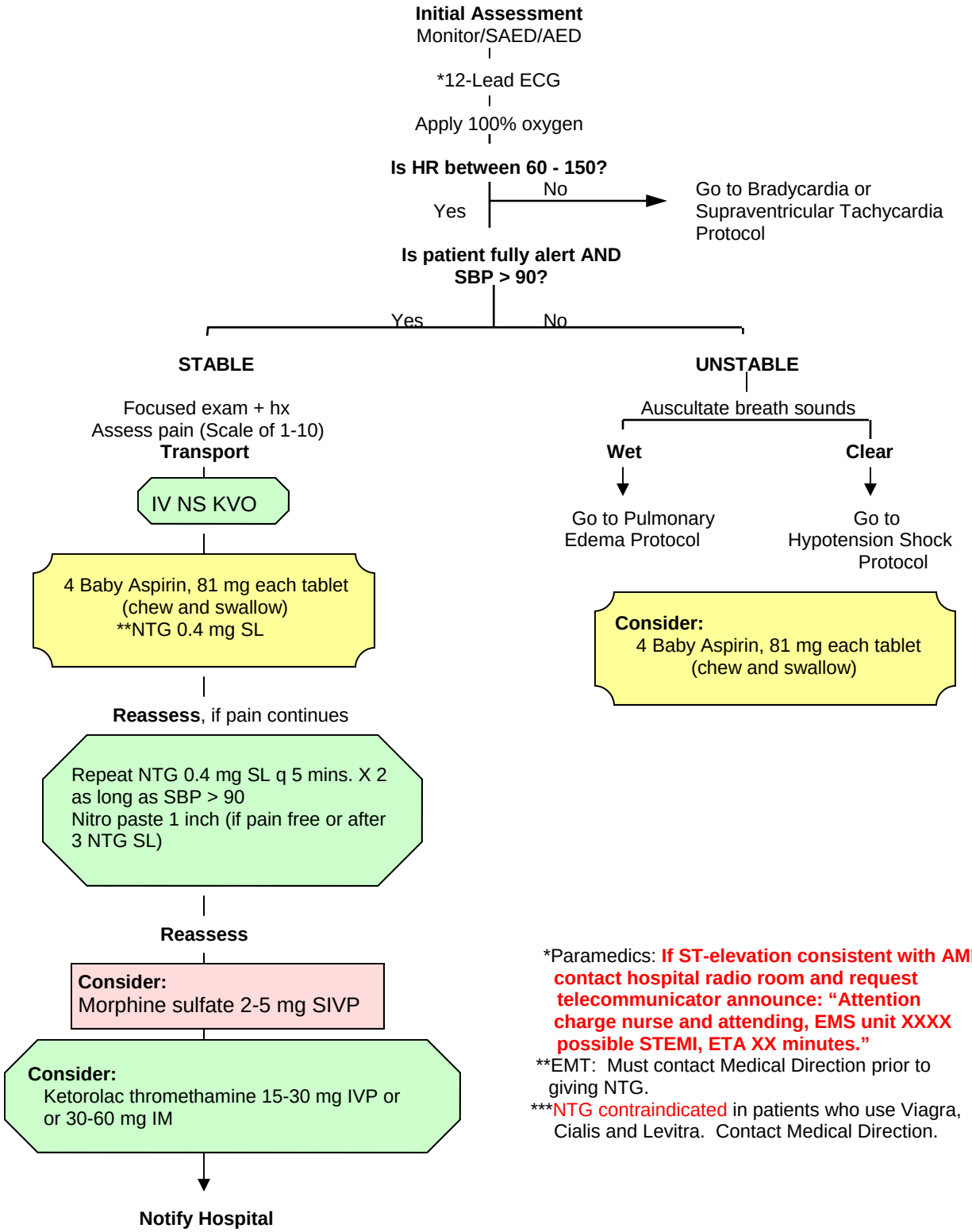


IMPORTANT:
Maternal arrest: treat mother per protocol with immediate notification to Medical Direction and Rapid Transport.
DO NOT TURN THE SAED/AED off!!! Keep SAED/AED operational until you are at a medical facility or an EMT-P squad assumes care. REMEMBER: Resuscitation is still possible!

CHEST PAIN, SUSPECTED CARDIAC EVENT

(Possible MI)

Pain described as: ***dull, heavy, pressure, sharp, radiating, constant, tight (may be associated with dyspnea); pale; diaphoresis; nausea and vomiting; dizziness.***



*Paramedics: **If ST-elevation consistent with AMI, contact hospital radio room and request telecommunicator announce: "Attention charge nurse and attending, EMS unit XXXX possible STEMI, ETA XX minutes."**

**EMT: Must contact Medical Direction prior to giving NTG.

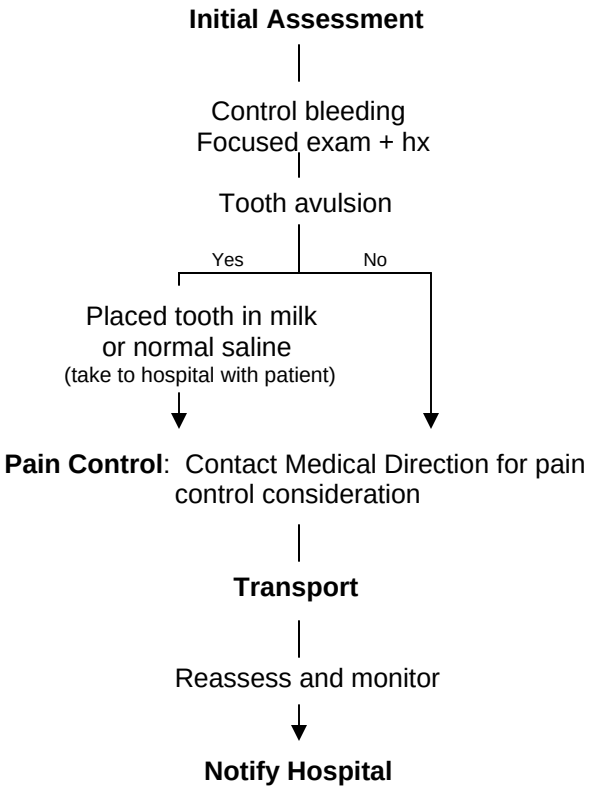
***NTG contraindicated in patients who use Viagra, Cialis and Levitra. Contact Medical Direction.

If the patient develops signs CHF/Pulmonary Edema go to Pulmonary Edema Protocol.

EMT-I's are required to contact Medical Direction prior to giving NTG if no IV is initiated.

Version: **Pitt County 2006**

DENTAL PROBLEMS



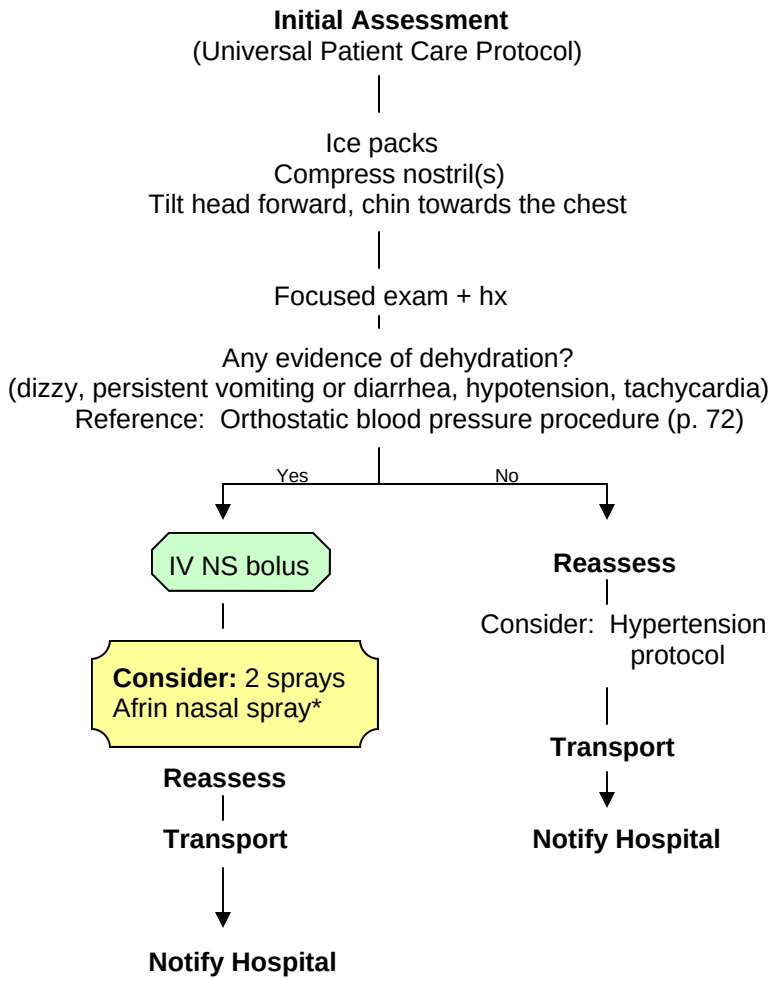
S/S: bleeding, pain
fever, swelling
tooth missing or fractured

Differential: MI; facial cellulites; infection; fracture; abscess; impacted tooth (wisdom); TMJ syndrome

IMPORTANT:
Occasionally cardiac chest pain can radiate to the jaw.
Significant soft tissue swelling of the face or oral cavity can represent cellutitis or abscess.
Minimize scene/transport times for tooth avulsions. Re-implantation is possible within four hours if tooth is properly cared for.
If dental problems are a result of trauma, assess for any possible C-spine injuries. Follow the appropriate protocol for those injuries.

Version: **Pitt County 2006**

EPISTAXIS

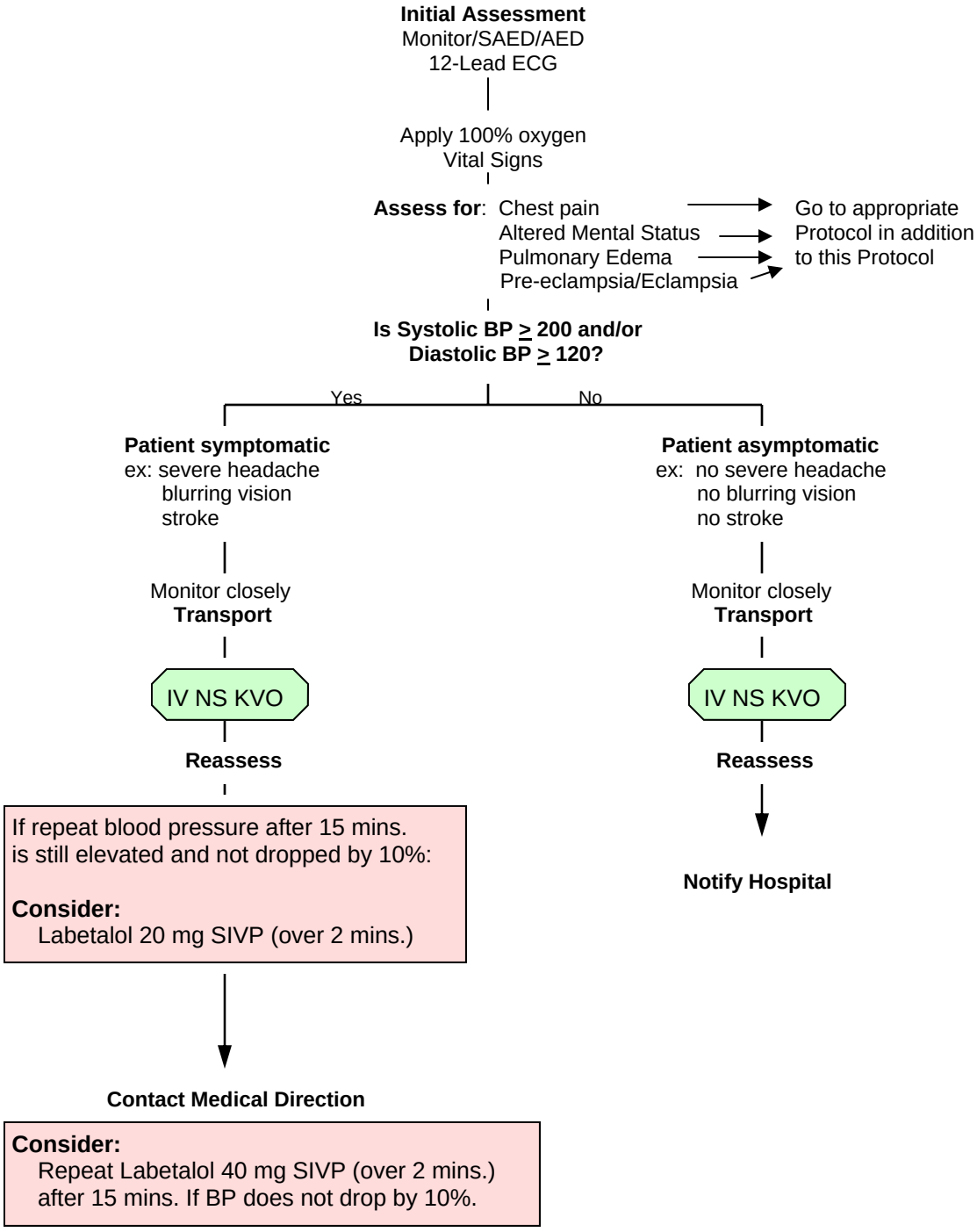


S/S: bleeding from nasal passage
pain; nausea; vomiting
Differential: trauma; infection (viral URI or Sinusitis); allergic rhinitis; lesions (polyps, ulcers)

IMPORTANT:
***Bilateral nose bleed: 2 sprays of Afrin nasal spray in each nostril.**
Avoid Afrin in patients with BP >110 diastolic or known coronary artery disease.
Bleeding may also occur posteriorly.
The amount of blood loss with epistaxis is difficult to quantify.

Version: **Pitt County 2006**

HYPERTENSION

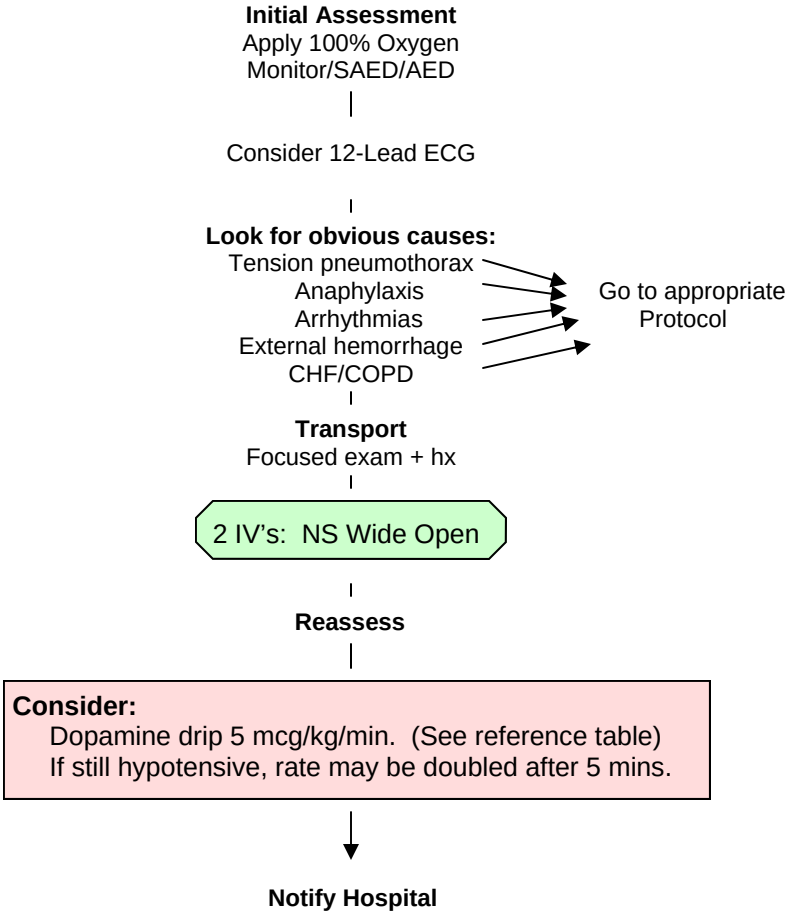


Additional S/S's: headache; nosebleed; blurred vision; dizziness
Differential: hypertensive encephalopathy; primary CNS injury (Cushing's response); MI; aortic dissection (aneurysm); pre-eclampsia/eclampsia

Version: **Pitt County 2006**

HYPOTENSION SHOCK

(Nontrauma)



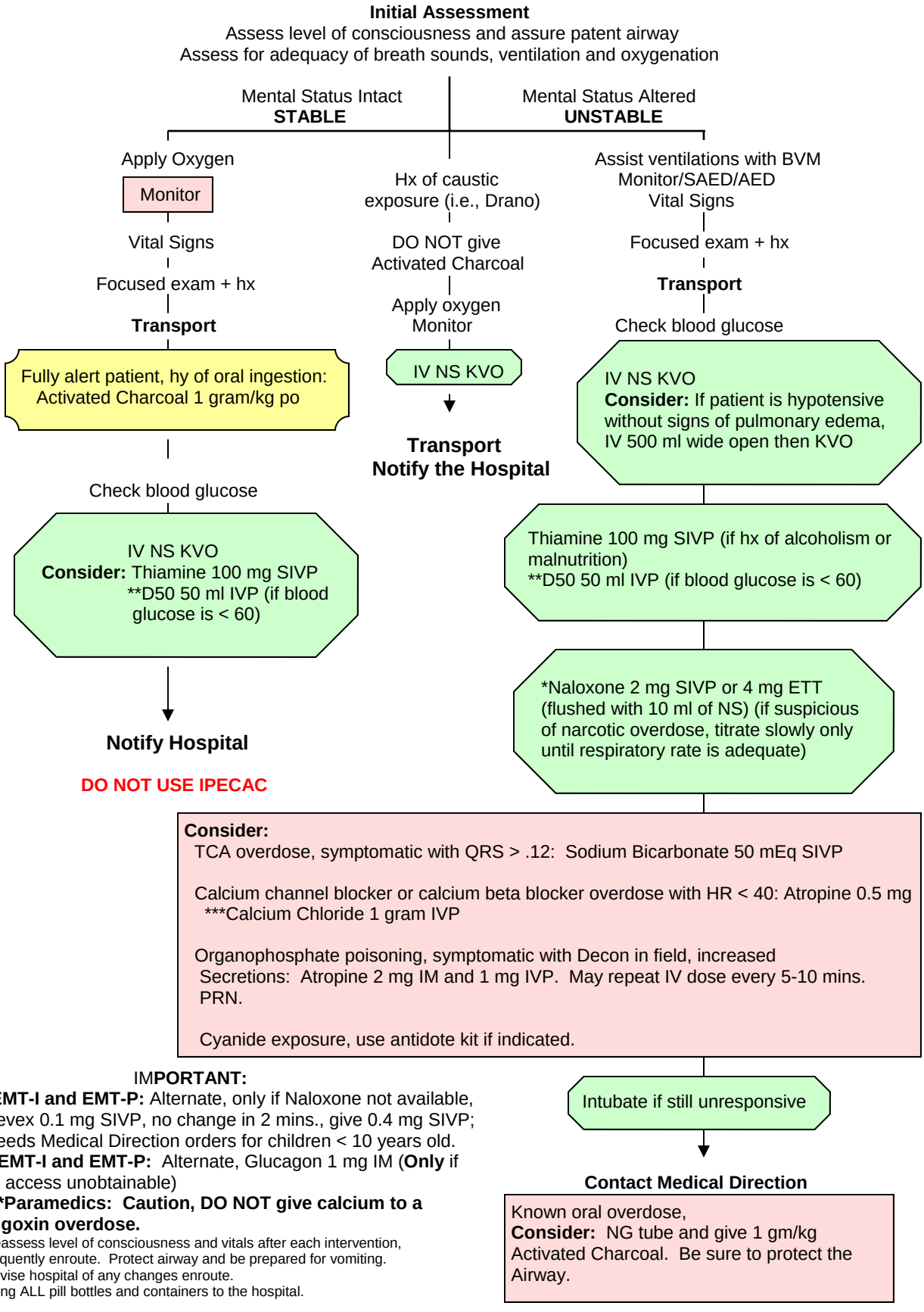
Possible S/S: restlessness; confusion
weakness; dizziness
weak, rapid pulse
pale, cool, clammy skin
coffee-ground emesis; tarry stools
delayed capillary refill

Differential: shock (hypovolemic; cardiogenic; septic; neurogenic; anaphylactic); ectopic pregnancy; pulmonary embolus; tension pneumothorax; medication effect/overdose; vasovagal

IMPORTANT:
Consider all possible causes for shock and treat using the appropriate protocol.

Version: **Pitt County 2006**

OVERDOSE/TOXIC INGESTION



IM**PORTANT:**

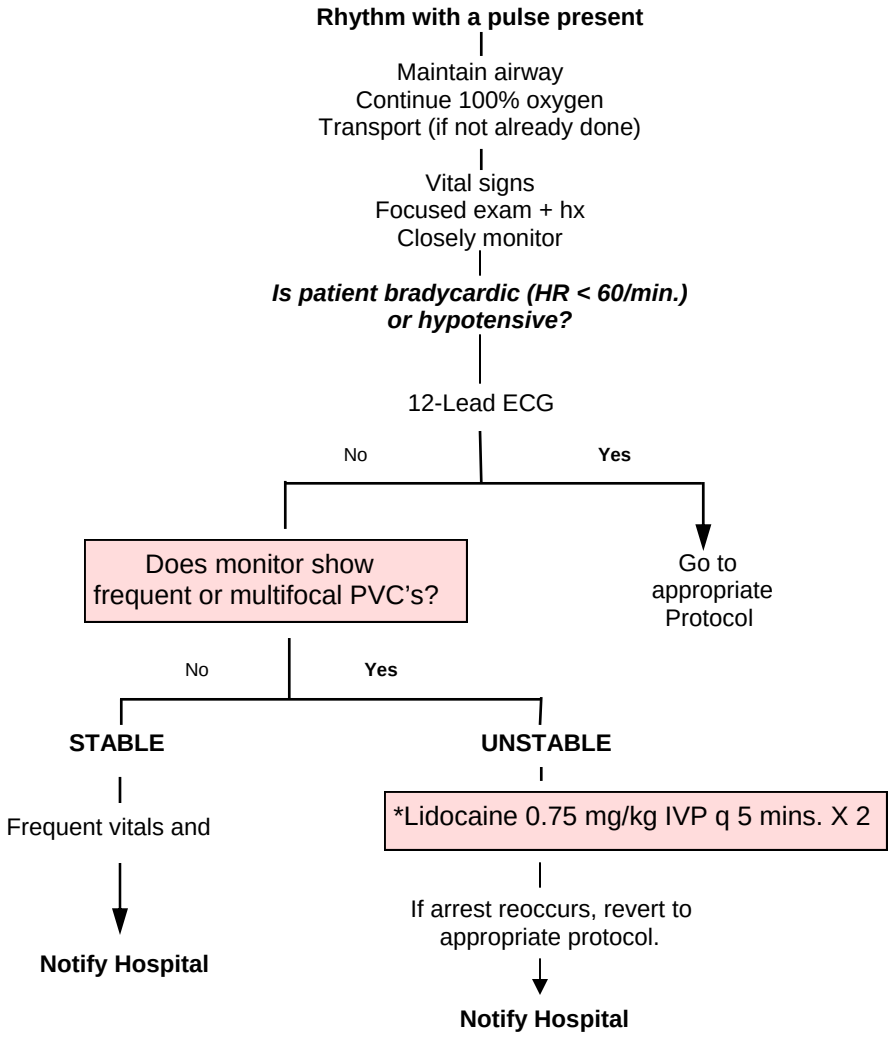
***EMT-I and EMT-P:** Alternate, only if Naloxone not available, Revex 0.1 mg SIVP, no change in 2 mins., give 0.4 mg SIVP; Needs Medical Direction orders for children < 10 years old.

****EMT-I and EMT-P:** Alternate, Glucagon 1 mg IM (**Only** if IV access unobtainable)

*****Paramedics: Caution, DO NOT give calcium to a Digoxin overdose.**

Reassess level of consciousness and vitals after each intervention, frequently enroute. Protect airway and be prepared for vomiting.
Advise hospital of any changes enroute.
Bring ALL pill bottles and containers to the hospital.

POST RESUSCITATION

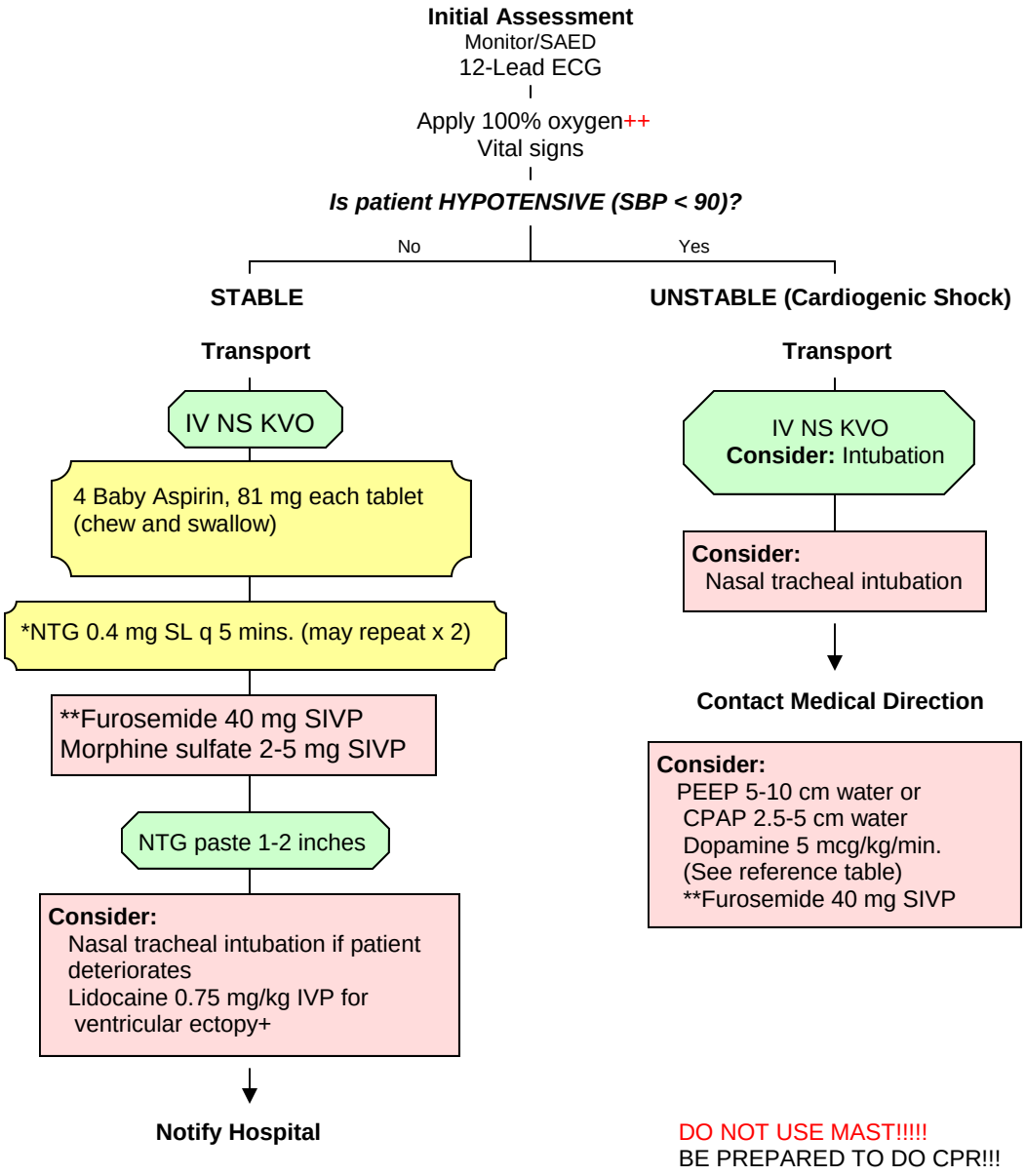


IMPORTANT: If you started with Lidocaine, you MUST continue with Lidocaine.
DO NOT USE Lidocaine initially and then change to Amiodarone.
If you started with Amiodarone initially you must stay with Amiodarone.

***Amiodarone 150 mg IV bolus over 10 mins.** **Use a filtered needle to draw up the Amiodarone from the ampule.**

PULMONARY EDEMA

Patient usually has a history of CAD, CHF or hypertension; may be sitting upright; are always diaphoretic usually with wet breath sounds; may have wheezing, JVD or ankle edema. New onset pulmonary edema may be due to MI.



IMPORTANT:

"All that wheezes is not asthma." Acute CHF will often present with wheezes before rales develop.

***EMT: Required to contact Medical Direction prior to giving NTG.**

***EMT-I: Required to contact Medical Direction prior to giving NTG if no IV initiated.**

NTG is contraindicated in patients who use Viagra, Cialis and Levitra. Contact Medical Direction.

Patients who are already prescribed Furosemide, the paramedic may double the patient's oral dose up to **maximum of 160 mg.

+Ventricular Ectopy may be present and is usually due to hypoxia. Lidocaine may further depress cardiac contractility and should be used with great caution.

++All CHF: If oxygen saturations go below 95%, put patient on capnography. If it is unavailable, document "capnography unavailable".

Initial dosage of Lidocaine in CHF is reduced to 0.75 mg/kg and subsequent doses are given at 15 min. intervals.

PULSELESS ELECTRICAL ACTIVITY (PEA)

This protocol is for EMT-P's only.

CPR

Monitor or Quick Look Paddles
Check pulse, monitor to **confirm PEA**
(Apply monitor if not already applied)

Intubate

IV NS KVO
*Epinephrine (1:10,000) 1 mg IVP
repeat q 3-5 mins.

Check pulse+, monitor
Look for signs of:

hypovolemia, hypoxia, hypoglycemia, hypothermia,
Hypo/hyperkalemia (dialysis), drug overdose (tricyclics, digitalis, beta blockers,
calcium channel blockers) , cardiac tamponade, tension pneumothorax,
Thrombosis (coronary or pulmonary), or trauma

Continue CPR
Transport

Consider:
*Atropine 1 mg IVP (if complex rate is <60/min.)
repeat q 3 to 5 mins. PRN (maximum total dose, 3 mg)
Transcutaneous external pacing
Fluid challenge of NS, wide open (1,000 ml)
**Needle decompression
Sodium bicarbonate 1 mEq/kg IVP
Calcium chloride 1g IVP

Notify Hospital

IMPORTANT:
***Use ETT or IO for drug orders if** the IV route is unsuccessful or takes too long to establish. The ETT dose would be doubled followed by a 10 ml NS flush.

****BREATH SOUNDS:**
If breath sounds are markedly unequal, check ETT placement.
If breath sounds still unequal, follow procedure for TENSION PNEUMOTHORAX

Reassess patient after each intervention.

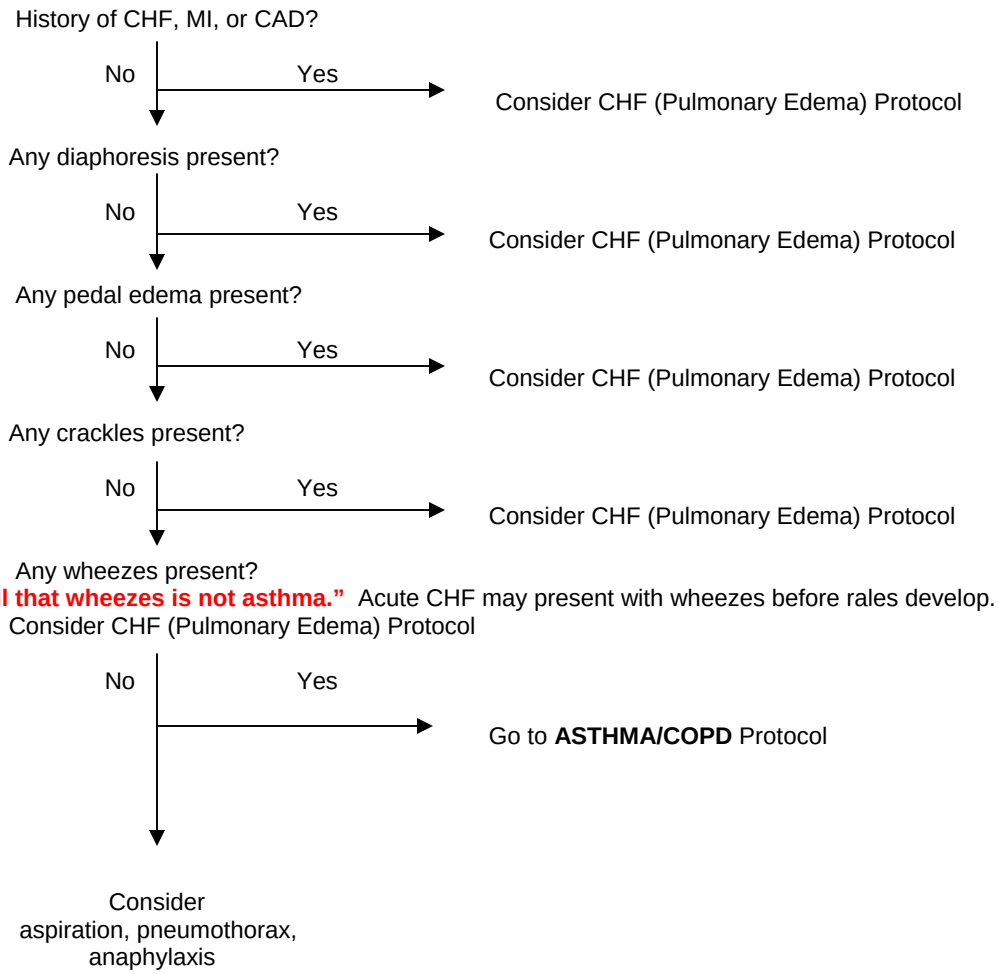
+If pulses return, go to the post-resuscitation algorithm.
If the monitor changes to VF, ASYS, VT or PSVT, go to appropriate algorithm.

RESPIRATORY DISTRESS

In any patient with respiratory distress, consider CHF/pulmonary edema, asthma/COPD/emphysema, airway obstruction, aspiration, pneumothorax, and anaphylaxis.

Asthma/COPD will usually present with history of bronchospasm, bronchodilator meds (theophylline preparation and inhalers), retractions, wheezes, decreased air exchange and prolonged expiration.

"All that wheezes is not asthma." Acute CHF may present with wheezes before rales develop.

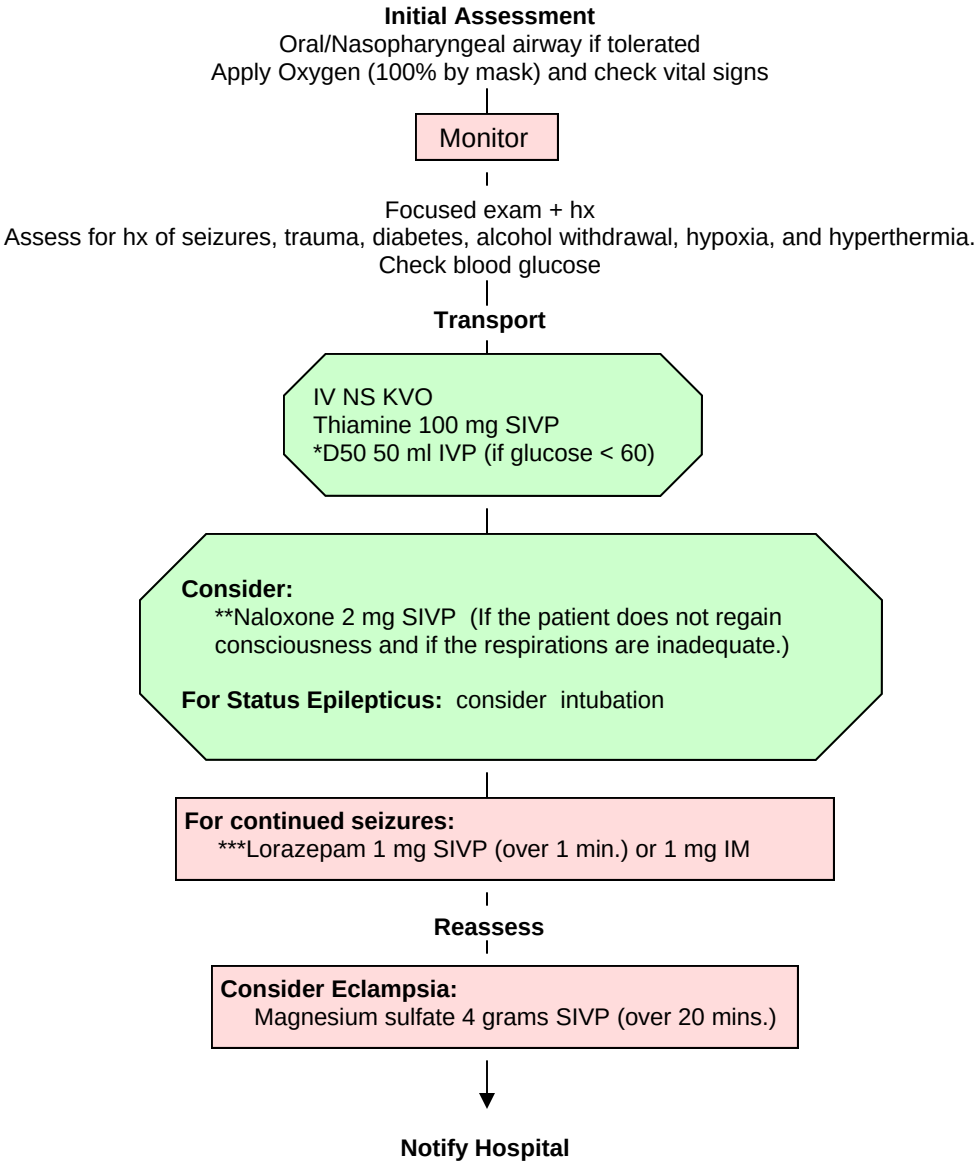


IMPORTANT:

If oxygen saturations go below 95%, put patient on capnography. (if capnography unavailable, Document "capnography unavailable)
PEEP/CPAP: A patient with hx of asthma, COPD, Emphysema, and other chronic pulmonary disease, the paramedic **MUST contact Medical Direction prior to PEEP/CPAP.**

Version: **Pitt County 2006**

SEIZURE



IMPORTANT:
***EMT-I and EMT-P's:** Alternate, Glucagon 1 mg IM (**Only** if IV access unobtainable)
****EMT-I and EMT-P's:** Alternate, Revex 0.1 mg SIVP, no change in 2 mins., give 0.4 mg SIVP; needs Medical Direction orders for children < 10 years old. (Use only if Naloxone is not available.)
*****EMT-P:** Alternate, Diazepam 5 mg SIVP or 5 mg IM or Midazolam 2 mg SIVP or 2 mg IM.

Assess for the possibility of trauma and substance abuse.
Lorazepam: Contact Medical Direction for orders to repeat Lorazepam 1 mg SIVP dose after 2 mins. (maximum total dose of 2 mg).
Reassess patient, level of consciousness and vitals after each intervention and frequently enroute.
Be prepared for airway problems, vomiting and continued seizures. Be prepared to assist ventilations if necessary, especially if Diazepam, Midazolam or Lorazepam are used.

SUPRAVENTRICULAR TACHYCARDIA

This protocol is for EMT-P's only.

Initial Assessment
Apply 100% Oxygen
Vital signs indicating a **HR > 150/min.**

Monitor

IV NS KVO

Are QRS complexes narrow (< .12 sec.) or wide (> .12 sec.)?

Narrow

Focused exam + hx

Are there P waves before every QRS?

Yes

Assess for causes of Sinus Tachycardia and treat underlying cause.

No

Wide

Does patient have a history of PSVT, Bundle Branch Block, or WPW? (or if irregular, irregular rhythm or large R wave in V6 and small R wave in V1).

No

Go to Ventricular Tachycardia Protocol

Yes

PSVT/Atrial Fibrillation
Is patient hypotensive, confused, having severe chest pain, or in Pulmonary edema?

No

STABLE PSVT/Atrial Fibrillation/Flutter

12-Lead ECG

Attempt vagal maneuvers

Adenosine 6 mg rapid IVP (over 1-3 secs) followed by rapid bolus, 20 ml saline flush; Adenosine 12 mg may be repeated after 2 mins. x 2, if no response

Contact Medical Direction

Consider:

Diltiazem 20 mg (over 2 mins.) SIVP

Yes

UNSTABLE PSVT/Atrial Fibrillation

Consider 12-Lead ECG
Cardiovert at 50-100J

Consider:

*Midazolam 2 mg SIVP prior to cardioversion

In conscious patient with SBP > 100 and narrow complexes, may use:

Adenosine 6 mg rapid IVP (over 1-3 secs.)
May repeat 12 mg after 2 mins. x 2

Be prepared for repeat cardioversion, doubling energy level (maximum 360J), and drug therapy should the patient deteriorate.

Contact Medical Direction

Consider:

Diltiazem 20 mg (over 2 mins.) SIVP
Repeat Midazolam 1-5 mg SIVP

Version: **Pitt County 2006**

IMPORTANT: Reassess and monitor patient closely.
Monitor patient for hypotension after administering Diltiazem.
Adenosine rarely is effective for atrial flutter/atrial fibrillation.
Diltiazem contraindicated in any wide complex tachycardia.
*May consider Diazepam 5 mg SIVP or Lorazepam 1 mg SIVP for Midazolam prior to cardioversion.

SUSPECTED STROKE

Initial Assessment
Monitor
12-Lead ECG

Apply 100% oxygen

Check blood glucose
Focused exam (**includes completing the EAST form**) + hx

S/S:
- Unilateral weakness
- Slurred speech/difficulty speaking
- Facial droop; difficulty swallowing
- Altered level of consciousness
- Headache; vomiting
- Hemiparesis

Hx:
- Previous stroke or TIA's
- HTN, diabetes
- Recent or previous cardiovascular surgery
- Medications
- Atrial fibrillation

Consider: Intubation if altered LOC

IV NS KVO
Consider: *D50 50 ml IVP if blood glucose < 60

Transport
Acute strokes less than 3-hours, MUST complete a
Thrombolytic Screening Checklist

Reassess

Consider: (If suscept ischemic stroke and systolic BP > 220)
Only if the repeat blood pressure after 15 mins. Is still elevated and not dropped by 10%.
Labetalol 20 mg SIVP (over 2 mins.)

Reassess and recheck blood pressure

Contact Medical Direction

Consider:
Repeat Labetalol 40 mg SIVP (over 2 mins.) after 15 mins. If BP does not drop by 10%.

or

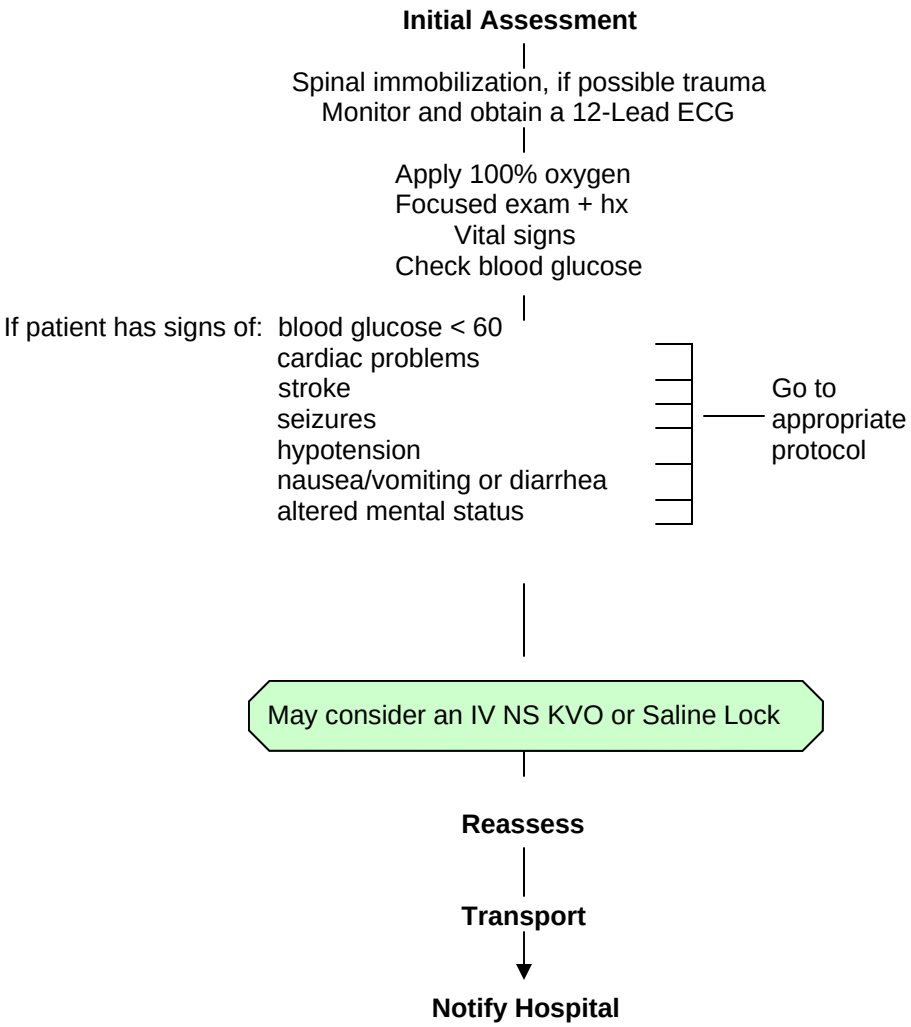
Consider: NTG 0.4 mg tablet SL

IMPORTANT:
EAST: Emergency Assessment Stroke Tool (EAST), Stroke Alert. Form to be completed and given to the charge nurse in the emergency room. (Appendix X, page 216).
Thrombolytic Screening Checklist (see Appendix H, page 178) should be completed on any acute stroke patient with a duration of symptoms < 3 hours; scene times and transport times should be minimized.
*EMT-I and EMT-P's: Alternate, Glucagon 1 mg IM (Only if IV access unobtainable)
Version: **Pitt County 2006**

SYNCOPE

Hx: cardiac; stroke; seizures; blood loss (GI, ectopic); females—menstrual period, vaginal bleeding; nausea/vomiting; diarrhea; past medical hx of syncope

S/S: loss of consciousness with recovery; lightheadedness; dizziness; palpitations, slow or rapid pulse; pulse irregularity; decreased blood pressure



IMPORTANT:
Assess for S/S's of trauma if associated or questionable fall with syncope.
Consider dysrhythmias, GI bleed, ectopic pregnancy and seizures.

Version: **Pitt County 2006**

VENTRICULAR FIBRILLATION

Pulseless Ventricular Tachycardia

This protocol is for EMT-P's only.

CPR

Monitor or Quick look paddles
Confirm VF/Pulseless VT

Defibrillate 120-200 joules *

Resume CPR for 5 cycles of 30 compressions, 2 breaths
(Apply monitor if not already applied)

Intubate
IV NS KVO****
Minimize interruptions in compressions

Epinephrine (1:10,000) 1 mg IVP **
Repeat q 3-5 mins.

Check pulse+, monitor, if VF or pulseless VT

Defibrillate 120-200 joules*

Resume CPR for 2 minutes (advanced airway successful)
(2-rescuer: compressions are not stopped to await deliver breaths)

***Lidocaine 1.5 mg/kg IVP **
(Repeat IVP dose in 5 min. if needed)
Minimize interruptions in compressions

Check pulse+, monitor, if VF or pulseless V

Defibrillate 120-200 joules *

Resume CPR for 2 minutes.
Use the following as drug-shock sequence:

Treat Torsades de pointes with Magnesium sulfate 1-2 grams SIVP (over 10 mins.)
Treat dialysis patients early with, Calcium Chloride 1 gram IVP and
Sodium bicarbonate 1 mEq/kg IV for possible hyperkalemia
Sodium bicarbonate 1 mEq/kg IV if prolonged arrest

Notify Hospital

IMPORTANT:

*__All joules above are for biphasic energy. Monophasic, use 360 joules.__

**Use ETT or IO for drug orders if the IV route is unsuccessful or takes too long to establish. The ETT dose would be doubled followed by a 10 ml NS flush.

***__Amiodarone 300 mg IVP may be given instead of Lidocaine. CAUTIONS: A filtered needle must be used to draw up the drug from the ampule. If Amiodarone is used intiially, you cannot change to Lidocaine for the repeat dose. See "Post Resuscitation Protocol" for Amiodarone repeat dose.__

****Dialysis patient shunts for IV access, refer to Protocol 8 (IV Access).

***REASSESS*:**

+If pulses return, go to post-resuscitation protocol. If monitor shows complexes, but there are no pulses, go to PEA protocol.

VENTRICULAR TACHYCARDIA
WITH A PULSE

(Pulseless VT is treated as VF.)

This protocol is for EMT-P's only.

Initial Assessment
Monitor and obtain a 12-Lead ECG
Apply 100% oxygen

Is patient alert?

Yes | No

Is patient hypotensive?

No | Yes

Is patient having <u>severe</u> chest pain?

IV NS KVO

No | Yes

STABLE VT

Transport

**Lidocaine 1.5 mg/kg IVP
repeat 0.75 mg/kg q 5 min. x 2
(maximum total of 3 mg/kg)

Consider:
If patient becomes unstable, premedicate with *Midazolam 2 mg SIVP prior to cardioversion.
Cardiovert at 100 joules
NTG 0.4 mg tablet SL (chest pain, if SBP > 90)
Morphine sulfate 2-5 mg SIVP (chest pain)

Notify Hospital

UNSTABLE VT

Consider:
*Midazolam 2 mg SIVP prior to cardioversion

Cardioversion at 100 joules***
Be prepared for repeat cardioversion, doubling energy level (max. 360J), and drug therapy should patient deteriorate.

Transport

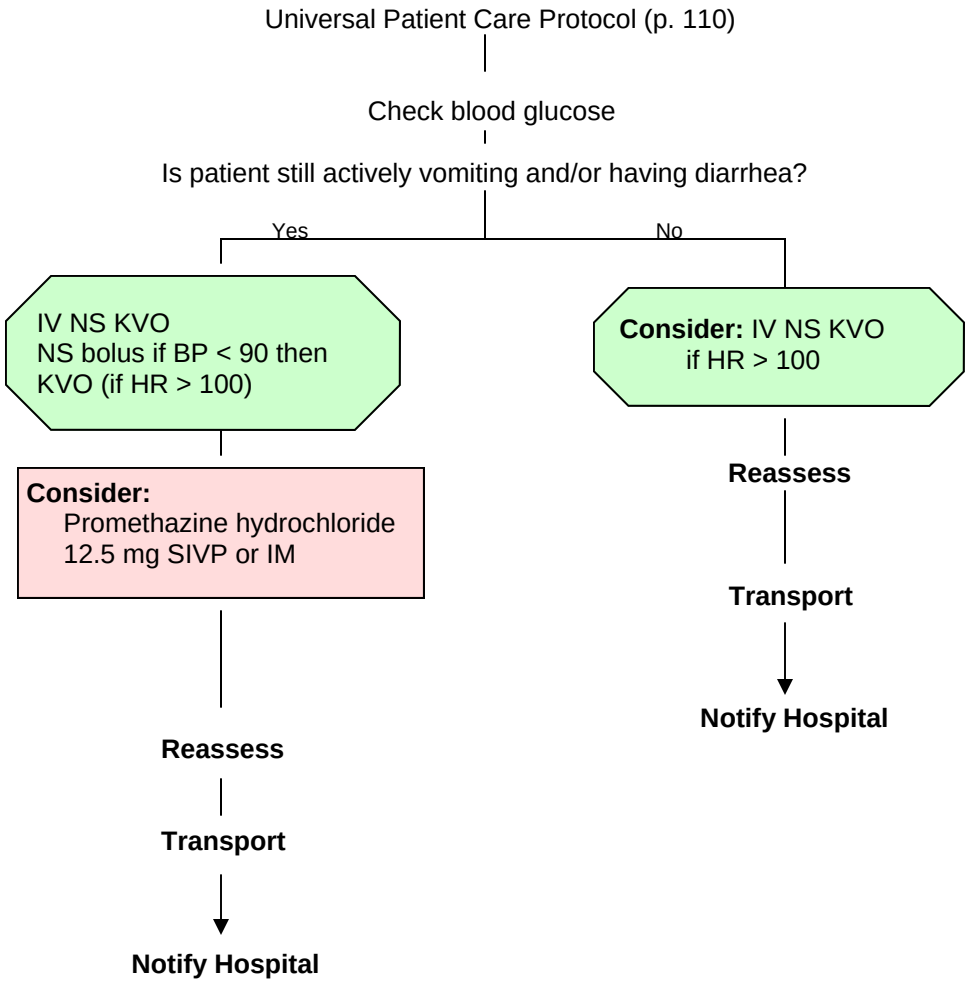
**Lidocaine 1.5 mg/kg IVP
repeat 0.75 mg/kg q 5 mins. x 2
(maximum total of 3 mg/kg)

Notify Hospital

IMPORTANT:
*Alternatively may substitute Diazepam 5 mg SIVP or Lorazepam 1 mg SIVP.
****Amiodarone 150 mg IVP over 10 mins. may be given as alternative to Lidocaine. CAUTIONS: A filtered needle must be used to draw up the drug from the ampule. If Amiodarone is used initially, DO NOT change to Lidocaine. If you started with Amiodarone initially you must stay with Amiodarone.**
*****Joules same for monophasic and biphasic.
If VT becomes pulseless, or degenerates to VF, immediately defibrillate (witnessed arrest).

Version: **Pitt County 2006**

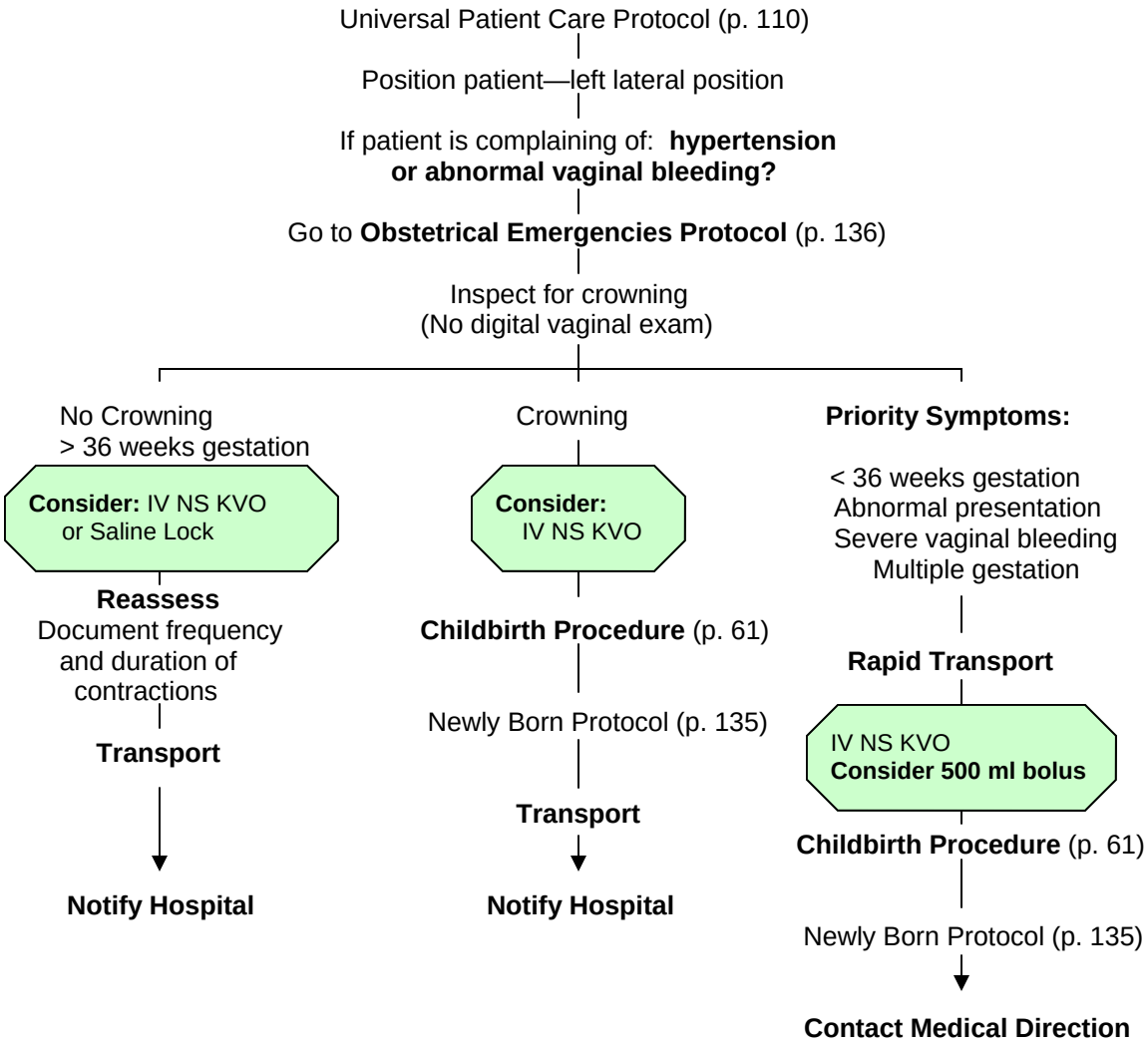
VOMITING AND DIARRHEA



IMPORTANT:
Some differentials for N/V:
myocardial infarction; drugs (chemotherapy, NSAID's); GI and renal disorders; diabetic ketoacidosis; pregnancy; food or toxin induced; medication or substance abuse; CNS (stroke, trauma or hemorrhage, headache, increased pressure); electrolyte abnormalities; gynecologic disease

Version: **Pitt County 2006**

CHILDBIRTH/LABOR



S/S: spasmodic pain
vaginal discharge or bleeding
crowning or urge to push
meconium

Differential: abnormal presentation (buttock, foot, hand)
prolapsed cord; placenta previa; abruption placenta

IMPORTANT:

Prolapsed cord: cord presenting in vagina, insert two fingers of gloved hand to raise presenting part of fetus off the cord. **Do not attempt delivery! Do not pull the cord! Do not push the cord back into the vagina!**

Maternal seizures: refer to Obstetrical Emergencies Protocol.

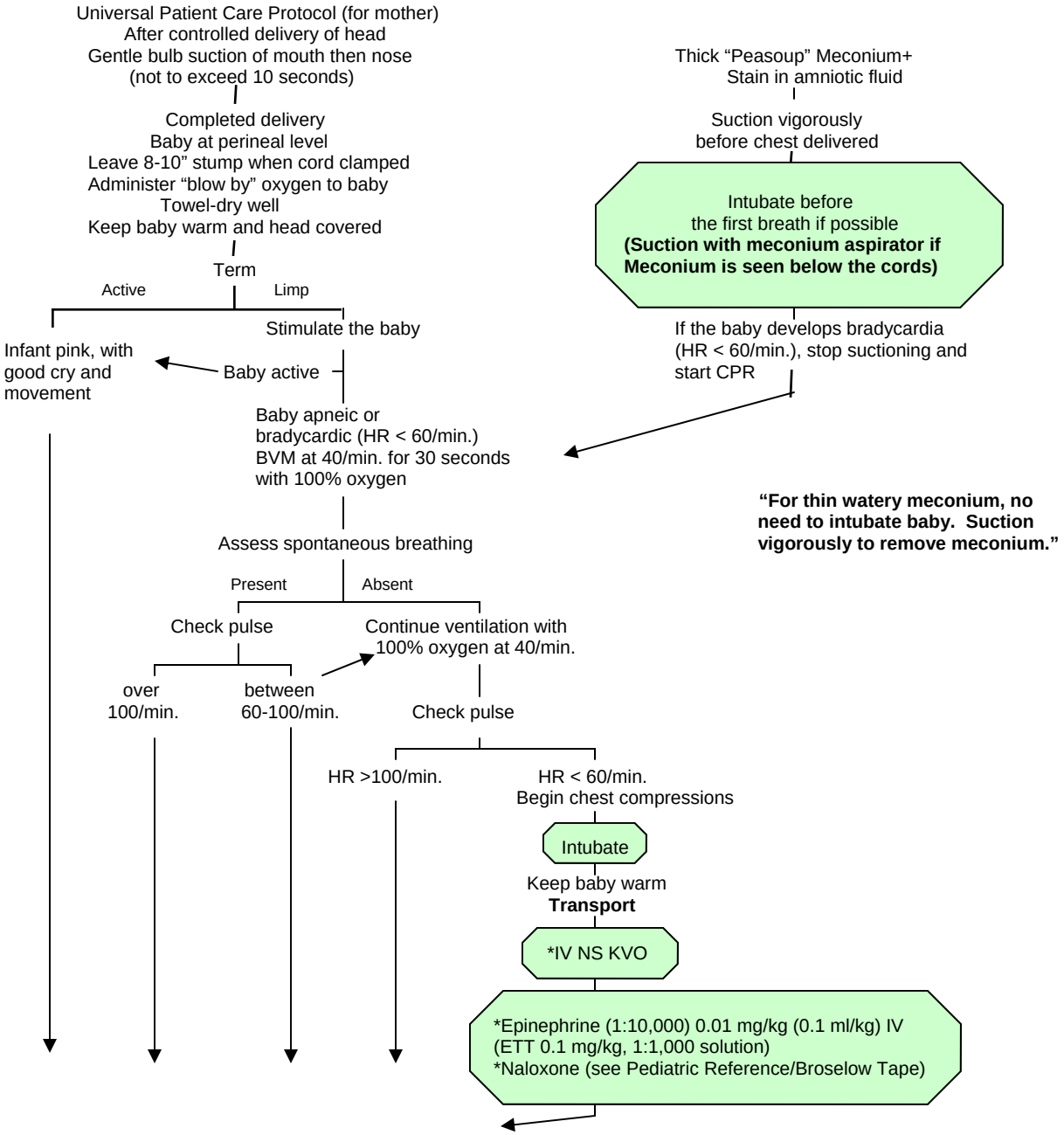
Limb presentation: Do not attempt field delivery. Do not pull on the extremity or push the extremity back into the vagina.

Some perineal bleeding is normal with any childbirth. Large quantities of blood or free bleeding are abnormal. Document all times (delivery, contraction frequency, and length).

After delivery, massaging the uterus (lower abdomen) will promote uterine contraction and help to control post-partum bleeding.

Version: **Pitt County 2006**

NEWLY BORN



DETERMINE APGAR at 1 min. and at 5 mins. Document. (See Appendix)
Keep neonate warm and **Transport**

Notify Hospital

IMPORTANT: Contact Medical Direction if abnormal childbirth or low APGAR.

***Paramedics:** IO is an acceptable IV route for fluids and medications in children with inadequate perfusion (or when IV access is unlikely).

During transport: Maintain airway and ventilation. Bradycardia (HR < 100/min.) usually indicates inadequate ventilation or oxygenation.

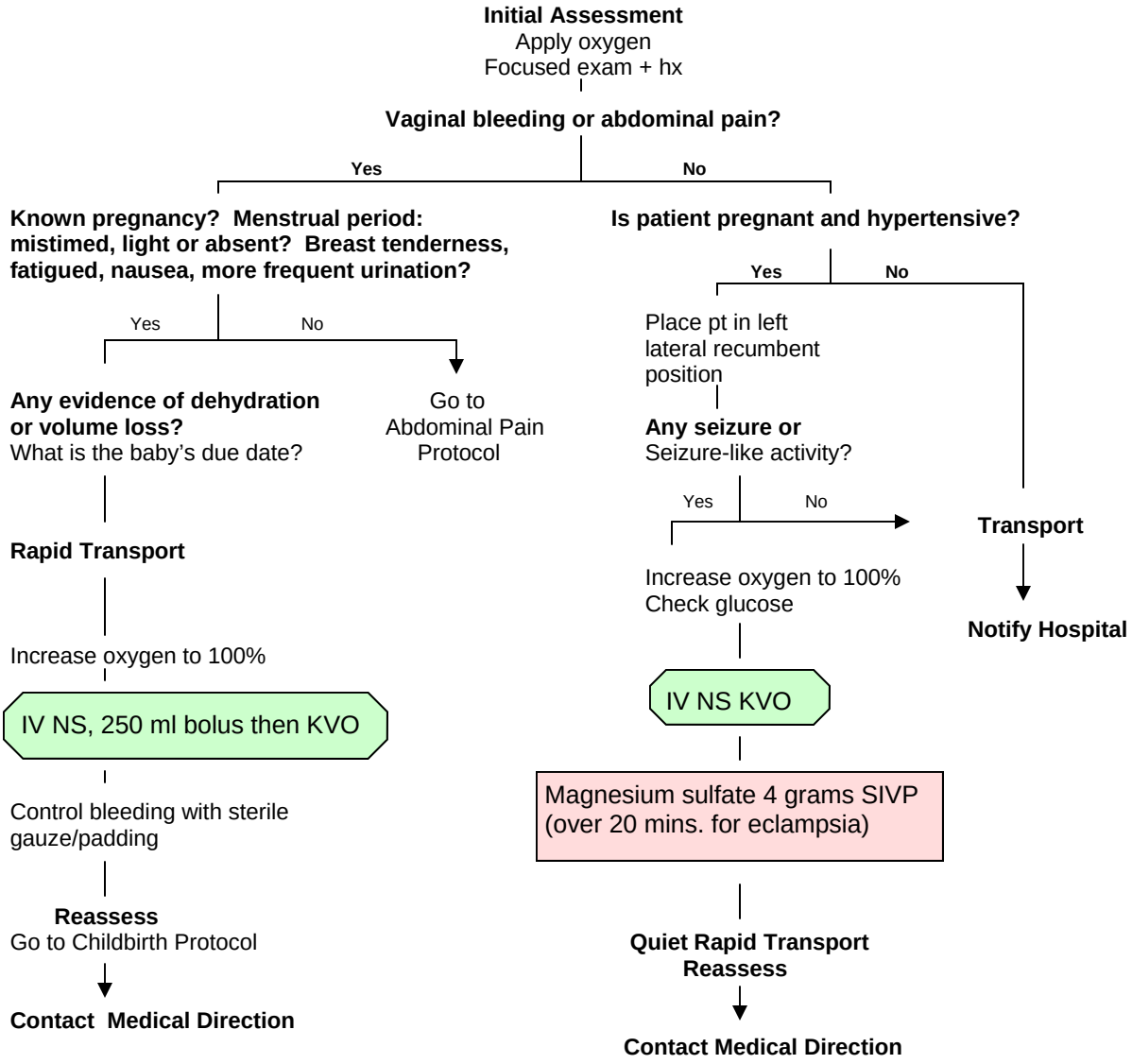
EMT-P's: If vagal stimulation results in bradycardia, administer Atropine 0.02 mg/kg (minimum dose 0.1 mg; maximum single dose: 0.5 mg)

Maternal sedation or narcotics will sedate infant (Naloxone effective).

Consider hypoglycemia in infant (FSBS in neonate < 35; neonatal mode on a glucometer necessary for accuracy of reading).

Version: **Pitt County 2006**

OBSTETRICAL EMERGENCY



Hx: prenatal care; "high risk" pregnancy; hypertension; seizures
S/S's: vaginal bleeding (dark or bright red)
abdominal pain; edema of the hands and face;
hypertension; seizures; severe headache, visual changes
Differential: ectopic pregnancies; spontaneous abortion; pre-eclampsia/eclampsia; placenta previa; placenta abruption

IMPORTANT:
Severe headache, vision changes, or RUQ pain may indicate pre-eclampsia.
Hypertension: relative increase of 30 systolic or 20 diastolic from the patient's normal BP (pre-pregnancy)
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 and the size of any clots
All pregnant patients involved in a MVC should be seen by a physician for evaluation and fetal monitoring.

Version: **Pitt County 2006**

PEDIATRIC BRADYCARDIA

Universal Patient Care Protocol (p. 110)

Airway, Pediatric Protocol (p.103)

Attach monitor/SAED/AED
Check blood glucose

Any S/S's of severe cardiorespiratory compromise?

No

Transport

Reassess

Notify Hospital

Yes

If HR < 60, start CPR
Transport

IV NS bolus 20 ml/kg

Reassess

Epinephrine 1:10,000
0.01 mg/kg; 0.1 ml/kg IV

Consider:
Atropine 0.02 mg/kg IV (minimum dose 0.1 mg)
for increased vagal tone or AV Blocks (3rd°)

Reassess

Consider: External Transcutaneous Pace (start at 100 HR, set output at maximum, then rapidly adjust downward until slightly above minimum that consistently produces ventricular capture.

Reassess

Pacing not helpful in children:
bradycardia secondary to a postarrest hypoxic/ischemic myocardial insult or respiratory failure; asystole.

No pulse

Go to Pediatric Pulseless Arrest Protocol

Pulse

Consider:
D25 2 ml/kg IV
Naloxone 0.1 mg/kg SIVP
NS bolus 20 ml/kg

Notify Hospital
Reassess

S/S: decreased HR; delayed capillary refill or cyanosis
mottled skin; cool skin; hypotension
altered level of consciousness; arrest

Differential: hypoxemia; hypothermia; hypovolemia;
respiratory obstruction; trauma; hypoglycemia;
toxins/poisons/drugs; infection/sepsis

IMPORTANT: Neonates—DO NOT exceed 12.5% glucose concentration.

Pediatric paddles/pads should be used in children < 10 kg.

Majority of pediatric arrests are due to airway problems.

PARAMEDICS: IO is an acceptable IV route for fluids and medications for ≤ 6 years old.

Version: **Pitt County 2006**

PEDIATRIC HEAD TRAUMA

Universal Care Protocol (p.110)

For non-isolated head trauma,
go to Pediatric Multiple Trauma Protocol (p.140)

Spinal Immobilization Protocol (p.109)

Transport

If the child/infant does not: open eyes to voice
respond to pain
have pupils equal and reactive

Consider:
Intubation

If the child/infant is seizing:
Go to the Pediatric Seizure Protocol (p.143)

Check blood glucose

IV NS KVO
If blood glucose is < 60, give D25 2 ml/kg IV
Glucagon 0.03 mg/kg IM is IV not obtainable
Consider: Naloxone 0.1 mg/kg SIVP

Continue to monitor and **Reassess**

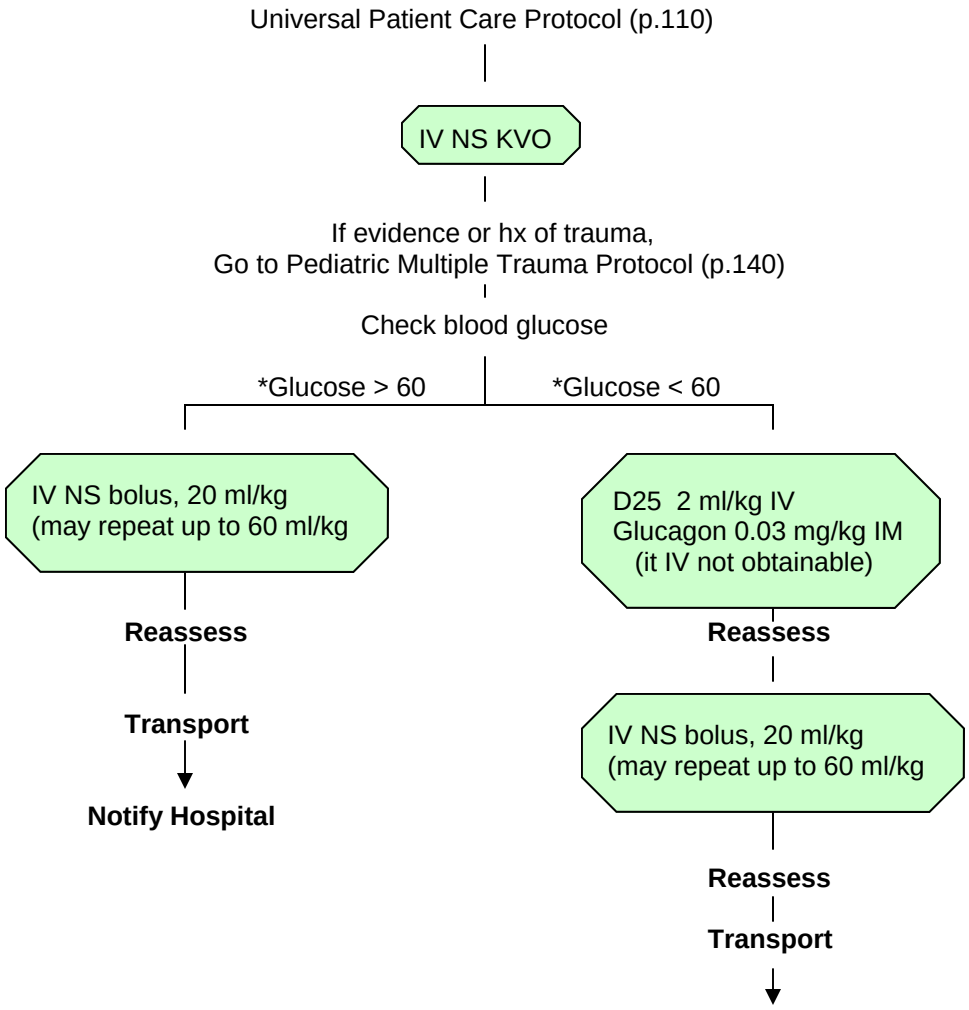
Notify Hospital

S/S: unconscious; altered mental status
respiratory distress/failure
pain, swelling, bleeding, vomiting
seizure; major traumatic mechanism of injury

Differential: skull fx; brain injury (concussion, contusion, hemorrhage or laceration); epidural hematoma; subdural hematoma; subarachnoid hemorrhage; spinal injury; abuse

IMPORTANT:
Monitor and document any changes in level of consciousness.
If GCS < 12 consider air/rapid transport + if GCS < 8 intubation should be anticipated.
Only hyperventilate patient when evidence of brain herniation (decorticate/decerebrate posturing, bradycardia or blown pupil). If hyperventilation is needed: 35/min. for infants < 1 yo and 25/min. for children > 1 yo.
Increased intracranial pressure (ICP) may cause hypertension and bradcardia.
Hypotension usually indicates injury or shock unrelated to head injury.
PARAMEDICS: IO is an acceptable IV route for fluids and medications for ≤ 6 years old.

PEDIATRIC HYPOTENSION
SHOCK (Non-Trauma)

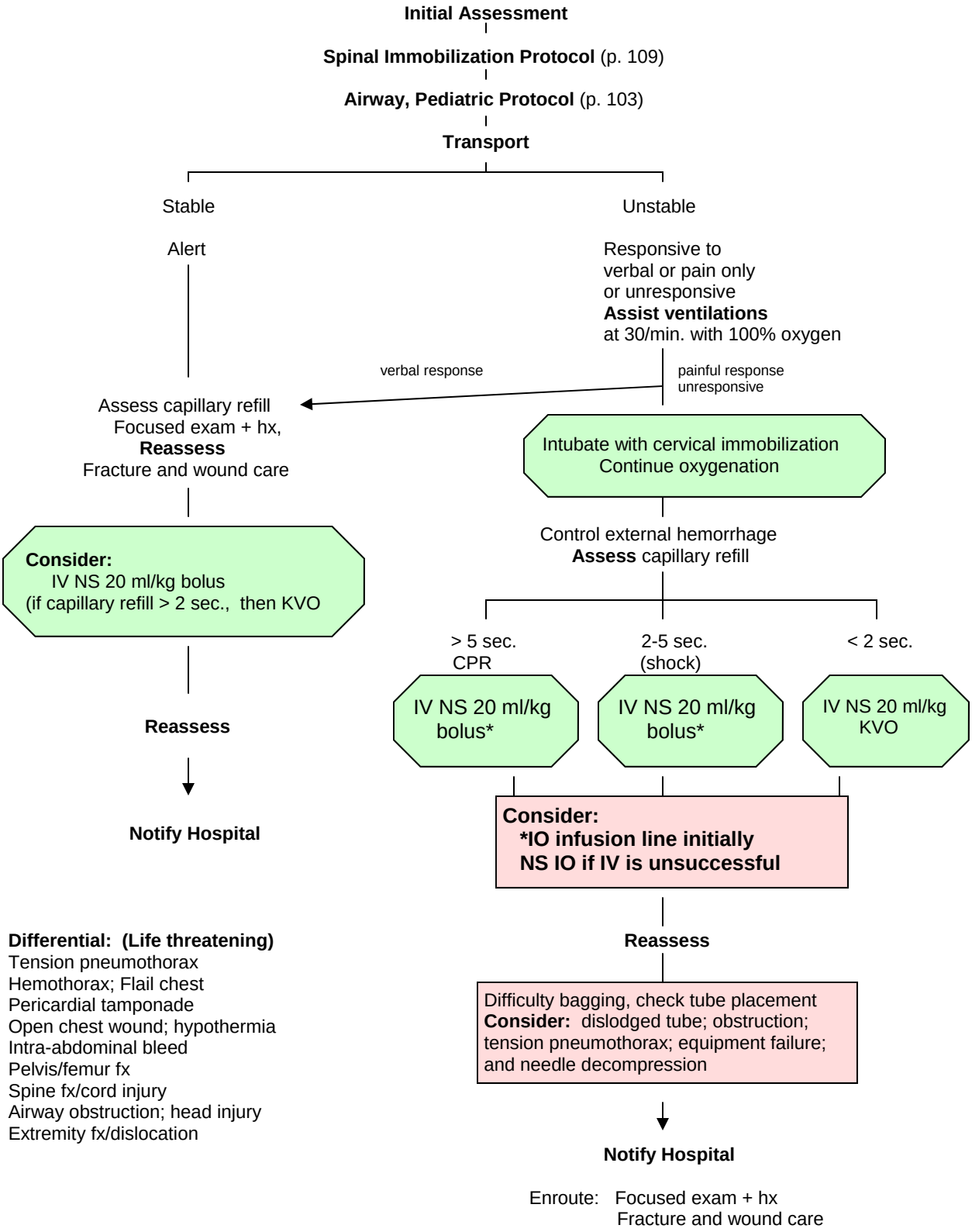


S/S: restlessness; confusion
weakness; dizziness
increased HR; decreased BP
pale, cool, clammy skin
delayed capillary refill

Differential:
trauma; infection; congenital heart disease; medication or toxin
dehydration (vomiting, diarrhea, fever)

IMPORTANT:
Neonates: DO NOT exceed 12.5% glucose concentration.
***Neonate blood glucose of < 35 is hypoglycemic** (accuracy must be taken with neonatal mode on glucometer)
Consider all possible causes of shock and treat per appropriate protocol.
Decreasing HR is a sign of impending collapse.
Most maternal medications pass through breast milk to infant. (i.e.: narcotics; benzodiazepines)
Neonates may have a sunken fontanel.
PARAMEDICS: IO is an acceptable IV route for fluids and medications for ≤ 6 years old.
Version: **Pitt County 2006**

PEDIATRIC MULTIPLE TRAUMA



Differential: (Life threatening)
Tension pneumothorax
Hemothorax; Flail chest
Pericardial tamponade
Open chest wound; hypothermia
Intra-abdominal bleed
Pelvis/femur fx
Spine fx/cord injury
Airway obstruction; head injury
Extremity fx/dislocation

*Use IO initially, unstable with capillary refill > 5 sec. and CPR

Version: **Pitt County 2006**

PEDIATRIC PULSELESS ARREST

REMEMBER: pediatric pads/paddles should be used on children < 10 kg (ages 1-8 years old). If a pulse returns at any time, begin postresuscitation care.

Pediatric CPR/BLS

Oral intubation

Check brachial pulse
(If older than 1 year, check carotid)
If pulseless, resume CPR*

Apply AED and analyze or monitor and Interpret

VF
Pulseless VT

Shockable

Defibrillate with AED: > 1 yo

Defibrillate at 2 J/kg

Resume CPR immediately
Give 5 cycles (2 minutes)

Reassess
Shockable rhythm

Defibrillate with AED: > 1 yo

Defibrillate at 4 J/kg

Resume CPR immediately
Give 5 cycles (2 minutes)

Transport
Check blood glucose

IV NS/microdrip KVO**
Single attempt enroute

D25 2 ml/kg if blood glucose < 60
(Child over 14 yo, D50 1 ml/kg)

Epinephrine (1:10,000) 0.01 mg/kg IV**
Epinephrine (1:1,000) 0.1 mg/kg ETT***
Repeat q 3-5 mins.

Reassess
Shockable rhythm

Defibrillate with AED: > 1 yo

Defibrillate at 4 J/kg

Resume CPR and Contact Medical Direction

Consider: Lidocaine 1 mg/kg IV/IO
Consider: Magnesium sulfate 25-50 mg/kg IV/IO, max. 2 grams for torsades de pointes

All others
Aystole, PEA

Non-Shockable

Check ETT placement and ensure
Ventilations if bradycardic complexes present

Resume CPR immediately
Give 5 cycles (2 minutes)

Transport

Identify and treat causes: hypovolemia; hypoxia; hypoglycemia; hypothermia; hypoxemia; tension pneumothorax; trauma

IV NS/microdrip KVO**
Fluid bolus 20 ml/kg NS

Epinephrine (1:10,000) 0.01 mg/kg IV**
Epinephrine (1:1,000) 0.1 mg/kg ETT***
Repeat q 3-5 mins.

Reassess

Non-shockable rhythm

Resume CPR immediately
Give 5 cycles (2 minutes)

Contact Medical Direction

IMPORTANT:

PARAMEDICS: Amiodarone 5 mg/kg IV/IO (over 5 mins.) (avoid use, infants < 6 months old) may be used in place of Lidocaine.

*CPR after advanced airway, give continuous compressions without pauses for breaths. Give 8-10 breaths/min. Analyze/check rhythm q 2 minutes.

**Paramedics: IO is an acceptable IV route for fluids and medications for ≤ 6 years old.

***Means dilute with 3 ml NS

Neonate blood glucose of < 35 is hypoglycemic (accuracy must Be taken with a neonatal mode on glucometer.

Version: **Pitt County 2006**

PEDSCODE2006.PUB

PEDIATRIC RESPIRATORY DISTRESS

Initial Assessment

Transport

Place child in position of comfort
(if appropriate)

Apply HIGH FLOW oxygen
If child refuses mask, hold end of
oxygen tubing 5" from face to enrich the inhaled air.

DO NOT unnecessarily upset the child.

Pulse oximetry (use pediatric probe) and vital signs

Focused exam and hx

Albuterol nebulizer (if asthma suspected)
(12 yo or older: Albuterol 2.5 mg in 3 ml NS)
(< 12 yo: Albuterol 1.25 mg in 1.5 ml NS)*

May assist with patient's own Albuterol inhaler.

For anaphylaxis, Go to **Allergic Reaction Protocol** (p.112)

Reassess

Repeat Albuterol nebulizer treatment
If patient deteriorates;
Consider: IV NS KVO
Epinephrine (1:1,000) 0.01 mg/kg SC
Intubation if child is becoming exhausted.

Reassess

Notify Hospital

S/S: wheezing or stridor
respiratory retractions; nasal flaring
increased heart rate; increased respiratory rate
altered level of consciousness
anxious appearance

IMPORTANT:

Asthma: consider if the child has a hx of asthma and bronchodilator meds (theophylline, albuterol, and inhalers). On exam child will have increased respiratory rate, nasal flaring, retractions, wheezes and decreased air exchange. Child should be alert, not somnolent. **A sleepy asthmatic is in trouble!**

Croup: typically affects children < 2 yo. It is viral, possible fever, gradual onset, stridor, no drooling is noted.

Epiglottitis: typically affects children > 2 yo. It is bacterial, with fever, rapid onset, child will want to sit up, painful to swallow, drooling is common. Airway manipulation may worsen the condition.

*****May be used as "blow by", although not ideal.

PEDIATRIC SEIZURE

Universal Patient Care Protocol (p.110)
Consider: Nasopharyngeal airway
Position on side to prevent aspiration
(**caution**: evidence/suspicion of trauma, c-spine control)

If "febrile" — remove excess clothes and consider Fever Protocol (p.106).

Check blood glucose

Blood glucose < 60:
IV NS KVO
D25 2 ml/kg
Glucagon 0.03 mg/kg IM, if IV unobtainable

If evidence of shock or trauma: Go to Appropriate Protocol

Active seizing and Status Epilepticus

Consider: IV NS KVO

For continued seizures:
*Lorazepam: Child: 0.1 mg/kg SIVP (over 2-5 mins.);
Neonate: 0.05 mg/kg SIVP (over 2-5 mins.)
****Consider** rectal administration (reference the Broselow tape or Pediatric chart in the appendix).

Repeat dose requires contacting Medical Direction

Reassess

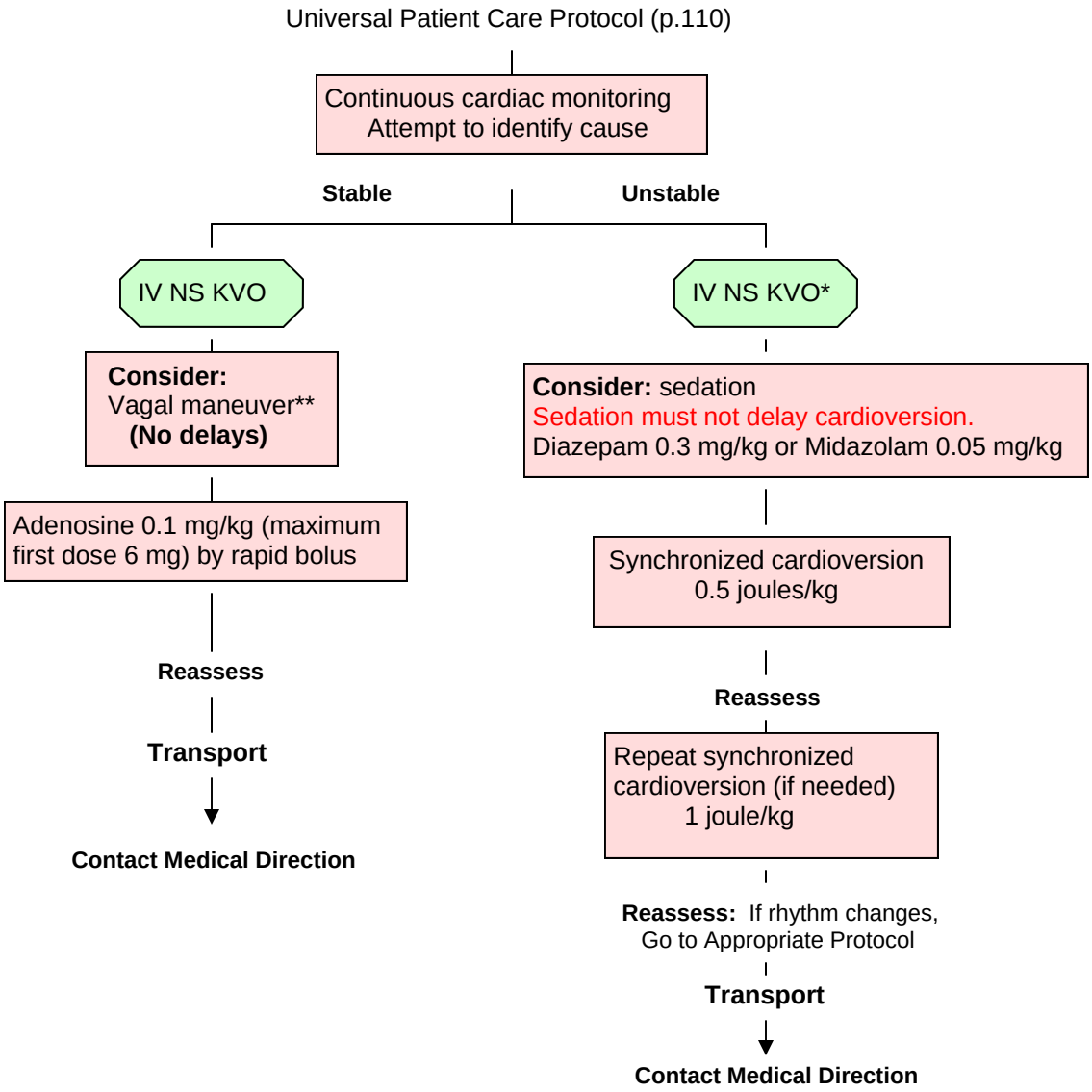
Transport

Notify Hospital

S/S: observed seizure activity
altered mental status
hot, dry skin or elevated body temperature

IMPORTANT: Neonates: DO NOT exceed 12.5% glucose concentration.
In an infant, a seizure may be the only evidence of a closed head injury.
***Alternative medication:** Midazolam 0.05 mg/kg SIVP (over 2-3 mins.) or Diazepam 0.3 m/kg SIVP.
****Rectal administration:** Lorazepam 0.5 mg/kg (initial dose). Medication dose of 0.25 mg/kg may be repeated in 10 mins. if initial dose does not work.
Be prepared to assist ventilations especially if a benzodiazepine is used.
Status epilepticus: true emergency requiring rapid airway control, treatment, and transport.
Generalized seizures: associated with loss of consciousness, incontinence, and tongue trauma.
Focal seizures: effect only a part of the body; not usually associated with loss of consciousness.

PEDIATRIC SUPRAVENTRICULAR TACHYCARDIA



S/S: child HR > 180; infant > 220
altered level of consciousness
tachypnea; pulmonary congestion
diaphoresis; pale or cyanosis
syncope; vomiting; hypotension

Differential: hypoxia; hypo/hyperthermia; hypovolemia or anemia; hypoglycemia; heart disease (congenital); toxins/poisons/drugs; pulmonary embolus; trauma; tension pneumothorax; fever/infection/sepsis

IMPORTANT:

Pediatric paddles/pads should be used in children < 10 kg. Monophasic and biphasic joules are the same.

Carefully evaluate the rhythm to distinguish sinus tachycardia, SVT, and VT.

Continuous pulse oximetry is required for all SVT patients.

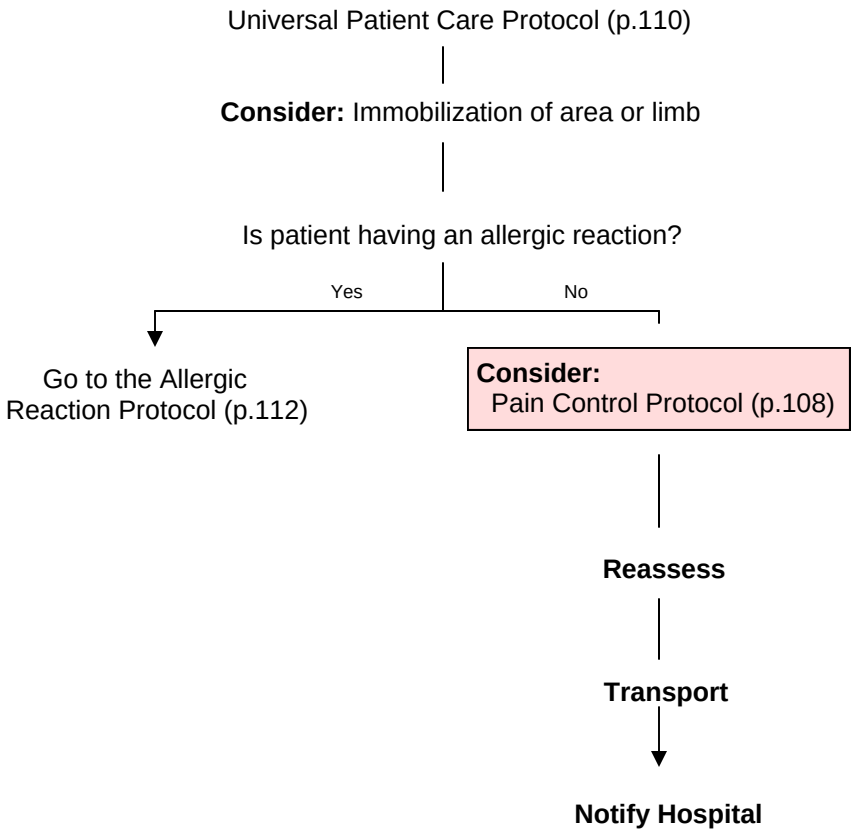
Monitor for respiratory depression and hypotension associated if using Diazepam or Midazolam.

*PARAMEDICS: IO is an acceptable IV route for fluids and medications for unstable ≤ 6 years old.

**Vagal maneuver: younger child, may use a bag of frozen peas or corn or small Ziploc bag of ice water, place on the face. An older child can blow through an obstructed straw.

Version: **Pitt County 2006**

BITES AND ENVENOMATIONS

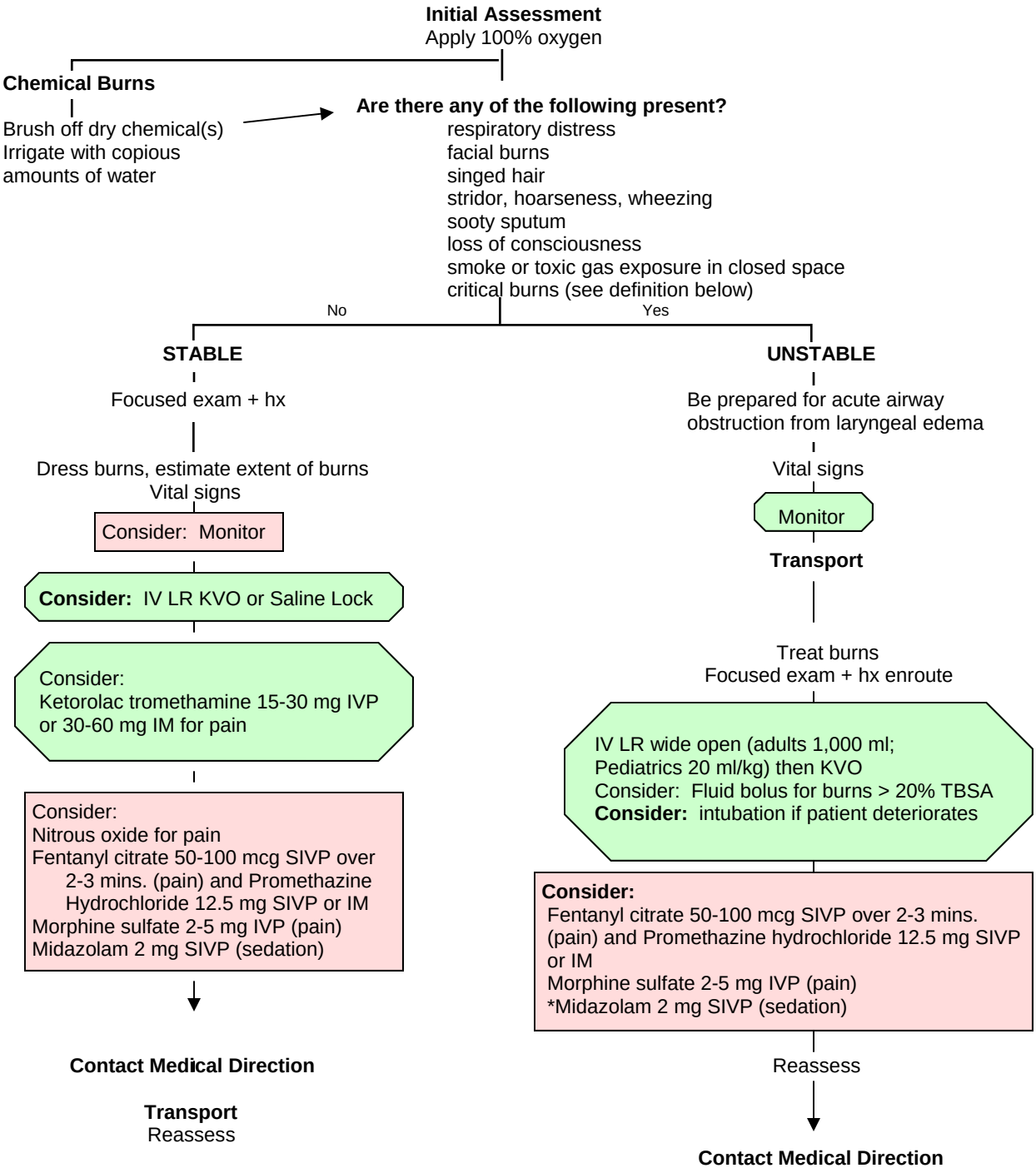


Hx: type of bite/sting
time, location, size of bite/sting
previous reaction to bite/sting
domestic versus wild
immunocompromised patient

S/S's: rash, skin break, wound
pain, soft tissue swelling, redness
blood oozing from the bite wound
hypotension or shock
allergic reaction, hives, itching
shortness of breath, wheezing

Differential: Bites: animal, human, snake, spider, insect bite/sting

BURNS



See appendix for RULE OF NINES.

Differential: superficial, partial or full thickness; chemical; thermal; electrical; radiation

IMPORTANT: Enroute: Be ready to assist ventilation with BVM.
Critical burns: > 25% BSA; 3 burns > 10% BSA; 2 and 3 burns to face, eyes, hands or feet; electrical, respiratory, and deep chemical burns; burns to pediatric and elderly patients; burns associated with major traumatic injury. Circumferential burns to extremities are dangerous due to potential vascular compromise 2 to tissue swelling. Potential CO exposure should be treated with 100% oxygen.
Paramedics: Contact Medical Direction to repeat Midazolam 2 mg SIVP, maximum total dose of 2 mg.
***Paramedics:** May consider Diazepam 5 mg SIVP or Lorazepam 1 mg SIVP for sedation.

DROWNING/NEAR DROWNING

Universal Patient Care Protocol (p.110)

*Spinal Immobilization Protocol (p. 109)

Monitor/SAED/AED
(Be sure patient area is dry.)

Reassess

Go to Appropriate Protocol
based on symptoms

Transport

Notify Hospital

PARAMEDIC NOTE: Near-drowning patients who are intubated may benefit from PEEP or CPAP to maintain adequate oxygenation. Contact Medical Direction to consider PEEP or CPAP.

Hx: submersion in water, regardless of depth
trauma (diving board)
duration of immersion
water temperature

S/S: unresponsive; mental status changes
vomiting; coughing
decreased or absent vital signs

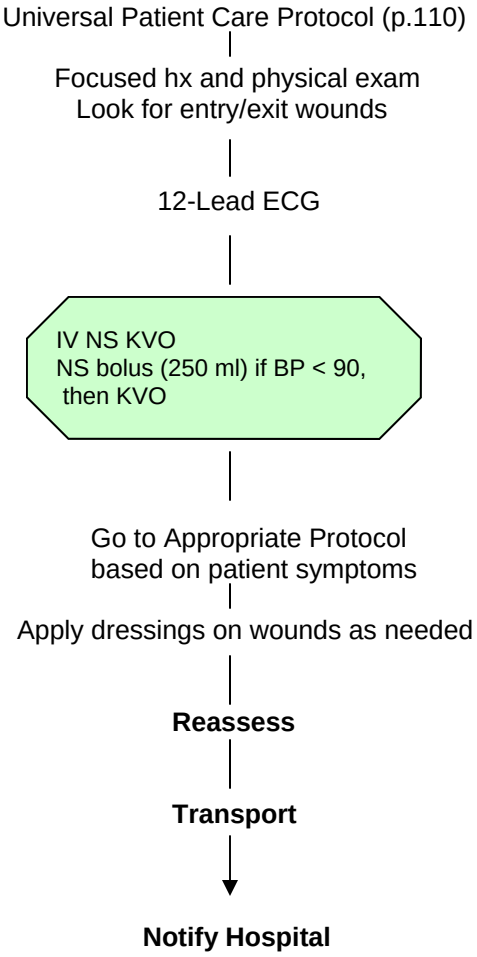
Differential: trauma; pressure injury (diving)

IMPORTANT:
Cold water drownings—resuscitate all.
All drowning/near-drowning patients should be transported for evaluation

*Patients with ankylosing spondylolysis or curvature of the spine; immobilize patient in curvature position, DO NOT straighten.

ELECTRICAL INJURIES

Scene safety first!



Hx: lightning or electrical exposure
trauma secondary to fall from high-wire or MVC into power line
single or multiple patients
duration of exposure
voltage and current (AC or DC)

S/S: burns; pain; entry and exit wounds
hypotension or shock; arrest

Differential: cardiac arrest; seizure; burns; multiple trauma

IMPORTANT:
Ventricular fibrillation and asystole are the most common dysrhythmias.
Injuries often hidden; most severe injuries occur in muscle, vessels and nerves.
Lightning is a massive DC shock.
Lightning injuries, flash burns on body surface caused by traveling current.

EXTREMITY TRAUMA

Initial Assessment

Determine mechanism of injury.

Is there potential injury to:

the head, chest, abdomen, pelvis, or signs of hypovolemia

Yes

Go to Appropriate Protocol:

1. Multiple Trauma
2. Head Trauma
3. Penetrating Chest

No

Focused exam + hx
Control hemorrhage
Assess distal neurovascular status

Apply High Flow Oxygen
Apply Traction Splint+ if femur fracture
(Reference: Splinting, Procedure 43, p. 77)

IV LR or NS KVO

Consider a pain management/sedative medication:

Nitrous oxide
Morphine sulfate 2-5 mg SIVP
Fentanyl 50-100 mcg SIVP over 2-3 mins. With Promethazine hydrochloride 12.5 mg IV or IM

Ketorolac tromethamine 15-30 mg IVP or 30-60 mg IM

Transport

Notify Hospital

+Consider delaying splinting until after nitrous oxide or sedative medication is effective.

S/S: pain, swelling, deformity
altered sensation/motor function
diminished pulse/capillary refill
decreased extremity temperature

IMPORTANT:
Amputations: Wrap part(s) in NS soaked sterile dressing, place in an air tight container, and place container on an ice bag (cold pack) if available.
IV''s should be started on uninjured extremity or proximal to the injury site.

HEAD TRAUMA

(Without other major injury)

Initial Assessment
Manual C-spine control

Apply high flow oxygen

Assess: Level of Consciousness
Pupils
Neurologic function

Place on pulse ox and continuous capnography
Spinal Immobilization
Transport

Is patient seizing?

No — Monitor
Check blood glucose
Focused exam + hx

Yes — Go to Seizure Protocol

Unresponsive; respiratory distress — intubate

Lidocaine 1 mg/kg prior to intubation

IV NS KVO
*D50 50 ml if blood glucose < 60
**Naloxone 2 mg SIVP

Reassess

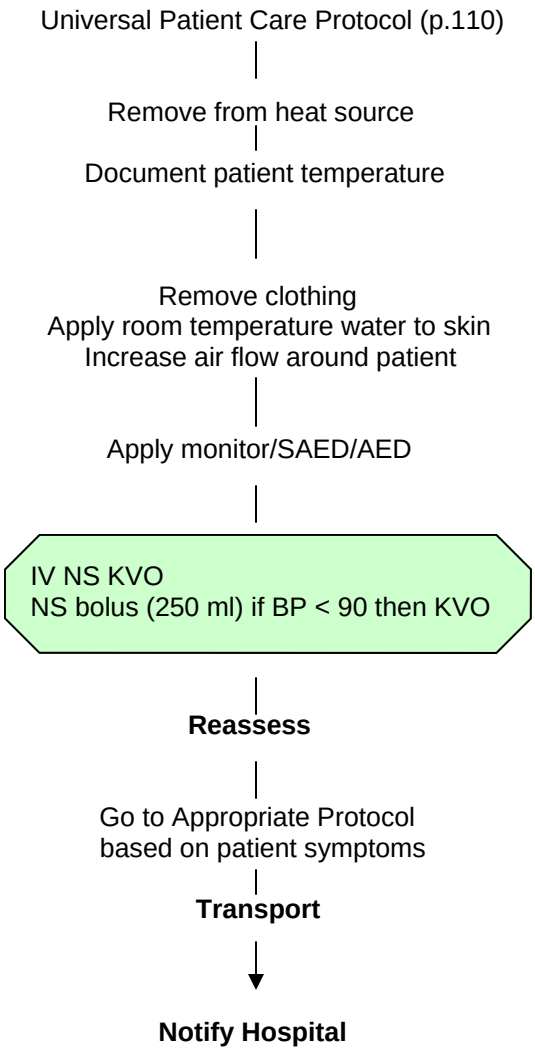
Contact Medical Direction

Consider: Hyperventilating to ETCO2 of ~35 for patients with deteriorating neuro status

S/S: pain, swelling, bleeding, altered mental status, unconscious
respiratory distress/arrest, vomiting

IMPORTANT*:*
***EMT-I and EMT-P:** Alternate medication if IV unobtainable, Glucagon 1 mg IM
****EMT-I and EMT-P:** Alternate medication if Naloxone unavailable, Revex 0.1 mg SIVP, no change in 2 mins., give 0.4 mg SIVP; needs Medical Direction order for children < 10 years old).
Increased intracranial pressure (ICP) may cause hypertension and bradycardia (Cushing's response).
Hypotension usually indicates injury elsewhere in the body.
ONLY hyperventilate when evidence of brain herniation (decorticate or decerebrate posturing, bradycardia or blown pupil); the adult (20 breaths/min.), child (30 breaths/min.) or infant (35 breaths/min.).
Version: **Pitt County 2006**

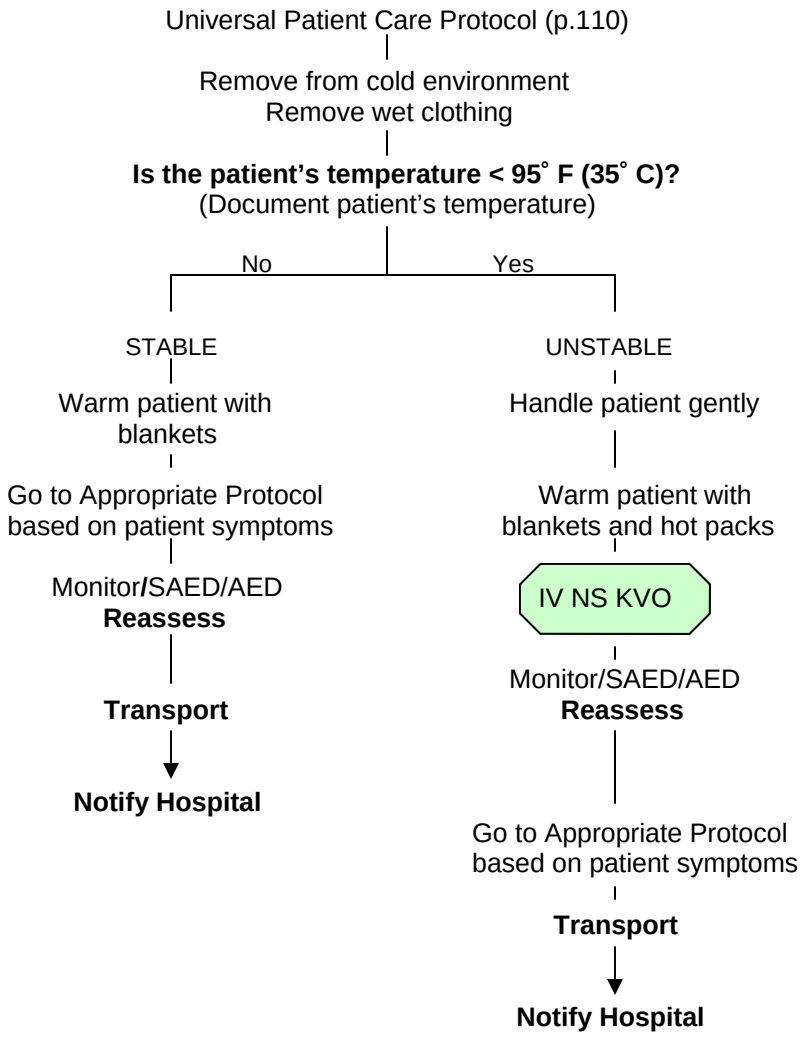
HYPERTHERMIA



S/S: altered mental status or unconscious
hot, dry or sweaty skin
hypotension or shock; nausea; seizures

IMPORTANT:
Young and old more prone to heat emergencies
Sweating generally disappears as body temperature rises above 104 F (40 C)
Intense shivering may occur as patient cools
Heat cramps: consists of benign muscle cramping 2 to dehydration; not associated with elevated temperature.
Heat exhaustion: consists of dehydration, salt depletion, dizziness, fever, altered mental status, headache, cramping, N/V.
Heat stroke: consists of dehydration, tachycardia, hypotension, temperature > 104 F (40 C), and altered mental status.

HYPOTHERMIA

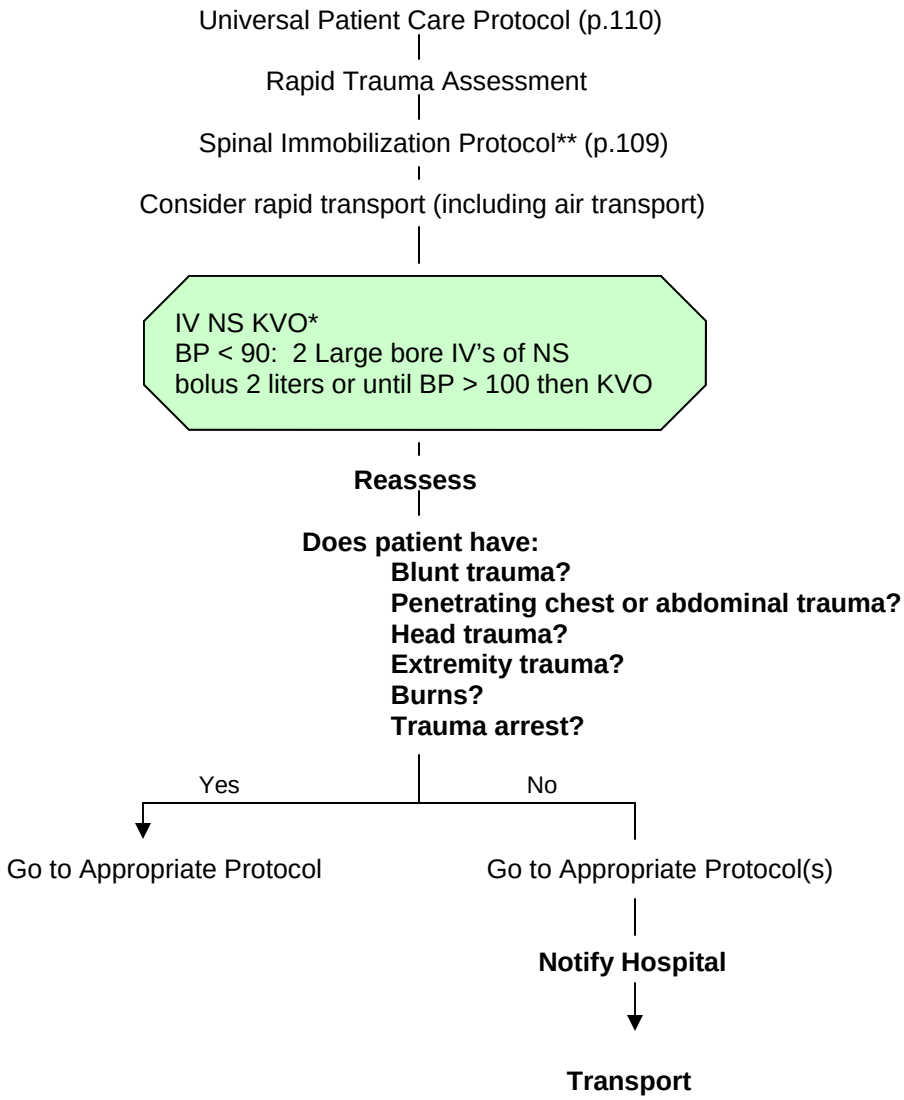


S/S: cold, clammy; shivering
mental status changes
extremity pain or sensory abnormality
bradycardia; hypotension or shock

IMPORTANT: NO PATIENT IS DEAD UNTIL WARM AND DEAD!!
Young and old more susceptible to cold emergencies
Temperature < 31 C (88 F) ventricular fibrillation is common cause of death. Handle patient gently!!
Hypothermia may produce severe bradycardia.
Shivering stops below 32 C (90 F)
Hot packs should be placed in the armpit and groin areas (**caution:** direct hot pack — skin contact, could cause a burn)
DO NOT DEFIBRILLATE IF RECTAL TEMPERATURE IS BELOW 92˚ F.

Version: **Pitt County 2006**

MULTIPLE TRAUMA

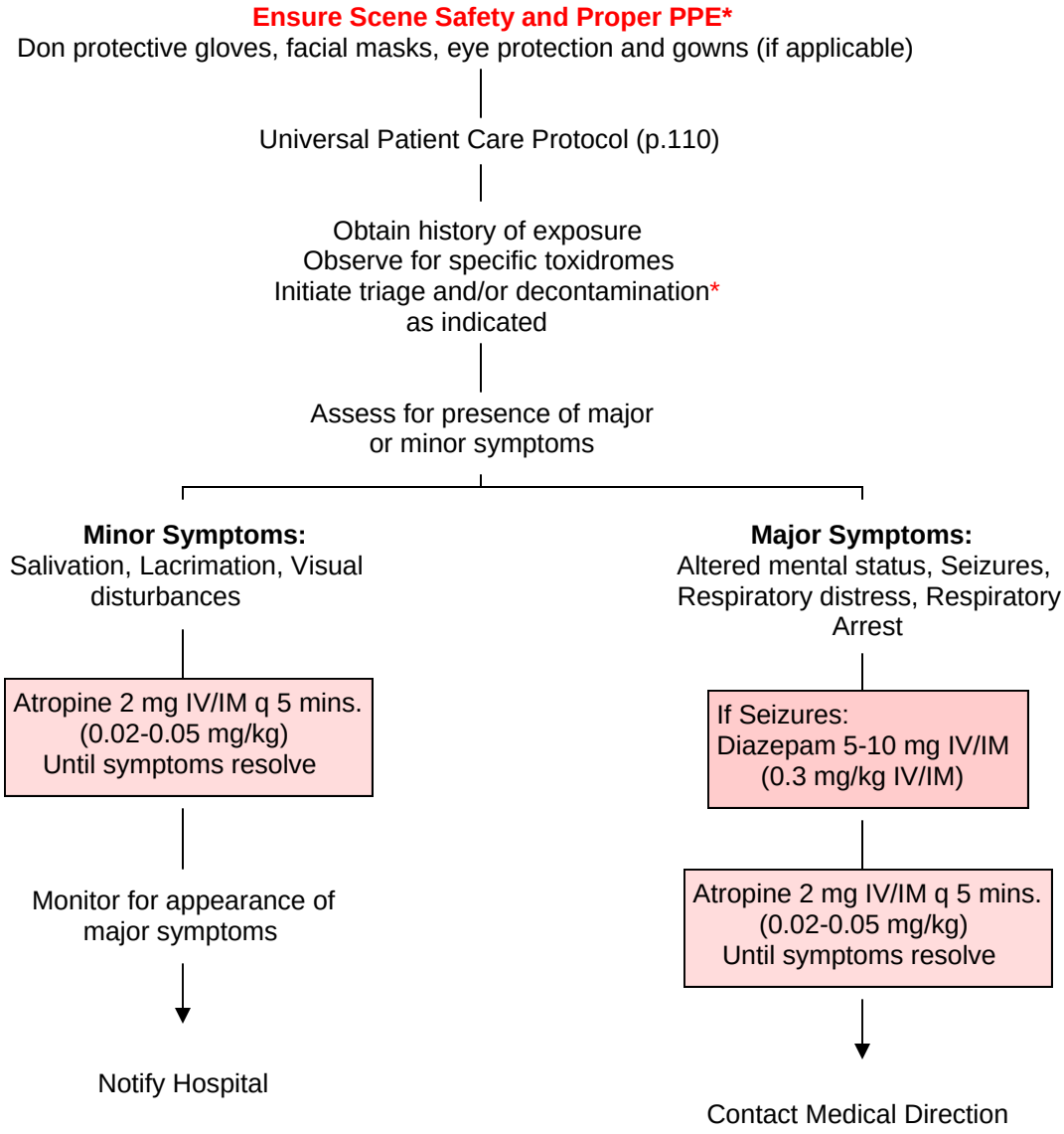


S/S: pain, swelling
deformity, lesions, bleeding
altered mental status or unconscious
hypotension or shock
arrest

IMPORTANT: Trauma—Life threatening
Chest: tension pneumothorax, flail chest, pericardial tamponade, open chest wound, hemothorax
Intra-abdominal bleeding
Pelvis/femur fractures
Spine fracture/cord injury
Head injury; Airway obstruction
Hypothermia

*__DO NOT__ over fluid resuscitate especially in penetrating trauma.
**Patients with ankylosing spondylolysis or curvature of the spine; immobilize patient in curvature position, DO NOT straighten.

WMD-NERVE AGENT PROTOCOL



Hx: exposure to chemical, biologic, radiologic, or nuclear hazard
potential exposure to unknown substance/hazard

S/S: visual disturbances, headache, nausea/vomiting, salivation
lacrimation, respiratory distress and/or arrest, diaphoresis, seizure

Differential: nerve agent exposure (i.e. VX, Sarin, Soman); organophosphate exposure; vesicant exposure (i.e. mustard gas); respiratory irritant exposure (i.e. hydrogen sulfide, ammonia, chlorine)

IMPORTANT: *FOLLOW LOCAL HAZMAT PROTOCOLS FOR YOUR AGENCY/COUNTY

*Always follow the Hazmat protocol for your agency (i.e. awareness level, operational level, etc.)
The Pitt County Office of Emergency Management should be notified of a WMD incident.
For patients with major symptoms, there is no limit for atropine dosing.
Carefully evaluate patients to ensure they are not from exposure to another agent (i.e. narcotics, etc.)

Adapted from the NCCEP EMS Protocol WMD, 2005.
Version: **Pitt County 2006**

ASTHMA/COPD

+If oxygen saturations go below 95%, put patient on capnography (if capnography is unavailable, Document "capnography unavailable" on the ambulance call report).

Initial Assessment
LISTEN TO BREATH SOUNDS
Apply 100% Oxygen+
Be prepared to coach the patient to breathe or assist ventilation.
DO NOT withhold oxygen if patient is in respiratory distress!

Monitor
Consider: 12-Lead ECG

Transport

Focused exam + hx
OBTAIN A PEAK FLOW MEASUREMENT x 3
Document the highest of three measurements before medication administration.

*Albuterol and/or Ipratropium Nebulizer
MIX: Albuterol 2.5 mg in 3 ml NS (≥ 12 yo) with Ipratropium 0.5 mg
EMT use is limited to patients who currently are prescribed the medication. EMT must contact Medical Direction to consider nebulizer treatment or using patient's inhaler.

IV NS KVO (may substitute saline lock)

Reassess
Repeat PEAK FLOW measurement x 3
Document the highest of three measurements.

Consider: Methylpredinsolone 125 mg SIVP**

Repeat Albuterol and/or Ipratropium as needed
EMT must contact Medical Direction to consider repeat of medication.

Reassess

Consider Magnesium sulfate 1 gram SIVP (over 10 mins.). May repeat x 1 if needed.

Notify Hospital

IMPORTANT:
EMT-I and EMT-P: *Assist ventilations and* **Consider intubation** *if patient has altered mental status.*
***EMT-I / EMT-P:** Alternative: Epinephrine (1:1,000) 0.3 ml SC—DO NOT USE in patients > 40 yo or with hx of angina or MI.
****EMT-P**: Dexamethasone (Decadron) 4 mg SIVP or Hydrocortisone (Solu-Cortef) 100 mg SIVP are alternative medications for Methylpredinsolone. Version: **Pitt County 2006**

BLUNT TRAUMA

Notify Hospital early
regarding life-threatening
Trauma patients!

Rapid Initial Assessment
Assess for: Altered level of consciousness
Respiratory distress
Hypotensive

Extrication/Immobilization**

Adequate Breathing

Transport

Monitor

Oxygen therapy
Focused exam + hx
Vital Signs
Fx/wound care

2 IV's LR KVO
(Bolus if needed to
Maintain SBP > 90)

Enroute:

Reassess

Notify Hospital

Inadequate Breathing
Jaw-thrust with C-spine immobilization
BVM ventilate, 100% oxygen
Oral/Nasopharyngeal airway (as tolerated)

Notify Hospital
Transport

Intubate (maintain axial cervical stabilization,
two-person technique; capnography

ETT Successful

Yes

Does bag easily with breath sounds
present bilaterally?

Yes

No

Adjust ETT position and suction,
If no improvements, then

ConsiderTension pneumothorax
Needle decompression

No

Continue oral airway,
BVM ventilations

Consider
Cricothyrotomy

Check Carotid Pulse

Present

Control external bleeding
Vital signs
Monitor/SAED/AED

2 IV's LR large bore, KVO*

Notify Hospital
Enroute: Focused exam + hx; Fx/wound care; **Reassess**

Absent

Begin CPR

Go to
Trauma Arrest Protocol

IMPORTANT: ***DO NOT** over fluid resuscitate patient. NS is interchangeable with LR for trauma, except for burns where LR is the preferred solution of choice for resuscitation.
Patients with ankylosing spondylolysis or curvature of the spine; immobilize patient in curvature position, DO NOT straighten. Version: **Pitt County 2006

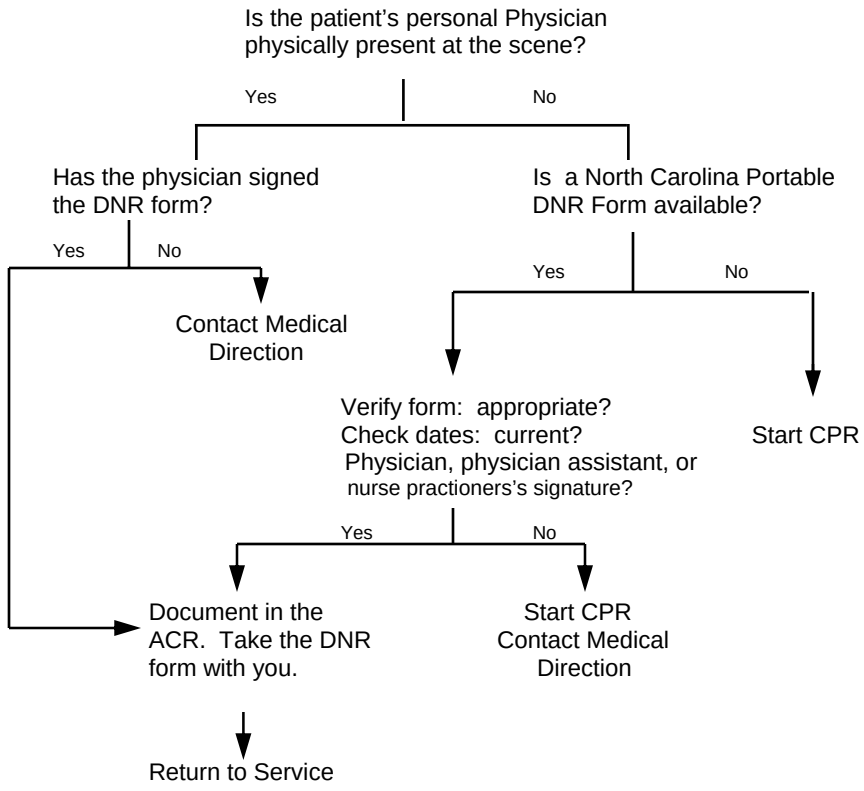
DO NOT RESUSCITATE (DNR)

If the patient is in **COMPLETE CARDIOPULMONARY ARREST** (clinically dead equals no pulse and no respirations) and **meets one or more** of the criterion given herein, resuscitation attempts need not be initiated.

1. Rigor mortis
2. Tissue decomposition
3. Dependent lividity
4. Decapitation
5. Hemicorporectomy (body cut in half)
6. Massive open or penetrating intrathoracic injury with major organ destruction (obviously apparent on external examination)
7. Massive open or penetrating head trauma with major brain destruction (obviously apparent on external examination)
8. Third degree burns to greater than 60% of the body

DNR

Sometimes patient's family member/Nursing Home staff may want you to withhold resuscitation. In these situations follow this algorithm:



IMPORTANT:

You should feel confident that the DNR document is genuine, current and refers specifically to this patient. When in doubt, start CPR, and Contact Medical Direction.

NC EMS professionals may only recognize the state approved "DNR form" as a "Do Not Resuscitate" document. Living Wills are not recognized as a DNR form for EMS professionals per NC State EMS rules/guidelines.

DYSPNEA

(Without Chest Pain)

Initial Assessment
Apply oxygen and monitor
Vital signs
Focused exam + hx

Does the patient have signs of PULMONARY EDEMA?
(rales, frothy sputum, cyanosis, diaphoresis)
Note: pedal edema may not be present in acute pulmonary edema.

No / Yes

Yes → Go to Pulmonary Edema Protocol (p.124)

No → **Are there signs of anaphylaxis?**

No / Yes

Yes → Go to Allergic Reaction Protocol (p.112)

No → **Is there decreased air movement or history of COPD or asthma?**

No / Yes

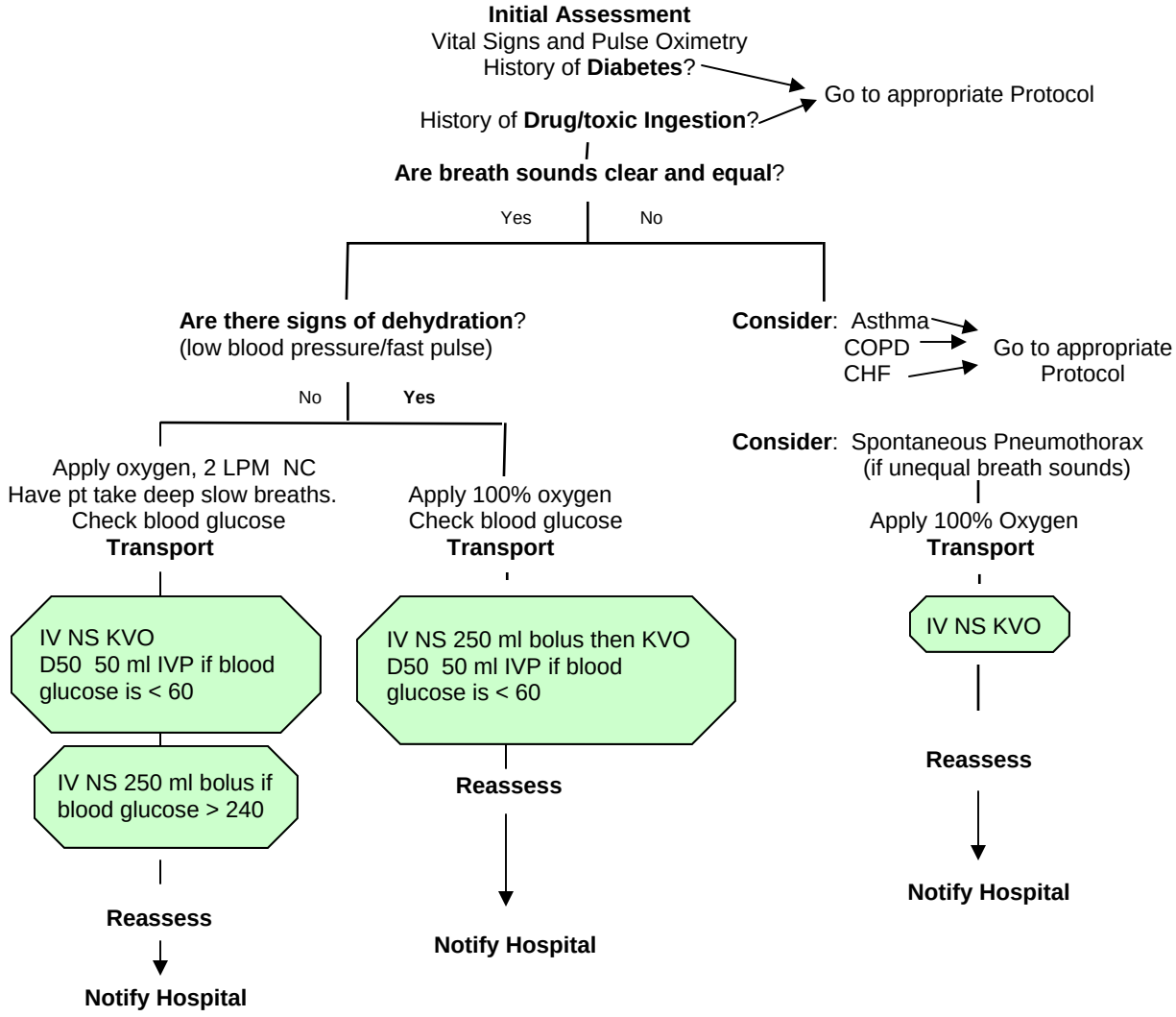
No → Go to Hyperventilation Protocol (p.159)

Yes → Go to Respiratory Distress Protocol (p.126)

IMPORTANT:
Assess patient and vitals after each intervention.
Monitor vitals closely.
Be prepared to assist ventilations/ Intubate.

HYPERVENTILATION

IMPORTANT: **DO NOT USE** "Brown Paper Bag" breathing even if it appears that the problem is clearly anxiety related!



MINOR TRAUMA
(Non-Life Threatening)

No airway, breathing, circulatory or severe bleeding complications.

Scene Safety

Examples: Stubbed toe
Abrasions
Small laceration, minimal to no bleeding
Minor MVC, patient has no injuries/complaints

Initial Assessment

Focused exam + hx

Vital signs
Wound care, if needed

Transport

Notify Hospital

Enroute: **REASSESS**

If **patient develops** airway, breathing, circulatory or severe bleeding complications

Go To Appropriate Protocol

PARAMEDIC TRIAGE

(QRV and Tier Response Programs)

Does patient wish to go to the hospital?

NO

Go to No Transport Protocol

YES

1. Assess patient
2. Brief history
3. Initial assessment + Focused exam
4. Vital Signs

Paramedic Triage

Contact Medical Direction

1. Communicate situation to physician or MICN
2. Discuss risk of Paramedic Triage
3. Document on supplemental patient care report

Does Medical Direction Approve Paramedic Triage?

Yes

1. Return to service with the QRV
2. Paramedic: Complete documentation on supplemental patient care report sheet ***To be placed with patient chart when the ambulance returns to the station with the transport patient care report***
3. Transporting ambulance crew gets an MD signature on the patient care report for the Paramedic Triage

No

Transport to Emergency Dept.
(or accompany transporting EMS unit to the Emergency Dept.

*__QRV__ = Quick Response Vehicle

PATIENT REFUSAL OF TRANSPORT

Patient does not wish to go to the hospital.

Assess mechanism of injury or illness

Assess for Risk:

Age: < 18 yo or > 65 yo
CC: cardiac or respiratory in nature
Evidence of: alcohol or recreational drug use
Evidence of: suicidal intent
Evidence of: potential violence
Hypoglycemia (on oral agents)
Loss of consciousness, **near syncope, head injury**
MVC: individual patient with any injury(ies)
MVC: major/moderate vehicular damage

Does patient have any of the above Risks?

No / Yes

Low Risk

***Consider:**
Contact Medical Direction

****Document**
Return to service or transport patient

High Risk

Maintain your safety
***Summon law enforcement if needed. Initiate appropriate evaluation and treatment as person will allow.

Contact Medical Direction

****Document**
Return to service or transport patient

IMPORTANT:

***If physician assertive may increase percentage of transport.**

****Document:**

a. Good patient assessment hx and patient exam
b. Patient mental status
c. Advised follow-up or call "911" back if they change their mind
    1. Reference "No Transport Information Form" — Motor Vehicle Crash (Appendix V, pg 214)
    2. Reference "No Transport Information Form" — Low Blood Sugar (Appendix W, pg 215)
d. Obtain the person's signature

***Based on NC General Statue 122C—261, 263, 281 and 283**, if an individual is in need of medical treatment and if they are intoxicated or mentally ill (includes mental illness from schizophrenic, hypoglycemic and subdural hematoma) then law enforcement has the duty and authority to use appropriate force as needed to bring the individual to a medical facility.

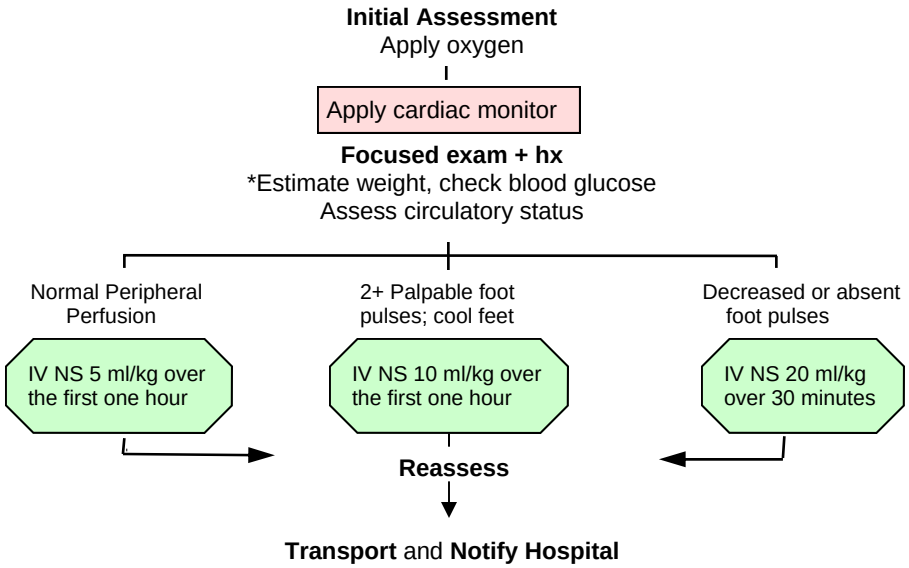
Version: **Pitt County 2006**

PEDIATRIC DIABETIC EMERGENCIES

In most cases, there will be a history of diabetes or insulin use in the child. Occasionally a child may not know he is a diabetic, and will present in diabetic ketoacidosis. Hypoglycemia usually results from insulin therapy but can also be associated with other illnesses and fasting.

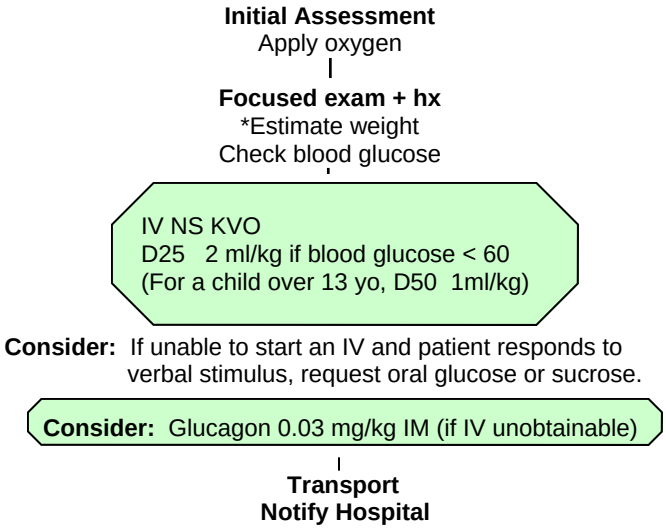
DIABETIC KETOACIDOSIS (DKA)

Assess for hyperventilation, ketotic (fruity) odor on breath, dehydration, nausea, abdominal pain, stupor or coma. Obtain history to rule out other causes of symptoms such as trauma or poisoning. Glucose usually exceeds 200 mg/dL in DKA. Monitor heart for arrhythmias caused by acidosis and potassium imbalance. Causes for mental status changes include: shock, severe acidosis and raised intracranial pressure (ICP). Raised ICP is the leading cause of death in children with DKA. Monitoring of the neurologic exam is critical.



HYPOGLYCEMIA

This often presents as behavioral changes; irrational agitation or somnolence. May mimic alcohol or drug related behavior in a teenager. The child's skin is usually cool and clammy. Consider hypoglycemia in all cases of coma or poisoning. Glucose is usually below 60 mg/dL in hypoglycemia.



IMPORTANT: Neonates: DO NOT exceed 12.5% glucose concentration.
Assess frequently after each intervention.
*Consider use of the Broselow tape.

Paramedics: An IO may be considered for use in a "life-threatening" patient scenario (< 6 years old).

PEDIATRIC POISONING

Initial Assessment
Assure patent airway
Assess for adequate respiratory rate and oxygenation

Adequate | Inadequate

Apply Oxygen
Vital Signs

If pulse is outside normal range (see Pediatric Reference table or Broselow tape) apply cardiac monitor

Assist ventilations
Palpate carotid or brachial pulse

Present | Absent

Vital Signs

Apply Monitor

Begin CPR
Go to Pediatric Arrest Protocol

Reassess level of consciousness, airway, ventilation, breath sounds, and pulse.
Focused exam + hx of ingestation.

Stable | Unstable

*Estimate weight
Transport

Contact Medical Direction

Request:
Victim fully ALERT and history of oral ingestion.

Activated Charcoal

Consider:

IV NS KVO
Check blood glucose
D25 2 ml/kg if blood glucose < 60
(If child over 13 yo, D50 1 ml/kg)

Hypotensive, sleepy or requiring assisted ventilations.

Transport
*Estimate weight
Check blood glucose

IV NS KVO
D25 2 ml/kg if blood glucose < 60
(If child over 13 yo, D50 1 ml/kg
Naloxone 0.1 mg/kg SIVP

Intubate to protect airway and improve ventilation.

Contact Medical Direction

Consider:

Glucagon 0.03 mg/kg IM if IV unobtainable and blood glucose < 60

NGT to suction stomach and administer Activated Charcoal, 10-30 grams

BRING ALL CONTAINERS TO HOSPITAL!

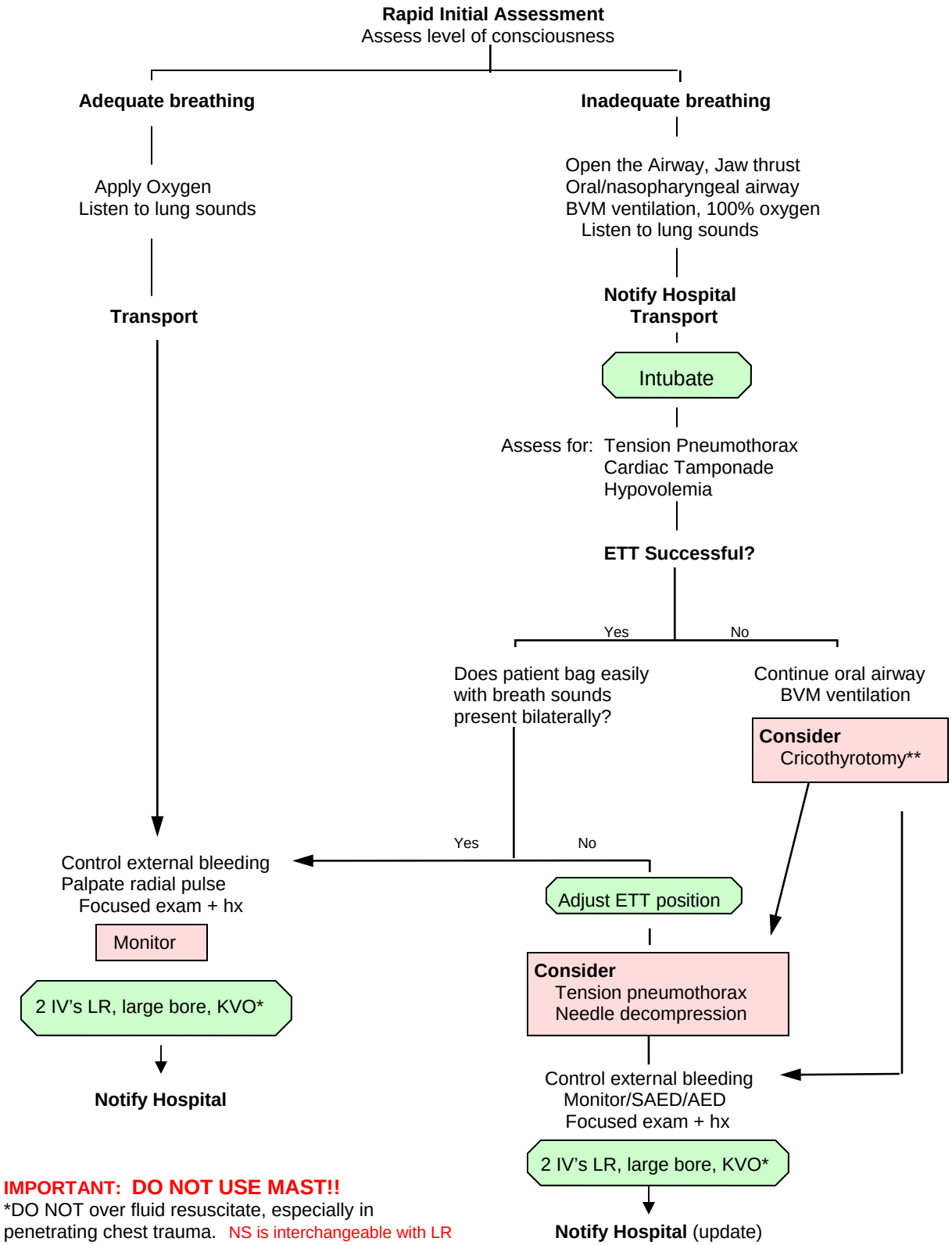
APPROXIMATE DOSAGES:	Activated CHARCOAL
0 - 1 Year	20gm
2 - 10 Years	30gm
>10 Years Old	50gm

IMPORTANT:
Neonates: DO NOT exceed 12.5% glucose concentration
*Consider use of the Broselow tape.

Version: **Pitt County 2006**

PEDPOIS20036PUB

PENETRATING CHEST OR ABDOMINAL TRAUMA



IMPORTANT: DO NOT USE MAST!!

*DO NOT over fluid resuscitate, especially in penetrating chest trauma. NS is interchangeable with LR for trauma, except for burns where LR is the preferred solution of choice for resuscitation.

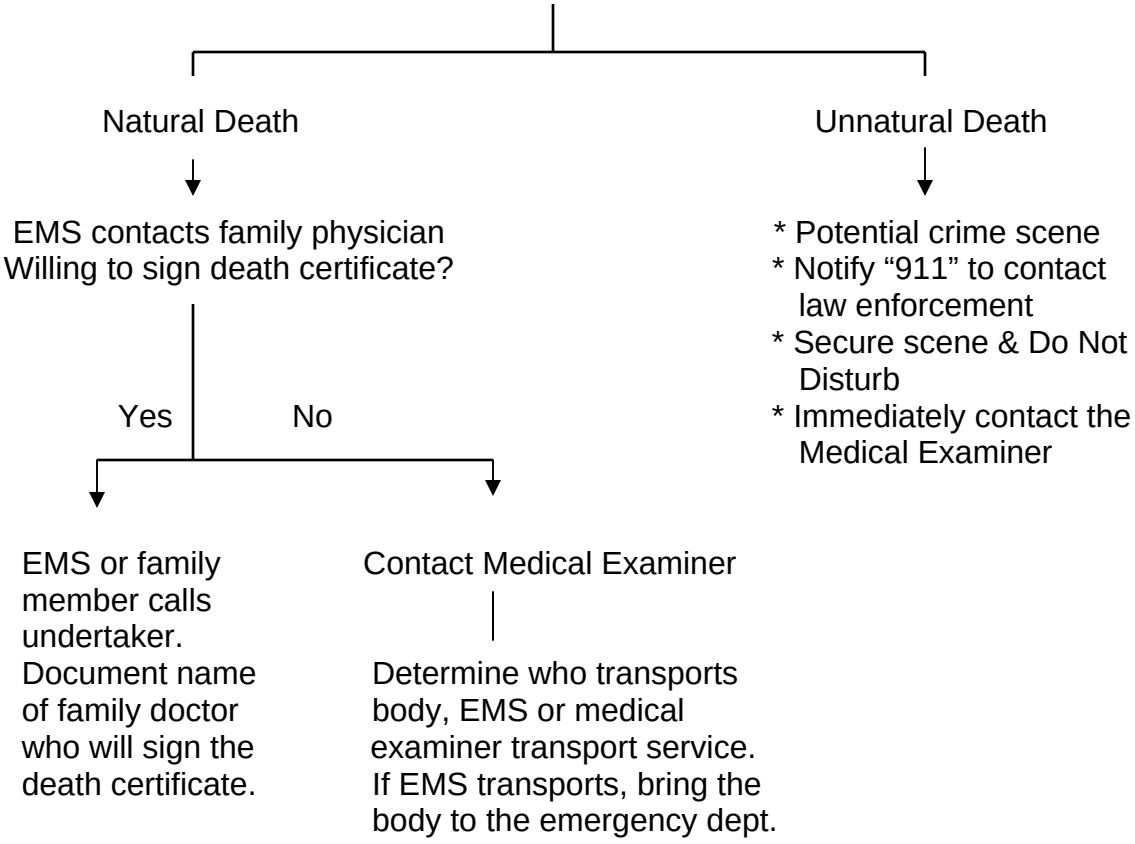
**Use Melker Emergency Cricothyrotomy catheter set

Version: **Pitt County 2006**

TRANSPORT OF DECEASED VICTIMS

Patient DOA

(or following Medical Direction contact and termination of efforts at scene)



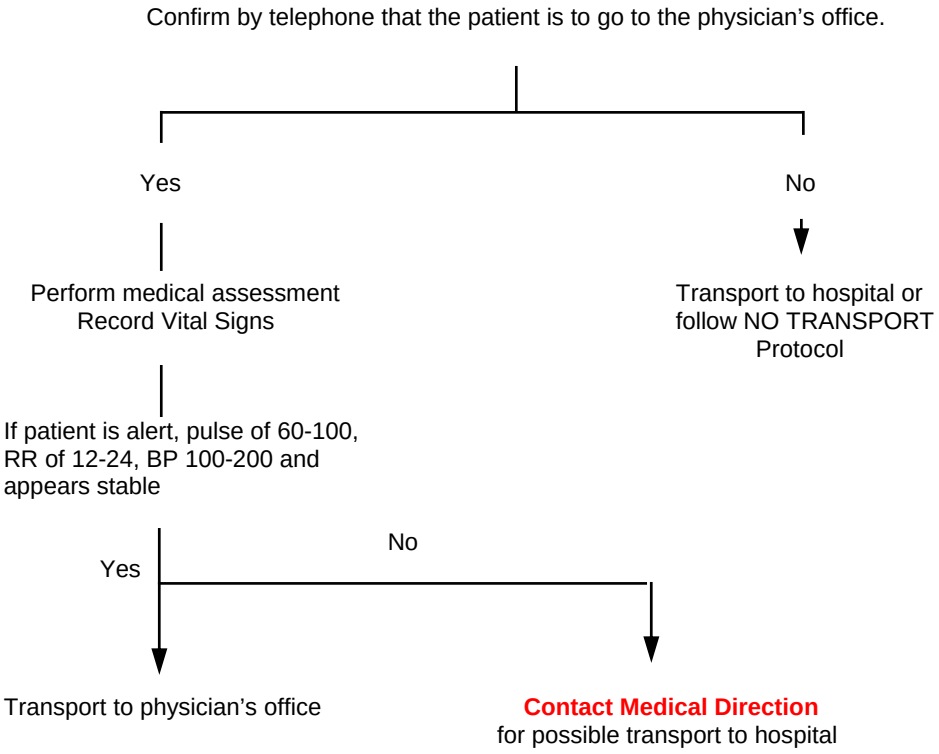
DO NOT TERMINATE EFFORTS once ambulance is enroute to the Emergency Department.

**EMS should NEVER TRANSPORT PATIENT TO THE MORGUE without the Medical Examiner's authorization, transporters for deceased are preferred.

TRANSPORT TO PHYSICIAN'S OFFICE

(For EMS squads that transport to physician offices.)

When dispatched to a call and directed to take the patient to their physician's office instead of the hospital, follow this protocol.



Remember that any unstable patient may be best initially seen at the hospital.

If Medical Direction determines that the patient should be diverted to the hospital, it will be the Base Station Physician's/MICN's responsibility to contact the physician's office and notify him/her of the change in destination.

TRAUMA ARREST

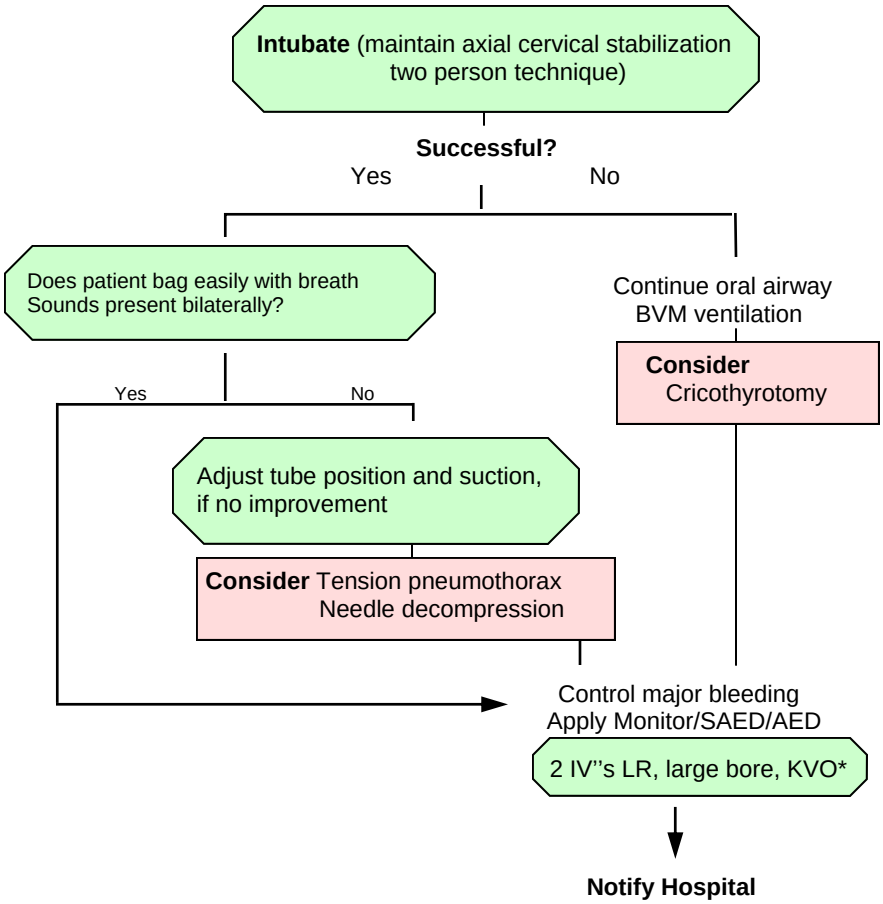
(**Cardiac arrest following trauma is usually NOT due to cardiac disease+**, therefore, do not rely on cardiac protocols alone. The **major causes** of **traumatic arrest are**: airway obstruction, tension pneumothorax, spinal cord injury, massive head trauma, cardiac tamponade, severe blood loss.)

TRANSPORT IMMEDIATELY (Do Not Delay)

Notify Receiving Facility

Enroute: Establish airway, begin CPR
(jaw-thrust, in-line cervical immobilization)
Ventilate with BVM, 100% oxygen

Intubate (maintain axial cervical stabilization
two person technique)



IMPORTANT:
The exceptions to this are electrocution and cardiac contusion, which may cause dysrhythmias responsive to ACLS therapy.
*DO NOT over fluid resuscitate. NS is interchangeable with LR for trauma, except for burns where LR is the preferred solution of choice for resuscitation.
Paramedics: May consider IO (adult) (only if not contraindication).
Version: **Pitt County 2006**

TUBERCULOSIS / HEPATITIS B PREVENTION

This protocol is for Paramedics only.

Squad/agency opting
to do in-house TB and/or Hepatitis B
prevention

**Contact EMS Medical Director
or squad/agency designated
healthcare physician
for medication prescription**

TB | **Hepatitis B**

Go to
Procedure 61, page 69
(Intradermal Injection)

Go to
Procedure 62, page 70
(Hepatitis B Vaccine)

DISCHARGE INSTRUCTION FORM

Instructions

The EMS Patient Discharge Information (PDI) form has been designed to be used by EMS personnel to legally document a variety of situations. This duplicate form consists of a single page. The front of the page is used to describe the situation and the back lists the universal instructions.

The form should be used to document any refusal of care by a patient (complete refusal or refusal of specific aspects of care) and to document the patient/guardian's understanding of medical instructions.

To understand the intent of this form, it is probably simplest to walk through several common patient encounter situations.

1. **Complete refusal of EMS care or transport:** The first box "Patient Refusal" should be marked. In the first section, the appropriate blocks for "EMT, EMT-I and EMT-P recommendation" should also be marked. This section should be explained to the patient or guardian, who should understand that their refusal may result in complications up to and including death. The patient or guardian should be asked to sign the form, indicating that he/she understands the seriousness of the situation and the information provided. If the situation warrants, the EMS professional should explain the risks of the refusal using the patient instructions section and the back of the form for assistance. If the instructions section is used, the appropriate blocks should also be checked.

2. **Refusal of a specific procedure (IV therapy, for example):** The first box "Patient Refusal" should be marked. In the first section, the specific refused procedure should be marked. The first section should be explained to the patient or guardian, who should understand the potential consequences of their refusal. The patient or guardian should be asked to sign the form, indicating that he/she understands the seriousness of the situation.

3. The box "Patient instructions" should be marked. This section and the specific instructions (on back) should all be carefully explained to the patient and/or guardian, who must understand them. The patient or guardian should be asked to sign the form, indicating that he/she understands the instructions and the seriousness of the situation.

In all situations, the top part of the form should be completed, and as much of the signature portion as necessary. It is preferable to have witnesses, particularly if the patient or guardian refuses to sign. The original form should be kept on file, while a duplicate copy should be provided for the patient or guardian.

Version: **Pitt County 2006**

DISCHARGE INSTRUCTIONS

UNIVERSAL INSTRUCTIONS:

- You have not received a complete medical evaluation. See a physician as soon as possible.
- If at any time after you have taken any medication, you have trouble breathing, start wheezing, get hives or a rash, or have any unexpected reaction, call “911” immediately.
- If your symptoms worsen at any time, you should see your doctor, go to the Emergency Department or call “911”.

Disposition 2002

PCR Number

Emergency Medical Services (EMS)
Patient Discharge Information

Patient's name	Date of Birth	Date
Patient's Address	Phone	EMS Professionals Name / No.

PATIENT REFUSAL

☐ *This section only applies if this box is marked*

The Paramedic has recommended:

- ☐ Measuring the patient's blood pressure
- ☐ A backboard and neck collar for the patient
- ☐ Ambulance transportation for the patient
- ☐ A complete physical exam of the patient
- ☐ Giving the patient oxygen
- ☐ Starting an IV for the patient
- ☐ Giving the patient medicine _____
- ☐ Other _____

I refuse the care that the Paramedic has recommended. I understand that my refusal may result in serious injury or death to the patient. I accept full responsibility for this decision. I assume all risks and consequences resulting from my refusal of care. I will not hold the EMS service or its officers, agents, or employees responsible for any bad things that happen to the patient because of my refusal.

My signature below attests that I understand what has been recommended, what the consequences may be if that is not done, and I still refuse to have the recommended care provided by the EMS service.

PATIENT INSTRUCTIONS

☐ *This section only applies if this box is marked*

You have not been evaluated by a doctor.

You should contact or see your doctor immediately.

The patient is being released to:

- ☐ Family member
- ☐ Guardian
- ☐ Law Enforcement Officer
- ☐ Other: _____

Follow the instructions (printed on the back of this form) indicated:

- ☒ Universal

Other instructions: _____

Guardian's name (printed)	☐ Patient ☐ Guardian ☐ Refused to Sign	Patient / Guardian Signature
Guardian's address ☐ Same as Patient		Date of Signatures / EMS Personnel's Signature
Witness Signature / Witness Signature		Patient's Physician Name / Phone Number

ON-SCENE PHYSICIAN FORM

This EMS service would like to thank you for your effort and assistance. Please be advised that the EMS Professionals are operating under strict protocols and guidelines established by their medical director and the State of North Carolina. As a licensed physician, you may assume medical care of the patient. In order to do so, you will need to:

1. Receive approval to assume the patient's medical care from Pitt County Memorial Hospital Emergency Department Medical Control physician.
2. Show proper identification including a current North Carolina Medical Board Registration Card.
3. Accompany the patient to the hospital.
4. Carry out any interventions that do not conform to the Pitt County EMS Protocols. The EMS personnel cannot perform any interventions that are not included in their protocols.
5. Sign all orders on the Ambulance Call Report.
6. Assume all medicolegal responsibility for all patient care activities until care is transferred to another physician at the destination hospital.
7. Complete the "Assumption of Medical Care" section below.

Assumption of Medical Care

I, _____, MD; License #: _____, have

assumed authority and responsibility for patient management for _____

_____.
(Patient's Name)

I understand that I must accompany the patient to the Emergency Department. I further understand that all EMS personnel must follow North Carolina EMS Basic and Advanced Life Support Rules and Regulations as well as all local EMS system protocols.

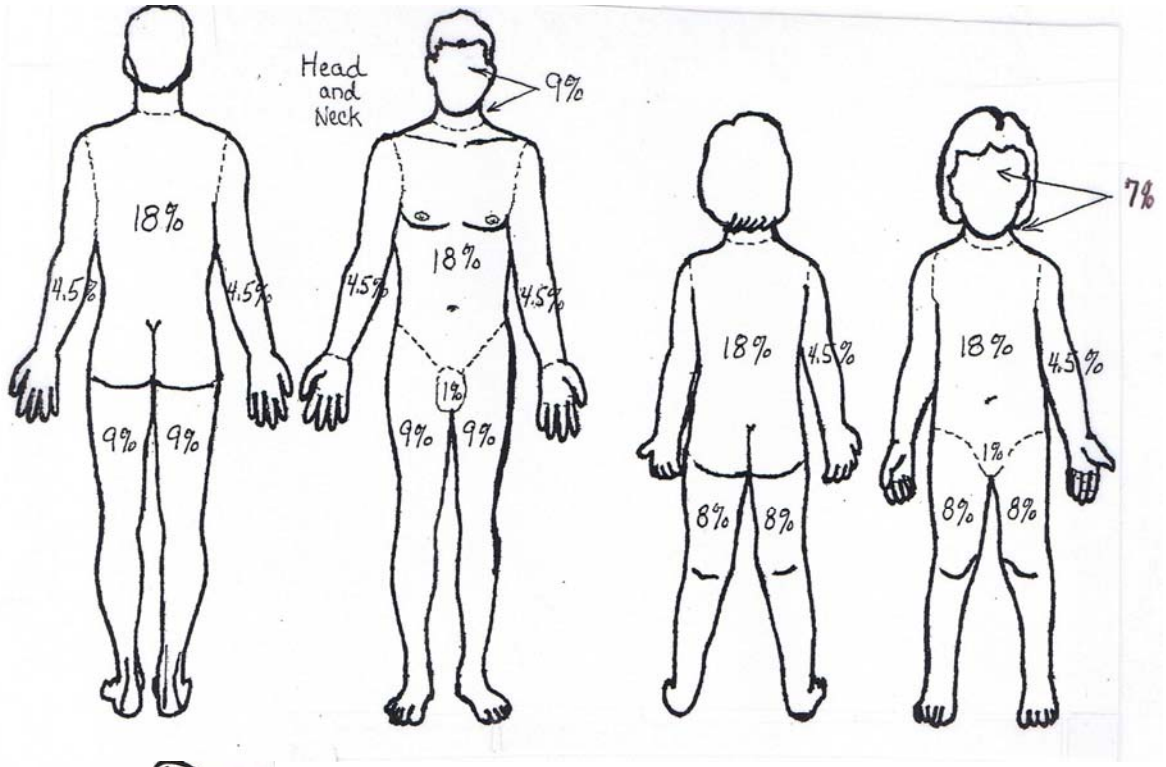
_____, MD Date: ____/____/____ Time: _____A P

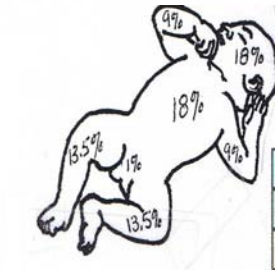
_____ EMS _____Witness

Version: **Pitt County 2006**

BURN CALCULATIONS

Rule of Nines





Lund and Browder Chart

Age	0	1	5	10	15	Adult
A = Half of Head	9.5	8.5	6.5	5.5	4.5	3.5
B = Half of Thigh	2.75	3.25	4.0	4.25	4.25	4.75
C = Half of Leg	2.5	2.5	2.75	3.0	3.25	3.5

The patient's palm (less the fingers of the hand) represents about 1% of the body surface area, whether the patient is an adult, child, or infant.

APGAR SCORE

The Apgar score should be obtained and recorded initially and at 5 minutes with the birth delivery of any infant.

Sign	0	1	2
Heart Rate	Absent	< 100 min.	> 100 min.
Respiratory Effort	Absent	Weak cry	Strong cry
Muscle Tone	Limp	Some Flexion	Good Flexion
Reflex Irritability (when feet stimulated)	No response	Some Motion	Cry
Color	Blue; Pale	Body Pink Extremities Blue	Pink

The Apgar Score adopted from the NCCEP and NCOEMS Protocols, 2005.

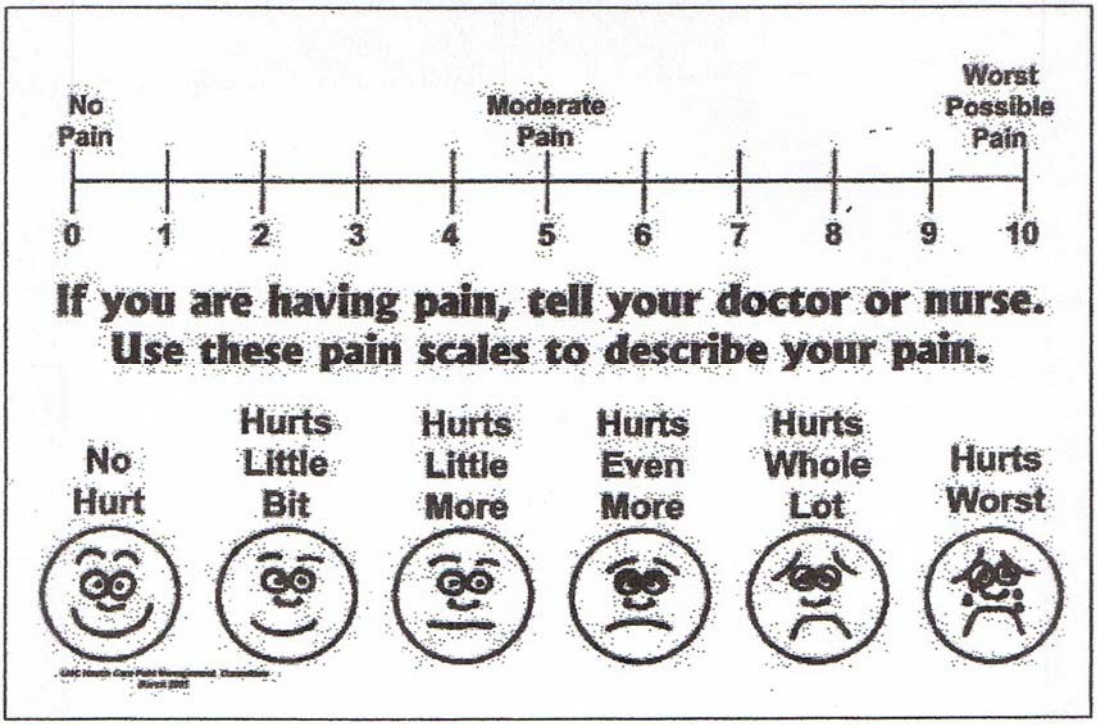
Version: **Pitt County 2006**

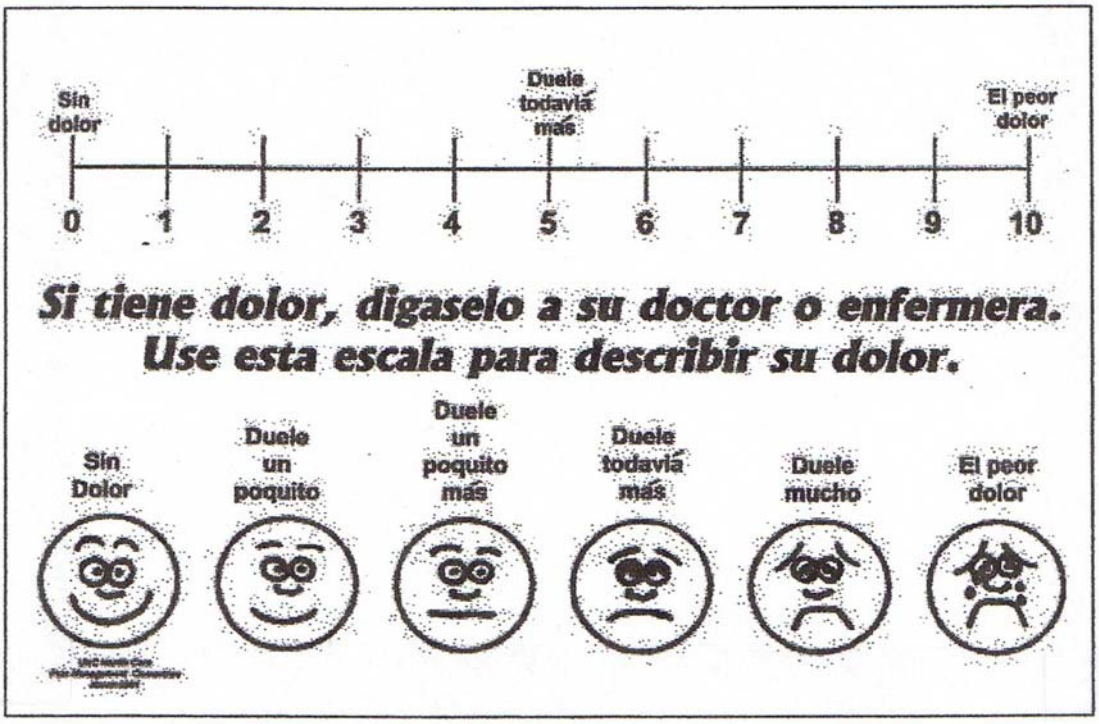
LOS ANGELES PREHOSPITAL STROKE SCREEN (LAPSS)

Not Applicable to Pitt County EMS Protocols.

Adapted from NCCEP Protocols.

PAIN SCALE FORMS





Adapted from NCCEP Protocols.

Version: **Pitt County 2006**

RESTRAINT CHECKLIST

_____ 1. Reason for restraint
Check all that apply:

_____Patient attempting to hurt self
_____Patient attempting to hurt others
_____Patient attempting to remove medically necessary devices

_____ 2. Attempted verbal reassurance / redirection

_____ 3. Attempted environmental modification (i.e. remove patient from stressful Environment)

_____ 4. Received medical direction order

From _____ at _____ hours.

_____ 5. Type of restraint applied

_____ Limb restraint
_____ LUE
_____ RUE
_____ LLE
_____ RLE
_____ Chemical Restraint
_____ Agent used
_____ Dosage
_____ Time

_____ 6. Vital signs and extremity neurovascular exam taken every 10 minutes.

_____ 7. Patient NOT in prone position
_____ Supine position for transport
_____ Lateral recumbent position for transport

The Restraint Checklist is adopted from the NCCEP and NCOEMS Protocols, 2005.

THROMBOLYTIC CHECKLIST

Mark all of the following conditions that currently apply to the patient. Items in "italics" are for hospital personnel to ascertain. The original of this form should accompany the patient throughout the course of their treatment, and the duplicate copy should be attached to the original ambulance care report (patient care report).

( ) Ongoing chest discomfort > 20 minutes but < 12 hours
( ) Oriented, can cooperate
( ) Age > 25 years
( ) 12-Lead ECG — ST elevation or bundle branch block
( ) Heart rate > 100 per minute
( ) Systolic blood pressure < 100 mmHg
( ) Pulmonary edema (rales > half way up back)
( ) Shock

ABSOLUTE CONTRAINDICATIONS:

( ) Prolonged CPR
( ) Head injury
( ) Blood pressure > 185/110 mmHg (after treatment with NTG paste)
( ) Prior cerebral bleeding
( ) Trauma or surgery within last 2 weeks or puncture of non-compressable vessel or organ biopsy
( ) Central nervous system neoplasm, AV malformation, or aneurysm
( ) CNS procedure or stroke within 2 months
( ) Thrombolytic allergy (Streptokinase or anistreplase)
( ) Active internal bleeding
( ) *Hemorrhagic retinopathy*
( ) *Aortic dissection*

RELATIVE CONTRAINDICATIONS:

( ) Age over 75
( ) Trauma/surgery more than 2 weeks ago
( ) Pregnancy or early postpartum
( ) Chronic severe hypertension
( ) Recent GI bleeding or active peptic ulcer disease (< 10 days)
( ) History of Stroke
( ) Menstruation
( ) Anticoagulant medication (i.e., Coumadin)
( ) Liver dysfunction
( ) Terminal cancer or other end-stage disease
( ) Conditions associated with bleeding risks, such as diabetic retinopathy
( ) *Acute pericarditis or subacute bacterial endocarditis*
( ) *Recent streptococcal infection, if streptiokinase or anistreplase will be used*
( ) *Previous Streptokinase/Alteplase*
( ) *Bleeding diathesis*
( ) *Septic thrombophlebitis*

Version: **Pitt County 2006**

TRAUMA/TRIAGE

1. If extrication time > 5 min. and/or multiple victims:
   a. Notify Medical Direction of situation ASAP
   b. Initiate IV's per standing orders for extrication/multiple victim situation

2. Cervical immobilization routine for any patient with altered sensorium or neck pain/tenderness.

3. When there is a question of appropriate triage category, assign the most critical status.

4. Transport patients in this order: RED—YELLOW—GREEN.

5. When there are multiple victims, notify hospital of total number of patients, tag status, and ETA before giving any other information.

TRIAGE

Unresponsive

and/or

No Respiratory Effort

and/or

Capillary Refill >2 sec.
SBP <90
P >120

and/or

Penetrating Injury
or Torso

and/or

Respiratory Distress

RED

LOAD AND GO

Enroute request:

Intubation
2 large bore IV's
LR wide open

Consider: MAST

Notify Medical Direction ASAP of RED status and other info only as requested.

Altered Sensorium

R >30/min.

and/or

SBP <100
P >100

and/or

Pulseless or
Penetrated Extremity

YELLOW

1. Complete cervical immobilization
2. Splint fractures (reduce if pulseless)

TRANSPORT

Notify Medical Direction ASAP of YELLOW status and other info only as requested.

Alert

and
R <30/min.
SBP >100
P <100

and

Minimal
Complaints

GREEN

TRANSPORT only after RED and YELLOW care and transport

Notify Medical Direction of GREEN status and if immobile at ETA = 5min.

COMMUNICABLE DISEASE

Modes of Transmission:

1. direct contact
2. contact with contaminated materials
3. inhalation
4. bite of an infected human, animal or insect
5. puncture by a contaminated instrument
6. transfusion of contaminated blood products

Identification of a Possible Infectious Disease:

1. fever
2. rash, open sores, skin lesions
3. diarrhea
4. vomiting
5. coughing, sneezing
6. draining wounds
7. diaphoresis
8. belly pain
9. headache with stiff neck
10. signs of jaundice
11. no symptoms visible

Methods of Compliance:

The following are required work practices mandated by the Occupational Safety and Health Administration (OSHA).

1. hand washing
2. appropriate handling of contaminated needles and sharps
3. handling food, drink, contac lens, cosmetics, lip balm in specific areas
4. appropriate handling of blood and other potentially infectious materials
5. appropriate identification of bloodborne pathogen containers
6. appropriate decontamination of equipment

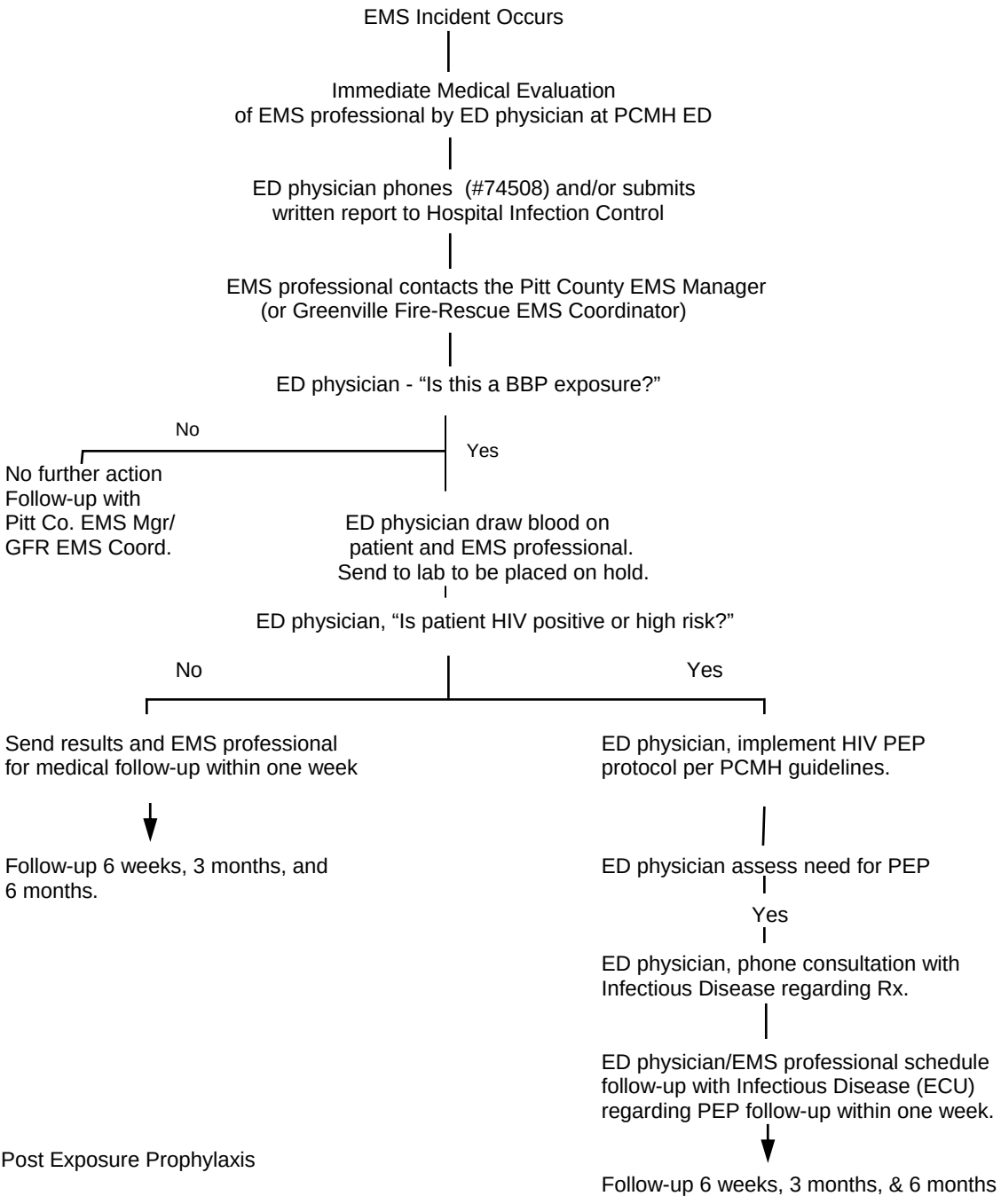
Universal Precautions:

1. gloves — disposable vinyl or latex
2. masks
3. protective eye wear
4. cover gowns
5. airway adjunct equipment (e.g., pocket mask)

Blood/body Fluid Exposure Control:

1. document route of exposure
2. identify source individual
3. notify attending physician in the emergency department
4. notify your captain or chief and medical director of exposure
5. post exposure prophylaxis

EMS BLOOD BORNE PATHOGENS (BBP) EXPOSURE



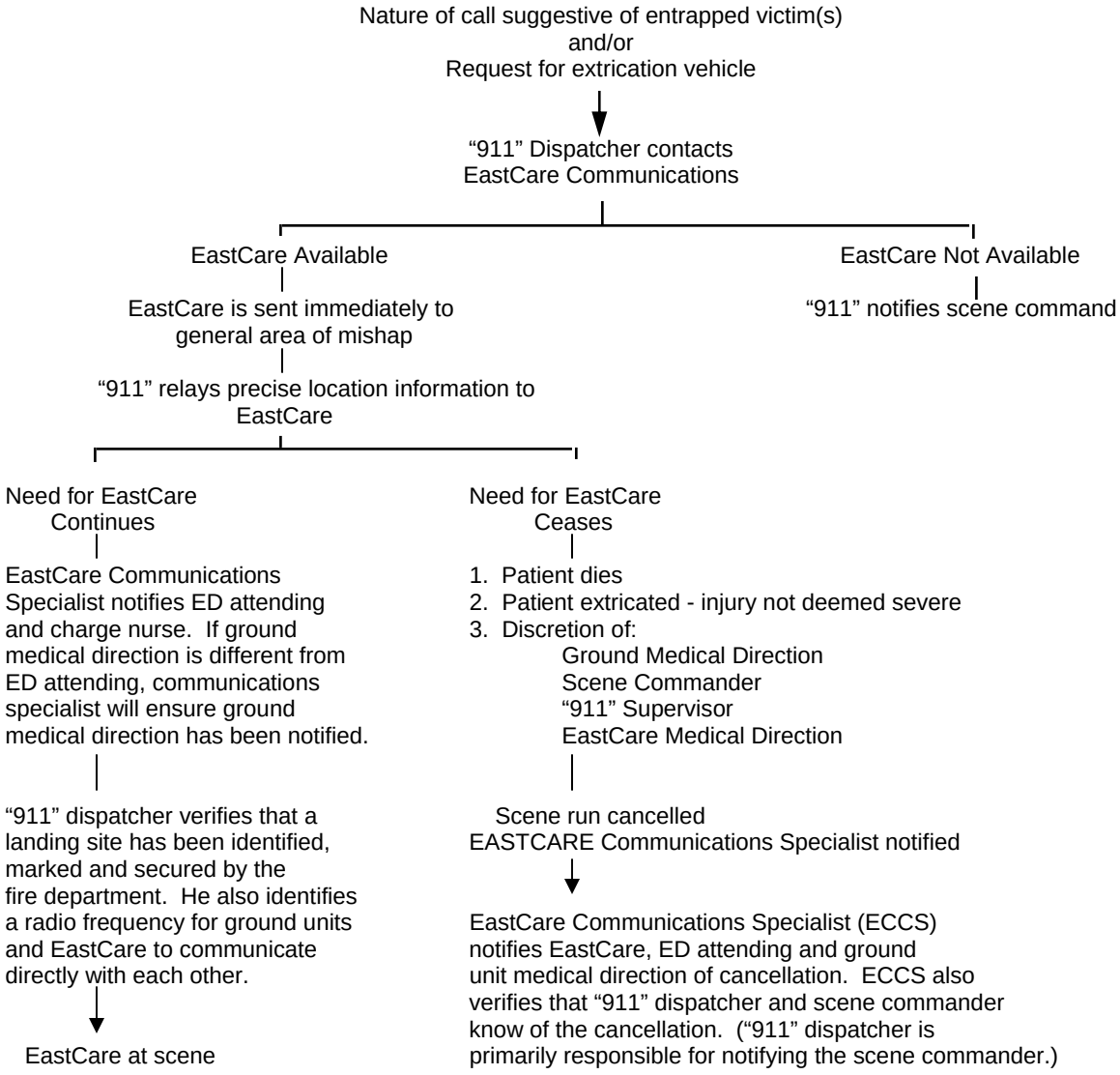
"PEP" = Post Exposure Prophylaxis

*****Antiviral prophylaxis required within 4 hours, ideal is less than 2 hours.**

Lay Public Exposures to Blood and Air Borne Pathogens:

1. Any lay person, who is exposed to a potential blood or air borne pathogen (such as a needle stick or blood and/or secretion exposure to a mucosal surface or open wound), should be evaluated by their physician, public health department, or emergency department immediately.
2. If possible, the lay person should be evaluated at the same facility as the patient responsible for the exposure. This will allow consent and blood testing of the patient which permits better decision making reference to treatment required for the lay person who was exposed.

EASTCARE SCENE RESPONSE

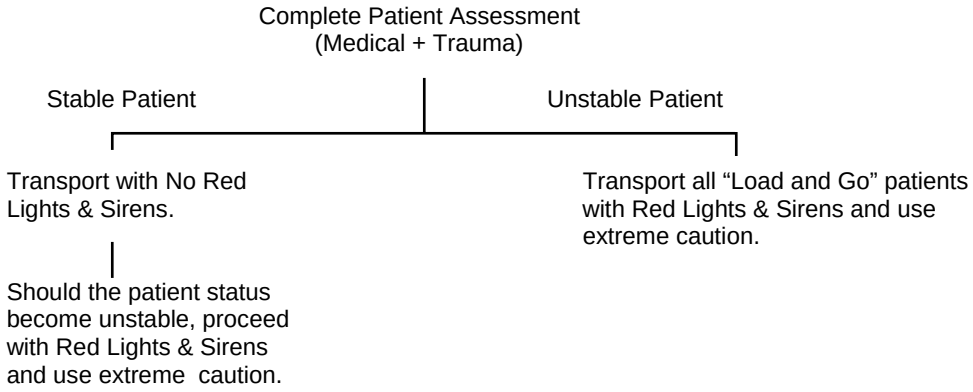


Additional information regarding "Air Transport" can be found in Policy 1, pg 14.

***Per Pitt County Emergency Management, May 2006: "Only Fire Command can cancel EastCare prior to EMS arriving, but once EMS arrives, the decision for cancellation will be made by the EMS Officer in charge of the scene. The person cancelling EastCare will assume the liability for the cancellation. All cancellations of EastCare must go through '911' dispatch."**

RED LIGHTS/SIRENS VERSUS NON-RED LIGHTS/SIRENS

Recommendation only on transporting with or without red lights and siren to the hospital.
(Please review your squad's "Standard Operating Procedures".)



The EMS personnel crew should evaluate the seriousness of the EMS call and at their discretion determine the appropriateness of utilizing Red Lights and Sirens during transport. Please note that the majority of the rescue calls "DO NOT" need transport by Red Lights & Sirens.

Examples of "Unstable + Load and Go" patients:

Altered level of consciousness
Airway obstructions
Respiratory arrest
Respiratory rate of <8 or >30
Retractions of the intercostal spaces, suprasternal notch, supraclavicular spaces
Absent or weak peripheral or central pulses
Pale or cyanotic nail or skin/palm color
No spontaneous eye opening
No spontaneous movement or reponse to painful stimulus
Bilateral femur fractures
Pelvis unstability
Uncontrollable bleeding

DOPAMINE DRIP CALCULATION TABLE

400 mg Dopamine in 500 ml fluid
800 mcg/ml
(Numbers in blocks represent microdrops per minute and milliliters per hour.)

	30kg	40kg	50kg	60kg	70kg	80kg	90kg	100kg	110kg	120kg	130kg
2.5 mcg/kg/min	6	8	9	11	13	15	17	19	21	23	24
5.0 mcg/kg/min	11	15	19	23	26	30	34	38	41	45	49
7.5 mcg/kg/min	17	23	28	34	39	45	51	56	62	68	73
10.0 mcg/kg/min	23	30	38	45	53	60	68	75	83	90	98
12.5mcg/kg/min	28	37	47	56	66	75	84	94	103	114	122
15.0mcg/kg/min	34	45	56	68	79	90	101	113	124	135	146

PEDIATRIC REFERENCE TABLE

(Use "Broselow Pediatric Resuscitation Tape" when possible. All values are approximations only.)

Age	**0-1 yr**	**1 yr**	**3 yrs**	**5 yrs**	**8 yrs**	**10 yrs**	**12 yrs**
Weight kg	3.5	10	15	20	25	30	40
Weight lb	7.7	22	33	44	55	66	88
Pulse	120-160	100-140	90-130	80-120	80-120	70-110	60-100
Systolic BP	60-80	70-90	80-100	80-110	90-110	90-120	90-120
IV Bolus + (20 ml/kg)	70 ml	200 ml	300 ml	400 ml	500 ml	600 ml	800 ml
Defib 2 j/kg **4 j/kg**	7 j 14 j	20 j 40 j	30 j 60 j	40 j 80 j	50 j 100 j	60 j 120 j	80 j 160 j
ETT sizes (*uncuffed)	3.0*	4.0*	5.0*	5.0*	6.0	6.0	7.0
D25 ** (2 ml/kg)	7 ml	20 ml	30 ml	40 ml	50 ml	60 ml	80 ml
Naloxone 0.1 mg/kg Titrate to desired effect	0.35 mg 0.9 ml 0.4 mg/ml	1.0 mg 1.0 ml 1 mg/ml	1.5 mg 1.5 ml 1 mg/ml	2.0 mg 2.0 ml 1 mg/ml	2.5 mg 2.5 ml 1 mg/ml	3.0 mg 3.0 ml 1 mg/ml	4.0 mg 4.0 ml 1 mg/ml
Epinephrine 1:10,000 (.01 mg/kg) (0.1 ml/kg)	0.035 mg 0.35 ml	0.1 mg 1.0 ml	0.15 mg 1.5 ml	0.2 mg 2.0 ml	0.25 mg 2.5 ml	0.3 mg 3.0 ml	0.4 mg 4.0 ml
Atropine + 0.1 mg/ml (0.02 mg/kg)	0.1 mg 1.0 ml	0.2 mg 2.0 ml	0.3 mg 3.0 ml	0.4 mg 4.0 ml	0.5 mg 5.0 ml	0.6 mg 6.0 ml	0.8 mg 8.0 ml
Lidocaine 20 mg/ml (1 mg/kg)	3.5 mg 0.2 ml	10 mg 0.5 ml	15 mg 0.75 ml	20 mg 1.0 ml	25 mg 1.25 ml	30 mg 1.5 ml	40 mg 2.0 ml
NaBicarb 1 mEq/ml (1 mEq/kg)	3.5 mEq 3.5 ml++	10 mEq 10 ml++	15 mEq 15 ml	20 mEq 20 ml	25 mEq 25 ml	30 mEq 30 ml	40 mEq 40 ml
Diazepam 5 mg/ml (0.3 mg/kg max 10 mg)	1.0 mg	3.0 mg	4.5 mg	6.0 mg	7.5 mg	9.0 mg	10.0 mg
Epinephrine 1:1,000 SC anaphylaxis (1 mg/ml)	0.1 mg 0.1 ml	0.15 mg 0.15 ml	0.2 mg 0.2 ml	0.2 mg 0.2 ml	0.3 mg 0.3 ml	0.3 mg 0.3 ml	0.3 mg 0.3 ml
Activated Charcoal	10 gms	10 gms	20 gms	20 gms	20 gms	50-100 gms	50-100gms

+Give IV bolus dose by syringe
** To make D25: Draw 10 ml of D50 into a 20 ml syringe. Draw 10 ml of Sterile water into the same syringe. Shake well. This provides 20 ml of D25.

PEDIATRIC COLOR CODED DRUG LIST

Length < 59.5 cm — Weight 3-5 Kg (Avg 4.0 Kg) — White (0-3 months)

Vital Signs

Heart Rate	120-150
Respirations	24-48
BP Systolic	70 (+/-25)

Equipment

ET Tube	2.5 - 3.5
Blade Size	0 - 1

Defibrillation

Defibrillation	8 Joules
Cardioversion	4 Joules

Normal Saline 40-80 ml

ACLS

Atropine	0.10 mg
Calcium Chloride	80 mg
Epinephrine 1:10,000	0.04 mg
Epinephrine 1:1000 ET	0.4 mg
Lidocaine	4 mg
Sodium Bicarbonate	4 mEq

Dopamine (800 mg in 500 cc)

2	mcg/kg/min	0.3 ml/hr
5	mcg/kg/min	0.9 ml/hr
10	mcg/kg/min	1.7 ml/hr
20	mcg/kg/min	3.3 ml/hr

Medications

Acetaminophen		40 mg
Afrin Nasal Spray		N/A
Albuterol		2.5mg
Charcoal		N/A
Dextrose 10%		20-30 ml
Diazepam	(IV)	0.6 mg
	(Rectal)	3.2 mg
Diphenhydramine		6.5 mg
Epinephrine 1:1000		0.06 mg
Glucagon		0.2-0.6 mg
Ibuprofen		2.5 ml
Midazolam		0.3-0.9 mg
Morphine Sulfate		0.6 mg
Naloxone		0.6 mg

Length 59.5-66.5 cm — Weight 6-7 Kg (Avg 6.5 Kg) — Pink (3-6 Months)

Vital Signs

Heart Rate	120-125
Respirations	24-48
BP Systolic	85 (+/-25)

Equipment

ET Tube	3.5
Blade Size	1

Defibrillation

Defibrillation	13 Joules
Cardioversion	6 Joules

Normal Saline 65-130 ml

ACLS

Atropine	0.13 mg
Bretylium	30-35 mg
Calcium Chloride	120 mg
Epinephrine 1:10,000	0.065 mg
Epinephrine 1:1000 ET	0.6 mg
Lidocaine	6 mg
Sodium Bicarbonate	6 mEq

Dopamine (800 mg in 500 cc)

2	mcg/kg/min	0.5 ml/hr
5	mcg/kg/min	1.3 ml/hr
10	mcg/kg/min	2.5 ml/hr
20	mcg/kg/min	5.0 ml/hr

Medications

Acetaminophen		2.5 ml
Afrin Nasal Spray		HOLD
Albuterol		1.0 mg
Charcoal		HOLD
Dextrose 10%		30-35 ml
Diazepam	(IV)	0.6 mg
	(Rectal)	3.2 mg
Diphenhydramine		6.5 mg
Epinephrine 1:1000		0.06 mg
Glucagon		0.2-0.6 mg
Ibuprofen		2.5 ml
Midazolam		0.3-0.9 mg
Morphine Sulfate		0.6 mg
Naloxone		0.6 mg

Length 66.5-74 cm — Weight 8-9 Kg (Avg 8.5 Kg) — Red (7-10 Months)

Vital Signs

Heart Rate	120
Respirations	24-32
BP Systolic	92 (+/-30)

Equipment

ET Tube	3.5-4.0
Blade Size	1

Defibrillation

Defibrillation	17 Joules
Cardioversion	8 Joules

Normal Saline 85-170 ml

ACLS

Atropine	0.17 mg
Bretylium	45 mg
Calcium Chloride	170 mg
Epinephrine 1:10,000	0.085 mg
Epinephrine 1:1000 ET	0.8 mg
Lidocaine	8 mg
Sodium Bicarbonate	8 mEq

Dopamine (800 mg in 500 cc)

2	mcg/kg/min	0.7 ml/hr
5	mcg/kg/min	1.6 ml/hr
10	mcg/kg/min	3.2 ml/hr
20	mcg/kg/min	6.5 ml/hr

Medications

Acetaminophen		3.1 ml
Afrin Nasal Spray		HOLD
Albuterol		1.25 mg
Charcoal		HOLD
Dextrose 12.5%		45-50 ml
Diazepam	(IV)	0.8 mg
	(Rectal)	4.3 mg
Diphenhydramine		7.5 mg
Epinephrine 1:1000		0.08 mg
Glucagon		0.3-0.8 mg
Ibuprofen		3.1 ml
Midazolam		0.4-1.2 mg
Morphine Sulfate		0.8 mg
Naloxone		0.8 mg

Adapted from NCCEP Protocols 2002
Version: **Pitt County 2006**

PEDIATRIC COLOR CODED DRUG LIST

Weight 10-11 Kg (Avg 10.5 Kg)

Length 74-84.5 cm

Purple (11-18 Months)

Vital Signs

Heart Rate	115-120
Respirations	22-30
BP Systolic	96 (+/-30)

Equipment

ET Tube	4.0
Blade Size	1

Defibrillation

Defibrillation	20 Joules
Cardioversion	10 Joules

Normal Saline 105-210ml

ACLS

Atropine	0.2 mg
Bretylium	55 mg
Calcium Chloride	210 mg
Epinephrine 1:10,000	0.1 mg
Lidocaine	10 mg
Sodium Bicarbonate	10 mEq

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

Medications

Acetaminophen		3.75 ml
Afrin Nasal Spray		HOLD
Albuterol		1.6 mg
Charcoal		HOLD
Dextrose 12.5%		40-60 ml
Diazepam	(IV)	1.0 mg
	(Rectal)	5.0 mg
Diphenhydramine		10 mg
Epinephrine 1:1000		0.1 mg
Glucagon		0.3-1.0 mg
Ibuprofen		3.75 ml
Midazolam		0.5-1.5 mg
Morphine Sulfate		1.0 mg
Naloxone		1.0 mg

Weight 12-14 Kg (Avg 13 Kg)

Length 84.5-97.5 cm

Yellow (19-35 Months)

Vital Signs

Heart Rate	110-115
Respirations	20-28
BP Systolic	100(+/-30)

Equipment

ET Tube	4.5
Blade Size	2

Defibrillation

Defibrillation	26 Joules
Cardioversion	13 Joules

Normal Saline 130-260ml

ACLS

Atropine	0.26 mg
Bretylium	65 mg
Calcium Chloride	260 mg
Epinephrine 1:10,000	0.13 mg
Lidocaine	13 mg
Sodium Bicarbonate	13 mEq

Dopamine

(800 mg in 500 ml Normal Saline)

2	mcg/kg/min	0.8 ml/hr
5	mcg/kg/min	2.5 ml/hr
10	mcg/kg/min	5.0 ml/hr
20	mcg/kg/min	10 ml/hr

Medications

Acetaminophen		5 ml
Afrin Nasal Spray		1 spray
Albuterol		2 mg
Charcoal		15 gms
Dextrose 12.5%		60-80 ml
Diazepam	(IV)	1.3 mg
	(Rectal)	6.5 mg
Diphenhydramine		12.5 mg
Epinephrine 1:1000		0.13 mg
Glucagon		0.4-1 mg
Ibuprofen		5 ml
Midazolam		0.6-1.8 mg
Morphine Sulfate		1.3 mg
Naloxone		1.3 mg

Weight 15-18 Kg (Avg 16.5 Kg)

Length 97.5-110 cm

White (3-4 yrs)

Vital Signs

Heart Rate	100-15
Respirations	20-26
BP Systolic	100(+/-20)

Equipment

ET Tube	5.0
Blade Size	2

Defibrillation

Defibrillation	35 Joules
Cardioversion	16 Joules

Normal Saline 165-330ml

ACLS

Atropine	0.33 mg
Bretylium	85 mg
Calcium Chloride	330 mg
Epinephrine 1:10,000	0.16 mg
Lidocaine	15 mg
Sodium Bicarbonate	15 mEq

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

Medications

Acetaminophen		6.25 ml
Afrin Nasal Spray		1 spray
Albuterol		2.5 mg
Charcoal		15-30 gms
Dextrose 12.5%		60-80 ml
Diazepam	(IV)	1.6 mg
	(Rectal)	8.0 mg
Diphenhydramine		15 mg
Epinephrine 1:1000		0.16 mg
Glucagon		0.5-1.0 mg
Ibuprofen		5.5 ml
Midazolam		0.8-2.4 mg
Morphine Sulfate		1.5 mg
Naloxone		1.5 mg

Adapted from NCCEP Protocols 2002
Version: **Pitt County 2006**

PEDIATRIC COLOR CODED DRUG LIST

Blue (5-6 yrs) — Length 110-122 cm — Weight 19-22 Kg (Avg 20.75 Kg)

Vital Signs

Heart Rate	100
Respirations	20-24
BP Systolic	100(+/-15)

Equipment

ET Tube	5.5
Blade Size	2

Defibrillation

Defibrillation	40 Joules
Cardioversion	20 Joules

Normal Saline 200-300ml

ACLS

Atropine	0.4 mg
Bretylium	100 mg
Calcium Chloride	400 mg
Epinephrine 1:10,000	0.2 mg
Lidocaine	20 mg
Sodium Bicarbonate	20 mEq

Dopamine

(800 mg in 500 ml Normal Saline)

2	mcg/kg/min	1.6 ml/hr
5	mcg/kg/min	3.9 ml/hr
10	mcg/kg/min	7.8 ml/hr
20	mcg/kg/min	16 ml/hr

Medications

Acetaminophen		7.5 ml
Afrin Nasal Spray		1 spray
Albuterol		3 mg
Charcoal		20-40 gms
Dextrose 12.5%		100 ml
Diazepam	(IV)	2.0 mg
	(Rectal)	10.0 mg
Diphenhydramine		20.0 mg
Epinephrine 1:1000		0.2 mg
Glucagon		1.0 mg
Ibuprofen		7.5 ml
Midazolam		1.0-3.0 mg
Morphine Sulfate		2.0 mg
Naloxone		2.0 mg

Orange (7-9 yrs) — Length 122-137 cm — Weight 24-30 Kg (Avg 27 Kg)

Vital Signs

Heart Rate	90
Respirations	18-22
BP Systolic	105(+/-15)

Equipment

ET Tube	6.0
Blade Size	2-3

Defibrillation

Defibrillation	54 Joules
Cardioversion	27 Joules

Normal Saline 270-540ml

ACLS

Atropine	0.5 mg
Bretylium	135 mg
Calcium Chloride	540 mg
Epinephrine 1:10,000	0.27 mg
Lidocaine	25 mg
Sodium Bicarbonate	25 mEq

Dopamine

(800 mg in 500 ml Normal Saline)

2	mcg/kg/min	2 ml/hr
5	mcg/kg/min	5 ml/hr
10	mcg/kg/min	10 ml/hr
20	mcg/kg/min	20 ml/hr

Medications

Acetaminophen		10 ml
Afrin Nasal Spray		1 spray
Albuterol		4 mg
Charcoal		25-50 gms
Dextrose 12.5%		100-150ml
Diazepam	(IV)	2.5 mg
	(Rectal)	12.5 mg
Diphenhydramine		25 mg
Epinephrine 1:1000		0.3 mg
Glucagon		1.0 mg
Ibuprofen		10 ml
Midazolam		1.3-3.9 mg
Morphine Sulfate		2.8 mg
Naloxone		2.8 mg

Green (10-12 yrs) — Length 137-150 cm — Weight 32-40 Kg (Avg 36 Kg)

Vital Signs

Heart Rate	85-90
Respirations	16-22
BP Systolic	115(+/-20)

Equipment

ET Tube	6.5
Blade Size	3

Defibrillation

Defibrillation	70 Joules
Cardioversion	40 Joules

Normal Saline 400-800ml

ACLS

Atropine	0.72 mg
Bretylium	180 mg
Calcium Chloride	720 mg
Epinephrine 1:10,000	0.36 mg
Lidocaine	36 mg
Sodium Bicarbonate	36 mEq

Dopamine

(800 mg in 500 ml Normal Saline)

2	mcg/kg/min	2.7 ml/hr
5	mcg/kg/min	7.0 ml/hr
10	mcg/kg/min	14.0 ml/hr
20	mcg/kg/min	28.0 ml/hr

Medications

Acetaminophen		15 ml
Afrin Nasal Spray		2 spray
Albuterol		5 mg
Charcoal		25-50 gms
Dextrose 12.5%		150-200ml
Diazepam	(IV)	3.5 mg
	(Rectal)	18 mg
Diphenhydramine		35 mg
Epinephrine 1:1000		0.3 mg
Glucagon		1.0 mg
Ibuprofen		15 ml
Midazolam		1.8-5.4 mg
Morphine Sulfate		3.6 mg
Naloxone		3.6 mg

Adapted from NCCEP Protocols 2002
Version: **Pitt County 2006**

MEDICATION FIELD GUIDE
(Adult doses)
(Reference Pediatric Drug list for Patients ≤ 12 years of age

DRUG	CLASSIFICATION	INDICATIONS	CONTRAINDICATION	DOSAGE	OTHER
Acetaminophen (Tylenol)	Antipyretic, nonnarcotic analygesic	Fever; relief of mild to moderate pain	Hypersensitivity	(1-2) 325 mg tablets po or suppositories pr	Usually well tolerated
Activated Charcoal	Absorbent; decontaminant	Poisoning; oral ingestion of toxins	None except airway precautions; do not use po in semi- or unconscious pts	1 gm/kg po or NG tube	May cause N & V
Adenosine (Adenocard)	Antiarrhythmic	PSVT refractory to common vagal maneuvers	2nd or 3rd degree AV block; hypersensitivity	6 mg IVP; repeat 12 mg IVP within 1-2 mins.	Give rapidly over 1-2 seconds followed by a rapid saline flush. May cause transient asystole, facial flushing, headache, shortness of breath, dizziness, nausea
Afrin (Oxymetazoline)	Vasoconstrictor	Epistaxis	Avoid in patients with BP > 110 diastolic or known coronary artery disease.	2 sprays in affected nostril of 0.05%	over-the-counter drug
Albuterol (Proventil; Ventolin)	Sympathomimetic (Beta 2 selective) (Beta agonist)	Bronchial asthma; reversible bronchospasm associated with COPD	Tachydysrhythmias. Hypersensitivity	2.5 mg in 2-3 ml NS administered by nebulizer	May cause palpitations, anxiety nausea, dizziness, sweating, headache
Amiodarone (Cordarone)	Antiarrhythmic	Life-threatening ventricular arrhythmias	2nd or 3rd degree AV block, bradycardia induced syncope (except in presence of pacemaker, severe hepatic disease, severe sinus-node dysfunction	150 mg IV bolus over 10 mins.	May increase cardiac effects with other antiarrhythmicss. May increase concentration, toxicity of digoxin, phenytoin. May increase effect of oral anticoagulants.
Aspirin (ASA)	Anticoagulant, Antipyretic, Anti-imflammatory	Chest Pain	Hypersensitivity	4 chewable baby ASA tablets, total dose 325 mg	Precautions: GI bleeding, asthma, peptic ulcer disease. May cause heartburn, N/V, etc.
Atropine (Sulfate)	Anticholinergic	Symptomatic: sinus bradycardia, junctional escape rhythm, 2nd degree type 2 and 3rd degree AV block, asystole, PEA, and organophosphate poisoning	A-flutter or A-fib with rapid ventricular rate, hypersensitivity, unstable cardiovascular status in acute hemorrhage and MI, caution in pts with glaucoma	Asystole/PEA: 1 mg IVP q 3-5 mins to maximum dose of 3 mg. Symptomatic bradycardia: 0.5 mg - 1 mg repeated q 3-5 mins to maximum dose 3 mg. Organophosphate poisoning: 2 mg IM and 1 mg IVP. IV dosage may be repeated every 5-10 mins PRN.	Side effects: palpitations, dysrhythmias, headache, dizziness, anticholinergic effects, N/V, flushed, hot, dry skin

MEDICATION FIELD GUIDE
(Adult doses)
(Reference Pediatric Drug list for Patients ≤ 12 years of age

DRUG	CLASSIFICATION	INDICATIONS	CONTRAINDICATION	DOSAGE	OTHER
Calcium Chloride	Electrolyte	Acute hyperkalemia and hypocalcemia, calcium channel blocker toxicity	Patients receiving digitalis	1 gm IVP	Flush between calcium chloride and sodium bicarbonate to avoid precipitation; causes tissue irritation and necrosis if infiltrated at IV site
Dexamethasone (Decadron)	Anti-inflammatory; steroid	bronchial asthma, COPD, anaphylaxis	Hypersensitivity, systemic fungal infection, peptic ulcers (except life-threatening situations).	4 mg SIVP	Avoid live virus vaccine such as smallpox. Use with barbiturates or phenytoin may reduce effectiveness; may decrease effect of oral hypoglycemics, insulin, diuretics, potassium supplements. May increase digoxin toxicity.
Dextrose 50% in Water	Carbohydrate/ Hypertonic solution	Hypoglycemia, altered LOC, coma or seizures of unknown cause	None in an emergency setting	25 grams IV. May be repeated.	Tissue necrosis if it infiltrates; may precipitate severe neurologic symptoms in the alcoholic patient
Diazepam (Valium)	Sedative; benzodiazepine	Status epilepticus, premedication prior to cardioversion, acute anxiety (sedative)	Hypersensitivity	1 - 5 mg SIVP (do not administer faster than 1 ml/min. Can also be given IM.	May cause respiratory depression. Doesn't mix will in the same IV line as other drugs.
Diltiazem (Cardizem)	Calcium channel blocker	Control rapid ventricular rates associated with A-fib and A-flutter; angina pectoris	Hypotension, wide-complex tachycardia, conduction system disturbances	20 mg IV over 2 min.	Cardioversion may be preferable to diltazem
Diphenhydramine (Benadryl)	Antihistamine	Moderate to severe allergic reactions. Anaphylaxis. Extrapyramidal reactions.	Asthma (thickens secretions). CNS Depression. Hypersensitivity.	25 - 50 mg SIVP; may be given IM.	Causes sedation.
Dopamine	Sympathomimetic	Cardiogenic shock, hypovolemic shock (only after complete fluid resuscitation), neurogenic shock	Hypovolemic shock where complete fluid resuscitation has not occurred.	2 - 5 mcg/kg/min.; increase as needed. (800 mg in a 500 ml bag of D5W = 1600 mcg/ml concentration). IV drip only.	Precautions: should not be administered in severe tachyarrhythmias or VF, tissue necrosis and sloughing can occur from IV infiltration, inactivated if mixed with sodium bicarbonate; beneficial effects lost when dose exceeds 20 mcg/kg/min.
Epinephrine 1:1,000	Sympathominetic	Asthma. Acute allergic reactions.	No true contraindications, only precautions	0.3 to 0.5 mg SQ	May cause: Angina, Dysrhythmias, Palpitations.

MEDICATION FIELD GUIDE
(Adult doses)
(Reference Pediatric Drug list for Patients ≤ 12 years of age

DRUG	CLASSIFICATION	INDICATIONS	CONTRAINDICATION	DOSAGE	OTHER
Epinephrine 1:10,000	Sympathominetic	Asystole. PEA. VF and pulseles VT	NONE in cardiac arrest or anaphylactic shock; not used for pts who do not require extensive resuscitative efforts	1 mg IVP q 3 - 5 mins. May be given ETT (dose 2 to 2.5 times IV dose followed by a saline flush)	Can be deactivated by alkaline solutions.
Etomidate (Amidate)	Sedative drug without analgesic activity	General anesthesia; RSI	Hypersensitivity	0.15 - 0.30 mg/kg (usual dose 0.3 mg/kg injected over 30 seconds)	Precautions: use in peds below age 10; pregnancy and nursing mothers, onset occurs within 1 min and lasts for approximately 5 - 8 mins.
Fentanyl citrate (Sublimaze)	CNS depressant	Severe pain; adjunct to RSI; adjunct to rapid-sequence sedation; maintenance of analgesia	Shock; severe hemorrhage; undiagnosed abdominal pain; hypersensitivity	50 mcg SIVP (over 2-3 mins. (adult); Peds dose: 2-12 yrs old, 1 mcg/kg SIVP (over 2-3 mins.)	Immediate onset, peak effects--3-5 minutes; Precautions: respiratory depression; nausea; hypotension; cardiac bradydysrhythmias; liver & kidney dysfunctions; Interactions: other drugs with depressant effect on CNS have potentiating or additive effect with Fentanyl--requires a less Fentanyl dose. Use not recommended in patients who received MAOI's within 14 days.
Furosemide (Lasix)	Potent diuretic	CHF, pulmonary edema, (may be used with ICP in systems do not use Mannitol)	Pregnancy, dehydration	40 - 80 mg SIVP (over 2 mins.); consider doubling (max. total dose 120 mg) if pt currently on lasix.	May cause: electrolyte imbalances dehydration.
Glucagon	Antihypoglycemic agent	Hypoglycemia when IV access is delayed or not available.	Hypersensitivity	1 mg IM. May repeat in 7 to 10 min.	May cause N &V.
Haloperidol (Haldol)	Neuroleptic (tranquilizer) agent	Acute psychotic episodes	CNS depression. Hypersensitivity.	5 to 10 mg IM	May cause hypotension, N/V, blurred vision
Hydrocortisone (Solu-Cortef)	Corticosteroid, anti-inflammatory	Severe anaphylaxis; asthma/COPD; urticaria (hives)	None in the acutemanagement of anaphylaxis	100 mg IV	May cause fluid retention, CHF, hypertension, vertigo, hiccups, nausea, headache, malaise
IV Normal Saline	Volume expander (Isotonic solution)	Dehydration. Hypovolemia.	Pulmonary edema from CHF or fluid overload.	As needed IV to maintain BP or keep vein open.	Watch for overhydration. (CHF)
IV Lactated Ringers	Volume expander (Used as Isotonic solution. It is slightly hypotonic))	Dehydration. Hypovolemia.	Pulmonary edema from CHF or fluid overload. Hypothermia.	As needed IV to maintain BP or keep vein open.	Watch for overhydration. (CHF)
IV D5W	Hypotonic solution	IV access	N/A	To gain IV lifeline	Carried on EMS to mix dopamine drip

MEDICATION FIELD GUIDE
(Adult doses)
(Reference Pediatric Drug list for Patients ≤ 12 years of age

DRUG	CLASSIFICATION	INDICATIONS	CONTRAINDICATION	DOSAGE	OTHER
Ipratropium (Atrovent)	Anticholinergic	Asthma. COPD	Hypersensitivity; should not be used as primary acute treatment of bronchospasm	0.5 mg placed in a nebulizer	May cause palpitations, dizziness, anxiety, headache, nervousness
Ketorolac Tromethamine (Toradol)	Nonsteroidal anti-inflammatory	Management of mild to moderate pain	Hypersensitivity, asthma, nasal polyps, angioedema, allergies to ASA or nonsteroidal anti-inflammatory drugs	IV: 30 mg (15 mg over 65 years of age or under 50 kg); IM: 60 mg (30 mg over 65 years of age or under 50 kg)	May increase bleeding.
Labetalol (Trandate; Normodyne)	Sympathetic blocker	Hypertension	Bronchial asthma. CHF. Bradycardia. Advanced heart block (2nd TII or 3rd). Cardiogenic shock	20 mg SIVP over 2 minutes; doses of 40 mg can be repeated in 10 minutes	May cause hypotension, dyspnea, diaphoresis, dysrhythmias
2% Lidocaine Jelly	Topical analgesic	Topical pain management	Hypersensitivity.	Placed direcly on ET or NG tube prior to use	
Lidocaine (HCl)	Antidysrhythmic (Ventricular) (Class 1-B)	V-Fib, V-Tach. Wide complex tach of unknown origin. Treatment of PVC's	High-degree heart blocks, PVCs in conjunction with bradycardia	Cardia Arrest- 1 to 1.5 mg/kg IV (double the dose if given ET). Repeat in 3 to 5 min. if needed until ma. Dose of 3 mg/kg. Wide tach of Unknown origin, Stable V-tach, PVCs- 1 to 1.5 mg/kg IV may be repeated in 5 min. at .75 mg/kg and again in 5 min. at .75 mg/kg until a max. dose of 3 mg/kg given. Maintenance drip- Add 1 gram to 250 ml of D5W. Infuse at 1 to 4	May cause: Seizures (Toxicity). Blurred Vision. Bradycardia. CNS depression.
Lorazepam (Ativan)	Sedative; benzodiazepine	Status epilepticus, premedication prior to cardioversion, acute anxiety	Hypersensitivity	Burns- for sedation 2 mg SIVP; VT- 2 mg prior to cardioversion; Symptomatic tachycardia (unstable) 2 mg prior to cardioversion; Seizures- continuing seiqures 2 mg SIVP.	Care must be taken to administer the drug over at least 1 minute. If needed, a second dose may be given, after 10 minutes, after contacting Medical Direction. Other routes of administration are IM. IO or PR.
Magnesium Sulfate	CNS depressant	Eclampsia (Seizures). Torsades. Refractory V-Fib.	Heart Block	Eclampsia- 4 gm SIVP (over 20 mins.) Torsades- 1-2 gm (2-4 ml of a 50% solution) diluted in 10 ml of D5W IVP for cardiac arrest;	May cause: Hypostension. Resp. depression. Reduced Heart Rate. Diaphoresis.

MEDICATION FIELD GUIDE
(Adult doses)
(Reference Pediatric Drug list for Patients ≤ 12 years of age

DRUG	CLASSIFICATION	INDICATIONS	CONTRAINDICATION	DOSAGE	OTHER
Methylprednisolone (Solu-Medrol)	Synthetic steroid	Analphylaxis. Asthma (that does not respont to bronchodilators). Acute spinal cord injury.	None in emergency setting	125 mg SIVP	May cause GI bleeding, prolonged wound healing or suppression of natural steroids; onset of action may be 2-6 hours
Midazolam HCI (Versed)	Sedative; benzodiazepine	Conscious sedation; premedication before cardioversion; RSI	Hypersensitivity. Coma. Overdose. Depressed Vitals. ETOH intoxication. CNS depressant use.	2 mg SIVP. Repeat doses require Medical Direction orders.	May cause repiratory depression or arrest, laryngospasm, bronchospasm, ALOC, bradycardia, tachycardia, PVCs; amnesia
Morphine sulfate	Opioid Analgesic	Chest pain, acute pulmonary edema or CHF, reduce pain in selected situations	Hypersensitivity; undiagnosed head injury or abdominal pain; volume depletion or severely hypotensive pt	2-5 mg SIVP (IV- 2 mg/min.) Do not exceed 15 mg in the field.	May cause respiratory depression, hypotension, N/V, decreased LOC, headache, blurred vision, constricted pupils
Nalmefene (Revex)	Opioid antagonist	Reversal of effects of opioids. Coma of unknown origin.	Hypersensitivity	0.1 mg IVP initial dose, pt shows no signs of opioid withdrawal, then give 0.4 mg IVP. If 2-5 mins later, respiratory depression or unreponsiveness has not improved, may repeat 0.5 mg IVP (total administered dose 1 mg. If IV cannot be established, administer 1 mg IM (response is expected in 5-15 mins)	Has longer half life (10 hours); abrupt reversal of opioid effects may produce pulmonary edema, hypertension/hypotension, ventricular irritability(tachycardia or fibrillation); may precipitate opioid withdrawal of physically dependent opioid users.
Naloxone (Narcan)	Opioid antagonist	Reversal of effects of opioids. Coma of unknown origin.	Hypersensitivity.	2 mg SIVP. (ETT dosage 2 to 2.5 times IV dose)	May precipitate withdrawal syndrome/combative behavior; rapid administration may cause vomiting and ventricular dysrhythmias; Quick onset: 30 secs - 2 mins.
Nitropaste (Nitro-Bid Ointment)	Vasodilator	Angina pectoris, chest pain associated with MI, pulmonary edema, CHF	Hypersensitivity; children; hypotension/shock	1/2 - 1 inch paste on applicator placed on the pt skin (chest, back, or arm)	Monitor BP; May cause syncope, headache, dizziness, hypotension, diaphoresis, or N/V

MEDICATION FIELD GUIDE
(Adult doses)
(Reference Pediatric Drug list for Patients ≤ 12 years of age

DRUG	CLASSIFICATION	INDICATIONS	CONTRAINDICATION	DOSAGE	OTHER
Nitroglycerin (Nitro, NTG, Nitrostat) or Nitroglycerin Spray (Nitrolingual spray)	Vasodilator	Angina pectoris, chest pain associated with MI, pulmonary edema, CHF	Hypersensitivity; children; hypotension/shock	0.4 mg (1/150 gr) SL, may repeat @ 5 min intervals to maximum of 3 doses or BP drops below 100. Spray: 1 spray under the tongue on mucous membrane (not to be inhaled), do not exceed 3 sprays in 15-min period.	Active ingredient in nitro "stings" when given SL; hypotension susceptibility higher in older adults; May cause headache, syncope, dizziness, hypotension, N/V or diaphoresis
Nitrous Oxide (Nitronox)	Anesthetic gas	Pain Management. Anxiety.	Decreased LOC. Chest Trauma. Hypotension. Abdominal pain. COPD	Must always be self-administered by pt using fixed 50% nitrous oxide/50% oxygen blender; intermittently inhaled for pain relief or until drowsiness occurs	May cause drowsiness, N/V, lightheadedness, numbness, tingling, hallucinations, giddiness; USE IN WELL VENTILATED AREAS ONLY
Promethazine (HCL) (Phenergan)	Antihistamine and antiemetic	N/V, motion sickness, to potentiate the effects of analgesics, sedation	Comatose states; pts who have received large amount of depressants; hypersensitivity	12.5 to 25 mg IV or deep IM.	May cause impaired mental and physical ability, drowsiness, sedation, tachycardia, bradycardia
Saline (Sterile, for Injection)	Crystalloid solution	Lavage. Used to flush IV's, medications, and irrigation.	N/A	For Lavage- up to 200 ml by MG in adults. For IV Flush- 5 to 10 ml IV after medication is given. For Irrigation- As Needed.	
Sodium Bicarbonate (Na Bicarb, NaHCO3)	Buffer (alkalotic agent)	Cardiopulmonary arrest-long arrest interval, upon return spontaneous circulation after long arrest interval, tricyclic antidepressant overdose	Hypocalcemia, hypokalemia, metabolic and respiratory alkalosis	1 mEq/kg initially	May cause metabolic alkalosis, hypoxia, electrolyte imbalance, seizures, tissue sloughing at injection site, can precipitate with calcium
Succinylcholine (Anectine)	Neuromuscular blocking agent (depolarizing)	To facilitate intubation. (RSI)	Hypersensitivity; inability to secure airway	1.5 mg/kg IV (100 mg)	Paralysis occurs within 1 min and lasts for approximately 8 mins; may cause prolonged paralysis, hypotension, bradycardia, or apnea.
Terbutaline (Brethine)	Synthetic sympathomimetic	Bronchial asthma, reversible bronchospasm associated with COPD	Hypersensitivity	0.25 mg SC, may repeat in 15 mins.	May cause palpitations, tachycardia, anxiety, headache, dizziness, or nausea.

MEDICATION FIELD GUIDE
(Adult doses)
(Reference Pediatric Drug list for Patients ≤ 12 years of age

DRUG	CLASSIFICATION	INDICATIONS	CONTRAINDICATION	DOSAGE	OTHER
Thiamine (Vitamin B1)	Vitamin	Given prior to administering D50; alcoholism; delirium tremens	None	100 mg IV or IM.	Rarely causes any side effects.
Vecuronium (Norcuron)	Neuromuscular blocking agent (non-depolarizing)	For prolonged paralysis after airway is secure	Hypersensitivity	0.08 - 0.1 mg/kg IV	Paralysis occurs within 1 min and lasts approximately 30 mins; may cause prolonged paralysis, hypotension, bradycardia, or apnea

COMMON MEDICATIONS

Medications	Use
A	
A/T/S	Topical antibiotic
Accupril	Antihypertensive
Accutane	Acne agent
acebutalol	ß blocker
acetaminophen	Analgesic
acetazolamide	Diuretic
Achromycin	Antibiotic
Actibing	Impotence agent
Actifed	Antihistamine and decongestant
Actigall	Gallstone dissolution agent
Acyclovir	Antiviral
Adalat	Calcium channel blocker
Adipex	Appetite suppressant
Aerobid	Steroid inhaler
Agyestin	Progesterone
Akineton	Anti-Parkinson agent
albuterol	Bronchodilator
Aldactazide	Diuretic
Aldactone	Diuretic
Aldoclor	Antihypertensive and diuretic
Aldomet	Antihypertensive
Aldoril	Antihypertensive and diuretic
allopurinol	Antigout
alprazolam	Benzodiazepine
Alupent	Bronchodilator
amantadine	Anti-Parkinson agent and antiviral
Ambenyl	Narcotic cough suppressant
Ambien	Sedative/Hypnotic
Amen	Progesterone
amiloride	Diuretic
Aminophyllin	Theophylline
amiodarone	Antiarrhythmic
amitriptyline	Tricyclic antidepressant
amoldipine	Calcium channel blocker
amoxapine	Antidepressant
amoxicillin	Antibiotic
Amoxil	Antibiotic
Anaprox	Analgesic and antiarthritic
Anexia	Analgesic
Ansaid	Antiarthritic
Anspor	Antibiotic
Antabuse	Antialcoholism agent
Antivert	Antidizziness agent
Anturane	Antigout
Apesazide	Antihypertension and diuretic
Apresoline	Antihypertensive

Medications	Use
Aristocort	Steroid inhaler
Artane	Anti-Parkinson
Asendin	Antidepressant
aspirin	Analgesic
Astemizole	Antihistamine
Astamorph	Narcotic cough suppressant
Atarax	Antihistamine and decongestant
atenolol	ß blocker
Ativan	Benzodiazepine
Atrohist	Antihistamine and decongestant
Atomid	Lipid-lowering agent
Atrovent	Bronchodilator
Augmentin	Antibiotic
Axid	Antiulcer
Axotal	Analgesic
azathioprine	Immunosuppressant
Azdone	Narcotic analgesic
azithromycin	Antibiotic
B	
Bactrim	Antibiotic
Bactroban	Antibiotic
Bancop HC	Narcotic analgesic
beclomethasone	Steroid
Beclovent	Steroid inhaler
Beconase	Steroid
Benadryl	Antihistamine
benasapril	Antihypertensive
Benemid	Antigout
Bentyl	Gastrointestinal antispasmodic
benzonatate	Cough suppressant
benzotropine	Anti-Parkinson
bepridil	Antihypertensive
Betaptic	Antiglaucoma and ß blocker
Betoxolol	Antiglaucoma and ß blocker
Biaxin	Antibiotic
Bicellian	Antibiotic
bisoprolol	ß blocker
Blocadren	ß blocker
Bontril	Appetite suppressant
Breathaire	Bronchodilator
Brethine	Bronchodilator
Brevicon	Birth control
Bricanyl	Bronchodilator
bromocriptine	Anti-Parkinson
brompheniramine	Antihistamine and decongestant
Bronkodyl	Theophylline

COMMON MEDICATIONS

Medications	Use
Brontex	Narcotic cough suppressant
bumetanide	Diuretic
Bumex	Diuretic
Buprenex	Narcotic analgesic
bupropion	Antidepressant
Buspar	Anxiolytic
busirone	Anxiolytic
butalbital	Analgesic
Butazolidin	Antiarthritic
Butison	Hypnotic
C	
Cafergot	Migraine headache agent
Calan	Calcium channel blocker
Cantil	Antiulcer
Capital	Analgesic
Capoten	Antihypertensive
Capozide	Antihypertensive and diuretic
captopril	Antihypertensive
Carafate	Antiulcer
carbamazepine	Anticonvulsant
carbidopa	Anti-Parkinson
Cardene	Calcium channel blocker
Cardilate	Antianginal
Cardizem	Calcium channel blocker
carisoprodol	Muscle relaxant
carteolol	ß blocker
Cartrol	ß blocker
Cataflam	Antiarthritic
Catapres	Antihypertensive
Ceclor	Antibiotic
Cedilanid	Digitals
cefaclor	Antibiotic
cefadroxil	Antibiotic
cefixime	Antibiotic
cefpodozime	Antibiotic
cefprozil	Antibiotic
Ceftin	Antibiotic
cefuroxime	Antibiotic
Cefzil	Antibiotic
Centrax	Benzodiazepine
Cesamet	Antiemetic
chlordiazepoxide	Benzodiazepine
Chloromycetin	Antibiotic
chlorpromazine	Antiulcer
chlorpropamide	Oral hypoglycemic agent
chlorthalidone	Diuretic
Choledyl	Theophylline
cholestyramine	Lipid lowering agent
Choloxin	Thyroid preparation

Medications	Use
Chronulac	Laxative
Cibalith	Lithium (anti-mania)
cimetadine	Antiulcer
Cinobac	Antibiotic
Cipro	Antibiotic
ciproflaxacin	Antibiotic
cisapride	Antiulcer
cladribine	Lipid lowering agent
Claritin	Antihistamine and decongestant
Cleocin	Antibiotic
clindamycin	Antibiotic
Clinoril	Antiarthritic
clofazimine	Antileprosy
clofibrate	Lipid lowering agent
clonazepam	Antiseizure and benzodiazepine
clonidine	Antihypertensive
clorazepate	Benzodiazepine
Codiclear	Narcotic cough suppressant
Codimal	Decongestant
Cogentin	Anti-Parkinson
ColBENEMID	Antigout
Colace	Stool softener
Combipress	Antihypertensive and diuretic
Comhist	Antihistamine and decongestant
Comtrex	Decongestant
Constant-T	Theophylline
Cordarone	Antiarrhythmic
Cogrard	ß blocker
Corzide	ß blocker/diuretic
Coumadin	Anticoagulant
cromolyn sodium	Allergy suppressant
Crystodigin	Digitalis
Cyclert	Central nervous system stimulant
cyclizine	Antiemetic
cycloserine	Antituberculosis
cyclosporine	Immunosuppressant
cycobensaprine	Muscle relaxant
Cycin	Progesterone
cyproheptadine	Antihistamine and decongestant
Cystospaz	Urinary antispasmodic
Cytadren	Adrenal suppressant
Cyotmel	Thyroid preparation
Cytotec	Antiulcer
D	

COMMON MEDICATIONS

Medications	Use
Dalmane	Benzodiazepine
Damason	Analgesic
Dantrium	Antispasmodic
Dapsone	Antileprosy
Daraprim	Antiparasitic
Darbid	Antiulcer
Darvon	Narcotic-type analgesic
Datril	Antiarthritic
Decadron	Steroid
Declomycin	Antibiotic
Deconamine	Decongestant
Deconsal	Decongestant
Delsym	Cough suppressant
Deltasone	Steroid
democycline	Antibiotic
Demulen	Birth control
Depakene	Anticonvulsant
Depakote	Anticonvulsant
Deponit	Nitroglycerin antianginal
deserpidine	Antihypertensive
desipramine	Tricyclic antidepressant
Desoxyn	Amphetamine
Desyrel	Antidepressant
dexamethasone	Steroid
Dexedrine	Amphetamine
Diabeta	Oral hypoglycemic
Diabinase	Oral hypoglycemic agent
Diamox	Diuretic
diazepam	Benzodiazepine
diclofenac	Antiarthritic
Dicumarol	Anticoagulant
dicyclomine	Gastrointestinal antispasmodic
Difrex	Appetite suppressant
diethylproprion	Appetite suppressant
diethylstilbestrol	Estrogen
Diflucan	Antifungal
diflunisal	Antiarthritic
digoxin	Digitals
Dilacor XR	Calcium channel blocker
Dilantin	Anticonvulsant
Dilatrate	Antianginal
Dilaudid	Narcotic analgesic
Dilor	Theophylline
diltiazem	Calcium channel blocker
Dimetame	Decongestant
diphenhydramine	Antihistamine
dipyridamone	Anticoagulant
Disalcid	Antiarthritic
disopyramide	Antiarrhythmic

Medications	Use
disulfirim	Antialcoholism agent
Ditropan	Bladder antispasmodic
Diulo	Diuretic
Diupres	Antihypertension and diuretic
Diurel	Diuretic
Diutensin	Antihypertensive
divalproex sodium	Anticonvulsant
docusate	Laxative
Dolobid	Antiarthritic
Dolophine	Narcotic
Donnatal	Gastrointestinal antispasmodic
Doral	Benzodiazepine
Doriden	Hypnotic
Dorx	Antibiotic
doxepine	Antidepressant
Doxycycline	Antibiotic
Dramamine	Antihistamine
Dulcolax	Laxative
Duocet	Analgesic
Dura-Vent	Decongestant
Duratuss	Decongestant
Duratuss HD	Narcotic cough suppressant
Duricef	Antibiotic
Dyazide	Diuretic
Dynacirc	Calcium channel blocker
Syrenium	Diuretic
E	
E.E.S.	Antibiotic
Easprin	Aspirin
Ecotrin	Aspirin
Edecrin	Diuretic
Effexor	Antidepressant
Elavil	Tricyclic antidepressant
Eldepryl	Anti-Parkinson agent
Elixophyllin	Theophylline
Emetrol	Antiemetic
Empirin	Analgesic
enalapril	Antihypertension
encainaide	Antiarrhythmic
Endal HD	Narcotic cough suppressant
Endep	Tricyclic antidepressant
Enduron	Diuretic
Enduronyl	Antihypertensive and diuretic
Enkaid	Antiarrhythmic
Enovid	Birth control
Entex	Decongestant
Entolase	Digestive enzyme supplement
Equagesic	Analgesic
Erostat	Migraine headache agent

COMMON MEDICATIONS

Medications	Use
ERYC	Antibiotic
Eryderm	Topical antibiotic
erythrityl	Antianginal
Erythrocin	Antibiotic
erythoromycin	Antibiotic
Ery-Tab	Antibiotic
Egic	Analgesic
Esidrix	Diuretic
Eskalith	Antimania agent
Esmil	Antihypertensive and diuretic
estazolam	Benzodiazepine
Estinly	Estrogen
Estrace	Estrogen
Estraderm	Estrogen
estradiol	Estrogen
Estratab	Estrogen
estropipate	Estrogen
Estrovis	Estrogen
ethacynic acid	Diuretic
Ethatab	Vasodilator
ethaverine	Vasodilator
ethchlorvynol	Hypnotic
ethinamate	Hypnotic
Ethmozine	Antiarrhythmic
ethosuximide	Antiseizure
ethotopin	Anticonvulsant
etodolac	Antiarthritic
Etrafon	Antianxiety and tricyclic antidepressant
Euthroid	Thyroid
E-mycin	Antibiotic
F	
famotidine	Antiulcer
Fastin	Appetite suppressant
felbamate	Anticonvulsant
Felbatol	Anticonvulsant
Feldene	Antiarthritic
folodipine	Calcium channel blocker
fenfluramine	Appetite suppressant
Feosol	Iron
Fergon	Iron
Fero-Folic	Iron tablets
Fero-Grad	Iron tablets
Fero-Gradumer	Iron tablets
finasteride	Antihypertensive
Fioricet	Analgesic
Fiorinal	Analgesic
Flagyl	Antibiotic
flecanine	Antiarrhythmic

Medications	Use
Flexeril	Muscle relaxant
Floxin	Antibiotic
fluconazole	Antifungal
fluoxetine	Antidepressant
fluphenazine	Antipsychotic
flurazepam	Benzodiazepine
flurbiprofen	Antiarthritic
fosinopril	Antihypertensive
Fulvincin	Antifungal
Furazolidone	Antibiotic
furosemide	Diuretic
Furoxone	Antibiotic
G	
Gantrisin	Antibiotic
gemfibrozil	Lipid lowering agent
Genora	Birth control
Geocillin	Antibiotic
glipizide	Oral hypoglycemic agent
Glucotrol	Oral hypoglycemic agent
glyburide	Oral hypoglycemic agent
glycopyrrolate	Antiulcer
Glynase	Oral hypoglycemic agent
Grisactin	Antifungal
Guanethidine	Antihypertensive
guanfacine	Antihypertensive
H	
Halcion	Benzodiazepine
Haldol	Antipsychotic
haloperidol	Antipsychotic
Harmonyl	Antihypertensive
Hexadrol	Steroid
Hismanal	Antihistamine
Histaspan	Antihistamine
Humibid	Decongestant
Humulin N	Insulin
Humulin R	Insulin
Hycodan	Narcotic cough suppressant
cycomine	Narcotic cough suppressant
Hycotuss	Narcotic cough suppressant
hydralazine	Antihypertensive
Hydrocet	Narcotic analgesic
hydrochlorthiazide	Diuretic
hydrocodone	Analgesic
Hydroconrtone	Steroid
HydroDIURIL	Diuretic
hydroflumethazide	Diuretic
hydromorphone	Narcotic analgesic
Hydromox	Diuretic
Hydromox	Antihypertensive and diuretic

COMMON MEDICATIONS

Medications	Use
Hydropres	Antihypertensive and diuretic
hydroxyzine	Antihistamine
Hygroton	Diuretic
Hytrin	Antihypertensive/Prostate agent
I	
Iberet-Folic-500	Iron tablets
ibuprofen	Antiarthritic
Ilosone	Antibiotic
Ilotycin	Antibiotic
Imetrex	Antimigraine agent
imipramine	Tricyclic antidepressant
Imodium	Antidiarrheal
Imodium A-D	Antidiarrheal
Imuran	Immunosuppressant
indapamide	Antihypertensive
Inderal	ß blocker
Inderide	ß blocker and diuretic
Indocin	Antiarthritic
indomethacin	Antiarthritic
INH	Antituberculosis
Insulatard	Insulin
Intal	Allergy suppressant
Inversine	Antihypertensive
ipratropium	Bronchodilator
Ismelin	Antihypertensive
isocarboxazid	Antidepressant (monoamine oxidase-inhibitor)
isoproterenol	Bronchodilator
Isoptin	Calcium channel blocker
isorbide	Antianginal
Isordil	Antianginal
isotretinoin	Acne agent
isradipine	Calcium channel blocker
J	
Janimine	Tricyclic antidepressant
K	
Kaochlor	Potassium supplement
Kaon	Potassium supplement
Kaopectate	Antidiarrheal
Kato	Potassium supplement
Keflit	Antibiotic
Keftab	Antibiotic
Kemadrin	Anti-Parkinson agent
Kerlone	ß blocker
ketoconazole	Antifungal
ketoprofen	Antiarthritic
Kisesed	Antiulcer
Klonapin	Antiseizure/Benzodiazepine

Medications	Use
Klorvess	Potassium supplement
Klor-Con	Potassium supplement
Klotrix	Potassium supplement
K-DUR	Potassium supplement
K-Lor	Potassium supplement
K-Lyte	Potassium supplement
K-Phos	Urinary acidifier
K-Tab	Potassium supplement
L	
labetalol	ß blocker
Lamprene	Antileprosy
Lanoxicaps	Digitalis
Lanoxin	Digitalis
Larodopa	Anti-Parkinson
Lasix	Diuretic
Lente	Insulin
Leustatin	Lipid lowering agent
Levaquin	Antibiotic
Levatol	ß blocker
levodopa	Anti-Parkinson
Levothroid	Thyroid
Levoxine	Thyroid
Librax	Gastrointestinal antispasmodic/Benzodiazepine
Librium	Benzodiazepine
lidocaine	Local anesthetic
Lincocin	Antibiotic
lincomycin	Antibiotic
Lioresal	Muscle relaxant
lisinopril	Antihypertensive
Lithane	Antimania agent
Lithobid	Lithium (anti-mania)
Lo/Ovral	Birth control
Lodine	Antiarthritic
Loestrin	Birth control
Lomotil	Antidiarrheal
Loniten	Antihypertensive
loperamide	Antidiarrheal
Lopid	Lipid lowering agent
Lopressor	ß blocker
Lorazepam	Benzodiazepine
Lorcet	Narcotic analgesic
Lorelco	Cholesterol-lowering agent
Lortab	Narcotic analgesic
Lotensin	Antihypertensive
lovastatin	Cholesterol-lowering agent
loxapine	Antipsychotic
loxitane	Antipsychotic
lozol	Antihypertensive

COMMON MEDICATIONS

Medications	Use
Ludiomil	Antidepressant
Lufyllin	Theophylline
M	
Macrodantin	Antibiotic
Magan	Antiarthritic
magnesium salicylate	Antiarthritic
maprotilline	Antidepressant
Marax	Bronchodilator
Marezine	Antiemetic
Marinol	Antiemetic
Marplan	Antidepressant (monoamine oxidase-inhibitor)
Materna	Vitamins
Maxair	Inhaled bronchodilator
Maxzide	Diuretic
Mebaral	Barbiturate hypnotic
mebendazole	Antiparasitic
mecamylamine	Antihypertensive
meclazine	Antidizziness agent
meclofenamate	Antiarthritic
Meclomen	Antiarthritic
Medrol	Steroid
mefenmic	Analgesic
Mellaril	Antipsychotic
mepenzolate	Antiulcer
meprobamate	Anxiolytic
Mesannntoin	Anticonvulsant
mesoridazine	Antipsychotic
Mestinon	Myasthenia gravis agent
Metandren	Testosterone
Metaprel	Bronchodilator
metaproterenol	Bronchodilator
methadone	Narcotic
methamphetamine	Amphetamine
methocarbamol	Muscle relaxant
Methotrexate	Antiarthritic
methyclothiazide	Diuretic
methyldopa	Antihypertensive
methylphenidate	Central nervous system stimulant
metoclopramide	Gastric stimulant
metolazone	Antihypertensive
metoprolol	ß blocker
metronidazole	Antibiotic
Mevacor	Cholesterol-lowering agent
mexiletine	Antiarrhythmic
Mexitil	Antiarrhythmic
Micro K	Potassium supplement

Medications	Use
Micranase	Oral antihypoglycemic agent
Micronor	Birth control
Midamor	Diuretic
Midrin	Analgesic
Milontin	Antiseizure
Miltown	Anxiolytic
Minipress	Antihypertensive
Minitran	Nitroglycerin antianginal
Minizide	Antihypertensive and diuretic
Minocin	Antibiotic
minocycline	Antibiotic
minoxidil	Antihypertensive
misprostol	Antiulcer
Mixtard	Insulin
Moban	Antipsychotic
Modane	Laxative
Moderil	Antihypertensive
Modicon	Birth control
Moduretic	Diuretic
molindone	Antipsychotic
Monopril	Antihypertensive
Mongesic	Antiarthritic
moricizine	Antiarrhythmic
Motofen	Antidiarrheal
Mortin	Antiarthritic
MS Contin	Narcotic analgesic
MSIR	Narcotic analgesic
Myambutol	Antituberculosis
Mycostatin	Antifungal
Mykrox	Antihypertensive
Mysoline	Antiseizure
N	
nabilone	Antiemetic
nadolol	ß blocker
Naldecon	Decongestant
Nalfon	Antiarthritic
Naphcon	Ophthalmic antihistamine and decongestant
Naprosyn	Antiarthritic
Nardil	Antidepressant (monoamine oxidase-inhibitor)
Nasalcrom	Allergy suppressant
Masalide	Steroid
Natalins	Vitamins
Naturetin	Diuretic
Navane	Antipsychotic
Nembutal	Barbiturate
Neosporin	Topical antibiotic
nicardipine	Calcium channel blocker

COMMON MEDICATIONS

Medications	Use
Miclocide	Antiparasitic
Nicorette	Nicotine gum
nifedipine	Calcium channel blocker
nimodipine	Calcium channel blocker
Nimotop	Calcium channel blocker
Nitrgard	Nitroglycerin antianginal
Nitrodisc	Nitroglycerin antianginal
nitrofurantoin	Antibiotic
nitroglycerin	Antianginal
Nitrol	Nitroglycerin antianginal
Nitrolingual	Nitroglycerin antianginal
Nitrospan	Nitroglycerin antianginal
Nitrostat	Nitroglycerin antianginal
Nitro-Bid	Nitroglycerin antianginal
Nirto-Dur	Nitroglycerin antianginal
Nix	Antiparasitic (lice)
nizatidine	Antiulcer
Nizoral	Antifungal
Nolamine	Decongestant
Nolex	Decongestant
Noluldar	Hypnotic
Norcept	Birth control
Nodette-21	Birth control
Norethin	Birth control
Norflex	Muscle relaxant
norfloxacine	Antibiotic
Norgesic	Analgesic
Norinyl	Birth control
Norisodrine	Bronchodilator
Norlestrin	Birth control
Norlutate	Progesterone
Norlutin	Progesterone
Normodyne	ß blocker
Normozide	ß blocker and diuretic
Noroxin	Antibiotic
Norpace	Antiarrhythmic
Norpramin	Tricyclic antidepressant
nortriptyline	Tricyclic antidepressant
Norvasc	Calcium channel blocker
Norzine	Antiemetic
Novafed	Decongestant
Novahistine	Decongestant and antihistamine
Novolin	Insulin
Nucofed	Narcotic cough suppressant
O	
Octamide	Gastric stimulant
Ogen	Estrogen
Omnipen	Antibiotic
omprazole	Antiulcer
Orap	Antipsychotic
Oretic	Diuretic
Oreticyl	Antihypertensive and diuretic
Organidin	Decongestant
Orinase	Oral hypoglycemic agent
Ornade	Decongestant and antihistamine
orphrnadrine	Muscle relaxant
Ortho-Novum	Birth control
Orudis	Antiarthritic
Ovcon	Birth control
Ovral	Estrogen
Ovral-28	Birth control
oxazepam	Benzodiazepine
oxbutynin	Bladder antispasmodic
oxycodone	Narcotic analgesic
oxtetracycline	Antibiotic
P	
Pamelor	Tricyclic antidepressant
Pancrease	Digestive enzyme supplement
pancrelipase	Digestive enzyme supplement
Panwarfin	Anticoagulant
Paradione	Antiseizure
Parafon Forte	Muscle relaxant
paramethadione	Antiseizure
Parlodel	Anti-Parkinson
Parnate	Antidepressant (monoamine oxidase-inhibitor)
Pavabid	Peripheral vascular antispasmodic
PBZ	Antihistamine
PCE	Antibiotic
Pediacare	Decongestant and antihistamine
Pediapred	Steroid
Pediazole	Antibiotic
Peganone	Anticonvulsant
penicillin	Antibiotic
penoline	Central nervous system stimulant
Penntuss	Narcotic cough suppressant
pentazocine	Narcotic-like analgesic
Pentids	Antibiotic
pentobarbital	Barbiturate
pentoxifylline	Decreases blood viscosity
Pepcid	Antiulcer
Perocet	Narcotic analgesic
Percodan	Narcotic analgesic

COMMON MEDICATIONS

Medications	Use
Periactin	Antihistamine
Peritate	Antianginal
Peri-Colace	Stool softener and laxative
Permax	Anti-Parkinson
Pemitial	Antipsychotic
Persanitine	Anticoagulant
Pertofrane	Antidepressant
Pfizerpen	Antibiotic
phenacemide	Anticonvulsant
Phenaphen	Analgesic
phenazopyridine	Uniary tract analgesic
phenelzine	Antidepressant (monoamine oxidase-inhibitor)
Phenergan	Antiemetic
phenmetrazine	Appetite suppressant
phenolphthalein	Laxative
phensuximide	Antiseizure
phentermine	Appetite suppressant
Phenurone	Anticonvulsant
pheylbutazone	Antiarthritic
phenyltoloxoamine	Antihistamine
phenytoin	Anticonvulsant
pimozide	Antipsychotic
pindolol	ß blocker
piroxicam	Antiarthritic
Placidyl	Hypnotic
Plendil	Calcium channel blocker
Plegine	Appetite suppressant
PMB	Estrogen
Polaramine	Antihistamine
Polysporin	Topical antibiotic
Pondimin	Appetite suppressant
Ponstel	Analgesic
potassium chloride	Potassium supplement
prazepam	Benzodiazepine
prazosin	Antihypertensive
prednisolone	Steroid
prednisone	Steroid
Preluden	Appetite suppressant
Premarin	Estrogen
Prilosec	Antiulcer
Primatene	Inhaled bronchodilator
primidone	Antiseizure
Principen	Antibiotic
Prinivil	Antihypertensive
Prizide	Antihypertensive and diuretic
prebenecid	Antigout
proburcol	Cholesterol-lowering agent
procainamide	Antiarrhythmic

Medications	Use
Procan SR	Antiarrhythmic
Procardia	Antihypertensive and antianginal
Procyclindine	Anti-Parkinson agent
Prolixin	Antipsychotic
Poloid	Thyroid
promethazine	Antiemetic
Pronestyl	Antiarrhythmic
propafenone	Antiarrhythmic
Propagest	Decongestant
propoxyphene	Narcotic-like analgesic
propranolol	ß blocker
Propulsid	Antiulcer
Procas	Antihypertensive
Protostat	Antibiotic
protripyline	Antidepressant
Proventil	Bronchodilator
Provera	Progesterone
Prozac	Antidepressant
Pro-Banthine	Antiulcer
pseudoephedrine	Decongestant
PV Tussin	Narcotic cough suppressant
Pyridium	Uniary tract analgesic
pyridostigmine	Myasthenia gravis agent
Q	
Quadrinal	Combination bronchodilator
Quarzan	Antiulcer
quazepam	Benzodiazepine
Questran	Lipid lowering agent
Quibron	Theophylline
Quinamm	Muscle cramp analgesic
quinapril	Antihypertensive
quinethazone	Diuretic
Quinidex	Antiarrhythmic
quinidine	Antiarrhythmic
Quiniglute	Antiarrhythmic
Quinora	Antiarrhythmic
R	
ranitidine	Antiulcer
Raudixin	Antihypertensive
Rauzide	Antihypertensive and diuretic
Retitine	Antihypertensive
Reglan	Stomach stimulant
Regroton	Antihypertensive
Renese	Antihypertensive and diuretic
reserpine	Antihypertensive
Resperidol	Antipsychotic
Respid	Theophylline
Restoril	Benzodiazepine

COMMON MEDICATIONS

Medications	Use
Retovir	Antiviral agent (AIDS)
Ridaura	Antiarthritic (gold)
Rifadin	Antituberculosis
Rifamate	Antituberculosis
Rimactane	Antibiotic
Ritalin	Central nervous system stimulant
ritodrine	Tocolytic (suppresses labor)
Robaxin	Muscle relaxant
Robinul	Antiulcer
Rogaine	Baldness treatment
Rondec	Decongestant
Roxanol	Narcotic analgesic
Rufen	Antiarthritic
Ru-Tuss	Cough and decongestant
Rynatuss	Cough suppressant and decongestant
Rythmol	Antiarrhythmic
S	
Salflex	Antiarthritic
salmeterol	Bronchodilator inhaler
salsalate	Antiarthritic
Saluron	Diuretic
Salutensin	Antihypertensive and diuretic
Sanorex	Appetite suppressant
Sectral	ß blocker
Seldane	Antihistamine
Semilente	Insulin
Septa	Antibiotic
Serax	Benzodiazepine
Senentil	Antipsychotic
Servent	Bronchodilator inhaler
Seromycin	Antituberculosis
Serpasil	Antihypertensive
SER-AP-ES	Antihypertensive
sertraline	Antidepressant
Sinemet	Anti-Parkinson
Sinequan	Antidepressant
Sinulin	Decongestant
Skelaxin	Muscle relaxant
Slo-Bid	Theophylline
Slo-Phyllin	Theophylline
Soma	Muscle relaxant
Spectrobid	Antibiotic
spironolactone	Diuretic
Selazine	Antipsychotic
sucralfate	Antiulcer
Sudafed	Decongestant
sulfamethoxazole	Antibiotic

Medications	Use
sulfinpyrazone	Antigout
sulfisoxazole	Antibiotic
sulindac	Antiarthritic
sumatriptin	Antimigraine agent
Sumycin	Antibiotic
Suprax	Antibiotic
Surbex	Vitamins
Surmontil	Tricyclic antidepressant
Symmetrel	Anti-Parkinson and antiviral
Synalgos-DC	Narcotic analgesic
Synthroid	Thyroid preparation
T	
Tagamet	Antiulcer
Tlawin	Narcotic-like analgesic
Tambocor	Antiarrhythmic
TAO	Antibiotic
Tavist	Antihistamine
Tegretol	Anticonvulsant
temazepam	Benzodiazepine
Tenex	Antihypertensive
Tenoretic	ß blocker and diuretic
Tenormin	ß blocker
Tenuate	Appetite suppressant
Ten-K	Potassium supplement
Tepanil	Appetite suppressant
Tequin	Antibiotic
terazosin	Antihypertensive/Prostate agent
terbutaline	Bronchodilator
tenadine	Antihistamine
Teramycin	Antibiotic
Tessalon	Cough suppressant
tetracycline	Antibiotic
Thalitone	Diuretic
Theobid	Theophylline bronchodilator
Theochron	Theophylline
Theoclear	Theophylline
Theolair	Theophylline
Theo-24	Theophylline
Theo-Dur	Theophylline
thiordazine	Antipsychotic
thiothixene	Antipsychotic
Thorazine	Antiulcer
Tigan	Antiemetic
Timolide	ß blocker and antihypertensive
timolol	ß blocker+B823
tocainaide	Antiarrhythmic
Tofranil	Tricyclic antidepressant
tolazamide	Oral hypoglycemic agent

COMMON MEDICATIONS

Medications	Use
tolbutamide	Oral hypoglycemic agent
Tolectin	Antiarthritic
Tolinase	Oral hypoglycemic agent
Toncard	Antiarrhythmic
Toprol	ß blocker
Toradol	Analgesic
Torecan	Antiemetic
Tornalate	Inhaled bronchodilator
Trancopal	Anxiolytic
Trandate	ß blocker
Transderm-Nirto	Nitroglycerin antianginal
Transderm SCOP	Antiemetic
Tranxene	Benzodiazepine
Tranylcypromine	Antidepressant (monoamine oxidase-inhibitor)
trazadone	Antidepressant
Trecator	Antituberculosis
Trental	Decreases blood viscosity
triamcinolone	Steroid
Triaminic	Decongestant
Triamterene	Diuretic
Triavil	Tricyclic antidepressant
triazolant	Benzodiazepine
Tridil	Nitroglycerin antianginal
Tridione	Benzodiazepine
Trifluoperazine	Nitroglycerin antianginal
Trihexphenidyl	Anti-Parkinson
Trilafon	Antipsychotic
Trilisate	Antiarthritic
trimethadione	Anticonvulsant
trimethobenzamide	Antiemetic
trimethoprim	Antibiotic
trimipramine	Tricyclic antidepressant
Trimox	Antibiotic
Trimpex	Antibiotic
Trinalin	Antihistamine
Triphasil	Birth control
Tri-Levlen	Birth control
Tri-norinyl	Birth control
Troran	Antibiotic
Tussigon	Narcotic cough suppressant
Tussionex	Narcotic cough suppressant
Tussi-Organidin	Cough suppressant
Tylenol	Analgesic
Tylenol with Codeine	Narcotic analgesic
Tylox	Narcotic analgesic
Tympagesic	Ear anesthetic
U	
Ultacef	Antibiotic
Unipen	Antibiotic
Uniphyl	Theophylline
Urecholine	Bladder antispasmodic
Urised	Urinary antispasmodic
Urispas	Urinary antispasmodic
usodion	Gallstone dissolution agent
V	
Valium	Benzodiazepine
Valmid	Hypnotic
Valpin	Antiulcer
valproic acid	Anticonvulsant
Valrelease	Benzodiazepine
Vancenase	Steroid
Vanceril	Steroid
Vancomycin	Antibiotic
Vanocin	Antibiotic
Vantin	Antibiotic
Vascor	Antihypertensive
Vasoretic	Antihypertensive and diuretic
Vasotec	Antihypertensive
Veetids	Antibiotic
Velosef	Antibiotic
Velosulin	Insulin
venlafaxine	Antidepressant
Ventolin	Bronchodilator
Verapamil	Calcium channel blocker
Verelan	Calcium channel blocker
Vermox	Antiparasitic
Vibramycin	Antibiotic
Vicodin	Narcotic analgesic
Vicon	Vitamins
Visken	ß blocker
Vistaril	Antihistamine
Vivactil	Antidepressant
Voltaren	Antiarthritic
Vontrol	Antiemetic
W	
warfarin	Anticoagulant
Wellutrin	Antidepressant
Wigraine	Migraine headache agent
Wycillin	Antibiotic
Wygesic	Analgesic
Wymox	Antibiotic
Wymycin	Antibiotic
Wytensin	Antihypertensive
X	
Xanax	Benzodiazepine
Xylocaine	Local anesthetic

COMMON MEDICATIONS

Medications	Use	Medications	Use
Y			
yohimbine	Impotence agent		
Yohimex	Impotence agent		
Yutopar	Tocolytic (suppresses labor)		
Z			
Zantac	Antiulcer		
Zarontin	Antiseizure		
Zebeta	ß blocker		
Zestoretic	Antihypertensive and diuretic		
Zestril	Antihypertensive		
Ziac	ß blocker and diuretic		
Zidovudine	Antiviral agent (AIDS)		
Zithromax	Antibiotic		
Zoloft	Antidepressant		
Zolpidem	Sedative/Hypnotic		
ZORprin	Aspirin		
Zovirax	Antiviral		
Zydone	Narcotic analgesic		
Zyloprim	Antigout		
Zymase	Digestive enzyme supplement		
Zyprexa	Antipsychotic		

REPORTING

An organized, clear reporting format is extremely helpful to both the EMT and the On-line Medical Direction physician/MICN. By having an orderly routine, the EMT can quickly recognize and correct any oversights. Good communication skills allow the receiving person to accurately "visualize" the scene and patient(s). While the gathering of information may occur in a seemingly disorderly manner, the communication of information should follow the sample format below:

EMS ORDERS

(Variance from standing orders or medication/procedure requires medical direction approval)

I.D.	1.	Identification of Unit and EMT
	2.	Request for EMS orders
	3.	Patient's age and gender
	4.	Chief complaint (1 sentence)
SYMPTOMS	5.	Brief details of current chief complaint
	6.	Significant medical history, medications, allergies
FINDINGS	7.	Level of consciousness
	8.	Vital signs on arrival
	9.	Primary and Secondary assessment findings
TREATMENT	10.	Treatment given (position, splints, C-collar, Oxygen)
	11.	ETA (specify location and extrication time too, if not already in rescue vehicle)
	12.	Request for additional EMS orders or give EMS report
UPDATE	13.	Results of treatment
	14.	Repeat primary assessment, vital signs

When standing orders have been utilized, such as in a cardiac arrest or initiation of an IV, the sequence varies slightly.

EMS REPORT

(Standing orders with no variance/order request)

I. D.	1.	Identification of Unit and EMT
	2.	Patient's age and gender
	3.	Chief complaint and duration
SYMPTOMS AND SIGNS ON ARRIVAL	4.	Bystander CPR?, past medical history
	5.	Initial rhythm, vital signs
TREATMENT	6.	Initial treatment attempted (intubation, defibrillation, IV, specific drug sequence with dosages) and results
UPDATE	7.	Present status, including rhythm and vital signs
	8.	ETA
	9.	Request for EMS orders (if a physician is needed to vary from protocol, administer a medical directed medication or procedure)

APPROVED MEDICAL ABBREVIATIONS

If medical abbreviations are utilized for documentation on the patient care report, please limit your use to the following approved list.

A&O x 3	-alert and oriented to person, place and time
A&O x 4	-alert and oriented to person, place, time and event
A-Fib	-atrial fibrillation
A-Flutter	-atrial fibrillation
AAA	-abdominal aortic aneurysm
ABC	-airway, breathing, circulation
ABD	-abdomen (abdominal)
ACLS	-advanced cardiac life support
ACR	-ambulance call report
AED	-automated external defibrillator
AKA	-above the knee amputation
ALS	-advanced life support
AMA	-against medical advice
AMS	-altered mental status
AMT	-amount
APPROX	-approximately
ASA	-aspirin
ASYS	-asystole
AVPU	-alert, verbal stimuli response, painful stimuli response, unresponsive
BILAT	-bilateral
BKA	-below the knee amputation
BLS	-basic life support
BM	-bowel movement
BP	-blood pressure
BPM	-beats per minute
BS	-breath sounds
BSA	-body surface area
BSI	-Body Substance Isolation
BVM	-bag valve mask
C-MED	-Central Emergency Medical Dispatch function
C-section	-caesarean section
C-spine	-cervical spine
C/O	-complaint of (complains of)
CA	-cancer
CABG	-coronary artery bypass graft
CAD	-coronary artery disease
CATH	-catheter
CC	-chief complaint
CHF	-congestive heart failure
CNS	-central nervous system
COPD	-chronic obstructive pulmonary disease
CP	-chest pain
CPR	-cardiopulmonary resuscitation
CSF	-cerebrospinal fluid
CV	-central venous
CVA	-cerebrovascular accident (stroke)

APPROVED MEDICAL ABBREVIATIONS (Continued)

D25	-25% dextrose
D50	-50% dextrose
D5W	-5% dextrose in water
DKA	-diabetic ketoacidosis
DNR	-do not resuscitate
DOA	-dead on arrival
DT	-delirium tremens
Dx	-diagnosis
ECG (EKG)	-electrocardiogram
EEG	-electroencephalogram
EMS-NP	-EMS nurse practioner
EMS-PA	-EMS physician assistant
EMT	-Emergency Medical Technician
EMT-D	-Emergency Medical Technician-Defibrillator
EMT-I	-Emergency Medical Technician-Intermediate
EMT-P	-Emergency Medical Technician-Paramedic
ET	-endotracheal tube
ETA	-estimated time of arrival
ETOH	-ethanol (alcohol)
ETT	-endotracheal tube
Ex	-example
EXT	-external (extension)
FB	-foreign body
FSBS	-finger stick blood sugar (glucose)
Fx	-fracture
GCS	-Glasgow Coma Scale
GI	-gastrointestinal
gm	-gram
gr	-grain
GSW	-gunshot wound
gtts	-drops
GYN	-gynecology (gynecological)
H/A	-headache
HEENT	-head, eyes, ears, nose, throat
HR	-heart rate
HTN	-hypertension
Hx	-history
ICP	-intracranial pressure
ICU	-intensive care unit
IM	-intramuscular
IO	-intraosseous infusion
IV	-intravenous
IVP	-intravenous push

APPROVED MEDICAL ABBREVIATIONS (Continued)

J	-joules or watt-seconds
JVD	-jugular venous distention
kg	-kilograms
KVO	-keep vein open
L&D	-labor and delivery
LAT	-lateral
lb	-pound
LLQ	-left lower quadrant
LMP	-last menstrual period
LOC	-level of consciousness (loss of consciousness)
LPM (lpm)	-liters per minute
LR	-lactated ringers
LUQ	-left upper quadrant
MAST	-military anti-shock trousers
mcg	-microgram(s)
MED	-medicine
mEq	-milliequivalent
mg	-milligram(s)
mg/dL	-milligram per deciliter
MgSO4	-magnesium sulfate **(abbreviation not approved for documentation)**
MI	-myocardial infarction (heart attack)
MICN	-mobile intensive care nurse
min	-minute (minimum)
mins	-minutes
ml	-milliliter
mm	-millimeter
mmHg	-millimeter mercury
MR	-Medical Responder
MS	-morphine sulfate **(abbreviation not approved for documentation)**
MVC	-motor vehicle crash
N/V	-nausea/vomiting
N/V/D	-nausea/vomiting/diarrhea
NC	-nasal cannula
NEB	-nebulizer
NGT	-nasogastric tube
NKDA	-no known drug allergies
NRB	-non-rebreather
NS	-normal saline
NSAID	-non-steroidal anti-inflammatory medications
NSR	-normal sinus rhythm
NTG	-nitroglycerin
NTT	-nasotracheal tube
OB/GYN	-obstetrics/gynecology

APPROVED MEDICAL ABBREVIATIONS (Continued)

P	-pulse
PAC	-premature atrial contraction
PALP	-palpation
PE	-pulmonary edema
PEA	-pulseless electrical activity
PERL	-pupils equal reactive to light
PJC	-premature junctional contraction
PMHx	-past medical history
po	-by mouth (orally)
PR	-by rectum (rectally)
PRN	-per as needed
PSVT	-paroxysmal supraventricular tachycardia
PT	-patient
PVC	-premature ventricular contraction
QRV	-quick response vehicle
RLQ	-right lower quadrant
RR	-respiratory rate
RSI	-rapid sequence intubation
RUQ	-right upper quadrant
Rx	-medicine
S.O.B.	-short of breath
SAED	-semi-automatic external defibrillator
SBP	-systolic blood pressure
SIVP	-slow intravenous push
SL	-sublingual
SOLN	-solution
SQ or SC	-subcutaneous
ST	-sinus tachycardia
STEMI	-ST-elevation myocardial infarction
SVT	-supraventricular tachycardia
Sx	-symptom
Sz	-seizure
T	-temperature
TCA	-tricyclic antidepressant
TEP	-transcutaneous external pacing
TIA	-transient ischemic attack
TKO	-to keep open (refers to IV's—same as KVO)
TPT	-tension pneumothorax
TS	-trauma score
Tx	-treatment
UOA	-upon our arrival
URI	-upper respiratory infection
UTI	-urinary tract infection

APPROVED MEDICAL ABBREVIATIONS (Continued)

VF	-ventricular fibrillation
VS	-vital signs
VT	-ventricular tachycardia
WMD	-weapons of mass destruction
WNL	-within normal limits
WPW	-Wolff-Parkinson-White Syndrome
YO (YOA)	-years old (years of age)
M	-male
F	-female
+	-positive (plus)
-	-negative
~	-approximately
>	-greater than
<	-less than
=	-equal
↑	-upper (increased)
ā	-before
p	-after
c	-with
s	-without
Δ	-change
L	-left
R	-right
↓	-lower (decreased)

PEDIATRIC FIELD REFERENCE

ESTIMATED WEIGHT FOR AGE

AGE	AVG WT (KG)	BSA (m^2)
Birth	3.3	0.22
6 Months	7.5	0.38
1 Year	10	0.47
2 Years	12	0.55
3 Years	14	0.63
4 Years	17	0.70
6 Years	20	0.80
8 Years	25	1.0
10 Years	33	1.2
12 Years	40	1.3
14 Years	50	1.5
16 Years	60	1.7
18 Years	70	1.8

RANGE OF NORMAL RESTING PULSE FOR AGE

Newborn	120-160
1 Year	100-130
2 Years	90-120
4 Years	80-120
> 8 Years	70-110

RANGE OF NORMAL RESPIRATORY RATES FOR AGE

Newborn	30-50
6 Months	20-40
1-2 Years	20-30
2-6 Years	15-25
> 6 Years	13-20

RANGE OF NORMAL BLOOD PRESSURE FOR AGE

AGE	Minimum	Maximum
> 1 Year	70/45	105/70
1-5 Years	80/50	110/80
5-7 Years	80/50	120/80
7-10 Years	90/55	130/85
10-12 Years	95/55	135/85
12-14 Years	95/60	140/90

REVISED TRAUMA SCORE (RTS)

The RTS estimates severity of injury and projects survival based on the Glasgow Coma Scale and measures of cardiopulmonary function.

			Score
Respiratory Rate	10-29/min	4	
	>29/min	3	
	6-9/min	2	
	1-5/min	1	
	0	0	____
Systolic Blood Pressure	>89	4	
	76-89	3	
	50-75	2	
	1-49	1	
	0	0	____
GLASGOW COMA SCALE (GCS)			
Eye Opening	Spontaneous	4	
	To Voice	3	
	To Pain	2	
	None	1	
Verbal Response	Oriented	5	
	Confused	4	
	Inappropriate Words	3	
	Incomprehensible Words	2	
	None	1	
Motor Response	Obeys Command	6	
	Localizes Pain	5	
	Withdraw (pain)	4	
	Flexion (pain)	3	
	Extension (pain)	2	
	None	1	____
Revised Trauma Score (0-12) =			____

Convert GCS

13-15 = 4
9-12 = 3
6-8 = 2
4-5 = 1
3 = 0

Projected Estimate of Survival

Trauma Score	Percentage Survival
12	99.5
11	96.9
10	87.9
9	76.6
8	66.7
7	63.6
6	63.0
5	45.5
4	33.3
3	33.3
2	28.6
1	25.0
0	3.7

Reference information developed by:
PCMH Level 1 Trauma Center and
Children's Hospital of Eastern North Carolina, August, 1997

NO TRANSPORT INFORMATION FORM

Motor Vehicle Crash

Accidents involving motor vehicles can cause injuries that are sometimes not apparent at the time of the accident. Some of these injuries can be serious and are difficult to detect unless there is further testing and evaluation by a physician. These injuries include, but are not limited to, the head, back, chest or abdomen (stomach). Lacerations (cuts) and bruising are common and may require further evaluation and care.

You have chosen not to be transported by ambulance to a medical facility following a motor vehicle crash.

Please contact your doctor if any of the following signs or symptoms develop:

Increased pain to any body area	Swelling, numbness or tingling
Drowsiness or increased irritability	Nausea and vomiting
Persistent or bad headache	Vision problems
Speech or hearing difficulty	Weakness or loss of feeling in arms or legs
Difficulty walking	Confusion
Bleeding or discharge from the nose or ears	Twitching or convulsions
Neck or back pain	Unequal pupils
Loss of memory	Loss of consciousness

Actions:

1. Awaken the patient every 2 hours for the next 12-hours to make sure he/she can be easily aroused and can answer simple questions (name, birth date, etc.).
2. Do not take any sedatives, alcohol, or pain medications without checking with a doctor. Check with your doctor if you are taking aspirin on a regular basis.
3. Apply cold to any tender/painful area.
4. If the paramedics have recommended, or you feel you should be evaluated for possible stitches, **you should seek medical attention as soon as possible, and within 6 hours of the injury.**
5. Clean the wound and keep it clean. Wash the wound with soap and water 2-3 times a day. **Do not soak.**
6. After washing, you may apply a small amount of an antibiotic ointment such as Bacitracin (available without prescription). Do not apply any ointment if you will be seeking immediate medical attention.
7. Cover the wound with gauze dressing. Band-aids make the skin wet and increase the chance of infection.
8. Ibuprofen (such as Advil) or acetaminophen (such as Tylenol), **if you are not allergic,** may be taken as directed for pain or discomfort. Avoid taking aspirin (check with your doctor) if you are currently taking aspirin on a regular basis.
9. Contact your doctor if it has been more than five years since your last tetanus shot or if you are uncertain when your last shot was. If needed, a tetanus shot should be given within 24-hours of the injury.

Contact an ambulance again by calling 911 if your condition worsens.

NO TRANSPORT INFORMATION FORM

Low Blood Sugar

You have had a period of unconsciousness or altered level of consciousness that may have been caused by a low level of sugar and may be related to your diagnosed condition of diabetes. The EMS professionals may have administered medication or sugar to improve your condition, but this improvement is often only temporary. It is important to have regular check-ups so that your doctor can help you control your blood sugar level, which can be controlled with medication and proper diet.

Today your blood sugar was _____ before and _____ after you were given medications.

You have decided not to be transported by ambulance to a medical facility following a probable low blood sugar episode. **Please contact your doctor to notify him/her of this episode and if any of the following signs or symptoms develop:**

* If the frequency or severity of your low blood sugar episodes increases.

Actions:

1. Take your medicine exactly as prescribed and eat right away. The sugar/medicine you were given is short acting.
2. Wear a medic alert tag at all times.
3. Have a responsible person wake you every 2-hours for the next 12-hours.
4. Check your blood sugar again in 1-2 hours to make sure it is okay and then test your urine or blood sugar as directed.
5. If you feel like your blood sugar is getting low, test it and eat as directed.
6. Stay with a competent caregiver, and teach family members and others close by how to help you when your blood sugar becomes too low.
7. Discuss with your doctor whether there should be any restrictions on your job or activities.

Contact an ambulance again by calling 911 if your condition worsens.

Version: **Pitt County 2006**
Adapted from: Council Bluffs Fire Department, IA

EMERGENCY ASSESSMENT STROKE TOOL (EAST)

STROKE ALERT

Date:	Pt. Name:	DOB: / / Age:_____ ☐Male ☐Female

Basic Data

WITNESS NAME:_____ WITNESS PHONE:_____

SYMPTOM ONSET : DATE:_____ TIME:_____ ☐Unknown Time of Onset

Symptoms	Medical History	Medication	Treatment:
☐Weakness/ Numbness ☐Dizziness ☐Visual Disturbance ☐**Head trauma at onset*** ☐**Seizure at onset*** ☐Headache ☐Other:	☐Hypertension ☐Atrial Fibrillation ☐Diabetes ☐**MI / CAD *** ☐**Stroke/ TIA*** ☐**Bleeding disorders*** ☐Pregnancy ☐**Surgery (within past 14 days)***	☐Hypertensive Medication ☐Coumadin (Warfarin) ☐Heparin ☐Lovenox ☐Diabetes (Insulin/Oral) ☐Other: ☐Allergies:	☐ IV NS KVO (2 SITES Preferred) ☐ Oxygen@ 2L/MIN. (If hypoxic then high flow) ☐Drug Therapies:

Examination

*** BP:** Lt_____/_____ Rt_____/_____ *** Pulse**:_____ Respiration:_____
SPO_2_____ FSBS: _____ LOC:_____ EKG: Yes☐ No☐

STROKE ALERT

(If LAPSS items 1-6 are checked Yes) & (< 3 Hrs Onset)

Los Angeles Prehospital Stroke Screen (LAPSS)

Criteria	Yes	Unknown	No
1.) Age >45 years	☐	☐	☐
2.) History of Seizures or Epilepsy **absent**	☐	☐	☐
3.) Symptom duration <24 hours	☐	☐	☐
4.) At baseline, patients is **not** wheelchair bound or bedridden	☐	☐	☐
5.) Blood glucose between 60 and 400	☐	☐	☐

6.) Obvious asymmetry in any of the following 3 exam categories **(Must be unilaternal) (right vs left):**

	Equal	R Weak	L Weak
Facial smile/grimace	☐	☐Droop	☐Droop
Grip	☐	☐Weak Grip	☐Weak Grip
	☐	☐ No grip	☐No grip
Arm Strength	☐	☐Drifts down	☐Drift down
	☐	☐Falls rapidly	☐Falls rapidly

If above criteria is met Contact Hospital STAT and State "**Stroke Alert**"

Adapted from PCMH Stroke Center
Version: **Pitt County 2006**
Revised: Approved 8-11-06

BIBLIOGRAPHY

Allison EF Jr, Polk DA, Gardner M, Hunt RC, Prasad NH: Advanced Life Support Skills. Mosby-Year Book, Inc., 1994.

American Academy of Pediatrics: Emergency Delivery and Newborn Stabilization, Pediatric Education for Prehospital Professionals (PEPP), 2000; 162-167.

American College of Emergency Physicians and the American Academy of Pediatrics: APLS: The Pediatric Emergency Medicine Course, 1993.

American Heart Association: BLS for Healthcare Providers Student Manual, 2006.

American Heart Association: 2005 Guidelines for CPR and ECC, 2005. Supplement to "Circulation", 112(24).

American Heart Association: Advanced Cardiac Life Support Instructor's Manual, 2001.

American Heart Association: Basic Cardiac Life Support Instructor's Manual, 2000 and 2001.

American Heart Association: 2000 Handbook of Emergency Cardiovascular Care for Healthcare Providers, 2000.

American Heart Association: Standards and Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiac Care. Journal of the American Medical Association 1992; 26B(16):2171-2302.

American Heart Association: Textbook of Pediatric Advanced Life Support, 1994.

Belding J: Patient Refusal: What to do when medical treatment and transport are rejected. Journal of Emergency Medical Services, 2006 May; 31(5).

Benson NH, Hankins D, Wilcox D: Air Medical Dispatch: Guidelines for Scene Responses. Prehospital & Disaster Medicine 1992; 7(1):75-78.

Benson R: How to take "no" for an answer. Emergency Medical Services, 2005 Nov; 34(11):61-3.

Bledsoe BE, Clayden DE, Papa EJ: Prehospital Emergency Pharmacology, 4 Edition. Brady/Prentice Hall, 1996.

Bledsoe BE, Porter RS, Cherry RA: Brady Essentials of Paramedic Care, 1st and 2nd Editions, Prentice Hall, Pearson Education, Inc., 2003, 2007.

Bledsoe BE, Porter RS, Shade BR: Paramedic Emergency Care, 2nd & 3rd Edition. Brady Publishing Company, 1994, 1997.

Bonnin MJ, Pepe, Kimball KT, Clark PS Jr: Distinct Criteria for Termination of Resuscitation in the Out-of-hospital Setting. Journal of American Medical Association, 1993; 270(12):1457-62.

Bosker G, Sequiera M: The 60-Second EMT. C.V. Mosby Company, 1988.

Brouhard R: To Immobilize or Not Immobilize: That Is The Question. Emergency Medicial Services, The Journal Of Prehospital Care and Emergency Response, 2006 May; 35(5):81-86.

Brown LH, Prasad NH, Whitley TW: Adverse Lighting Conditions Effects on the Assessment of Capillary Refill. The American Journal of Emergency Medicine 1994; 12:46-47.

Burstein JL, Hollander JE, Delagi R, Gold M, Henry MC, Alicandro JM: Refusal of out-of-hospital medical care: effect of medical-control physician assertiveness on transport rate. Acad Emergency Medicine, 1998 Jan; 5(1):4-8.

Campbell JE: The Basic Trauma Life Support for Paramedics and Advanced EMS Providers, 3rd Edition. Brady Publishing Company, 1995.

Caroline NL: Emergency Care in the Streets, 4th Edition. Little, Brown, and Company, 1991.

Crocco TJ, Sayre MR, Aufderheide TP: Prehospital Triage of Chest Pain Patients, Position Paper. Prehospital Emergency Care, 2002; 6(2):24-25.

Dalton AL, Limmer D, Mistovich JJ, Werman HA: Advanced Medical Life Support. Brady/Prentice Hall, 1999.

Eisenberg MS: Cardiac Arrest and Resuscitation: A Tale of 29 Cities. Annals of Emergency Medicine, 1990; 19(2):179-186.

Eisenberg MS, et al: Survival Rates From Out-of-Hospital Cardiac Arrest: Recommendations for Uniform Definitions and Data to Report. Annals of Emergency Medicine, 1990; 19(11):1249-1259.

Fleisher G, Ludwig S, et al: Textbook of Pediatric Emergency Medicine. Williams and Wilkins, 1988.

Gausche M, Henderson DP, Seidel JS: Vital Signs as Part of the Prehospital Assessment of the Pediatric Patient: A Survey of Paramedics. Annals of Emergency Medicine, 1990; 19(2):173-178.

Gervin AS, Fischer RP: The Importance of Prompt Transport in Salvage of Patient with Penetrating Heart Wounds. Journal of Trauma, 1982; 22(6):443-448.

Gough JE, Cotten AR, Brown LH, Pollock MJ, Cockrell W: Do Pulse Checks Delay Semiautomatic Defibrillation by EMT-Defibrillators? The Journal of Emergency Medicine, 1995; 13(3):313-316.

Gray WA, Capone RJ, Most AS: Unsuccessful Emergency Medical Resuscitation-Are Continued Efforts in the Emergency Department Justified? New England Journal of Medicine, 1991; 325(20):1393-1398.

Greenwald J: The Paramedic Manual. Morton Publishing Co., 1988.

Haag J: American Heart Association ECC Training Memo, Pediatric AED Electrode Skills, October 15, 2002.

Hargarten KM: Prehospital Experience With Defibrillation of Coarse Ventricular Fibrillation: A Ten-Year Review. Annals of Emergency Medicine, 1990; 19(2):157-162.

Hedges JR, et al: Factors Contributing to Paramedic Onscene Time During Evaluation and Management of Blunt Trauma. American Journal of Emergency Medicine, 1988; 6(5):443-448.

Hodgson BB, Kizior RJ: Saunders Nursing Drug Handbook 1999, WB Saunders Company, 1999.

BIBLIOGRAPHY (Continued)

Jones JL, Ray VG, Gough JE, Garrison HG, Whitley TW: Determination of Prehospital Blood Glucose: A Prospective, Controlled Study. Journal of Emergency Medicine, 1992; 10(6):679-82.

Kellermann AL: Criteria for Dead-On-Arrival, Prehospital Termination of CPR, and Do-Not-Resuscitate Orders. Annals of Emergency Medicine, 1993; 22(1):47-51.

Kendall: Combitube®, Esophageal Tracheal Double Lumen Airway with X-Ray Line, insert, Kendall Company, 1997.

Lacombe DM, Desjardins G, Sanadi NE, Gayer S, Shatz D: Chemically Induced Paralysis. Journal of Emergency Medicine, June 1997; 22(6):74-78.

Markenson DS: Brady Pediatric Prehospital Care, Prentice Hall, 2002.

March JA, Dunn K, Brown LH, Farrow J, Perkins P: A Breathing Manikin Model for Teaching Nasotracheal Intubation to EMS Professionals. Prehospital Emergency Care, 1997; 1(4):269-272.

Matera PA: ETT alert. Journal of Emergency Medical Services, 1997; 22(2):24-25.

Matera PA: ETT alert—addendum [letter]. Journal of Emergency Medical Services, 1997; 22(5):16-18.

Mattox KL, Bickell W, Pepe PE, Burch J, Feliciano D: Prospective MAST Study in 911 Patients. Journal of Trauma, 1989; 29(8):1104-12.

Neonatal Emergencies. Advanced Pediatric Life Support, American Academy of Pediatrics, American College of Emergency Physicians, 1989; 171-180.

North Carolina Administrative Code (current Rules and Regulations applicable to E.M.S.), 1980-1996.

North Carolina College of Emergency Physicians Standards for EMS Patient Care Treatment Protocols, 2005.

North Carolina College of Emergency Physicians Standards for EMS Treatment Protocols, 2002.

Page, B: Brady 12-Lead ECG for Acute and Critical Care Providers, Prentice Hall, Pearson Education, Inc., 2005.

Paradis NA, Koscove EM: Epinephrine in Cardiac Arrest: A Critical Review. Annals of Emergency Medicine, 1990; 19(11):1288-1301.

Pepe PE, Stewart RD, Copass MK: Prehospital Management of Trauma: A Tale of Three Cities. Annals of Emergency Medicine, 1986; 15(12):1484-1490.

Phalen T, Aehlert B: The 12-Lead ECG in Acute Coronary Syndromes, 2nd Ed., Elsevier Mosby, 2006.

Physicians' Desk Reference®, 57 Edition, Thomson PDR®, 2003

Pitt County Memorial Hospital Level 1 Trauma Center and Children's Hospital of Eastern North Carolina: Pediatric Trauma Handbook, August 1997.

Pointer JE, Fletcher AB: Basic Life Support An Assessment-Oriented Approach. Aspen Publishers, Inc., 1986.

Pons PT, Honigman B, et al: Prehospital Advanced Trauma Life Support for Critical Penetrating Wounds to the Thorax and Abdomen. Journal of Trauma, 1985; 25(9):828-832.

Prasad NH, Allison EJ, Benson NH: Cardiac Arrest: Obstructed Airway. Emergency Medicine, Harold May (Ed), Little, Brown & Co., 1992; 52-66.

Prasad NH, Allison EJ, Benson NH: Partial Obstruction of the Upper Airway. Emergency Medicine, Harold May (Ed), Little, Brown & Co., 1992; 140-147.

Rubins AJ: Endotracheal Intubation: The Minimum for ACLS Airway Management Training. Prehospital and Disaster Medicine, 1991; 6(4):491-496.

Sanders MJ, Lewis LM, Quick G: Mosby's Paramedic Textbook, Mosby LifeLine, 1995.

Schneider S, et al: Critical Cardiac Transport: Air Versus Ground? American Journal of Emergency Medicine, 1988; 6(5):449-452.

Schriger DL, Baraff LJ: Capillary Refill-Is It a Useful Predictor of Hypovolemic States? Annals of Emergency Medicine, 1990; 12:601-605.

Schriger DL, Baraff LJ: Defining Normal Capillary Refill: Variation of Age, Sex and Temperature. Annals of Emergency Medicine, 1988; 17(9):932-935.

Shannon MT, Wilson BA, Stang CL: Health Professional's Drug Guide 2002, Prentice Hall, 2002.

Spaite DW, et al: A Prospective Evaluation of Prehospital Patient Assessment by Direct In-Field Observation: Failure of ALS Personnel to Measure Vital Signs. Prehospital and Disaster Medicine, 1990; 10:325-333.

Tintinalli JE, Ruiz E, Krome RL: Emergency Medicine A Comprehensive Study Guide, 4th Edition, American College of Emergency Physicians, 1996; 49.

Trunkey DD: Is ALS Necessary for Prehospital Trauma Care? (editorial); Journal of Trauma, 1984; 24(1):86-87.

Vidacare™ Corporation. EZ-IO, website document, 2003.

Walls RM: Rapid-sequence intubation in head trauma. Annals of Emergency Medicine, 1993; 22(6):1008-13.