

**2012 Edition**  
**Emergency Medical Services**  
**Medical Practice Protocols**



**Orange County NC**  
**Emergency Medical Services**

**University of North Carolina**  
**Hospitals**

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State Office of EMS  
North Carolina College of Emergency Physicians

Orange County Emergency Medical Services

Prehospital  
Advanced Life Support  
Protocols, Policies, and Procedures

2012 Version

The pages that follow represent the hard work and dedication of the frontline emergency medical caregivers within Orange County Emergency Medical Services and UNC-Hospitals Emergency Department. It is impossible to give individual credit to all that have been involved in the shaping of this manual, but their work and efforts are much appreciated.

These protocols are a direct reflection of many hours of hard work by Dr. Mark Quale, OCES Assist. Medical Director, Dr. Phil Moy, OCES Assist. Medical Director, Kim Woodward EMT-P, OCES Operations Manager, Ryan Grebe, EMT-P, OCES Training Coordinator, and Scott Lodge, EMT-P, OCES Quality Assurance Officer. Without their dedication and perseverance, there would be no manual.

The North Carolina Office of Emergency Medical Services has approved all advanced life support protocols contained in this manual.

**The 2012 version of this manual reflects an ongoing effort to provide the best, appropriate EMS care based on each patient's needs and outcomes. The advanced differential and disposition components of each protocol are based on a defined program of initial training, continuing education, and ongoing quality management. Use of these protocols in any system outside of Orange County Emergency Medical Services is unproven and may result in an undue risk to the patient and to the EMS system and personnel involved.**

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# Table of Contents 2012 Protocols



<b>Adult General</b>	<b>Protocol #</b>	<b>Pg#</b>
Universal Patient Care	Protocol 1	10
Adult, Airway	Protocol 2	12
Adult, Failed Airway	Protocol 3	14
Back Pain	Protocol 5	16
Behavioral	Protocol 6	18
Pain Control: Adult	Protocol 7	20
Fire-Rescue Rehab	Protocol 8	22
Inebriated Person	Protocol 9	23
Fall Risk Assessment Protocol	Protocol 10	24
<b>Adult Cardiac</b>		<b>Pg#</b>
Adult Asystole/Pulseless Electrical Activity	Protocol 11	27
Bradycardia; Pulse Present	Protocol 12	29
Cardiac Arrest; Adult	Protocol 13	31
Chest Pain: Cardiac and STEMI	Protocol 14	33
CHF/ Pulmonary Edema	Protocol 15	35
Adult Tachycardia Narrow Complex ( $\leq 0.11$ sec)	Protocol 16	37
Adult Tachycardia Wide Complex ( $> 0.12$ sec)	Protocol 17	39
Ventricular Fibrillation Pulseless Ventricular Tachycardia	Protocol 18	41
Post Resuscitation	Protocol 19	43
Induced Hypothermia	Protocol 20	45
TEAM Focused CPR	Protocol 21	47
<b>Adult Medical</b>		<b>Pg#</b>
Abdominal Pain	Protocol 23	50
Allergic Reaction/ Anaphylaxis	Protocol 24	52
Altered Mental Status	Protocol 25	54
Adult COPD/ Asthma	Protocol 26	56
Diabetic; Adult	Protocol 27	58
Dialysis/ Renal Failure	Protocol 28	60
Hypertension	Protocol 29	62
Hypotension/ Shock	Protocol 30	63
Overdose/ Toxic Ingestion	Protocol 31	65
Seizure	Protocol 32	67
Suspected Stroke	Protocol 33	69
Syncope	Protocol 34	71
Vomiting and Diarrhea	Protocol 35	73
<b>Adult Obstetrical</b>		<b>Pg#</b>
Childbirth/ Labor	Protocol 37	75
Newly Born	Protocol 38	78
Obstetrical Emergency	Protocol 39	80
<b>Adult Trauma</b>		<b>Pg#</b>
Adult Thermal Burn	Protocol 40	83
Adult Head Trauma	Protocol 41	85
Multiple Trauma	Protocol 42	87
<b>Pediatric General</b>		<b>Pg#</b>
Pediatric Airway	Protocol 44	90
Pediatric Failed Airway	Protocol 45	92
Pediatric Pain Control	Protocol 46	94

<b>Pediatric Cardiac</b>				Pg#
Pediatric Asystole/ PEA	Protocol	48	96	
Pediatric Bradycardia	Protocol	49	98	
Pediatric Pulmonary Edema/ CHF	Protocol	50	100	
Pediatric Pulseless Arrest	Protocol	51	102	
Pediatric Tachycardia	Protocol	52	104	
Pediatric Ventricular Fibrillation Pulseless Ventricular Tachycardia	Protocol	53	106	
Pediatric Post Resuscitation	Protocol	54	108	
<b>Pediatric Medical</b>				Pg#
Pediatric Allergic Reaction	Protocol	56	111	
Pediatric Altered Mental Status	Protocol	57	113	
Pediatric Diabetic	Protocol	58	115	
Pediatric Hypotension/ Shock	Protocol	59	117	
Pediatric Overdose/ Toxic Ingestion	Protocol	60	119	
Pediatric Respiratory Distress	Protocol	61	121	
Pediatric Seizure	Protocol	62	123	
Pediatric Vomiting/ Diarrhea	Protocol	63	125	
<b>Pediatric Trauma</b>				Pg#
Pediatric Head Trauma	Protocol	65	128	
Pediatric Multiple Trauma	Protocol	66	130	
Pediatric Thermal Burn	Protocol	67	132	
<b>Adult Pediatric General</b>				Pg#
Trauma Field Triage	Protocol	68	135	
MCI Triage	Protocol	69	137	
Dental Problems	Protocol	70	139	
Epistaxis	Protocol	71	141	
Fever/ Infection Control	Protocol	72	143	
Police Custody	Protocol	73	145	
Emergencies Involving Indwelling Central Lines	Protocol	74	147	
Respiratory Distress with a Tracheostomy Tube	Protocol	75	148	
Emergencies Involving Ventilators	Protocol	76	149	
IV Access	Protocol	77	150	
<b>Adult Pediatric Environmental</b>				Pg#
Bites and Envenomations	Protocol	78	152	
Carbon Monoxide / Cyanide	Protocol	79	154	
Drowning/ Submersion Injury	Protocol	80	155	
Hyperthermia	Protocol	81	157	
Hypothermia/ Frostbite	Protocol	82	159	
Marine Envenomations/ Injury	Protocol	83	161	
WMD-Nerve Agent Protocol	Protocol	84	163	
<b>Adult Pediatric Trauma</b>				Pg#
Blast Injury/ Incident	Protocol	86	166	
Chemical and Electrical Burn	Protocol	87	168	
Crush Syndrome Trauma	Protocol	88	170	
Extremity Trauma	Protocol	89	172	
Selective Spinal Immobilization "NSAIDS"	Protocol	90	174	
Radiation Incident	Protocol	91	175	
<b>Procedures</b>				Pg#
12 Lead ECG	Procedure	1	178	
12 Lead ECG - LifeNET	Procedure	2	179	
Airway: Blind Insertion Airway Device	Procedure	3	180	
Airway: BLS Airway	Procedure	4	181	
Airway: CPAP	Procedure	5	182	

Procedures		Pg#
Airway: Cricothyrotomy-Surgical	Procedure	6   183
Airway: Endotracheal Tube Introducer (Bougie)	Procedure	7   184
Airway: Foreign Body Obstruction	Procedure	8   185
Airway: Infant Meconium Aspiration	Procedure	9   186
Airway Intubation Confirmation – End-Tidal CO2 Detector	Procedure	10   187
Airway: Intubation Nasotracheal	Procedure	11   188
Airway: Intubation Oral Tracheal	Procedure	12   189
Airway – Nebulizer Inhalation Therapy	Procedure	13   190
Airway: ResQPOD Impedance Threshold Device	Procedure	14   191
Airway: Suctioning-Advanced	Procedure	15   192
Airway: Suctioning-Basic	Procedure	16   193
Airway: Tracheostomy Tube Change	Procedure	17   194
Arterial Access: Line Maintenance	Procedure	18   195
Assessment: Adult	Procedure	19   196
Pain Assessment and Documentation	Procedure	20   197
Assessment: Pediatric	Procedure	21   198
Blood Glucose Analysis	Procedure	22   199
Capnography	Procedure	23   200
Cardiac: External Pacing	Procedure	24   201
Cardiopulmonary Resuscitation (CPR)	Procedure	25   202
Cardioversion	Procedure	26   203
CHARTE Documentation	Procedure	27   204
Chest Decompression	Procedure	28   205
Childbirth	Procedure	29   206
CNS Catheter: Epidural Catheter Maintenance	Procedure	30   207
Decontamination	Procedure	31   208
Defibrillation - Automated	Procedure	32   209
Defibrillation - Manual	Procedure	33   210
Gastric Tube Insertion	Procedure	34   211
Injections - Autoinjector	Procedure	35   212
Injections - Subcutaneous and Intramuscular	Procedure	36   213
Irrigation	Procedure	37   214
Medication Administration - Intranasal	Procedure	38   215
Medication Administration - Intravenous or Intraosseous	Procedure	39   216
Medication Administration - Oral	Procedure	40   217
Medication Administration - Rectal	Procedure	41   218
Medication Administration - Sublingual	Procedure	42   219
Medication Administration - Transdermal	Procedure	43   220
Orthostatic Blood Pressure Measurement	Procedure	44   221
Pulse Oximetry	Procedure	45   222
Refusal	Procedure	46   223
Reperfusion Checklist	Procedure	47   224
Restraints: Physical	Procedure	48   225
Spinal Immobilization	Procedure	49   226
Splinting	Procedure	50   227
SpO2/CO/Met	Procedure	51   228
Stroke Screen - LA Prehospital	Procedure	52   230
Temperature Measurement	Procedure	53   231
Valsalva Maneuver	Procedure	54   232
Venous Access - Blood Draw	Procedure	55   233
Venous Access - Central Line Maintenance	Procedure	56   234
Venous Access - Existing Catheters	Procedure	57   235
Venous Access - External Jugular Access	Procedure	58   236
Venous Access - Extremity	Procedure	59   237

Procedures			Pg#
Venous Access - Intraosseous	Procedure	60	238
Vital Signs	Procedure	61	239
Wound Care General	Procedure	61	240
Wound Care Hemostatic Agent	Procedure	62	241
Wound Care Taser Probe Removal	Procedure	63	242
Wound Care Tourniquet	Procedure	64	243
Policies			Pg#
Air Transport	Policy	1	245
Child Abuse Recognition and Reporting	Policy	2	246
Children with Special Healthcare Needs (NC Kidbase)	Policy	3	247
Criteria for Death / Withholding Resuscitation	Policy	4	248
Deceased Subjects	Policy	5	249
Difficult Airway Evaluation	Policy	6	250
Discontinuation of Prehospital Resuscitation	Policy	7	252
Disposition (Patient Instructions)	Policy	8	253
Do Not Resuscitate and Most Form	Policy	9	254
Documentation and Data Quality	Policy	10	255
Documentation of Vital Signs	Policy	11	257
Domestic Violence (Partner and /or Elder Abuse)Recognition and Reporting	Policy	12	258
EMS Back in Service Time	Policy	13	259
EMS Dispatch Center Time	Policy	14	260
EMS Wheels Rolling Turn-Out Time	Policy	15	262
Equipment Failure	Policy	16	263
Failure to Locate	Policy	17	264
Fire Rescue Rehab	Policy	18	265
Infant Abandonment	Policy	19	266
Patient Medication Self Administration	Policy	20	267
Patient Without a Protocol	Policy	21	268
Physician on Scene	Policy	22	269
Protocol Adherence	Policy	23	270
Referral	Policy	24	271
Refusal	Policy	25	272
Safe Transport of Pediatric Patients	Policy	26	274
State Poison Center	Policy	27	276
Terrorism Response	Policy	28	277
Transport	Policy	29	279
Women's Birthing Center	Policy	30	280
Drug List			Pg#
Drug List Table	Drug List	A	283
Pediatric Color Coded Drug List	Drug List	B	300
Dopamine Drip Chart	Drug List	C	303
Adult Epinephrine Drip Chart	Drug List	D	305
Appendix			Pg#
Disposition Instruction Form	Appendix	A	307
On-scene Physician Form	Appendix	B	310
Apgar Score	Appendix	C	311
Los Angeles Prehospital Stroke Screen (LAPSS)	Appendix	D	312
Pain Scale Forms	Appendix	E	313
Restraints Checklist	Appendix	F	314
Approved Medical Abbreviations	Appendix	G	315
Reperfusion Checklist	Appendix	H	320
Difficult Airway Evaluation	Appendix	I	321
NC EMS Airway Evaluation Form	Appendix	L	322
NC Most Form	Appendix	M	324

NC DNR Form	Appendix	N	326
Pediatric EMS Triage and Destination Plan	Appendix	P	327
<b>Appendix</b>			<b>Pg#</b>
STEMI EMS Triage and Destination Plan	Appendix	Q	328
Stroke EMS Triage and Destination Plan	Appendix	R	329
Trauma EMS Triage and Destination Plan	Appendix	S	330
Emergency Medical Dispatch (EMD) System Description	Appendix	T	331

## 2012 Revised Protocols - Formatting Conventions

For ease of learning and as an educational tool, the following graphical formatting conventions have been incorporated in the revised 2012 edition of the Orange County EMS Advanced Life Support protocols.

### Page Numbers

Page numbers now correspond to the protocol, procedure, policy, drug lists and appendices. Some of the page numbers may not be visible in the printed version.

Protocols Referenced protocols are designated by this symbol



Medical Control Medical Control is designated by this symbol

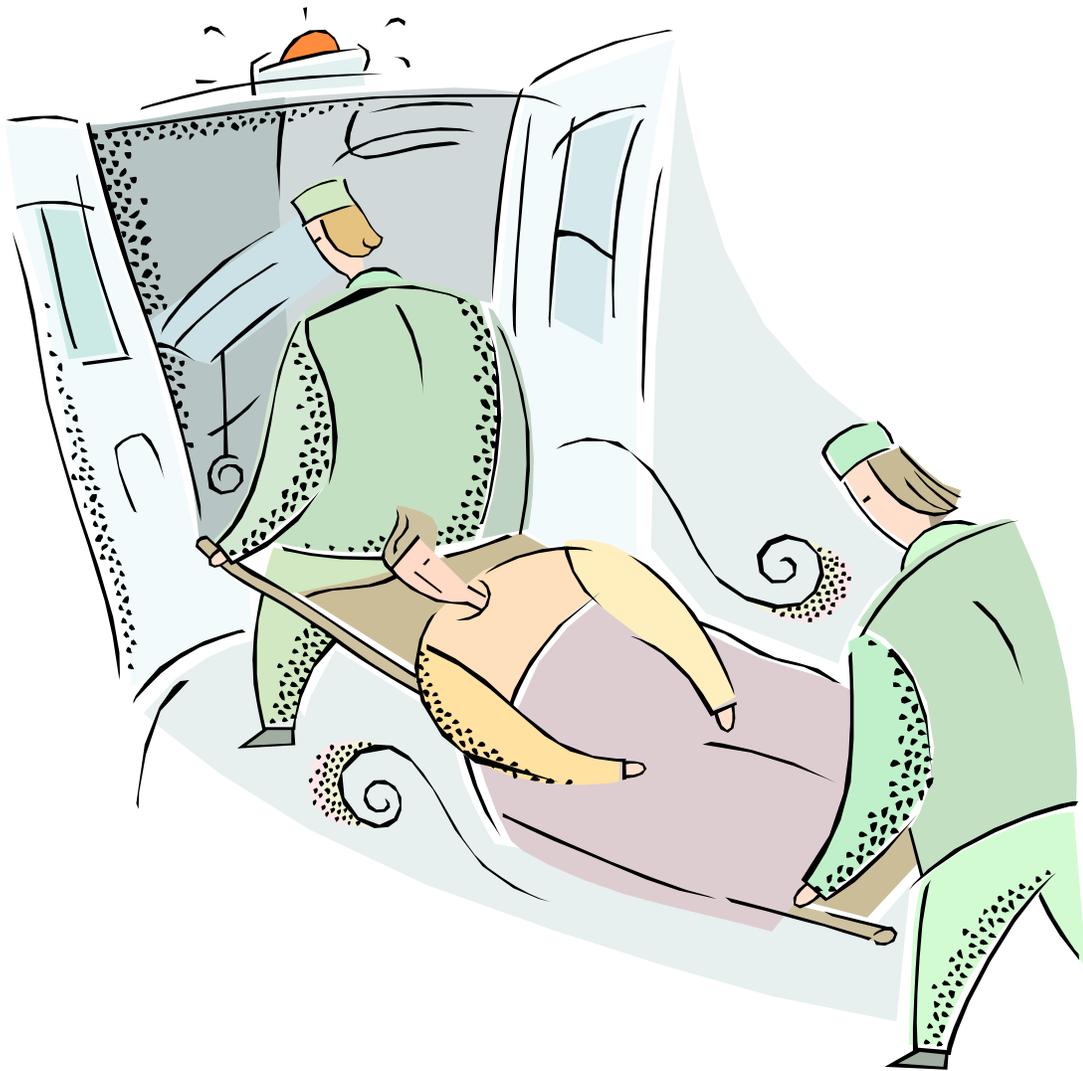


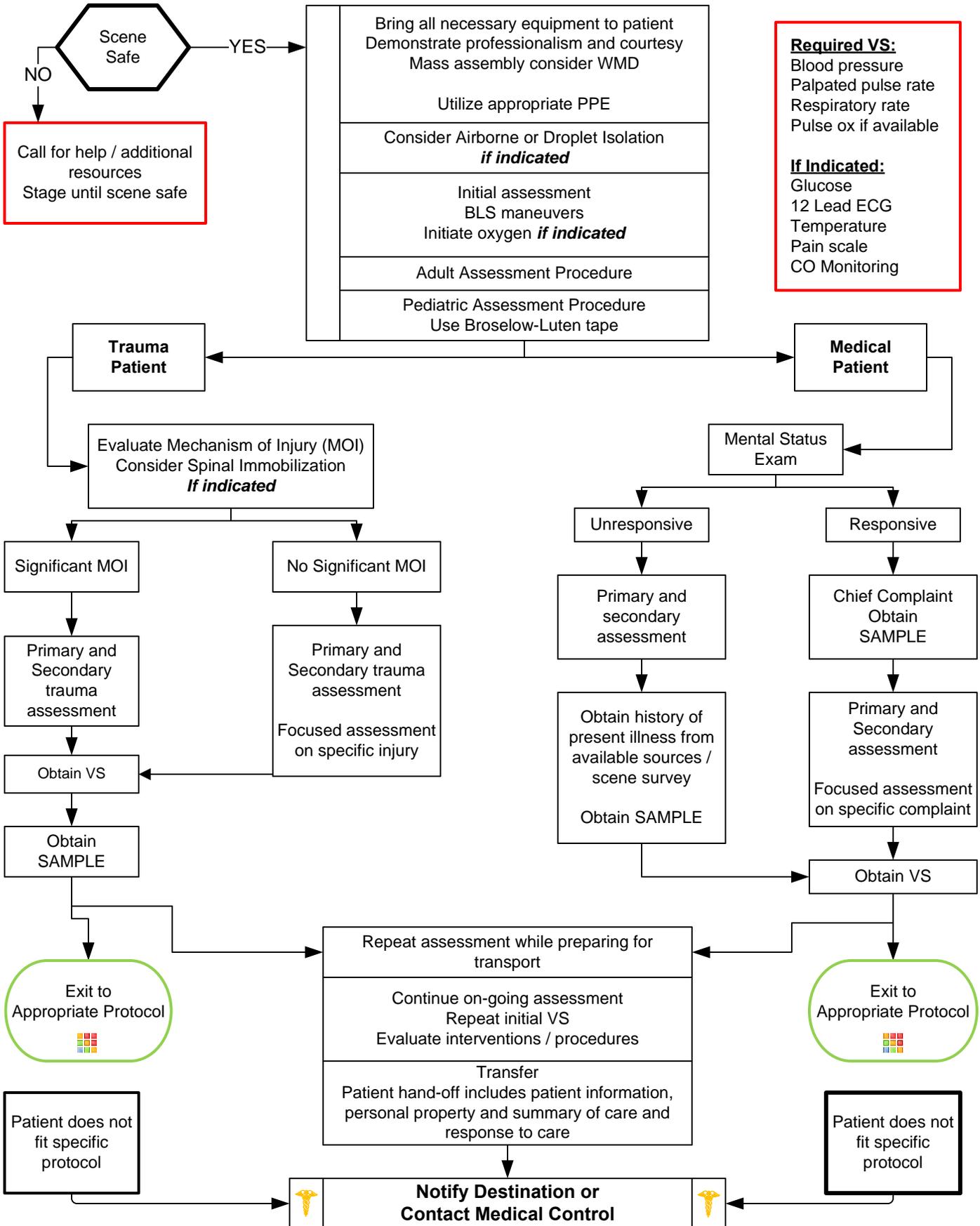
When a protocol step FOLLOWS a specific "Contact Medical Control" box in the chosen branch, direct Medical Control orders are required to continue with further treatment.

Most of the Protocols are now two pages and there are now "notes" section for your utilization.

Several alternative medications have been placed in this manual in case of drug shortage. In the event of drug shortage, in service education will occur before placing the alternative medication in service.

# Adult General





General Section Protocols

# Universal Patient Care

## Scene Safety Evaluation:

Identify potential hazards to rescuers, patient and public.  
Identify number of patients and utilize START protocol if indicated.  
Observe patient position and surroundings.

## General:

All patient care must be appropriate to your level of training and documented in the PCR.

The PCR / EMR narrative should be considered a story of the circumstances, events and care of the patient and should allow a reader to understand the complaint, the assessment, the treatment, why procedures were performed and why indicated procedures were not performed as well as ongoing assessments and response to treatment and interventions.

## Adult Patient:

An adult is considered hypotensive when Systolic Blood Pressure is less than 90 mmHg.  
Diabetic patients, women, and the elderly may have atypical presentations of cardiac related problems such as MI.  
General weakness can be the symptom of a very serious underlying process.  
Beta blockers and other cardiac drugs may prevent a reflexive tachycardia in shock with low to normal pulse rates.

## Geriatric Patient:

Hip fractures and dislocations have high mortality.  
Altered mental status is not always dementia. Always check Blood Sugar and assess signs of stroke, trauma, etc. with any alteration in a patient's baseline mental status.  
Minor or moderate injury in the typical adult may be very serious in the elderly.

## Pediatric Patient:

Pediatric patient is defined by those which fit on the Broselow-Luten Resuscitation Tape, Age 15 years or less and / or weight 49 kg or less. Patients off the Broselow-Luten tape should have weight based medications until age 16 or greater or weight greater than or equal to 50 kg. Special needs children may require continued use of Pediatric based protocols regardless of age and weight.

Initial assessment should utilize the Pediatric Assessment Triangle which encompasses Appearance, Work of Breathing and Circulation to skin.

The order of assessment may require alteration dependent on the developmental state of the pediatric patient.

Generally the child or infant should not be separated from the caregiver unless absolutely necessary during assessment and treatment.

## Patient Refusal:

Patient refusal is a high risk situation. Encourage patient to accept transport to medical facility. Encourage patient to allow an assessment, including vital signs. Documentation of the event is very important including a mental status assessment describing the patient's capacity to refuse care.  
Guide to Assessing capacity:

**Patient should be able to communicate a clear choice:** This should remain stable over time. Inability to communicate a choice or an inability to express the choice consistently demonstrates incapacity.

**Relevant information is understood:** Patient should be able to display a factual understanding of the illness, the options and risks and benefits.

**Appreciation of the situation:** Ability to communicate an understanding of the facts of the situation. They should be able to recognize the significance of the outcome potentially from their decision.

**Manipulation of information in a rational manner:** Demonstrate a rational process to come to a decision. Should be able to describe the logic they are using to come to the decision, though you may not agree with decision.

## Special note on oxygen administration and utilization:

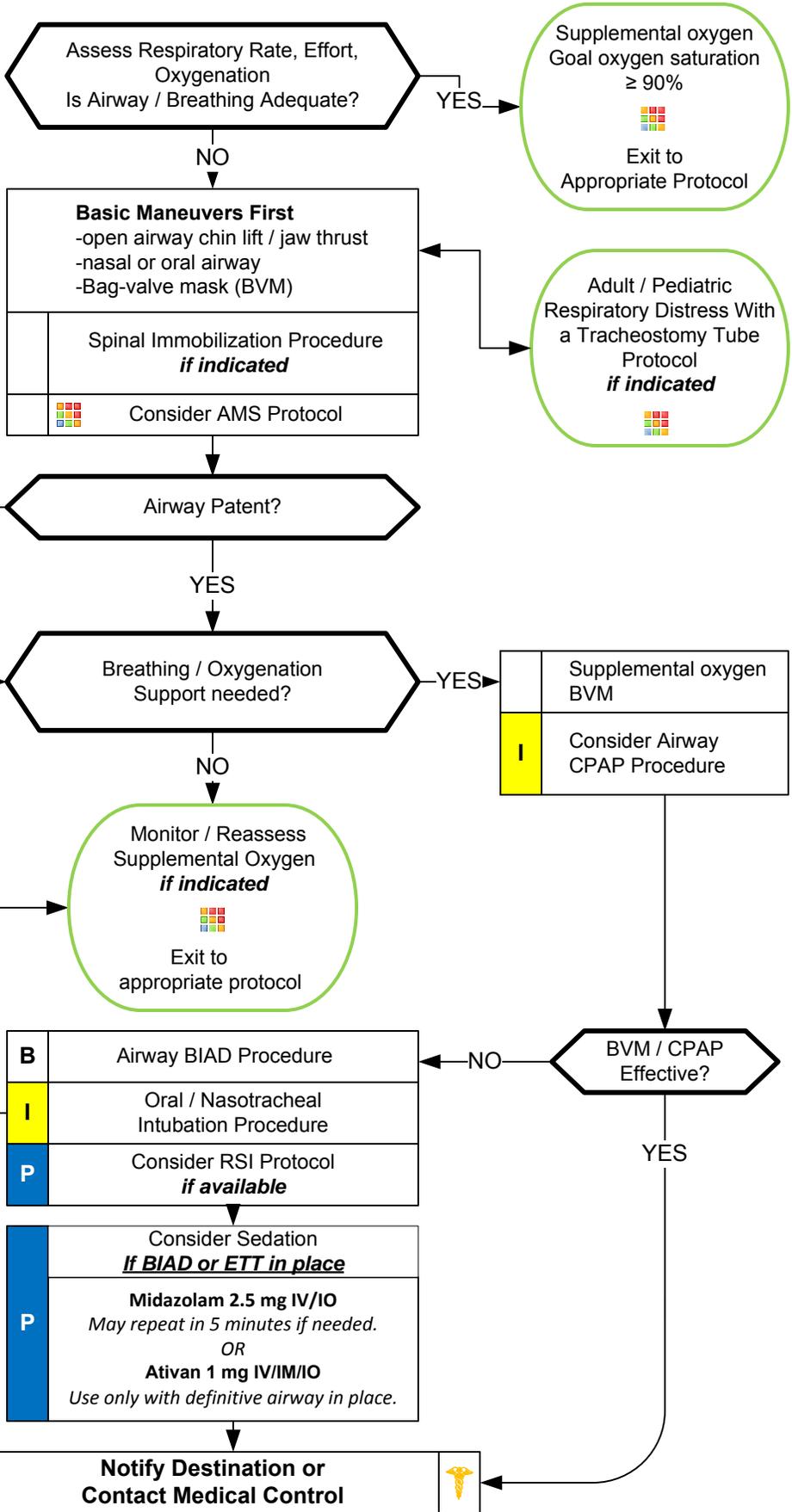
Oxygen is ubiquitous in prehospital patient care and probably over utilized. Oxygen is a pharmaceutical with indications, contraindications as well as untoward side effects. Recent research demonstrates a clear link with increased mortality when given in overdose (hyperoxia / hyperventilation) in cardiac arrest. Utilize oxygen when indicated and not because it is available. A reasonable target oxygen saturation in all treatment protocols is 94 % regardless of delivery device.

## Pearls

- **Recommended Exam: Minimal exam if not noted on the specific protocol is vital signs, mental status with GCS, and location of injury or complaint.**
- **Any patient contact which does not result in an EMS transport must have a completed disposition form.**
- **A pediatric patient is defined by fitting on the Broselow-Luten tape, Age  $\leq 15$ , weight  $\leq 49$  kg.**
- **Pediatric Airway Protocols are defined by patients  $\leq 11$  years of age.**
- Timing of transport should be based on patient's clinical condition and the transport policy.
- Never hesitate to contact medical control for patient who refuses transport.
- Blood Pressure is defined as a Systolic / Diastolic reading. A palpated Systolic reading may be necessary at times.
- SAMPLE: Signs / Symptoms; Allergies; Medications; PMH; Last oral intake; Events leading to illness / injury

# Adult Airway

Protocols 1, 2 and 3 should be utilized together as they contain very useful information for airway management.



Adult General Section Protocols

Unable to Ventilate and Oxygenate  $\geq 90\%$  during or after one (1) or more unsuccessful intubation attempts .  
Anatomy inconsistent with continued attempts.  
Three (3) unsuccessful attempts by most experienced EMT-P/I.

Exit to Adult Failed Airway Protocol

Notify Destination or Contact Medical Control

# Adult Airway

## Notes:

Always weigh the risks and benefits of endotracheal intubation in the field against transport. All prehospital endotracheal intubations are to be considered high risk. If ventilation / oxygenation is adequate rapid transport may be the best option. The most important airway device and the most difficult to use correctly and effectively is the Bag Valve Mask (not the laryngoscope).

Few prehospital airway emergencies cannot be temporized or managed with proper BVM techniques.

Please refer to Protocols 2 and 3 for additional information.

### Difficult Airway Assessment

#### **Difficult BVM Ventilation:**

**MOANS:** Difficult Mask seal due to facial hair, anatomy, blood or secretions / trauma; Obese or late pregnancy; Age > 55; No teeth (roll gauze and place between gums and cheeks to improve seal); Stiff or increased airway pressures (Asthma, COPD, Obese, Pregnant).

#### **Difficult Laryngoscopy:**

**LEMON:** Look externally for anatomical distortions (small mandible, short neck, large tongue); Evaluate 3-3-2 Rule (Mouth open should accommodate 3 patient fingers, mandible to neck junction should accommodate 3 patient fingers, chin-neck junction to thyroid prominence should accommodate 2 patient fingers); **Mallampati** (difficult to assess in the field); **Obstruction / Obese or late pregnancy; Neck mobility.**

#### **Difficult BIAD:**

**RODS:** Restricted mouth opening; **Obstruction / Obese or late pregnancy; Distorted or disrupted airway; Stiff or increased airway pressures (Asthma, COPD, Obese, Pregnant);**

#### **Difficult Cricothyrotomy / Surgical Airway:**

**SHORT:** Surgery or distortion of airway; **Hematoma over lying neck; Obese or late pregnant; Radiation treatment skin changes; Tumor overlying neck.**

**Trauma:** Utilize in-line cervical stabilization during intubation, BIAD or BVM use. During intubation or BIAD the cervical collar front should be open or removed to facilitate translation of the mandible / mouth opening.

**Nasotracheal intubation:** Orotracheal intubation is the preferred choice. Procedure requires patient have spontaneous breathing. Contraindicated in combative patients, anatomically disrupted or distorted airways, increased intracranial pressure, severe facial trauma, basal skull fracture, head injury. Not a rapid procedure and exposes patient to risk of desaturation.

## Pearls:

- **This protocol is only for use in patients with an Age  $\geq$  12 or patients longer than the Broselow-Luten Tape.**
- **Capnometry (Color) or capnography is mandatory with all methods of intubation. Document results.**
- **Continuous capnography (EtCO<sub>2</sub>) is strongly recommended for the monitoring of all patients with a BIAD or endotracheal tube.**
- **If an effective airway is being maintained by BVM with continuous pulse oximetry values of  $\geq$  90%, it is acceptable to continue with basic airway measures instead of using a BIAD or Intubation.**
- **For the purposes of this protocol a secure airway is when the patient is receiving appropriate oxygenation and ventilation.**
- **An Intubation Attempt is defined as passing the laryngoscope blade or endotracheal tube past the teeth or inserted into the nasal passage.**
- **Ventilatory rate should be 8-10 per minute to maintain a EtCO<sub>2</sub> of 35-45. Avoid hyperventilation.**
- **It is strongly encouraged to complete an Airway Evaluation Form with any BIAD or Intubation procedure.**
- Intermediates and Paramedics should use a BIAD if oral-tracheal intubation is unsuccessful.
- Maintain C-spine immobilization for patients with suspected spinal injury.
- Do not assume hyperventilation is psychogenic – use oxygen, not a paper bag.
- Cricoid pressure and BURP maneuver may be used to assist with difficult intubations. They may worsen view in some cases.
- Hyperventilation in deteriorating head trauma should only be done to maintain a EtCO<sub>2</sub> of 30-35.
- Gastric tube placement should be considered in all intubated patients if available or time allows.
- It is important to secure the endotracheal tube well and consider c-collar (in absence of trauma) to better maintain ETT placement. Manual stabilization of endotracheal tube should be used during all patient moves / transfers.

Unable to Ventilate and Oxygenate  $\geq 90\%$  during or after one (1) or more unsuccessful intubation attempts .

Anatomy inconsistent with continued attempts.

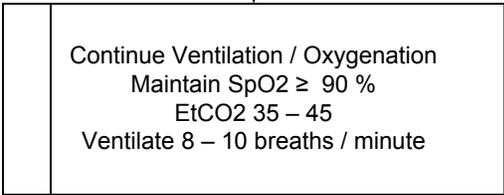
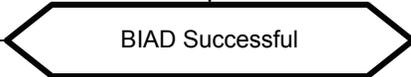
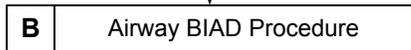
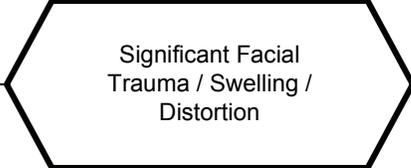
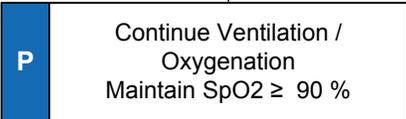
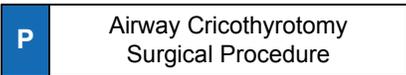
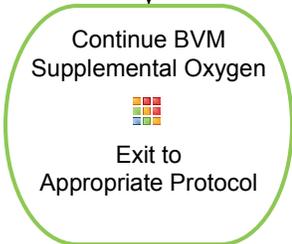
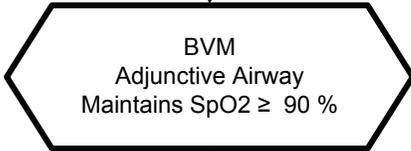
Three (3) unsuccessful attempts by most experienced EMT-P/I.

*Each attempt should include change in approach or equipment*

**NO MORE THAN THREE (3) ATTEMPTS TOTAL**

*Protocols 1, 2 and 3 should be utilized together as they contain very useful information for airway management.*

Call for additional resources if available



Adult General Section Protocols

# Adult, Failed Airway

## Notes:

A failed airway occurs when a provider begins a course of airway management by endotracheal intubation and identifies that intubation by that means will not succeed.

### Conditions which define a Failed Airway:

1. Failure to maintain adequate oxygen saturation 90 % or greater after 2 or more failed intubation attempts.
2. Three (3) failed at intubation by the most experienced prehospital provider on scene even when adequate oxygen saturation 90 % or greater can be maintained.
3. Unable to maintain adequate oxygen saturation 90 % or greater with BVM techniques and insufficient time to attempt alternative maneuvers. A patient near death or dying.

**The most important way to avoid a failed airway is to identify patients with expected difficult airway, difficult BVM ventilation, difficult BIAD, difficult laryngoscopy and / or difficult cricothyrotomy.**

*Please refer to Protocol 1, Adult Airway page 2 for information in how to identify the patient with potential difficult airway.*

### Position of patient:

In the field setting improper position of the patient and rescuer are responsible for many failed and difficult intubations. Often this is dictated by uncontrolled conditions present at the scene and we must adapt. However many times the rescuer does not optimize patient and rescuer position. The sniffing position or the head simply extended upon the neck are probably the best positions. The goal is to align the ear canal with the suprasternal notch in a straight line.

In the obese or late pregnant patient elevating the torso by placing blankets, pillows or towels will optimize the position. This can be facilitated by raising the head of the cot.

### Use of cot in optimal patient / rescuer position:

The cot can be elevated and lowered to facilitate intubation. With the patient on the cot raise until the patient's nose is at the level of your umbilicus which will place you at the optimal position.

**Trauma:** Utilize in-line cervical stabilization during intubation, BIAD or BVM use. During intubation or BIAD the cervical collar front should be open or removed to facilitate translation of the mandible / mouth opening.

### Cricothyrotomy / Surgical Airway Procedure:

Use in patients 12 years of age and greater only. Percutaneous transtracheal jet ventilation is used in younger patients.

### Relative contraindications include:

Pre-existing laryngeal or tracheal tumors, infections or abscess overlying the cricoid area.  
Hematoma or anatomical landmark destruction / injury.

## Pearls

- **If first intubation attempt fails, make an adjustment and then consider:**
  - Different laryngoscope blade / Video or other optical laryngoscopy devices
  - Gum Elastic Bougie
  - Different ETT size
  - Change cricoid pressure. Cricoid pressure no longer routinely recommended and may worsen view.
  - Apply BURP maneuver (Push trachea Back [posterior], Up, and to patient's Right)
  - Change head positioning
- Continuous pulse oximetry should be utilized in all patients with an inadequate respiratory function.
- Continuous EtCO<sub>2</sub> should be applied to all patients with respiratory failure or to all patients with advanced airways.
- **Notify Medical Control AS EARLY AS POSSIBLE about the patient's difficult / failed airway.**

## Protocol 3

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012

### History

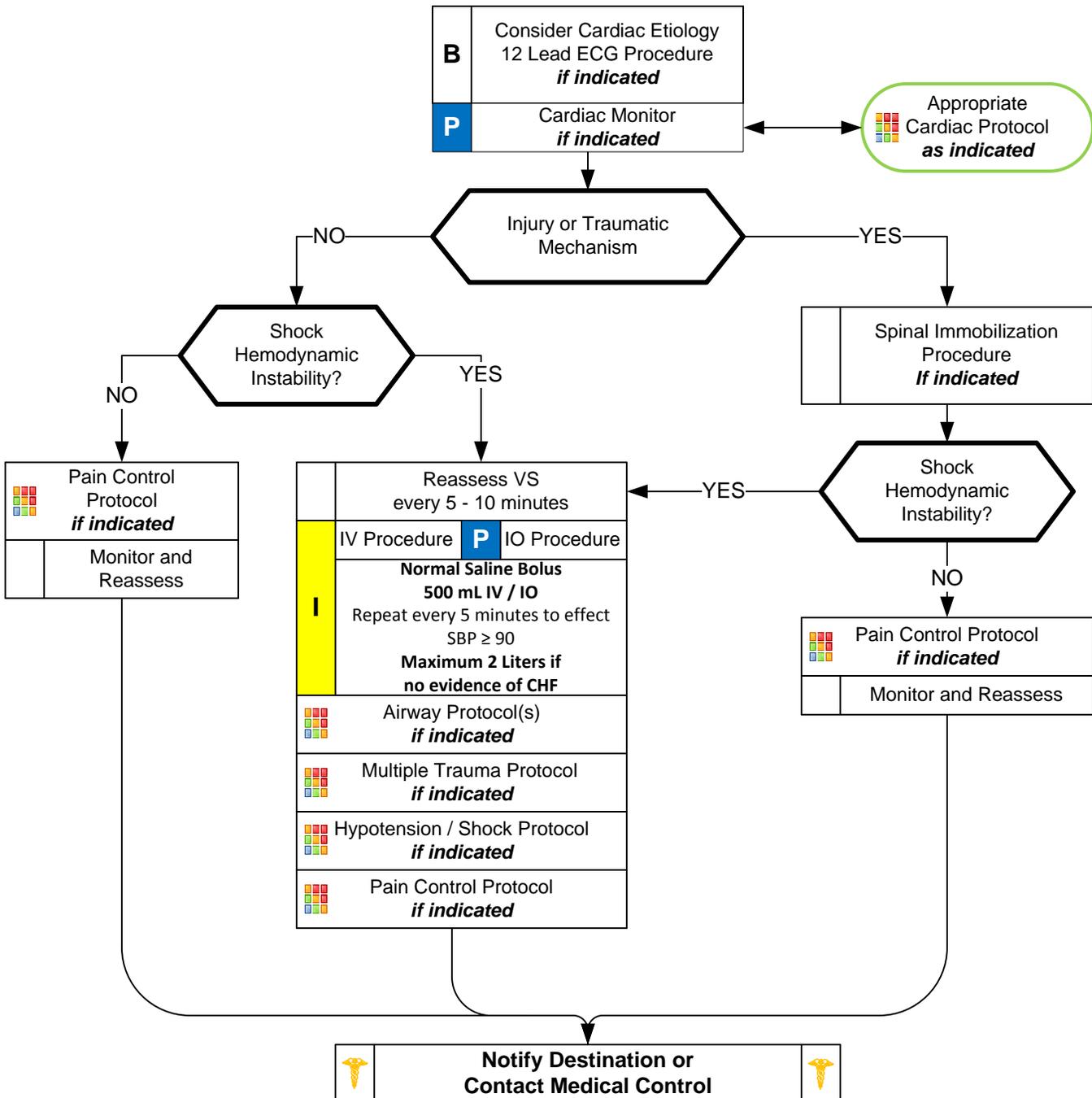
- Age
- Past medical history
- Past surgical history
- Medications
- Onset of pain / injury
- Previous back injury
- Traumatic mechanism
- Location of pain
- Fever
- Improvement or worsening with activity

### Signs and Symptoms

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

### Differential

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



# Back Pain

## Notes:

## Pearls

- Patients with underlying spinal deformity should be immobilized in their functional position.
- Abdominal aneurysms are a concern especially in patients over the age of 50 and / or with vascular or hypertensive disease.
- Kidney stones typically present with an acute onset of flank pain which radiates around to the groin area.
- Patients with midline pain over the spinous processes should be spinally immobilized.
- Any bowel or bladder incontinence is a significant finding which requires immediate medical evaluation
- In patient with history of IV drug abuse a spinal epidural abscess should be considered.

## Disposition:

- EMS Transport:**
- ALS:** Patient with abnormal vital signs, age > 50, any sensory or motor deficit associated with traumatic mechanism.
- BLS:** New abnormal extremity sensation or weakness. Normal sensory or motor exam associated with traumatic mechanism.
- MD Within 4 hours:**  
Patients with chronic back pain with unchanged exam per patient or past records or as otherwise directed by paramedic-MD consult

## Protocol 5

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

### History

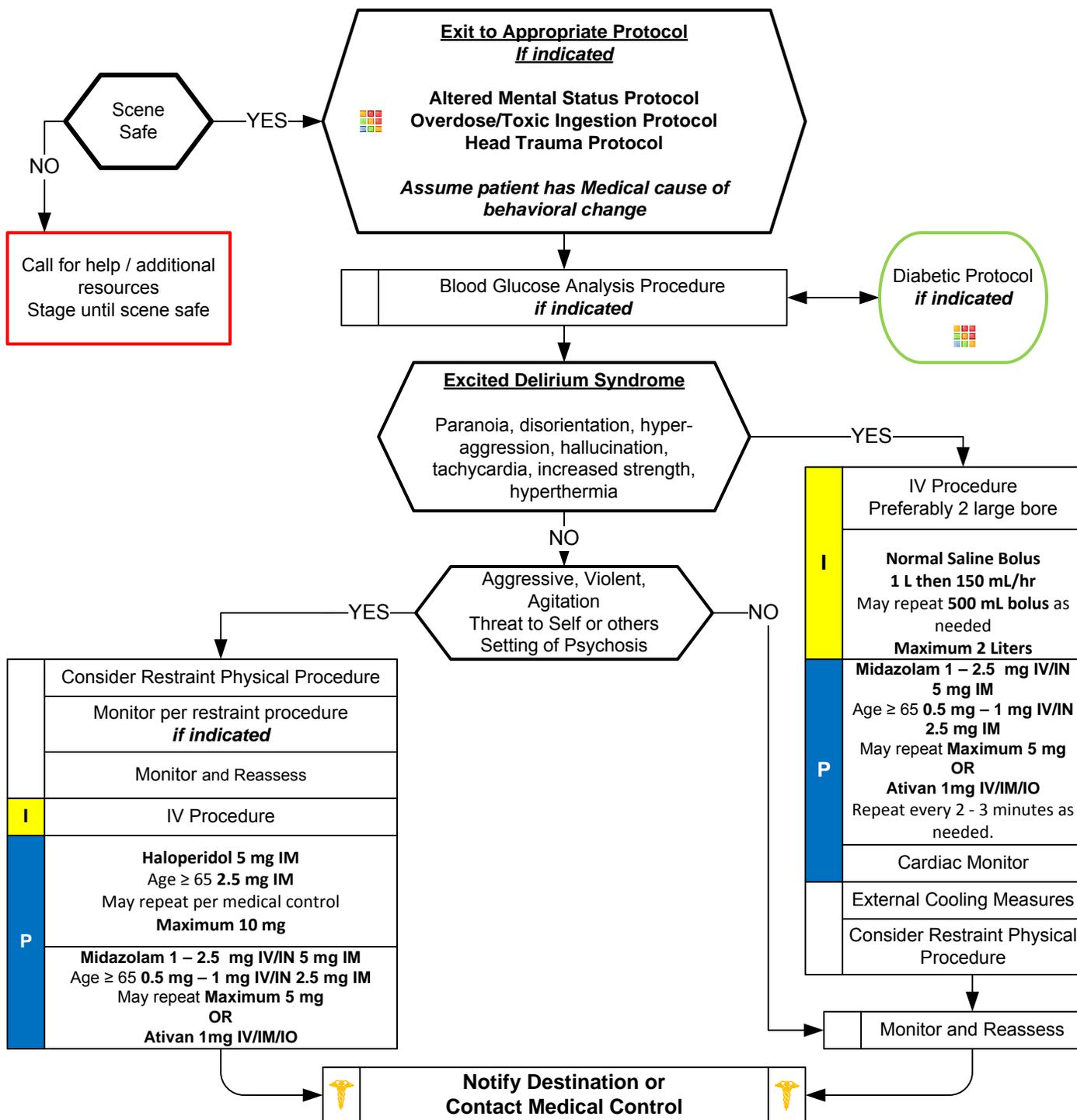
- Situational crisis
- Psychiatric illness/medications
- Injury to self or threats to others
- Medic alert tag
- Substance abuse / overdose
- Diabetes

### Signs and Symptoms

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

### Differential

- Altered Mental Status differential
- Alcohol Intoxication
- Toxin / Substance abuse
- Medication effect / overdose
- Withdrawal syndromes
- Depression
- Bipolar (manic-depressive)
- Schizophrenia
- Anxiety disorders



Adult General Section Protocols

# Behavioral

## Key Points for Success

- Remove patient from stressful environment
- Use verbal calming techniques because communication is very important (reassurance, calm, establish rapport)

### Pearls:

- **Recommended Exam: Mental Status, Skin, Heart, Lungs, Neuro**
- **Crew / responders safety is the main priority.**
- **Any patient who is handcuffed or restrained by Law Enforcement and transported by EMS must be accompanied by law enforcement in the ambulance.**
- **Consider Haldol or Ziprasidone for patients with history of psychosis or a benzodiazepine for patients with presumed substance abuse.**
- **All patients who receive either physical or chemical restraint must be continuously observed by ALS personnel on scene or immediately upon their arrival.**
- Be sure to consider all possible medical/trauma causes for behavior (hypoglycemia, overdose, substance abuse, hypoxia, head injury, etc.)
- Do not irritate the patient with a prolonged exam.
- Do not overlook the possibility of associated domestic violence or child abuse.
- If patient is suspected of agitated delirium suffers cardiac arrest, consider a fluid bolus and sodium bicarbonate early
- Do not position or transport any restrained patient in such a way that could impact the patient's respiratory or circulatory status.
- **Excited Delirium Syndrome:**  
Medical emergency: Combination of delirium, psychomotor agitation, anxiety, hallucinations, speech disturbances, disorientation, violent / bizarre behavior, insensitivity to pain, hyperthermia and increased strength. Potentially life-threatening and associated with use of physical control measures, including physical restraints and Tasers. Most commonly seen in male subjects with a history of serious mental illness and/or acute or chronic drug abuse, particularly stimulant drugs such as cocaine, crack cocaine, methamphetamine, amphetamines or similar agents. Alcohol withdrawal or head trauma may also contribute to the condition.
- **Extrapyramidal reactions:**  
Condition causing involuntary muscle movements or spasms typically of the face, neck and upper extremities. May present with contorted neck and trunk with difficult motor movements. Typically an adverse reaction to antipsychotic drugs like Haloperidol and may occur with your administration. When recognized give **Diphenhydramine 50 mg IV / IO / IM / PO** in adults or **1 mg/kg IV / IO / IM / PO** in pediatrics.

### Disposition:

**EMS Transport:**      **ALS:** All restrained patients or patients who receive ALS care  
**BLS:** All other patients

### History

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

### Signs and Symptoms

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

### Differential

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

Enter from  
**Protocol based on Specific Complaint**

Assess Pain Severity  
Use combination of Pain Scale, Circumstances, MOI, Injury or Illness severity

Mild

Moderate to Severe

<b>B</b>	Ibuprofen 10 mg/kg PO (400 – 600 mg typical adult) Or Acetaminophen 15 mg/kg PO (500 to 1000 mg typical adult)
<b>I</b>	Consider IV Procedure
	Monitor and Reassess

<b>I</b>	IV Procedure	<b>P</b>	IO Procedure
	Ketorolac 30 mg IV / IO / IM		

<b>P</b>	Cardiac Monitor
	<b>Morphine 4 mg (0.1 mg/kg) IV / IO</b> Repeat <b>2 mg</b> every 5 minutes as needed. <b>Maximum 10 mg</b> <b>OR</b> <b>Fentanyl 50-75 microgram IM/IV/IO</b> <b>25 mcg</b> may be repeated at in 20 minutes <b>as needed.</b>
	Monitor and Reassess Every 10 minutes following sedative
	Monitor and Reassess

**Notify Destination or Contact Medical Control**

Adult General Section Protocols

# Pain Control: Adult

## Pearls

- **Recommended Exam: Mental Status, Area of Pain, Neuro**
- **Pain severity (0-10) is a vital sign to be recorded before and after PO, IV, IO or IM medication delivery and at patient hand off. Monitor BP closely as sedative and pain control agents may cause hypotension.**
- **Both arms of the treatment may be used in concert. For patients in Moderate pain for instance, you may use the combination of an oral medication and parenteral if no contraindications are present.**
- **Vital signs should be obtained before, 10 minutes after, and at patient hand off with all pain medications.**
- All patients who receive IM or IV medications must be observed 15 minutes for drug reaction in the event no transport occurs.
- Do not administer any PO medications for patients who may need surgical intervention such as open fractures or fracture deformities, headaches, or abdominal pain.
- **Ketorolac (Toradol) and Ibuprofen should not be used in patients with known renal disease or renal transplant, in patients who have known drug allergies to NSAID's (non-steroidal anti-inflammatory medications), with active bleeding, headaches, head trauma, abdominal pain, stomach ulcers or in patients who may need surgical intervention such as open fractures or fracture deformities.**
- Do not administer **Acetaminophen** to patients with a history of liver disease.
- Burn patients may required higher than usual opioid doses to effect adequate pain control

## Protocol 7

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director

# Fire / Rescue Rehab



## History:

- Firefighting / Rescue duties
- Mandatory rehab after 2 SCBA bottles or 40 min of intense work without SCBA

## Signs and Symptoms:

- Level of consciousness
- Respiratory effort
- Vital signs (temperature)

## Differential:

- Heat Exhaustion / Stroke
- Hyperthermia
- Cramps
- Hypothermia
- Other conditions (protocols)

Sign in and vital signs

Significant Injury  
Cardiac Complaint: Signs / Symptoms  
Respiratory Complaint: Serious Signs / Symptoms

Yes

Move to treatment area  
Exit to Appropriate Protocol

Mandatory 10 minute rest period  
and 8 oz fluid P.O.

Respiratory Rate < 8 or > 40  
Systolic > 160, Diastolic > 90  
Heart Rate > 100 bpm?

No

Yes

Temperature <sup>(55)</sup> > 100.4 ?

additional 10 minute rest period  
and 8 oz fluid P.O.

No

Yes

Vital signs meet return criteria?  
Pulse < 100, Systolic < 160,  
Diastolic < 90  
Orthostatics Negative  
Respiratory Rate 12-20  
Pulse Ox ≥ 95%  
Carboxyhemoglobin (if available)  
< 5dL/mg for nonsmokers, < 10dL/  
mg for smokers

Remove protective clothing and  
initiate **active cooling** measures as  
available and appropriate for  
environmental conditions,  
additional rest for total 30 minutes

No

Yes

Move to treatment area  
Universal Patient Care Protocol  
Hyperthermia  
Hypothermia  
Hypotension

Sign out of rehab sector and  
Return to full activities

### VITAL SIGN CAVEATS

#### Blood Pressure

Prone to inaccuracy on scenes  
Must be interpreted in context  
Firefighters have elevated blood pressure due to physical exertion and is not typically pathologic

### Active cooling measures:

**Cold towels**- Use by applying to face, neck, arms as deemed appropriate. Maintain supply of towels as per agency guidelines.  
**Misters**- best used for moderate ambient temp and low humidity  
**Fans**- only use when ambient temp is less than 99 degrees  
**Forearm submersion**- submerge forearms in tepid water for ten minutes. There should not be any pain associated with submersion

Firefighters with Systolic BP ≥ 160 or Diastolic BP ≥ 100 may need extended rehabilitation  
However this does not necessarily prevent them from returning to duty  
**Temperature**  
Firefighters may have increased temperature during rehabilitation

### Pearls:

- May be utilized with adult responders on fire, law enforcement, rescue, EMS and training scenes.
- All personnel operating at the scene should be cycled through rehab using the two bottle / 45 minute rule.
- All personnel must be checked into and out of the rehab area
- Each team member must (1) rest a minimum of ten minutes, (2) be able to take 16 oz of fluid PO, and (3) have vital sign assessment performed by rehab personnel.
- Responders taking antihistamines, blood pressure medication, diuretics or stimulants are at increased risk for cold and heat stress.
- Oral temp measurement should be performed 10 min after drinking cold fluids
- During first hour of activity, fluid should be water only. Remaining time, fluid should be ½ strength electrolyte replacement fluid.
- Additional ambulances should be assigned to triage in the event a patient needs transport from the scene.
- Personnel should not return to active duty until approved by the rehab officer.
- The rehab area should be established in a location that (1) maintains a safe distance from the activity, (2) has direct access but is out of sight of the activity, (3) is clear of smoke and exhaust fumes, and (4) has ready means of access and egress for transport vehicles, food, and water.

Disposition: Transport:

Based on treatment sector protocol.

## Protocol 8

This protocol has been altered from the original 2009 NCEP Protocol by the local EMS Medical Director

2012

# Inebriated Person



## History:

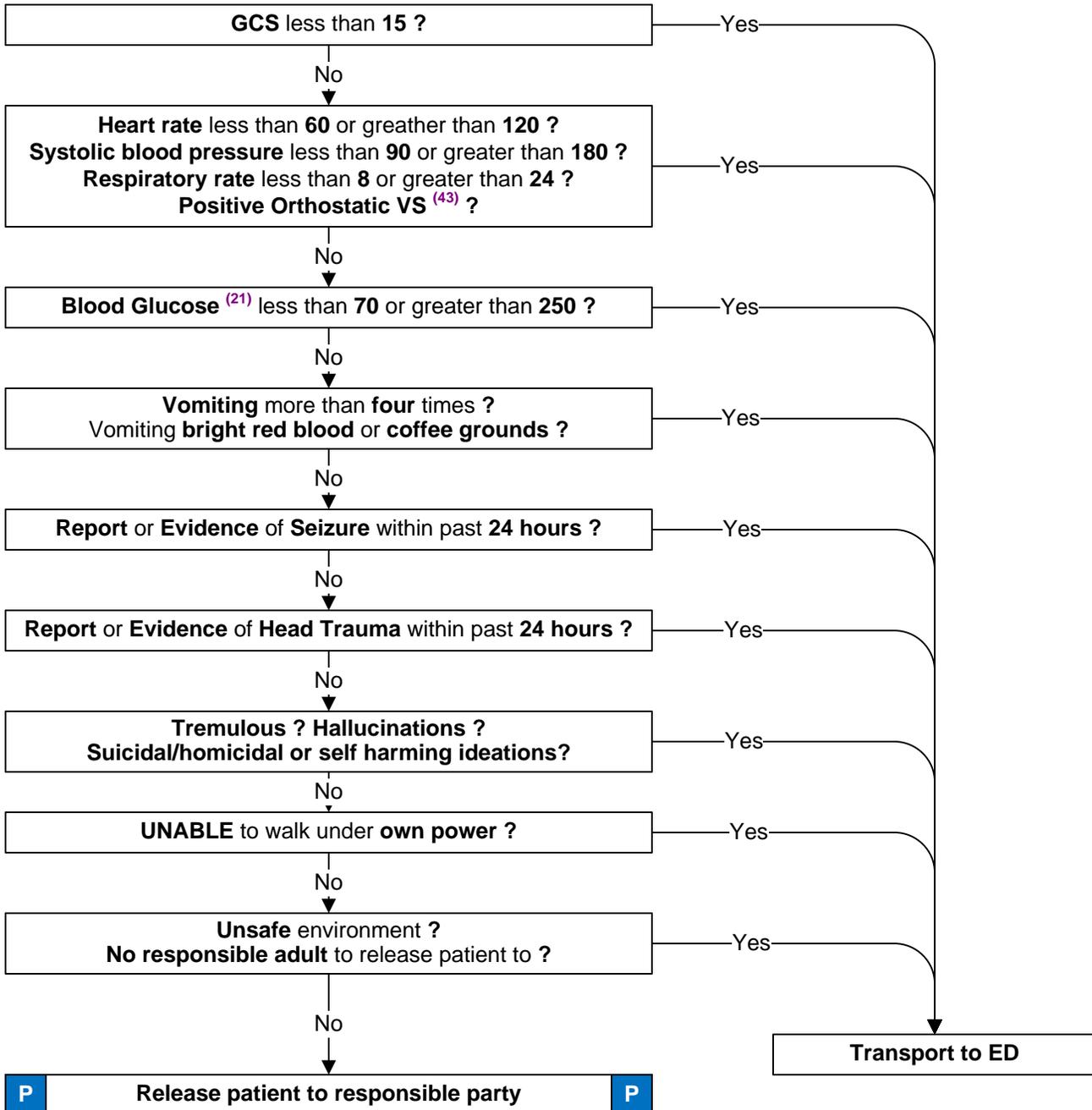
- Medical History
- Quantity / Duration of ETOH use
- Medications (Rx or recreational)

## Signs and Symptoms:

- Level of consciousness
- Vomiting
- Staggered gait
- Slurred speech
- Blurred vision

## Differential:

- **Diabetic**
- **Psychiatric**
- **Overdose**
- Any differential from **Altered Mental Status protocol (25)**



## Pearls:

- **Exam: Mental Status, Neuro, Vital Signs**
- Serious medical conditions can present as inebriation. It is the paramedic's responsibility to rule out other causes.
- Unsafe environment means a place where physical injury (trauma or hypo/hyperthermia) is probable.

## Disposition:

- EMS Transport:**      **ALS:** Abnormal VS, GCS, glucose, possible hemorrhage, possible seizure  
**BLS:** Other patients not released to responsible party

# Fall Risk Assessment



## History

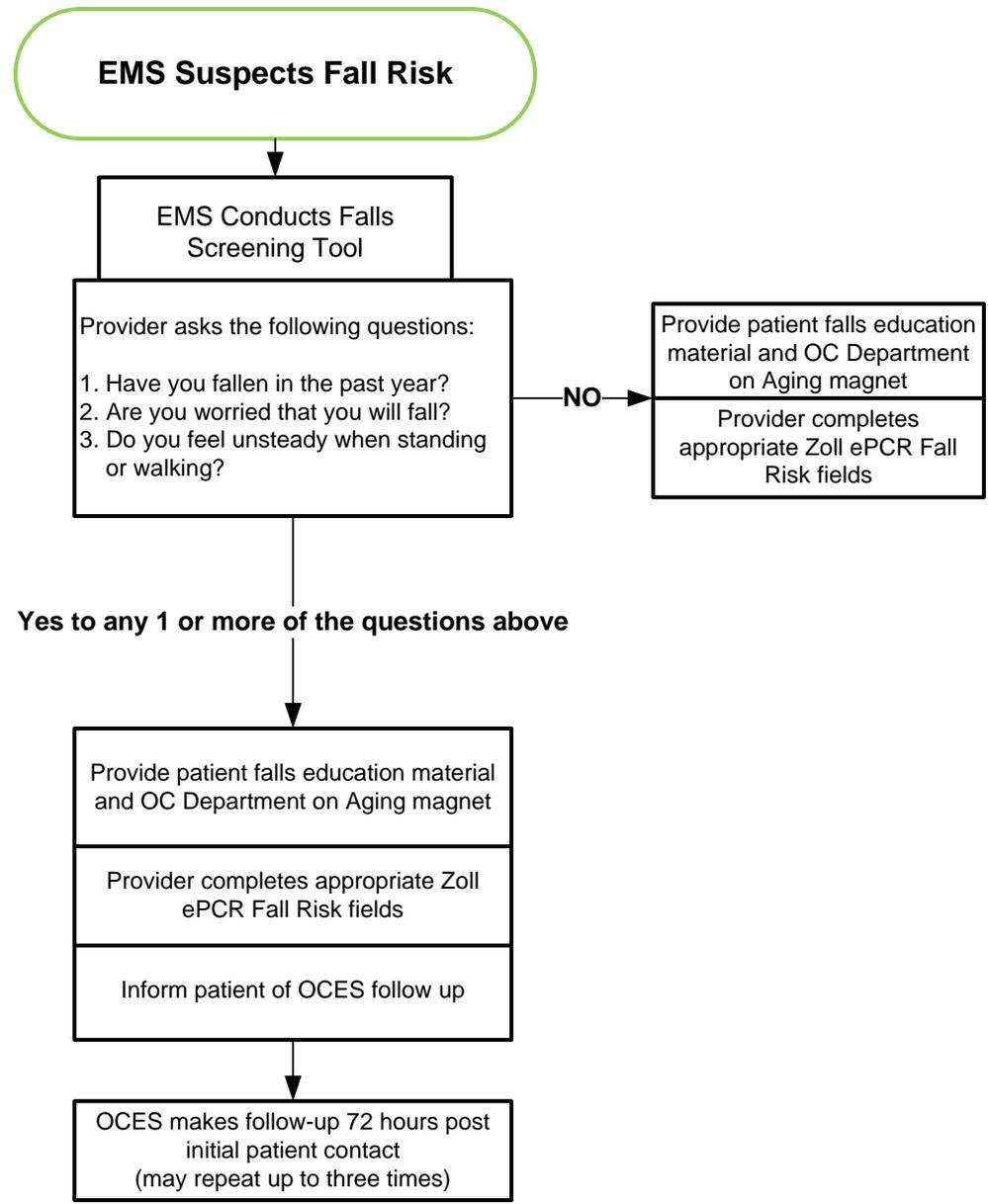
- Social Support
- History of Fall?
- Recent Hospitalization
- Polypharmacy?
- Past medical history

## Rule in Criteria

- Age  $\geq$  60?
- Age  $\geq$  45 with serious health condition or movement disorder
- Provider suspects fall risk
- Provider has responded to fall
- Any lifting assistance response

## Differential

- |                      |                     |
|----------------------|---------------------|
| • CVA                | • UTI               |
| • ACS                | • Sepsis            |
| • Arrhythmia         | • Allergic Reaction |
| • Hypo/Hyperglycemia | • Acute Abdomen     |
| • Trauma             | • Pneumonia         |
| • Dehydration        | • CHF               |
| • Overdose           | • Hypovolemia       |
| • Asthma             | • Movement Disorder |
| • Incontinence       |                     |



Adult General Section Protocols

## Disposition:

**EMS Transport:** Per complaint specific protocol

# Fall Risk Assessment

## Pearls

- **Recommended Exam: Mental Status, HEENT, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro.**
- **Pay careful attention to the physical exam for signs of bruising or other injury.**
- The goal of this protocol is to prevent falls in our patients and to reduce the number of repeat falls.
- Pay attention to unsafe environmental conditions which mean fall or physical injury (trauma) is probable.
- Is the individual self sufficient or has a care giver who can assist the patient with basic needs? If No and there is a medical issue contact medical control. If no and no medical issue contact the EMS Supervisor.
- It is critical for outcome measures and quality improvement that the medic document the use of this protocol and reason for using this protocol in the patient care report.
- If patient consent is obtained senior medics will complete the webEOC referral tool for a follow up visit. Senior medic must also document the EMD code and CFS number in the referral tool. If consent is denied only document the CFS number and EMD code in the referral tool.
- The webEOC referral tool will also contain follow-up information and providers will receive feedback as the tool is updated.
- If injury or medical issue is suspected go to specific protocol.

## Protocol 10

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director

# Adult Cardiac



## History

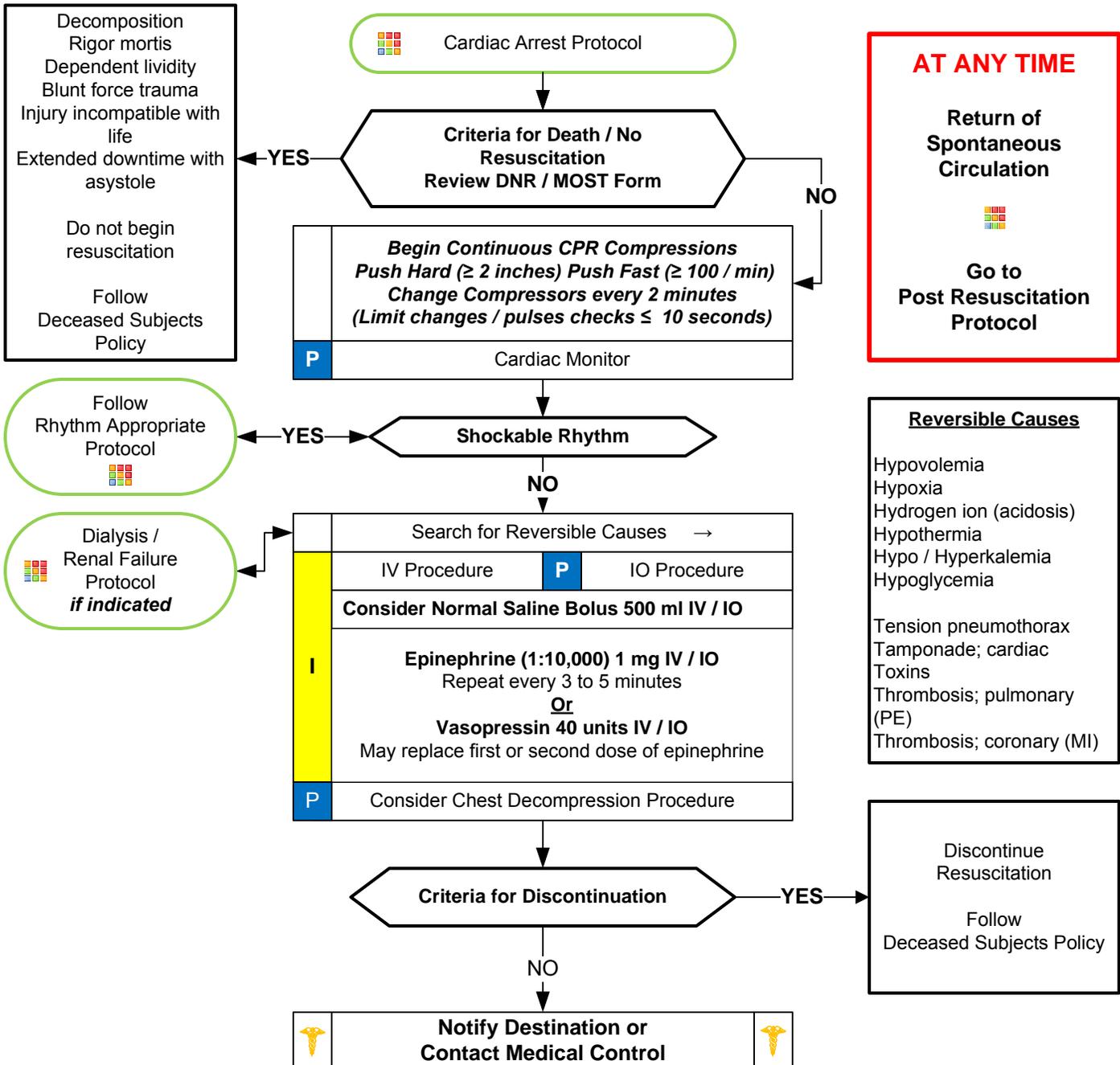
- Past medical history
- Medications
- Events leading to arrest
- End stage renal disease
- Estimated downtime
- Suspected hypothermia
- Suspected overdose
  - Tricyclic
  - Digitalis
  - Beta blockers
  - Calcium channel blockers
- DNR, MOST, or Living Will

## Signs and Symptoms

- Pulseless
- Apneic
- No electrical activity on ECG
- No heart tones on auscultation

## Differential

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



# Adult Asystole / Pulseless Electrical Activity

## Notes:

## Pearls:

- **Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated. Consider early IO placement if available and / or difficult IV access anticipated.**
- **DO NOT HYPERVENTILATE: If no advanced airway (BIAD, ETT) compressions to ventilations are 30:2. If advanced airway in place ventilate 8 – 10 breaths per minute with continuous, uninterrupted compressions.**
- **Do not interrupt compressions to place endotracheal tube. Consider BIAD first to limit interruptions.**
- **Breathing / Airway management after 2 rounds of compressions (2 minutes each round.)**
- Success is based on proper planning and execution. Procedures require space and patient access. Make room to work.
- If no IV / IO, drugs that can be given down ET tube should have dose doubled and then flushed with 5 ml of Normal Saline followed by 5 quick ventilations. IV/IO is the preferred route when available.
- Consider each possible cause listed in the differential: Survival is based on identifying and correcting the cause.
- Potential association of PEA with hypoxia so placing definitive airway with oxygenation early may provide benefit.
- PEA caused by sepsis or severe volume loss may benefit from higher volume of normal saline administration.
- Return of spontaneous circulation after Asystole / PEA requires continued search for underlying cause of cardiac arrest.
- Treatment of hypoxia and hypotension are important after resuscitation from Asystole / PEA.
- Asystole is commonly an end-stage rhythm following prolonged VF or PEA with a poor prognosis.
- Sodium bicarbonate no longer recommended. Consider in the dialysis / renal patient, known hyperkalemia or tricyclic overdose at 50 mEq total IV / IO.
- Discussion with Medical Control can be a valuable tool in developing a differential diagnosis and identifying possible treatment options.
- Potential protocols used during resuscitation include Overdose / Toxic Ingestion, Diabetic and Dialysis / Renal Failure.

## Disposition:

**EMS Transport:**      **ALS:**      Any perfusing rhythm or unusual circumstance which does not meet the Criteria for Death, Discontinuation of Resuscitation, or Do Not Resuscitate Policies.

### History

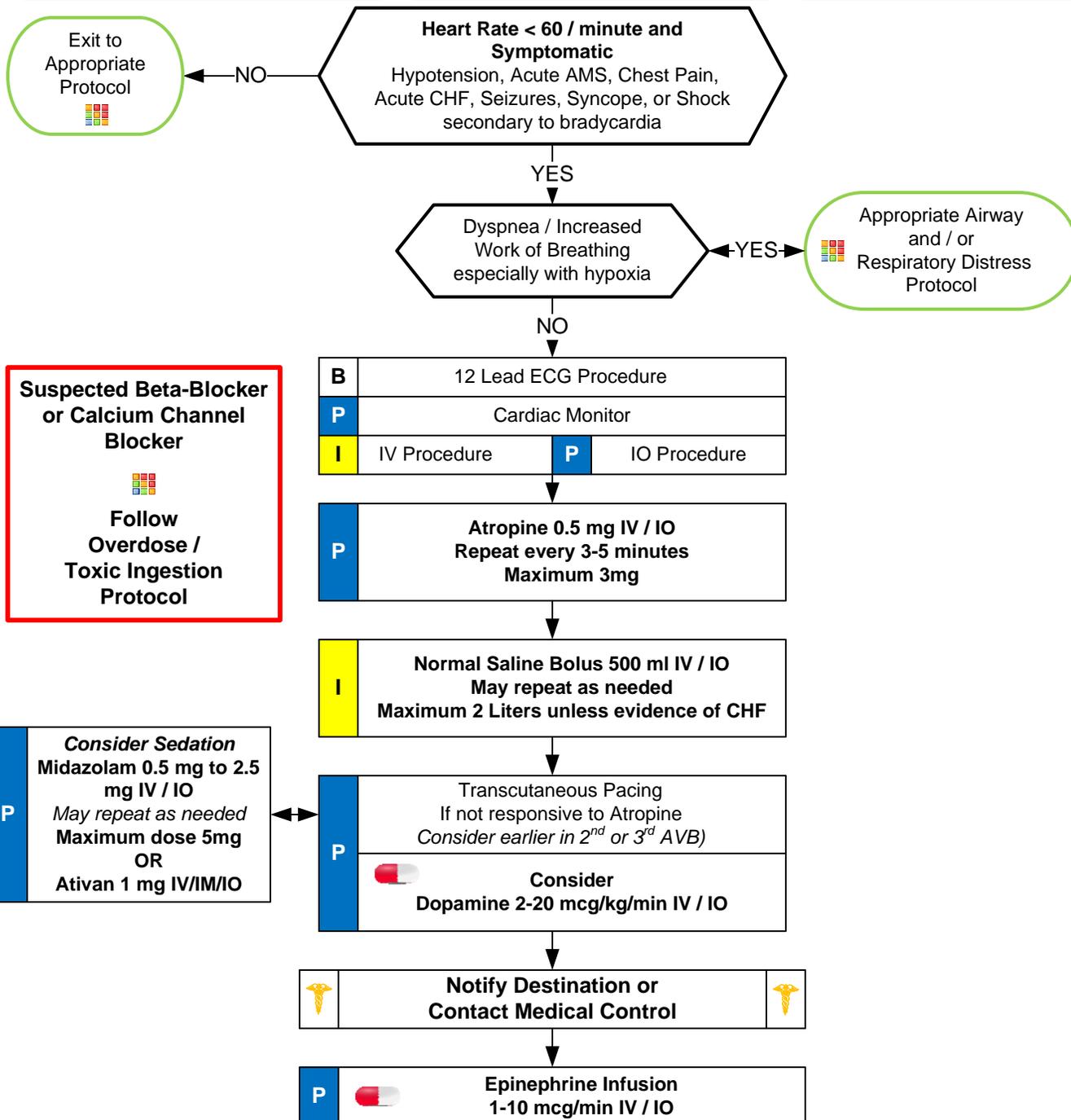
- Past medical history
- Medications
  - Beta-Blockers
  - Calcium channel blockers
  - Clonidine
  - Digoxin
- Pacemaker

### Signs and Symptoms

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

### Differential

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



# Bradycardia; Pulse Present

## Pearls:

- **Recommended Exam: Mental Status, Neck, Heart, Lungs, Neuro**
- **Bradycardia causing symptoms is typically < 50/minute. Rhythm should be interpreted in the context of symptoms and pharmacological treatment given only when symptomatic, otherwise monitor and reassess.**
- **Identifying signs and symptoms of poor perfusion caused by bradycardia are paramount.**
- **Atropine: Caution in setting of acute MI. The use of Atropine for PVCs in the presence of a MI may worsen heart damage. Ineffective in cardiac transplantation. Should not delay Transcutaneous Pacing with poor perfusion.**
- Utilize transcutaneous pacing early if no response to atropine. If time allows transport to specialty center as transcutaneous pacing is a temporizing measure and patient will likely require transvenous pacemaker.
- Wide complex, bizarre appearance of complex with slow rhythm consider hyperkalemia.
- Consider treatable causes for bradycardia (Beta Blocker OD, Calcium Channel Blocker OD, etc.)
- Hypoxemia is a common cause of bradycardia be sure to oxygenate the patient and support respiratory effort.

## Disposition:

### EMS Transport:

**ALS:** Any patient other than listed below

**BLS:** Asymptomatic with unrelated complaint and HR  $\leq$  45

**MD Within 24 Hours:** Asymptomatic with unrelated complaint and HR > 45

## Protocol 12

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director



# Cardiac Arrest; Adult



## History

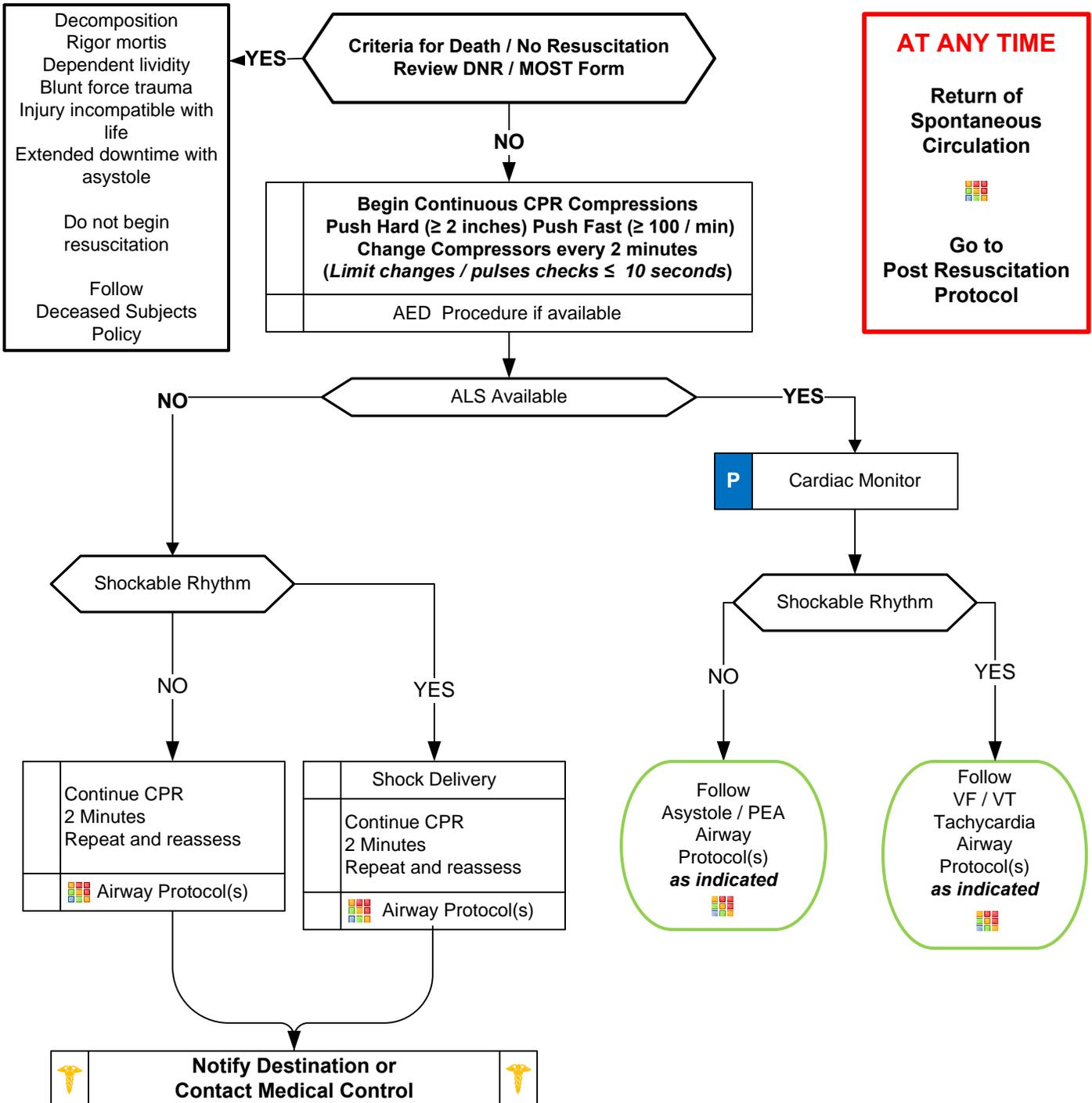
- Events leading to arrest
- Estimated downtime
- Past medical history
- Medications
- Existence of terminal illness

## Signs and Symptoms

- Unresponsive
- Apneic
- Pulseless

## Differential

- Medical vs. Trauma
- VF vs. Pulseless VT
- Asystole
- PEA
- Primary Cardiac event vs. Respiratory arrest or Drug Overdose



Adult Cardiac Section Protocols

# Cardiac Arrest; Adult

Notes:

## Pearls:

- **Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated. Consider early IO placement if available and / or difficult IV access anticipated.**
- **DO NOT HYPERVENTILATE: If no advanced airway (BIAD, ETT) compressions to ventilations are 30:2. If advanced airway in place ventilate 8 – 10 breaths per minute with continuous, uninterrupted compressions.**
- **Do not interrupt compressions to place endotracheal tube. Consider BIAD first to limit interruptions.**
- **Breathing / Airway management after second shock and / or 2 rounds of compressions (2 minutes each round.)**
- Success is based on proper planning and execution. Procedures require space and patient access. Make room to work. Consider Team Focused Approach assigning responders to predetermined tasks.
- Team Focused Approach / Pit-Crew Approach. Refer to optional protocol or development of local agency protocol.
- Reassess and document endotracheal tube placement and EtCO<sub>2</sub> frequently, after every move, and at transfer of care.
- **Maternal Arrest** - Treat mother per appropriate protocol with immediate notification to Medical Control and rapid transport preferably to obstetrical center if available and proximate. Place mother supine and perform Manual Left Uterine Displacement moving uterus to the patient's left side. IV/IO access preferably above diaphragm. Defibrillation is safe at all energy levels.
- Consider mechanical CPR (compression) device if available.
- Refer to Dialysis / Renal Failure protocol caveats when faced with dialysis / renal failure patient experiencing cardiac arrest.
- Consider Opioid Overdose: Naloxone 2 mg IM / IV / IO / IN. EMT-B may administer Naloxone via IN route only. May give from EMS supply.
- Follow manufacture's recommendations concerning defibrillation / cardioversion energy when specified.

## History

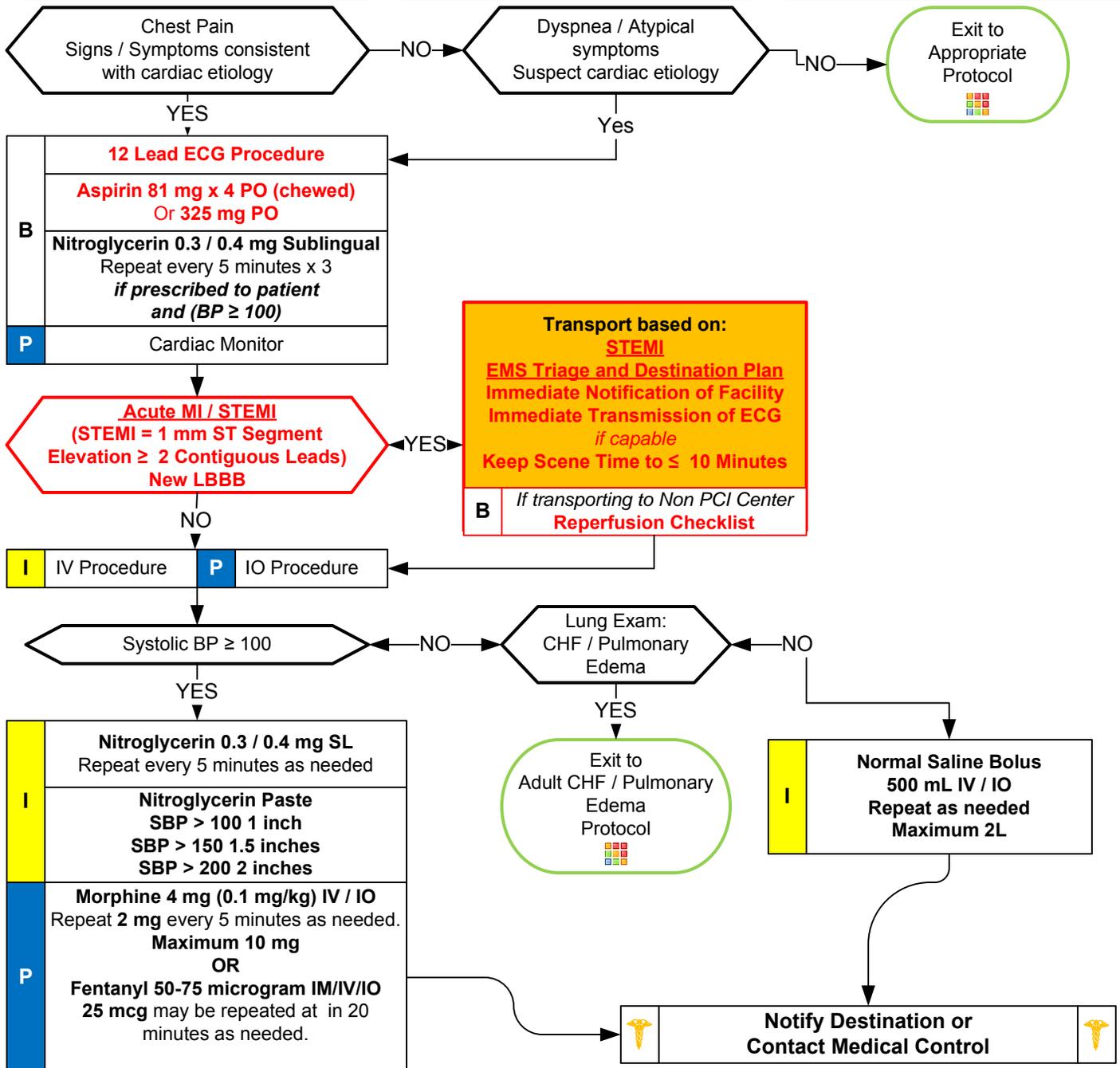
- Age
- Medications (Viagra / sildenafil, Levitra / vardenafil, Cialis / tadalafil)
- Past medical history (MI, Angina, Diabetes, post menopausal)
- Allergies
- Recent physical exertion
- Palliation / Provocation
- Quality (crampy, constant, sharp, dull, etc.)
- Region / Radiation / Referred
- Severity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

## Signs and Symptoms

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

## Differential

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



Adult Cardiac Section Protocols

# Chest Pain: Cardiac and STEMI

## Notes:

### Pearls

- **Recommended Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro**
- **Items in Red Text are the key performance indicators for the EMS Acute Cardiac (STEMI) Care Toolkit**
- Avoid Nitroglycerin in any patient who has used Viagra (sildenafil) or Levitra (vardenafil) in the past 24 hours or Cialis (tadalafil) in the past 36 hours due to potential severe hypotension.
- Patients with STEMI (ST-Elevation Myocardial Infarction) or positive Reperfusion Checklist should be transported to the appropriate facility based on STEMI EMS Triage and Destination Plan.
- If CHF / Cardiogenic shock resulting from inferior (II, III, aVF) MI, consider Right Sided ECG (V3 or V4). If ST elevation noted, nitroglycerin and / or opioids may cause hypotension requiring normal saline boluses.
- If patient has taken nitroglycerin without relief, consider potency of the medication.
- Monitor for hypotension after administration of nitroglycerin and narcotics (Morphine, Fentanyl, or Dilaudid).
- Nitroglycerin and opioids may be repeated per dosing guidelines.
- Diabetics, geriatric and female patients often have atypical pain, or only generalized complaints.
- Document the time of the 12-Lead ECG in the PCR as a Procedure along with the interpretation (EMT-P.)
- EMT-B may administer Nitroglycerin to patients already prescribed medication. May give from EMS supply.

### Disposition:

- EMS Transport: ALS:** All except listed those listed below  
**BLS:** Obvious chest wall pain with identifiable non-cardiac origin and SaO<sub>2</sub> >96% or Age < 30 with pleuritic or positional pain and SaO<sub>2</sub> >96%
- MD Within 4 Hours:** Isolated chest wall pain associated with injury and SaO<sub>2</sub> >96%

### History

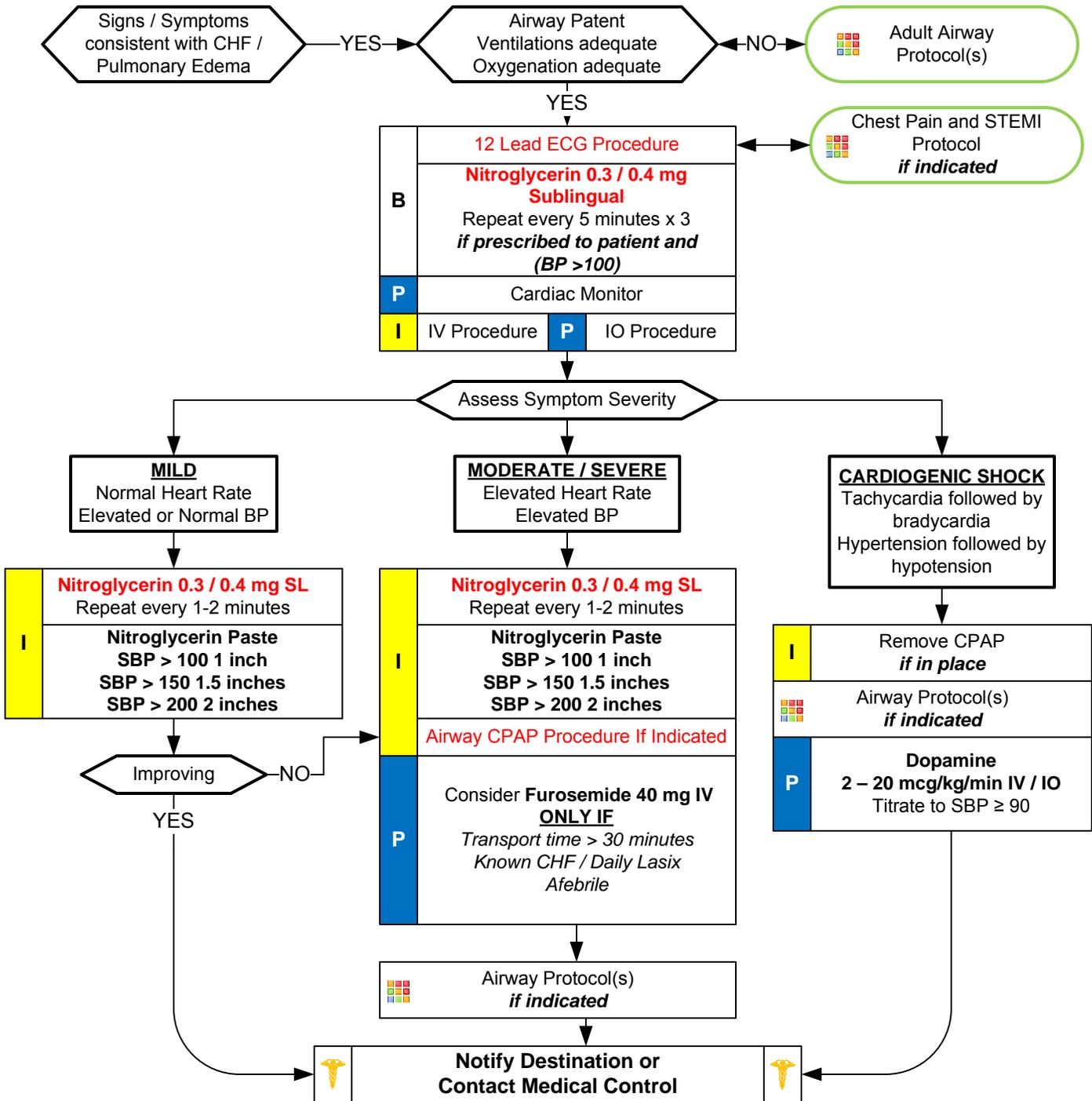
- Congestive heart failure
- Past medical history
- Medications (digoxin, Lasix, Viagra / sildenafil, Levitra / vardenafil, Cialis / tadalafil)
- Cardiac history --past myocardial infarction

### Signs and Symptoms

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

### Differential

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



# CHF / Pulmonary Edema

## Notes:

### Pearls

- **Recommended Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro**
- **Items in Red Text are key performance measures used to evaluate protocol compliance and care**
- **Furosemide and Opioids have NOT been shown to improve the outcomes of EMS patients with pulmonary edema. Even though this historically has been a mainstay of EMS treatment, it is no longer routinely recommended.**
- **Avoid Nitroglycerin in any patient who has used Viagra (sildenafil) or Levitra (vardenafil) in the past 24 hours or Cialis (tadalafil) in the past 36 hours due to potential severe hypotension.**
- **Carefully monitor the level of consciousness, BP, and respiratory status with the above interventions.**
- **If CHF / Cardiogenic shock resulting from inferior (II, III, aVF) MI, consider Right Sided ECG (V3 or V4). If ST elevation noted, nitroglycerin and / or opioids may cause hypotension requiring normal saline boluses.**
- If Nitro-paste is used, do not continue to use Nitroglycerin SL.
- If patient has taken their own nitroglycerin without relief, consider potency of the medication.
- Contraindications to opioids include severe COPD and respiratory distress. Monitor the patient closely.
- Consider myocardial infarction in all these patients. Diabetics, geriatric and female patients often have atypical pain, or only generalized complaints.
- Allow the patient to be in their position of comfort to maximize their breathing effort.
- Document CPAP application using the CPAP procedure in the PCR. Document 12 Lead ECG using the 12 Lead ECG procedure.
- **EMT-B may administer Nitroglycerin to patients already prescribed medication. May give from EMS supply.**

### Disposition:

EMS Transport:      ALS: All patients



# Adult Tachycardia Narrow Complex ( $\leq 0.11$ sec)



## History

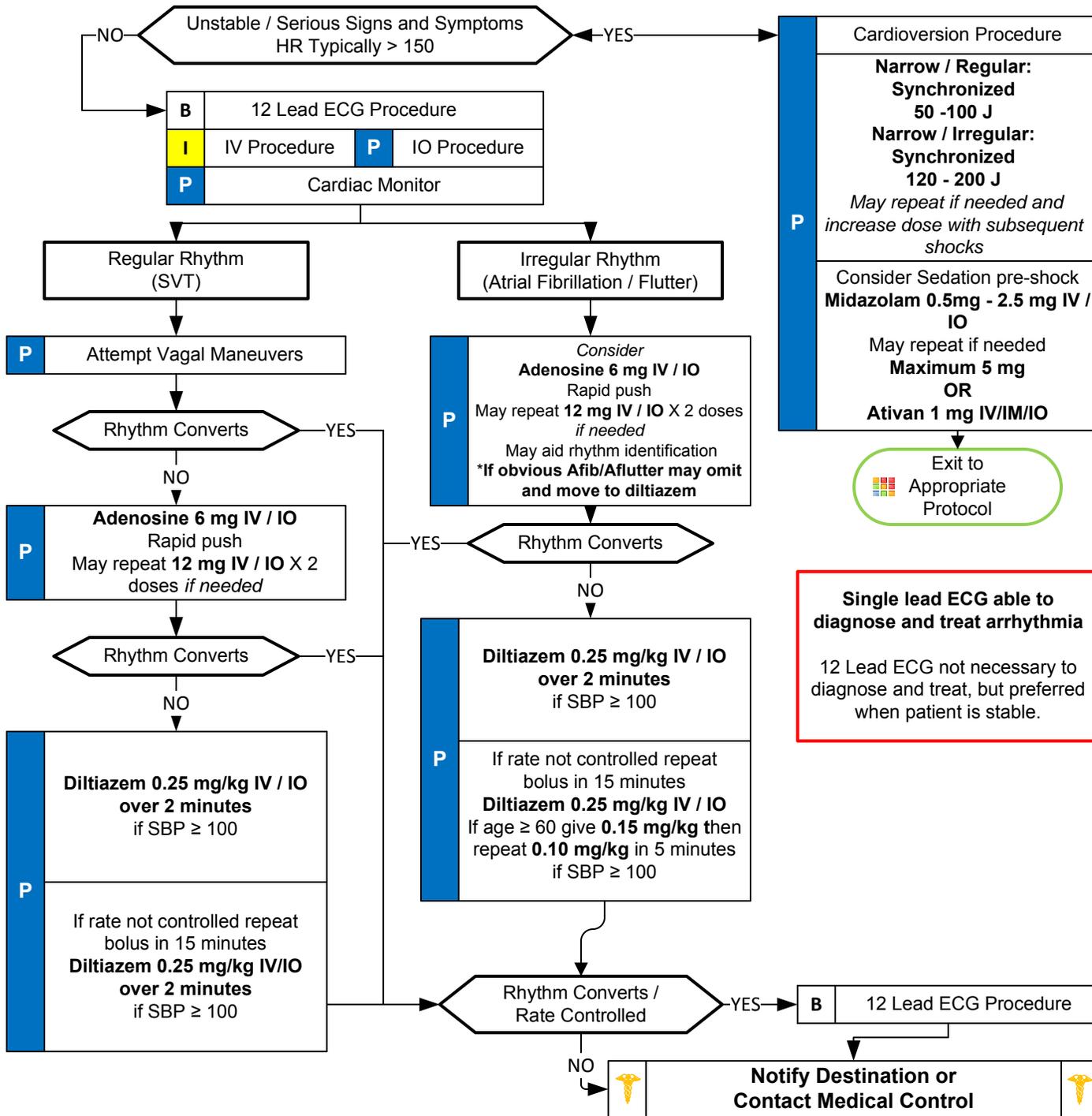
- Medications (Aminophylline, Diet pills, Thyroid supplements, Decongestants, Digoxin)
- Diet (caffeine, chocolate)
- Drugs (nicotine, cocaine)
- Past medical history
- History of palpitations / heart racing
- Syncope / near syncope

## Signs and Symptoms

- Heart Rate  $> 150$
- Systolic BP  $< 90$
- Dizziness, CP, SOB, AMS, Diaphoresis
- CHF
- Potential presenting rhythm
  - Atrial/Sinus tachycardia
  - Atrial fibrillation / flutter
  - Multifocal atrial tachycardia
  - Ventricular Tachycardia

## Differential

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



Adult Cardiac Section Protocols

## Protocol 16

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012

# Adult Tachycardia Narrow Complex ( $\leq 0.11$ sec)

## Notes:

### Pearls:

- **Recommended Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro**
- **Most important goal is to differentiate the type of tachycardia and if STABLE or UNSTABLE.**
- **If at any point patient becomes unstable move to unstable arm in algorithm.**
- **Symptomatic tachycardia usually occurs at rates of 120 -150 and typically  $\geq 150$  beats per minute. Patients symptomatic with heart rates  $< 150$  likely have impaired cardiac function such as CHF.**
- **Serious Signs / Symptoms:**  
Hypotension. Acutely altered mental status. Signs of shock / poor perfusion. Chest pain with evidence of ischemia (STEMI, T wave inversions or depressions.) Acute CHF.
- **Search for underlying cause of tachycardia such as fever, sepsis, dyspnea, etc.**
- **If patient has history or 12 Lead ECG reveals Wolfe Parkinson White (WPW), DO NOT administer a Calcium Channel Blocker (e.g. Diltiazem) or Beta Blockers. Use caution with Adenosine and give only with defibrillator available.**
- **Typical sinus tachycardia is in the range of 100 to (200 - patient's age) beats per minute.**
- **Regular Narrow-Complex Tachycardias:**  
Vagal maneuvers and adenosine are preferred. Vagal maneuvers may convert up to 25 % of SVT.  
Adenosine should be pushed rapidly via proximal IV site followed by 20 mL Normal Saline rapid flush.  
Agencies using both calcium channel blockers and beta blockers need choose one primarily. Giving the agents sequentially requires Contact of Medical Control. This may lead to profound bradycardia / hypotension.
- **Irregular Tachycardias:**  
First line agents for rate control are calcium channel blockers or beta blockers.  
Agencies using both calcium channel blockers and beta blockers need choose one primarily. Giving the agents sequentially requires Contact of Medical Control. This may lead to profound bradycardia / hypotension.  
Adenosine may not be effective in identifiable atrial fibrillation / flutter, yet is not harmful and may help identify rhythm.
- **Synchronized Cardioversion:**  
Recommended to treat UNSTABLE Atrial Fibrillation, Atrial Flutter and Monomorphic-Regular Tachycardia (VT.)
- **Monitor for hypotension after administration of Calcium Channel Blockers or Beta Blockers.**
- **Monitor for respiratory depression and hypotension associated with Midazolam.**
- **Continuous pulse oximetry is required for all SVT patients.**
- **Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.**

### Disposition:

**EMS Transport:**      **ALS:** All patients

## Protocol 16

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director



# Adult Tachycardia Wide Complex ( $\geq 0.12$ sec)



## History

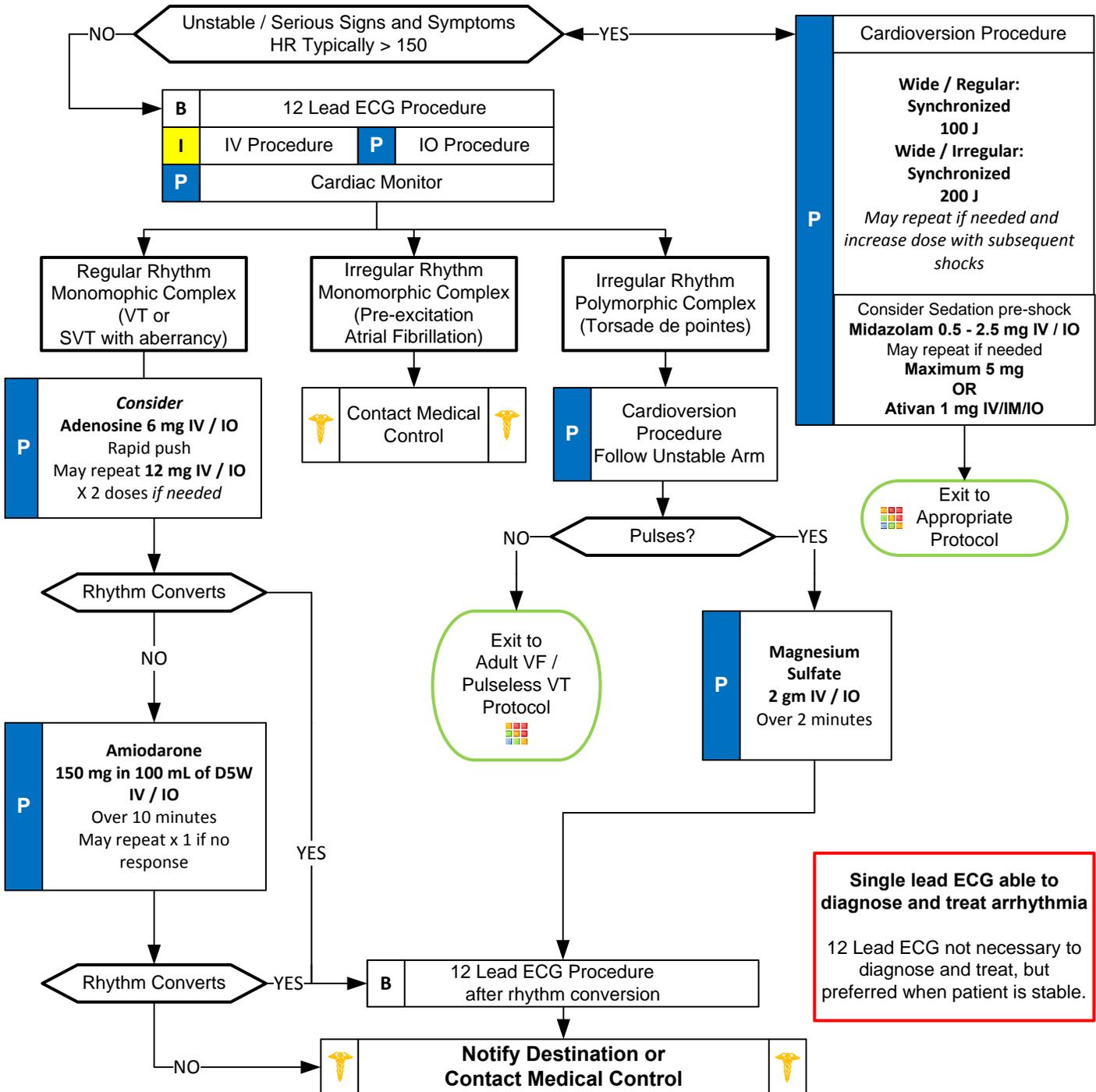
- Medications (Aminophylline, Diet pills, Thyroid supplements, Decongestants, Digoxin)
- Diet (caffeine, chocolate)
- Drugs (nicotine, cocaine)
- Past medical history
- History of palpitations / heart racing
- Syncope / near syncope

## Signs and Symptoms

- Heart Rate  $> 150$
- Systolic BP  $< 90$
- Dizziness, CP, SOB, AMS, Diaphoresis
- CHF
- Potential presenting rhythm
  - Atrial/Sinus tachycardia
  - Atrial fibrillation / flutter
  - Multifocal atrial tachycardia
  - Ventricular Tachycardia

## Differential

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



Adult Cardiac Section Protocols

## Protocol 17

Revised 8/13/2012

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012

# Adult Tachycardia

## Wide Complex ( $\geq 0.12$ sec)

### Notes:

### Pearls

- **Recommended Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro**
- **Most important goal is to differentiate the type of tachycardia and if STABLE or UNSTABLE.**
- **If at any point patient becomes unstable move to unstable arm in algorithm.**
- **Symptomatic tachycardia usually occurs at rates of 120 – 150 and typically  $\geq 150$  beats per minute. Patients symptomatic with heart rates  $< 150$  likely have impaired cardiac function such as CHF.**
- **Serious Signs / Symptoms:**
  - Hypotension. Acutely altered mental status. Signs of shock / poor perfusion. Chest pain with evidence of ischemia (STEMI, T wave inversions or depressions.) Acute congestive heart failure.
- Search for underlying cause of tachycardia such as fever, sepsis, dyspnea, etc.
- If patient has history or 12 Lead ECG reveals Wolfe Parkinson White (WPW), DO NOT administer a Calcium Channel Blocker (e.g., Diltiazem) or Beta Blockers. Use caution with Adenosine and give only with defibrillator available.
- Search for underlying cause of tachycardia such as fever, sepsis, dyspnea, etc.
- Typical sinus tachycardia is in the range of 100 to (220 – patients age) beats per minute.
- **Regular Wide-Complex Tachycardias:**
  - **Unstable condition:**
    - Immediate cardioversion or pre-cordial thump if defibrillator not available.
  - **Stable condition:**
    - Typically VT or SVT with aberrancy. Adenosine may be given if regular and monomorphic and if defibrillator available.
    - Verapamil contraindicated in wide-complex tachycardias.
    - Agencies using Amiodarone, Procainamide and Lidocaine need choose one agent primarily. Giving multiple anti-arrhythmics requires contact of medical control.
    - Atrial arrhythmias with WPW should be treated with Amiodarone or Procainamide
- **Irregular Tachycardias:**
  - Wide-complex, irregular tachycardia: Do not administer calcium channel or beta blockers, adenosine as this may cause paradoxical increase in ventricular rate. This will usually require cardioversion. Contact medical control.
- **Polymorphic / Irregular Tachycardia:**
  - This situation is usually unstable and immediate defibrillation is warranted.
  - When associated with prolonged QT this is likely Torsades de pointes: Give 2 gm of Magnesium Sulfate slow IV / IO.
  - Without prolonged QT likely related to ischemia and Magnesium may not be helpful.
- Monitor for respiratory depression and hypotension associated with Midazolam.
- Continuous pulse oximetry is required for all SVT Patients.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
- Follow manufacture's recommendations concerning defibrillation / cardioversion energy when specified.

### Disposition:

EMS Transport:      ALS: All patients



# Ventricular Fibrillation Pulseless Ventricular Tachycardia



## History

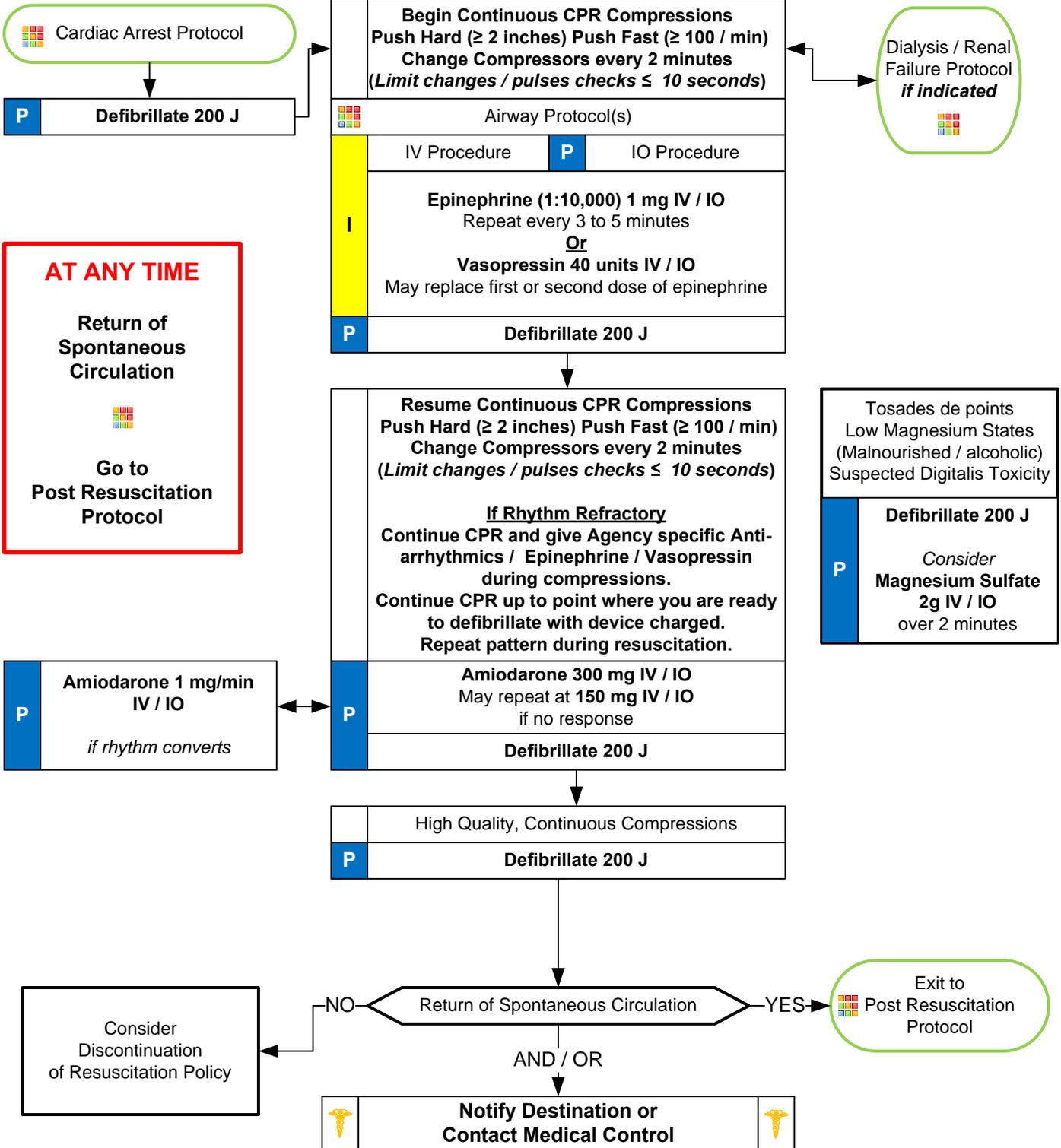
- Estimated down time
- Past Medical History
- Medications
- Events leading to arrest
- Renal failure / Dialysis
- DNR or MOST form

## Signs and Symptoms

- Unresponsive, apneic, pulseless
- Ventricular fibrillation or ventricular tachycardia on EKG

## Differential

- Asystole
- Artifact / Device Failure
- Cardiac
- Endocrine / Medicine
- Drugs
- Pulmonary



Adult Cardiac Section Protocols

## Protocol 18

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012

# Ventricular Fibrillation Pulseless Ventricular Tachycardia

## Notes:

### Pearls

- **Recommended Exam: Mental Status**
- **Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated. Consider early IO placement if available and difficult IV anticipated.**
- **DO NOT HYPERVENTILATE: If no advanced airway (BIAD, ETT) compressions to ventilations are 30:2. If advanced airway in place ventilate 8 – 10 breaths per minute with continuous, uninterrupted compressions.**
- Do not interrupt compressions to place endotracheal tube. Consider BIAD first to limit interruptions.
- Consider Breathing / Airway management after second shock and / or 2<sup>nd</sup> round of compressions (2 minutes each round.) If BVM is ventilating the patient successfully, intubation may be deferred until rhythm has changed or 4 or 5 defibrillation sequences have been completed.
- Avoid Procainamide in CHF or prolonged QT.
- Effective CPR and prompt defibrillation are the keys to successful resuscitation.
- If no IV / IO, drugs that can be given down ET tube should have dose doubled and then flushed with 5 ml of Normal Saline followed by 5 quick ventilations. IV / IO is the preferred route when available.
- Reassess and document endotracheal tube placement and EtCO<sub>2</sub> frequently, after every move, and at transfer of care.
- Do not stop CPR to check for placement of ET tube or to give medications.
- Return of spontaneous circulation: Heart rate should be > 60 when initiating anti-arrhythmic infusions.
- Sodium bicarbonate no longer recommended. Consider in the dialysis / renal patient, known hyperkalemia or tricyclic overdose at 50 mEq total IV / IO.

### Disposition:

**EMS Transport:**      **ALS:** All patients



# Post Resuscitation



## History

- Respiratory arrest
- Cardiac arrest

## Signs/Symptoms

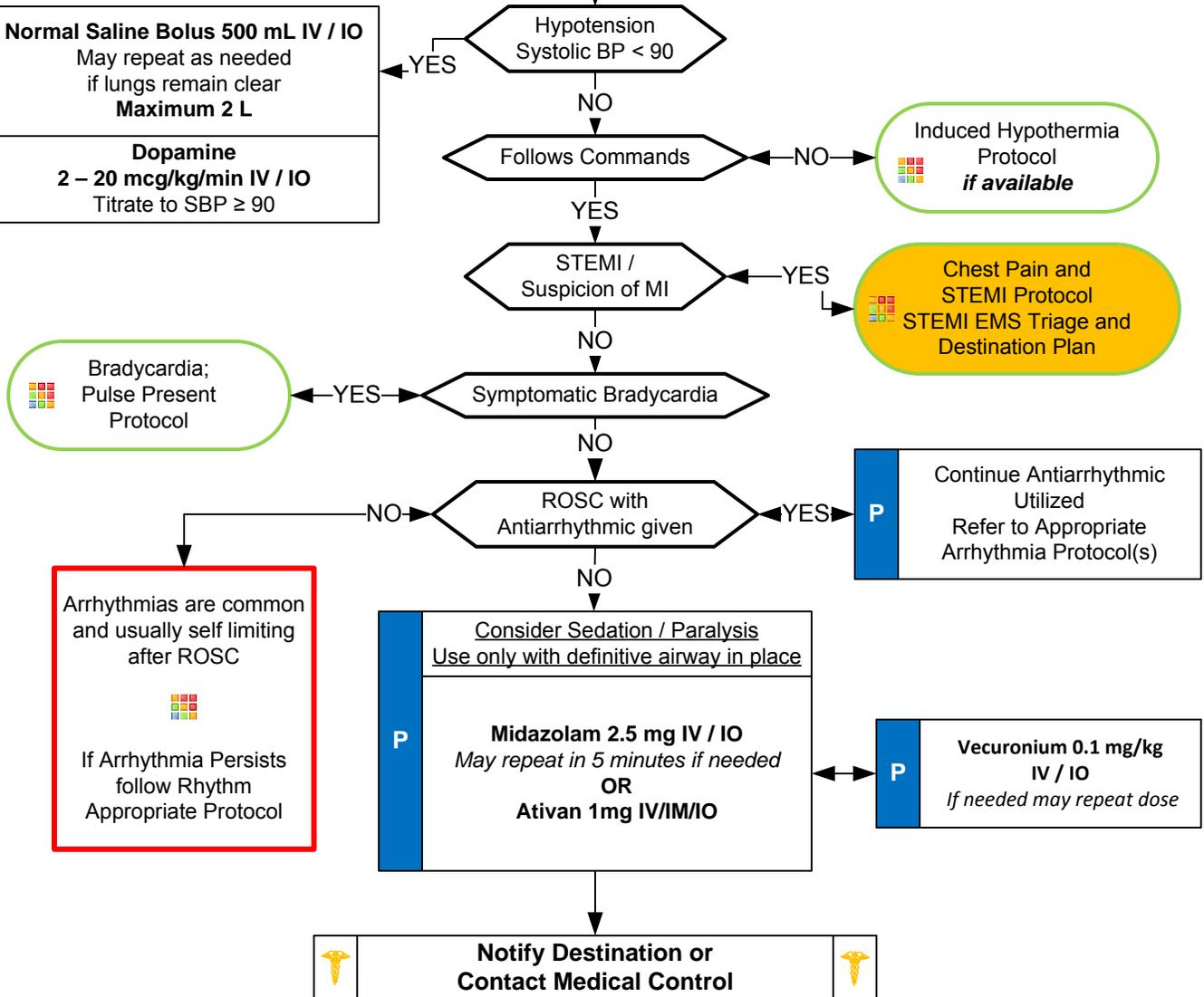
- Return of pulse

## Differential

- Continue to address specific differentials associated with the original dysrhythmia

Repeat Primary Assessment	
<b>B</b>	<b>Optimize Ventilation and Oxygenation</b> <ul style="list-style-type: none"> <li>• Maintain SpO2 ≥ 94 %</li> <li>• Advanced airway <i>if indicated</i></li> <li>• ETCO2 ideally 35 – 45 mm Hg</li> <li>• Respiratory Rate 8 – 12 / minute</li> <li>• Remove Impedance Threshold Device</li> <li>• <b>DO NOT HYPERVENTILATE</b></li> </ul>
<b>I</b>	IV Procedure <b>P</b> IO Procedure
<b>B</b>	12 Lead ECG Procedure
<b>P</b>	Cardiac Monitor
	Monitor Vital Signs / Reassess

<b>I</b>	<b>Normal Saline Bolus 500 mL IV / IO</b> May repeat as needed if lungs remain clear <b>Maximum 2 L</b>
<b>P</b>	<b>Dopamine</b> <b>2 – 20 mcg/kg/min IV / IO</b> Titrate to SBP ≥ 90



Adult Cardiac Section Protocols

# Post Resuscitation

## Notes:

### Pearls

- **Recommended Exam: Mental Status, Neck, Skin, Lungs, Heart, Abdomen, Extremities, Neuro**
- **Continue to search for potential cause of cardiac arrest during post-resuscitation care.**
- **Hyperventilation is a significant cause of hypotension and recurrence of cardiac arrest in the post resuscitation phase and must be avoided at all costs.**
- **Initial End tidal CO<sub>2</sub> may be elevated immediately post-resuscitation but will usually normalize. While goal is 35 – 45 mm Hg avoid hyperventilation.**
- **Consider transport to facility capable of managing the post-arrest patient including hypothermia therapy, cardiac catheterization and intensive care service.**
- Most patients immediately post resuscitation will require ventilatory assistance.
- The condition of post-resuscitation patients fluctuates rapidly and continuously, and they require close monitoring. Appropriate post-resuscitation management may best be planned in consultation with medical control.
- Common causes of post-resuscitation hypotension include hyperventilation, hypovolemia, pneumothorax, and medication reaction to ALS drugs.
- Titrate Dopamine or other vasopressors to maintain SBP  $\geq$  90. Ensure adequate fluid resuscitation is ongoing.

### Disposition:

EMS Transport: ALS: All patients

### History

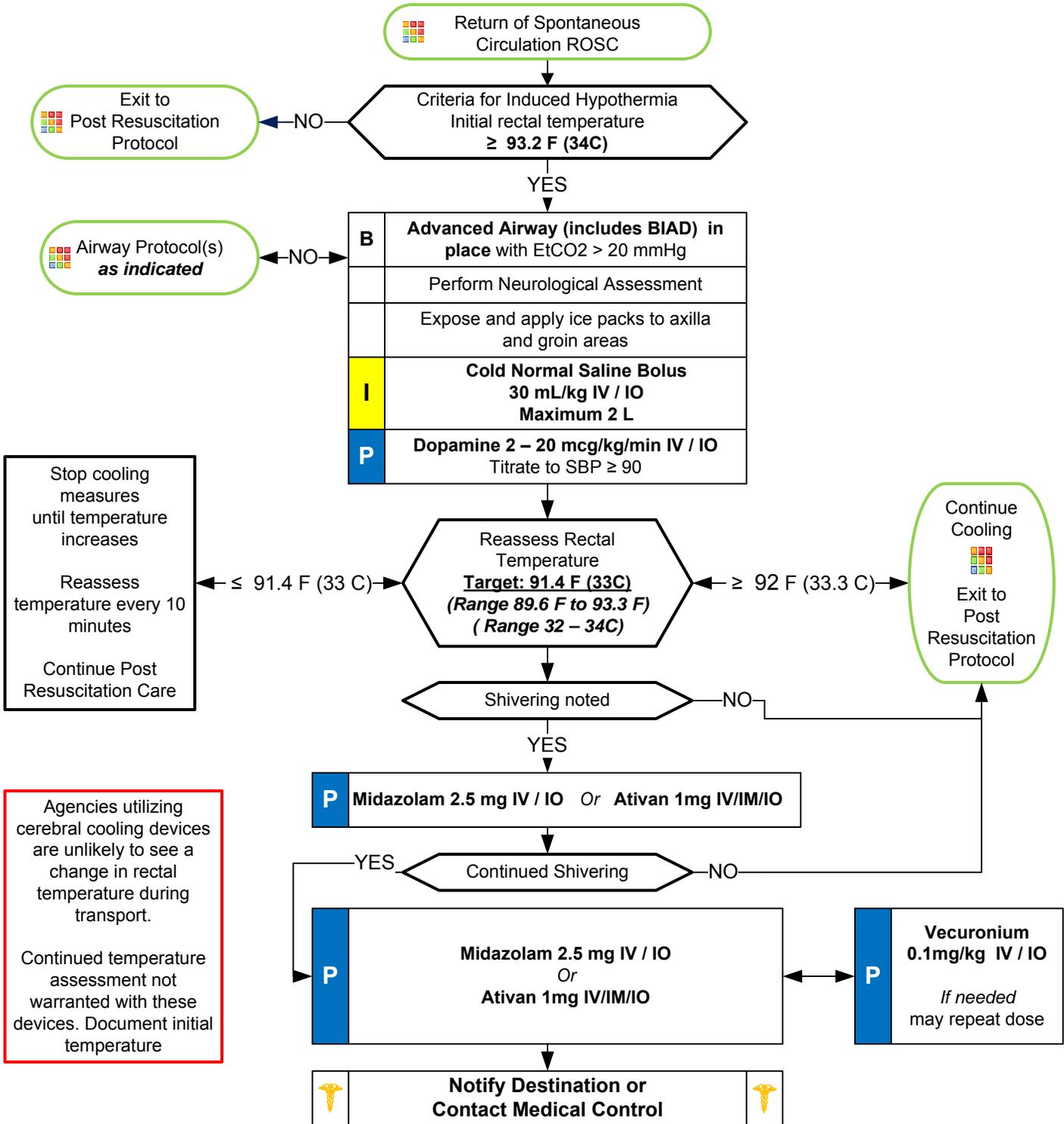
- Non-traumatic cardiac arrests (drownings and hanging / asphyxiation are permissible in this protocol.)
- All presenting rhythms are permissible in this protocol
- Age 18 or greater

### Signs and Symptoms

- Cardiac arrest
- Return of Spontaneous Circulation post-cardiac arrest

### Differential

- Continue to address specific differentials associated with the arrhythmia



# Induced Hypothermia (Optional)

## Notes:

### Pearls

- **Criteria for Induced Hypothermia:**
  - Return of spontaneous circulation not related to blunt / penetrating trauma or hemorrhage.
  - Temperature greater than 93 degrees (34 C).
  - Advanced airway (including BIAD) in place with no purposeful response to verbal commands.
- Do not delay transport to initiate induced hypothermia.
- Hyperventilation is a significant cause of hypotension and recurrence of cardiac arrest in the post resuscitation phase and must be avoided at all costs.
- Initial End tidal CO<sub>2</sub> may be elevated immediately post-resuscitation but will usually normalize. While goal is 35 – 45 mm Hg avoid hyperventilation.
- Utilization of this protocol mandates transport to facility capable of managing the post-arrest patient and continuation of induced hypothermia therapy.
- If no advanced airway in place obtained, cooling may only be initiated on order from medical control.
- Maintain patient modesty. Undergarments may remain in place during cooling.
- Monitor advance airway frequently, especially after any movement of patient.

### Disposition:

EMS Transport:      ALS: All patients

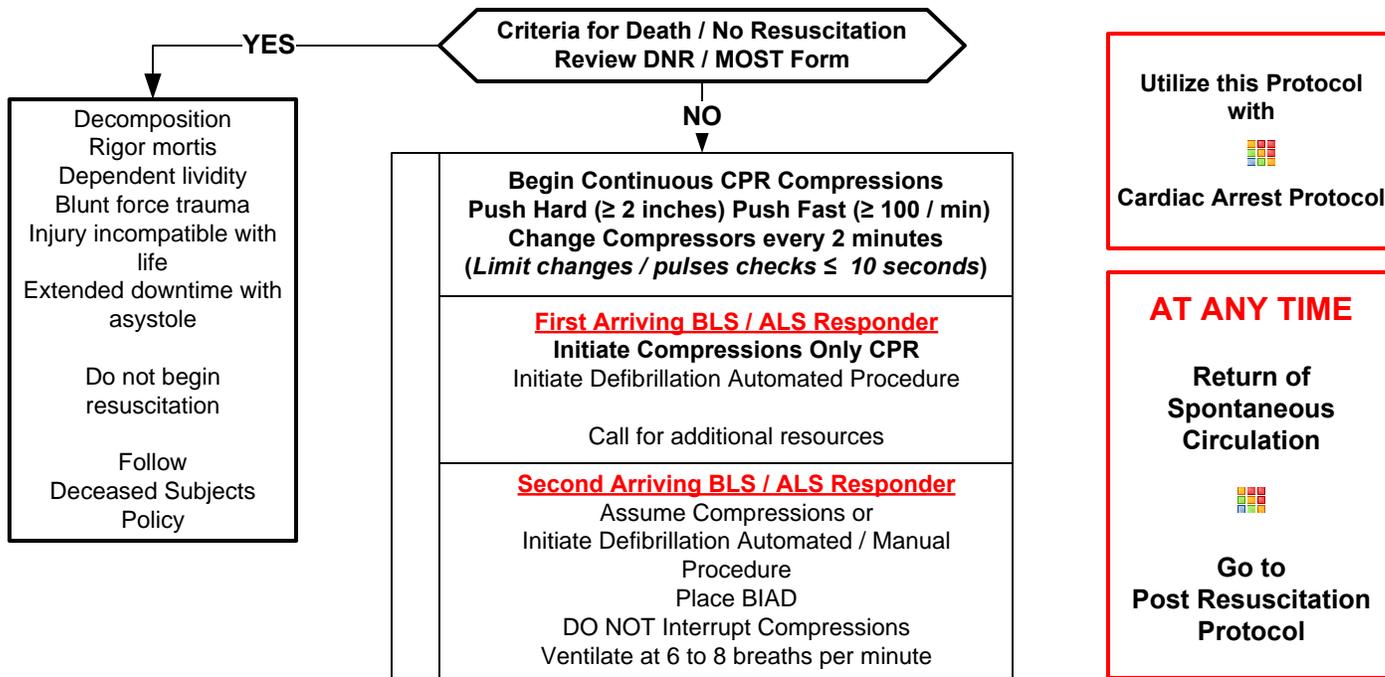
## Protocol 20

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director

2012



# Team Focused CPR



**Establish Team Leader**  
 (Hierarchy)  
 EMT-B  
 First Arriving Responder

**Rotate with Compressor**  
 To prevent Fatigue and effect high quality compressions  
 Take direction from Team Leader

**Fourth / Subsequent Arriving Responders**  
 Take direction from Team Leader

**Continue Cardiac Arrest Protocol**

**Establish Team Leader**  
 (Hierarchy)  
 EMS ALS Personnel  
 EMT-B  
 First Arriving Responder

**I**  
 Initiate Defibrillation Automated Procedure  
 Establish IV / IO  
 Administer Appropriate Medications  
 Establish Airway with BIAD if not in place

**P**  
 Initiate Defibrillation Manual Procedure  
 Continuous Cardiac Monitoring  
 Establish IV / IO  
 Administer Appropriate Medications  
 Establish Airway with BIAD if not in place

**Continue Cardiac Arrest Protocol**

**Team Leader**  
 ALS Personnel  
 Responsible for patient care  
 Responsible for briefing / counseling family

**Incident Commander**  
 EMS Supervisor  
 Fire Department / First Responder Officer  
 Team Leader until ALS arrival  
 Manages Scene / Bystanders  
 Ensures high-quality compressions  
 Ensures frequent compressor change  
 Responsible for briefing family prior to ALS arrival

Adult Cardiac Section Protocols

## Protocol 21

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012

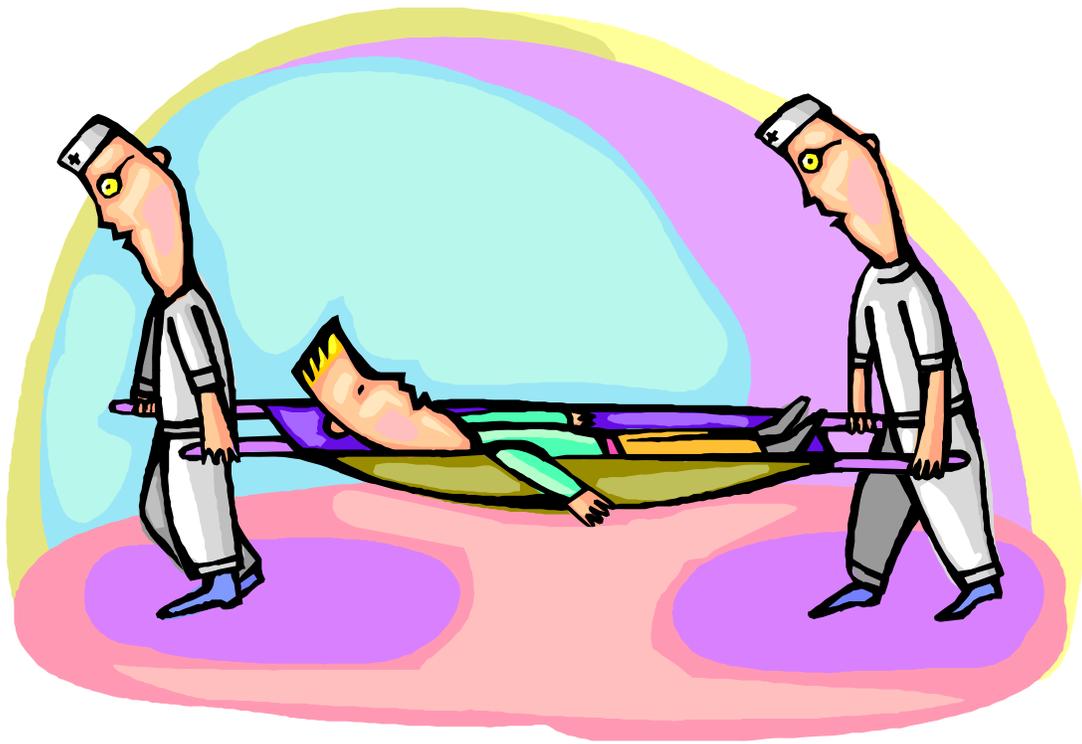
# Team Focused CPR

Notes:

## Pearls

- Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated. Consider early IO placement if available and difficult IV anticipated.
- **DO NOT HYPERVENTILATE:** If no advanced airway (BIAD, ETT) compressions to ventilations are 30:2. If advanced airway in place ventilate 8 – 10 breaths per minute.
- Do not interrupt compressions to place endotracheal tube. Consider BIAD first to limit interruptions.
- Success is based on proper planning and execution. Procedures require space and patient access. Make room to work.

# Adult Medical





# Abdominal Pain



## History

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

## Signs and Symptoms

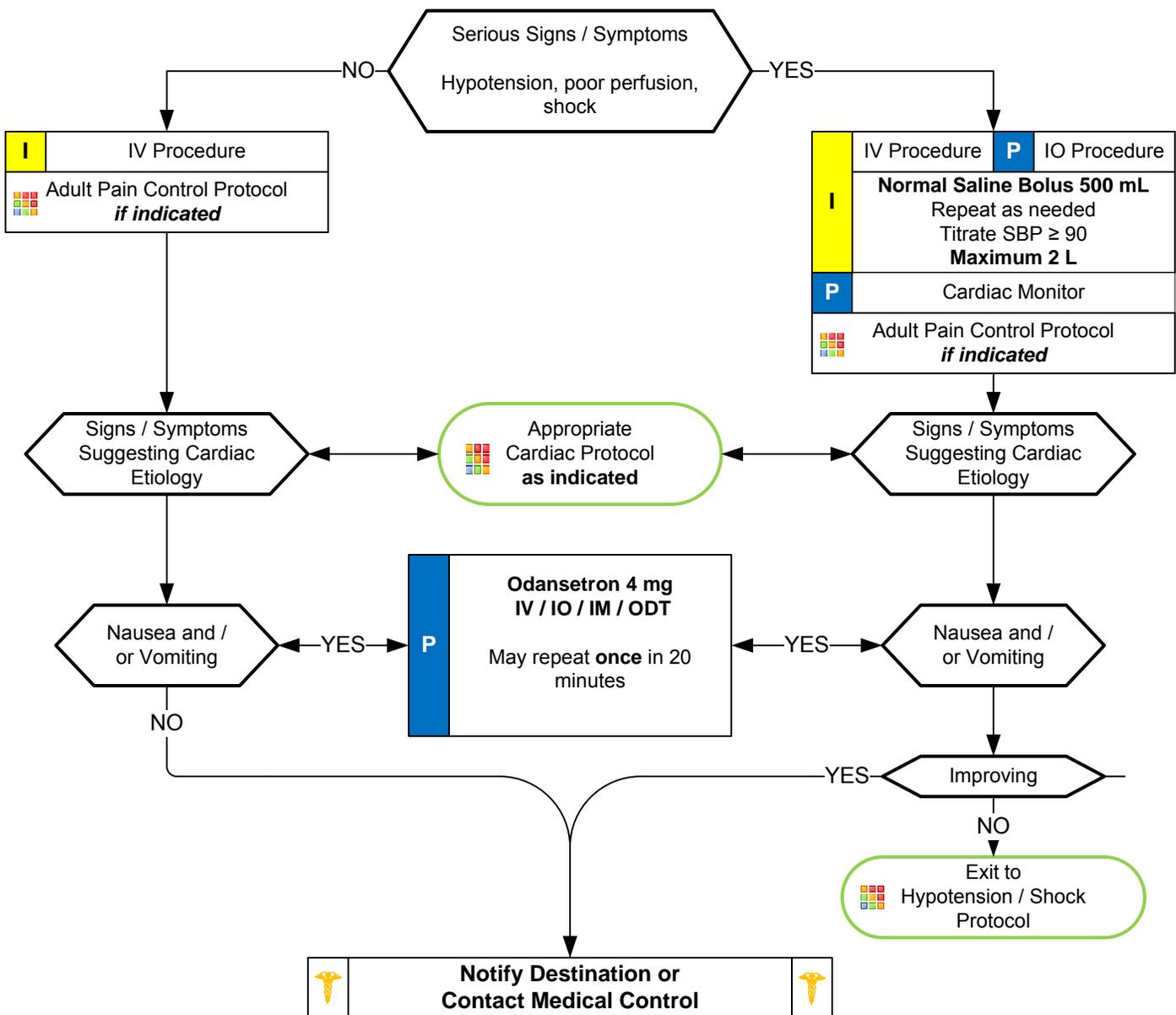
- Pain (location / migration)
- Tenderness
- Nausea
- Vomiting
- Diarrhea
- Dysuria
- Constipation
- Vaginal bleeding / discharge
- Pregnancy

### Associated symptoms: (Helpful to localize source)

Fever, headache, weakness, malaise, myalgias, cough, headache, mental status changes, rash

## Differential

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



Adult Medical Section Protocols

## Protocol 23

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012

# Abdominal Pain

## Notes:

## Pearls:

- **Recommended Exam: Mental Status, Skin, HEENT, Neck, Heart, Lung, Abdomen, Back, Extremities, Neuro**
- Document the mental status and vital signs prior to administration of anti-emetics
- Abdominal pain in women of childbearing age should be treated as pregnancy related until proven otherwise.
- Antacids should be avoided in patients with renal disease.
- The diagnosis of abdominal aneurysm should be considered with abdominal pain especially in patients over 50 and / or patients with shock/ poor perfusion.
- Repeat vital signs after each fluid bolus.
- Consider cardiac etiology in patients > 50, diabetics and / or women especially with upper abdominal complaints.

## Disposition:

### EMS Transport:

**ALS:** All patients with orthostatic changes or potential for cardiac, CNS, renal, traumatic, or diabetic ketoacidosis etiologies. All patients who receive Morphine.

### MD Within 4 Hours:

**BLS:** No Orthostatic changes and does not fit criteria below  
Age >5 or <50, resolved abdominal pain with no associated symptoms and no orthostatic changes, and normal vital signs unless otherwise directed by paramedic-MD consultation.

## Protocol 23

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director



# Allergic Reaction / Anaphylaxis



## History

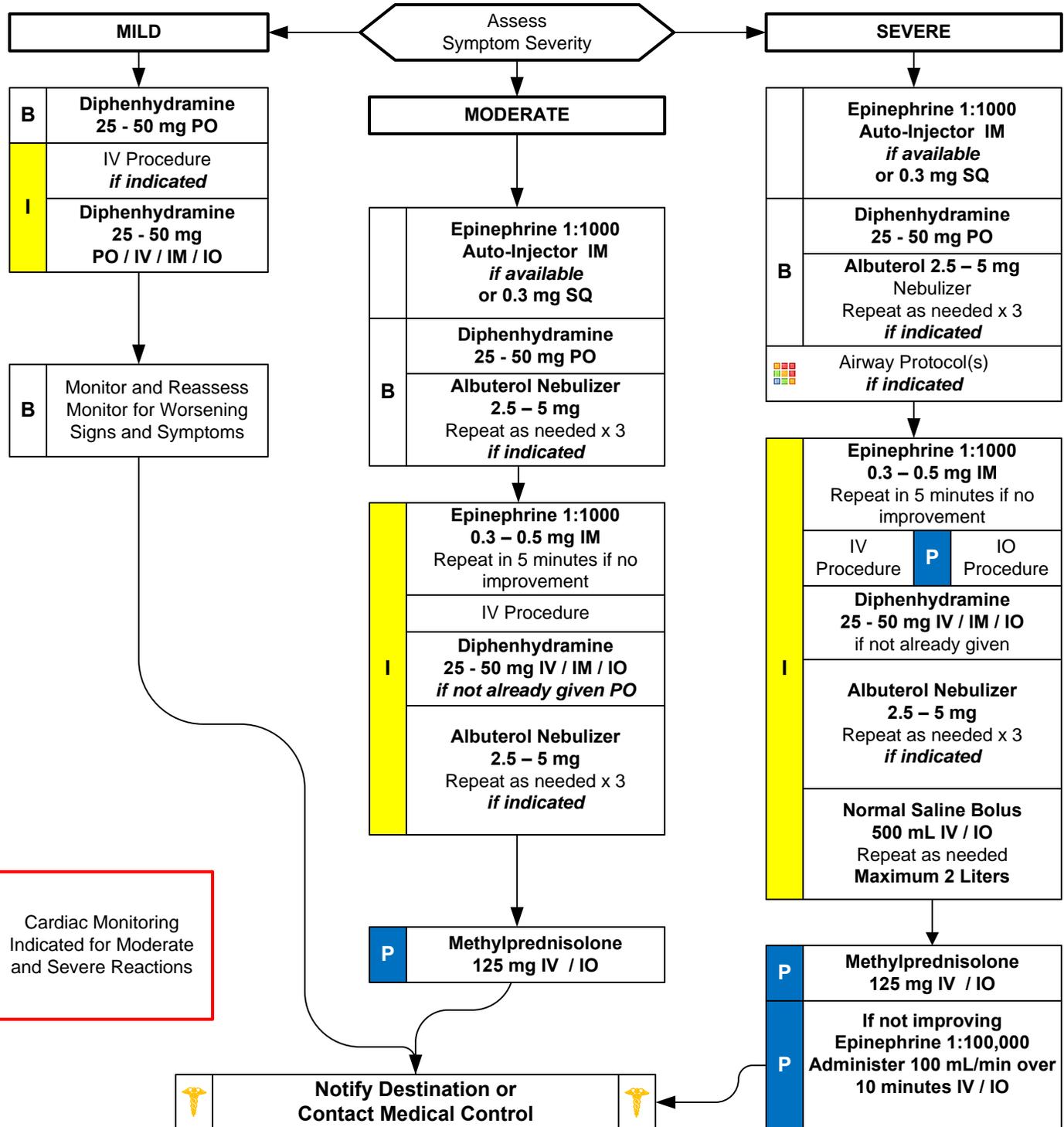
- Onset and location
- Insect sting or bite
- Food allergy / exposure
- Medication allergy / exposure
- New clothing, soap, detergent
- Past history of reactions
- Past medical history
- Medication history

## Signs and Symptoms

- Itching or hives
- Coughing / wheezing or respiratory distress
- Chest or throat constriction
- Difficulty swallowing
- Hypotension or shock
- Edema
- N/V

## Differential

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



Cardiac Monitoring Indicated for Moderate and Severe Reactions

Adult - Medical Protocol Section

# Allergic Reaction / Anaphylaxis

## Notes:

## Pearls:

- **Recommended Exam: Mental Status, Skin, Heart, Lungs**
- **Anaphylaxis is an acute and potentially lethal multisystem allergic reaction.**
- **Epinephrine is the drug of choice and the first drug that should be administered in acute anaphylaxis (Moderate / Severe Symptoms.)**
- **Anaphylaxis unresponsive to repeat doses of IM epinephrine may require IV epinephrine administration by IV push or epinephrine infusion.**
- **Symptom Severity Classification:**
  - Mild symptoms:**  
Flushing, hives, itching, erythema with normal blood pressure and perfusion.
  - Moderate symptoms:**  
Flushing, hives, itching, erythema plus respiratory (wheezing, dyspnea, hypoxia) or gastrointestinal symptoms (nausea, vomiting, abdominal pain) with normal blood pressure and perfusion.
  - Severe symptoms:**  
Flushing, hives, itching, erythema plus respiratory (wheezing, dyspnea, hypoxia) or gastrointestinal symptoms (nausea, vomiting, abdominal pain) with hypotension and poor perfusion.
- Allergic reactions may occur with only respiratory and gastrointestinal symptoms and have no rash / skin involvement.
- Angioedema is seen in moderate to severe reactions and is swelling involving the face, lips or airway structures. This can also be seen in patients taking blood pressure medications like Prinivil / Zestril (lisinopril)-typically end in -il.
- Patients who are  $\geq 50$  years of age, have a history of cardiac disease, take Beta-Blockers / Digoxin or patient's who have heart rates  $\geq 150$  give one-half the dose of epinephrine (0.15 – 0.25 mg of 1:1000.) Epinephrine may precipitate cardiac ischemia. These patients should receive a 12 lead ECG at some point in their care, but this should NOT delay administration of epinephrine.
- MR / EMT-B may administer Epinephrine IM as Auto-injector or if approved by Medical Director through the local credentialing process may administer 0.3mg SQ and may administer from EMS supply.
- EMT-B may administer diphenhydramine by oral route only and may administer from EMS supply.
- EMT-B may administer Albuterol if patient already prescribed and may administer from EMS supply.
- Any patient with respiratory symptoms or extensive reaction should receive IV or IM diphenhydramine.
- The shorter the onset from symptoms to contact, the more severe the reaction.

## Disposition:

**EMS Transport:** **ALS:** All patients who exhibit abnormal vital signs, facial swelling, and/or receive Epinephrine

**BLS:** Increased rash, not improved with Diphenhydramine  
Persistent (or recurrent) rash

**MD Within 24 Hours:** Rash with no associated symptoms and responsive to Diphenhydramine, Consult with MD



# Altered Mental Status



## History

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

## Signs and Symptoms

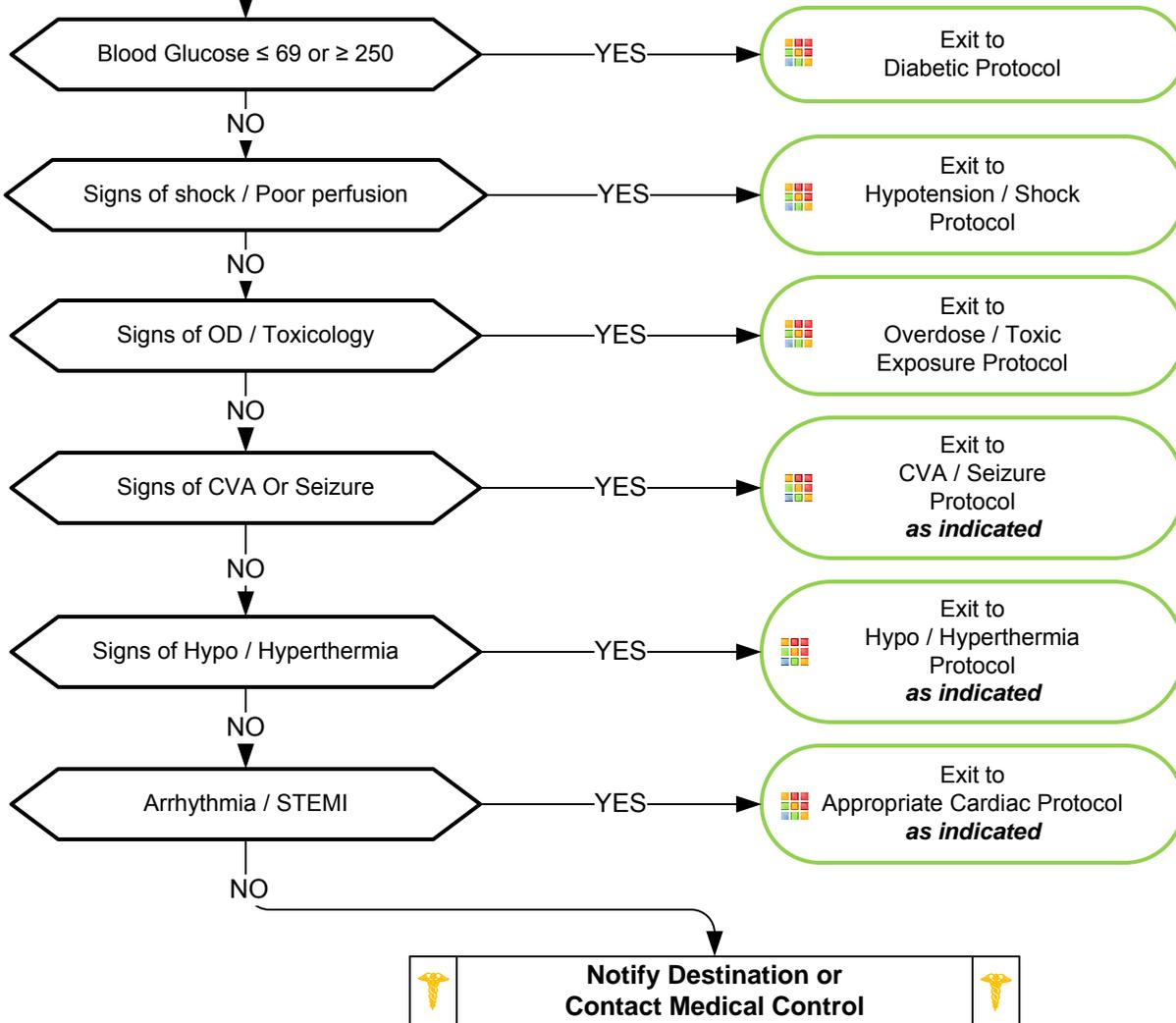
- Decreased mental status or lethargy
- Change in baseline mental status
- Bizarre behavior
- Hypoglycemia (cool, diaphoretic skin)
- Hyperglycemia (warm, dry skin; fruity breath; Kussmaul respirations; signs of dehydration)
- Irritability

## Differential

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

Airway Protocol(s) <i>if indicated</i>	
	Blood Glucose Analysis Procedure
<b>B</b>	12 Lead ECG Procedure
<b>I</b>	IV Procedure <b>P</b> IO Procedure

Utilize Spinal Immobilization Protocol where circumstances suggest a mechanism of injury.



Adult Medical Section Protocols

## Protocol 25

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012

# Altered Mental Status

## Notes:

## Pearls

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



# Adult COPD / Asthma



## History

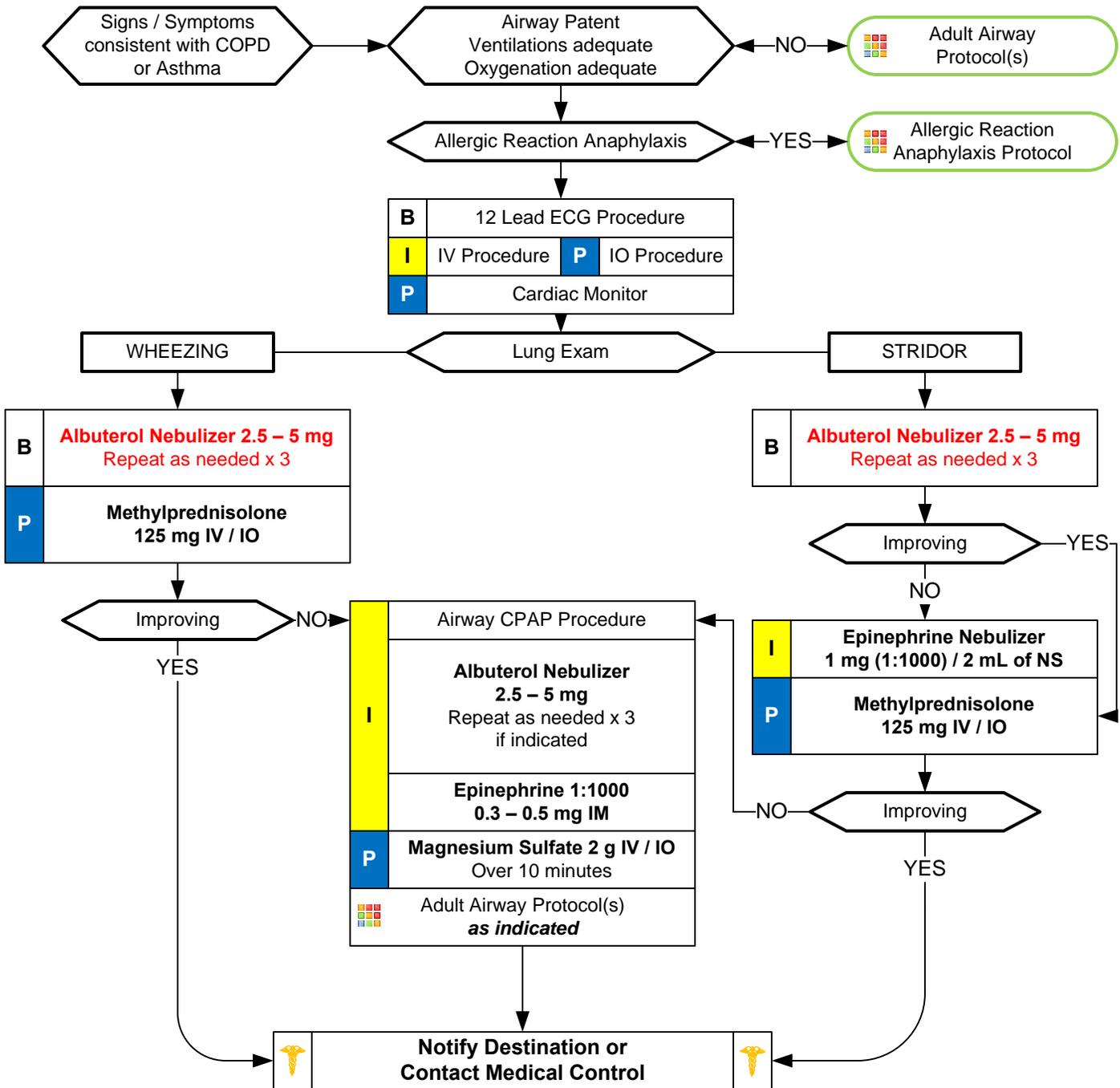
- Asthma; COPD -- chronic bronchitis, emphysema, congestive heart failure
- Home treatment (oxygen, nebulizer)
- Medications (theophylline, steroids, inhalers)
- Toxic exposure, smoke inhalation

## Signs and Symptoms

- Shortness of breath
- Pursed lip breathing
- Decreased ability to speak
- Increased respiratory rate and effort
- Wheezing, rhonchi
- Use of accessory muscles
- Fever, cough
- Tachycardia

## Differential

- Asthma
- Anaphylaxis
- Aspiration
- COPD (Emphysema, Bronchitis)
- Pleural effusion
- Pneumonia
- Pulmonary embolus
- Pneumothorax
- Cardiac (MI or CHF)
- Pericardial tamponade
- Hyperventilation
- Inhaled toxin (Carbon monoxide, etc.)



Adult Medical Section Protocols

# Adult COPD / Asthma

Notes:

## Pearls:

- **Recommended Exam: Mental Status, HEENT, Skin, Neck, Heart, Lungs, Abdomen, Extremities, Neuro**
- **Items in Red Text are key performance measures used to evaluate protocol compliance and care**
- **Patients who are  $\geq 50$  years of age, have a history of cardiac disease, take Beta-Blockers / Digoxin or patient's who have heart rates  $\geq 150$  give one-half the dose of epinephrine (0.15 – 0.25 mg of 1:1000.) Epinephrine may precipitate cardiac ischemia. These patients should receive a 12 lead ECG at some point in their care, but this should NOT delay administration of epinephrine.**
- **Pulse oximetry should be monitored continuously.**
- ETCO<sub>2</sub> should be used when Respiratory Distress is significant and does not respond to initial Beta-Agonist dose.
- A silent chest in respiratory distress is a pre-respiratory arrest sign.
- **EMT-B may administer Albuterol if patient already prescribed and may administer from EMS supply.** Agency medical director may require Contact of Medical Control prior to administration.

**Disposition:** EMS Transport: ALS: With a Hx of respiratory distress  
Any patient with stridor and all patients other than below  
BLS: Pulse oximetry > 96%, speaking comfortably post Albuterol, and no retractions  
MD Within 4 Hours: Asymptomatic post Albuterol, history of respiratory disease AND there is a responsible adult present who will stay with the patient.



# Diabetic; Adult



## History

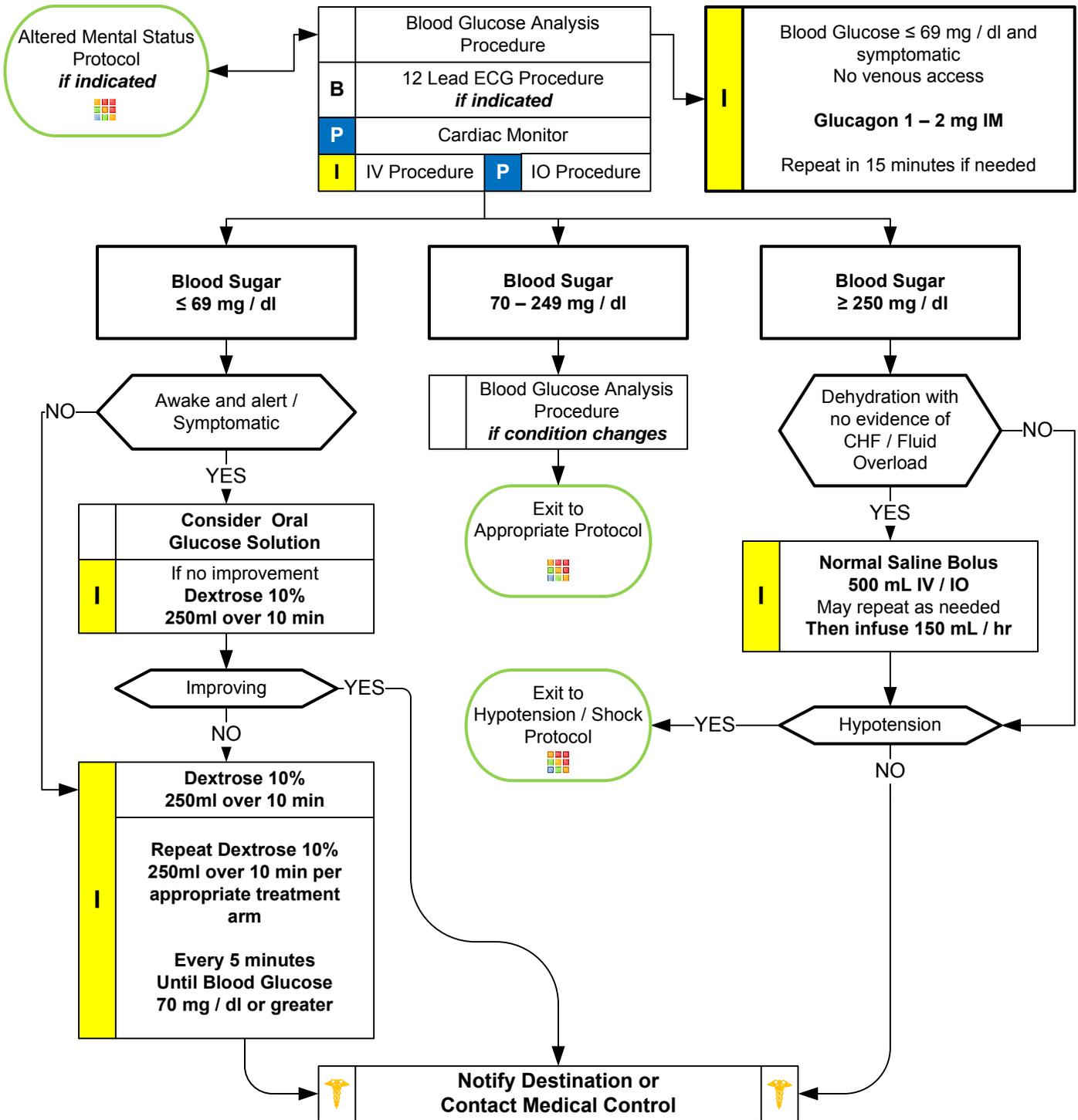
- Past medical history
- Medications
- Recent blood glucose check
- Last meal

## Signs and Symptoms

- Altered mental status
- Combative / irritable
- Diaphoresis
- Seizures
- Abdominal pain
- Nausea / vomiting
- Weakness
- Dehydration
- Deep / rapid breathing

## Differential

- Alcohol / drug use
- Toxic ingestion
- Trauma; head injury
- Seizure
- CVA
- Altered baseline mental status.



# Diabetic; Adult

## Notes:

### Pearls

- **Recommended exam: Mental Status, Skin, Respirations and effort, Neuro.**
- Patients with prolonged hypoglycemia may not respond to glucagon.
- Do not administer oral glucose to patients that are not able to swallow or protect their airway.
- In extreme circumstances with no IV and no response to glucagon, Dextrose may be administered rectally. Contact Medical Control for advice.
- Quality control checks should be maintained per manufacturers recommendation for all glucometers.
- **Patients refusing transport to medical facility after treatment of hypoglycemia:**
- **Oral Agents:**  
Patients taking oral diabetic medications should be strongly encouraged to allow transportation to a medical facility. They are at risk of recurrent hypoglycemia that can be delayed for hours and require close monitoring even after normal blood glucose is established. Not all oral agents have prolonged action so Contact Medical Control for advice. Patients who meet criteria to refuse care should be instructed to contact their physician immediately and consume a meal.
- **Insulin Agents:**  
Many forms of insulin now exist. Longer acting insulin places the patient at risk of recurrent hypoglycemia even after a normal blood glucose is established. Not all insulins have prolonged action so Contact Medical Control for advice. Patients who meet criteria to refuse care should be instructed to contact their physician immediately and consume a meal.

### Disposition:

**EMS Transport:**

**ALS:** All patients other than listed below

**BLS:** Hypoglycemia with normal exam post Dextrose

### History

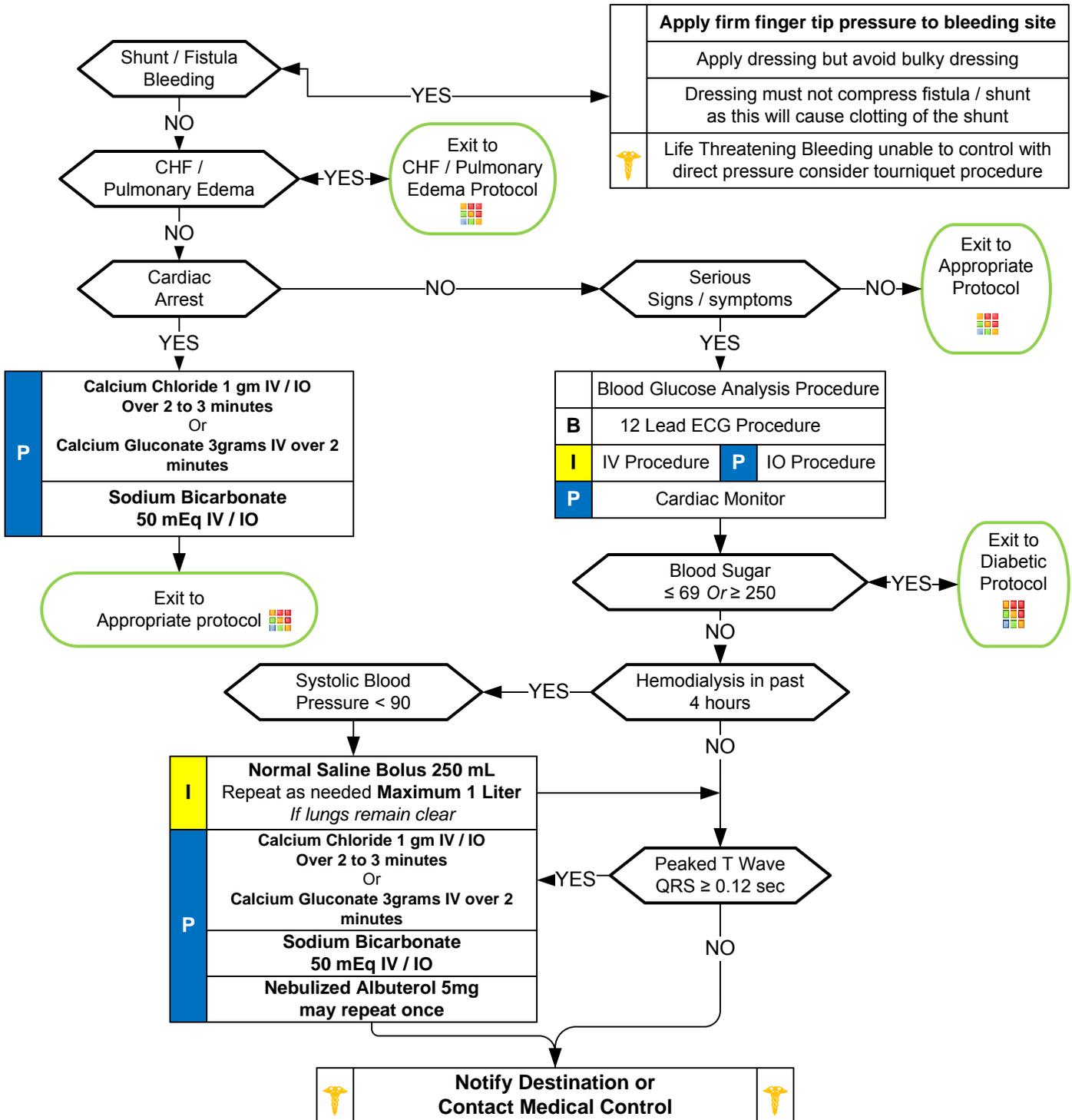
- Peritoneal or Hemodialysis
- Anemia
- Catheter access noted
- Shunt access noted
- Hyperkalemia

### Signs and Symptoms

- Hypotension
- Bleeding
- Fever
- Electrolyte imbalance
- Nausea and / or vomiting
- Altered Mental Status
- Seizure
- Arrhythmia

### Differential

- Congestive heart failure
- Pericarditis
- Diabetic emergency
- Sepsis
- Cardiac tamponade



Adult Medical Section Protocols

## Protocol 28

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

# Dialysis / Renal Failure

## Notes:

## Pearls:

- **Recommended exam: Mental status. Neurological. Lungs. Heart.**
- **Do not take Blood Pressure or start IV in extremity which has a shunt / fistula in place.**
- **Access of shunt indicated in the dead or near-dead patient only with no other available access. IO if available.**
- **Use of tourniquet with uncontrolled dialysis fistula bleeding requires Contact of Medical Control.**
- Always consider Hyperkalemia in all dialysis or renal failure patients.
- Sodium Bicarbonate and Calcium Chloride / Gluconate should not be mixed. Ideally give in separate lines.
- Renal dialysis patients have numerous medical problems typically. Hypertension and cardiac disease are prevalent.

## Disposition:

**EMS Transport: ALS:** All patients



# Hypertension



## History

- Documented Hypertension
- Related diseases: Diabetes; CVA; Renal Failure; Cardiac Problems
- Medications for Hypertension
- Compliance with Hypertensive Medications
- Erectile Dysfunction medications
- Pregnancy

## Signs and Symptoms

### One of these

- Systolic BP 220 or greater
- Diastolic BP 120 or greater

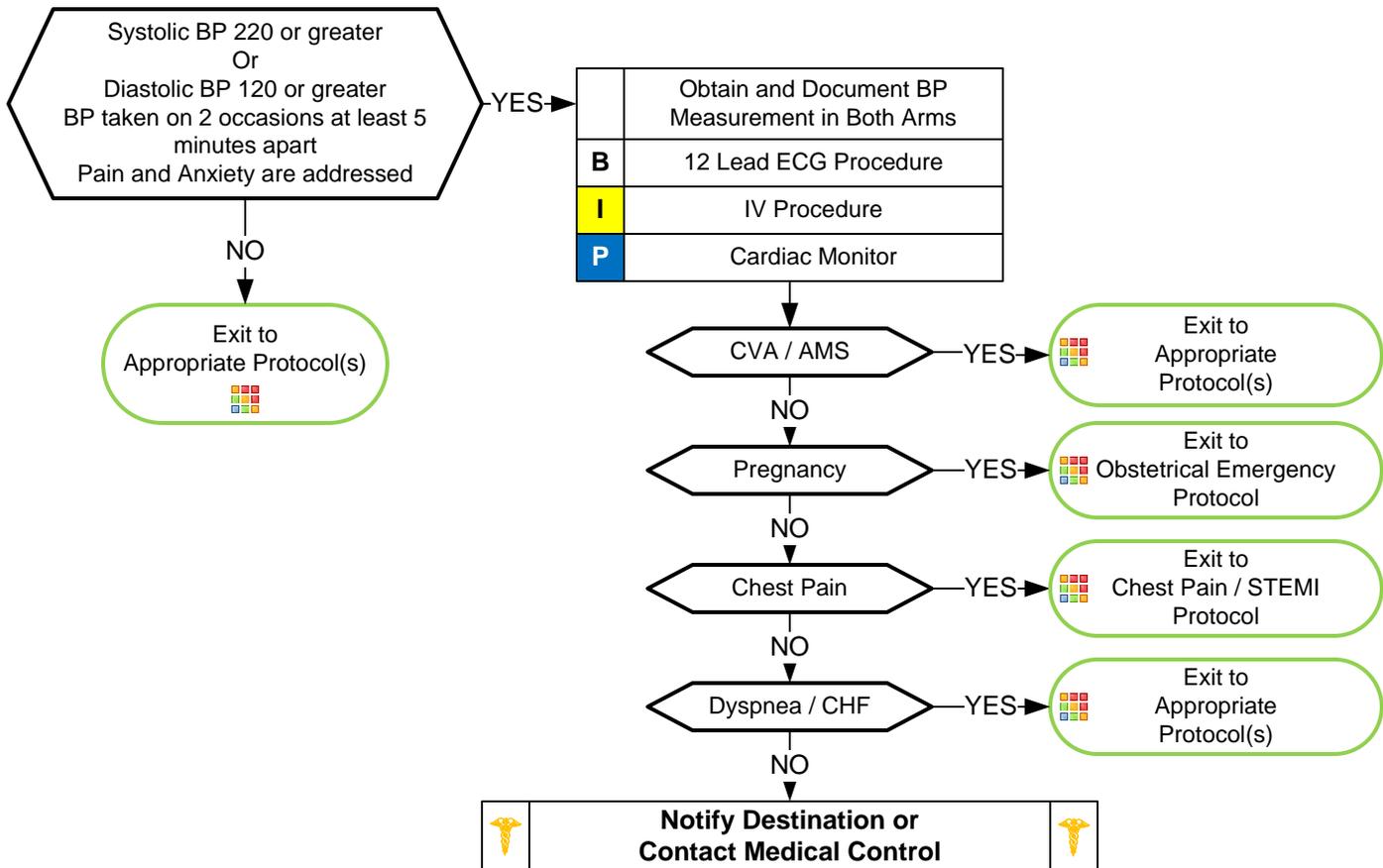
### AND at least one of these

- Headache
- Chest Pain
- Dyspnea
- Altered Mental Status
- Seizure

## Differential

- Hypertensive encephalopathy
- Primary CNS Injury  
Cushing's Response with Bradycardia and Hypertension
- Myocardial Infarction
- Aortic Dissection / Aneurysm
- Pre-eclampsia / Eclampsia

Hypertension is not uncommon especially in an emergency setting. Hypertension is usually transient and in response to stress and / or pain. A hypertensive emergency is based on blood pressure along with symptoms which suggest an organ is suffering damage such as MI, CVA or renal failure. This is very difficult to determine in the pre-hospital setting in most cases. Aggressive treatment of hypertension can result in harm. Most patients, even with significant elevation in blood pressure, need only supportive care. Specific complaints such as chest pain, dyspnea, pulmonary edema or altered mental status should be treated based on specific protocols and consultation with Medical Control.



Adult Medical Section Protocols

## Pearls

- **Recommended Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro**
- Elevated blood pressure is based on two to three sets of vital signs.
- Symptomatic hypertension is typically revealed through end organ dysfunction to the cardiac, CNS or renal systems.
- All symptomatic patients with hypertension should be transported with their head elevated at 30 degrees.
- Ensure appropriate size blood pressure cuff utilized for body habitus.

## Disposition:

EMS Transport:

ALS: All patients

## Protocol 29

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012

## History

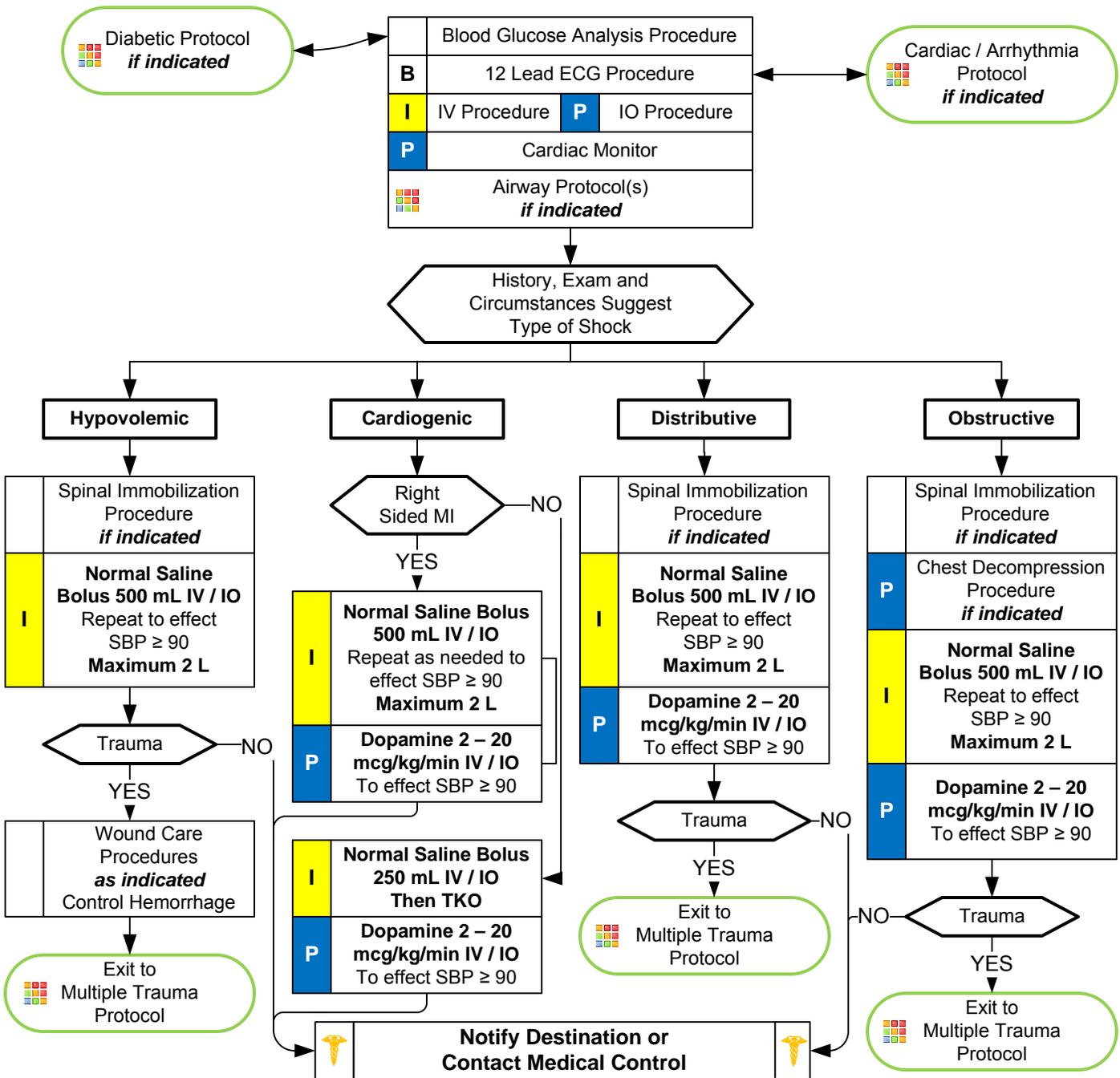
- Blood loss - vaginal or gastrointestinal bleeding, AAA, ectopic
- Fluid loss - vomiting, diarrhea, fever
- Infection
- Cardiac ischemia (MI, CHF)
- Medications
- Allergic reaction
- Pregnancy
- History of poor oral intake

## Signs and Symptoms

- Restlessness, confusion
- Weakness, dizziness
- Weak, rapid pulse
- Pale, cool, clammy skin
- Delayed capillary refill
- Hypotension
- Coffee-ground emesis
- Tarry stools

## Differential

- Shock
  - Hypovolemic
  - Cardiogenic
  - Septic
  - Neurogenic
  - Anaphylactic
- Ectopic pregnancy
- Dysrhythmias
- Pulmonary embolus
- Tension pneumothorax
- Medication effect / overdose
- Vasovagal
- Physiologic (pregnancy)



# Hypotension / Shock

## Notes:

## Pearls:

- **Recommended Exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro**
- Hypotension can be defined as a systolic blood pressure of less than 90. This is not always reliable and should be interpreted in context and patients typical BP if known. Shock may be present with a normal blood pressure initially.
- Shock often is present with normal vital signs and may develop insidiously. Tachycardia may be the only manifestation.
- Consider all possible causes of shock and treat per appropriate protocol.
- **Hypovolemic Shock:**  
Hemorrhage, trauma, GI bleeding, prolonged vomiting or diarrhea, ruptured aortic aneurysm or pregnancy-related bleeding.
- **Cardiogenic Shock:**  
Heart failure: MI, Cardiomyopathy, Myocardial contusion, Ruptured ventricle / septum / valve..
- **Distributive Shock:**  
Sepsis  
Anaphylactic  
Neurogenic: Hallmark is warm, dry, pink skin with normal capillary refill time and typically alert.  
Toxins
- **Obstructive Shock:**  
Pericardial tamponade. Pulmonary embolus. Tension pneumothorax.  
Signs may include hypotension with distended neck veins, tachycardia, unilateral decreased breath sounds or muffled heart sounds.
- **Acute Adrenal Insufficiency:** State where body cannot produce enough steroids (glucocorticoids / mineralocorticoids.) May have primary adrenal disease or more commonly have stopped a steroid like prednisone. Usually hypotensive with nausea, vomiting, dehydration and / or abdominal pain. If suspected EMT-P should give Methylprednisolone 125 mg IV / IO. May use steroid agent specific to your drug list.
- For non-cardiac, non-trauma hypotension, Dopamine should only be started after 2 liters of NS have been given.

## Disposition:

**EMS Transport:**      **ALS:** All patients

## Protocol 30

Revised  
11/19/12

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director



# Overdose / Toxic Ingestion



## History

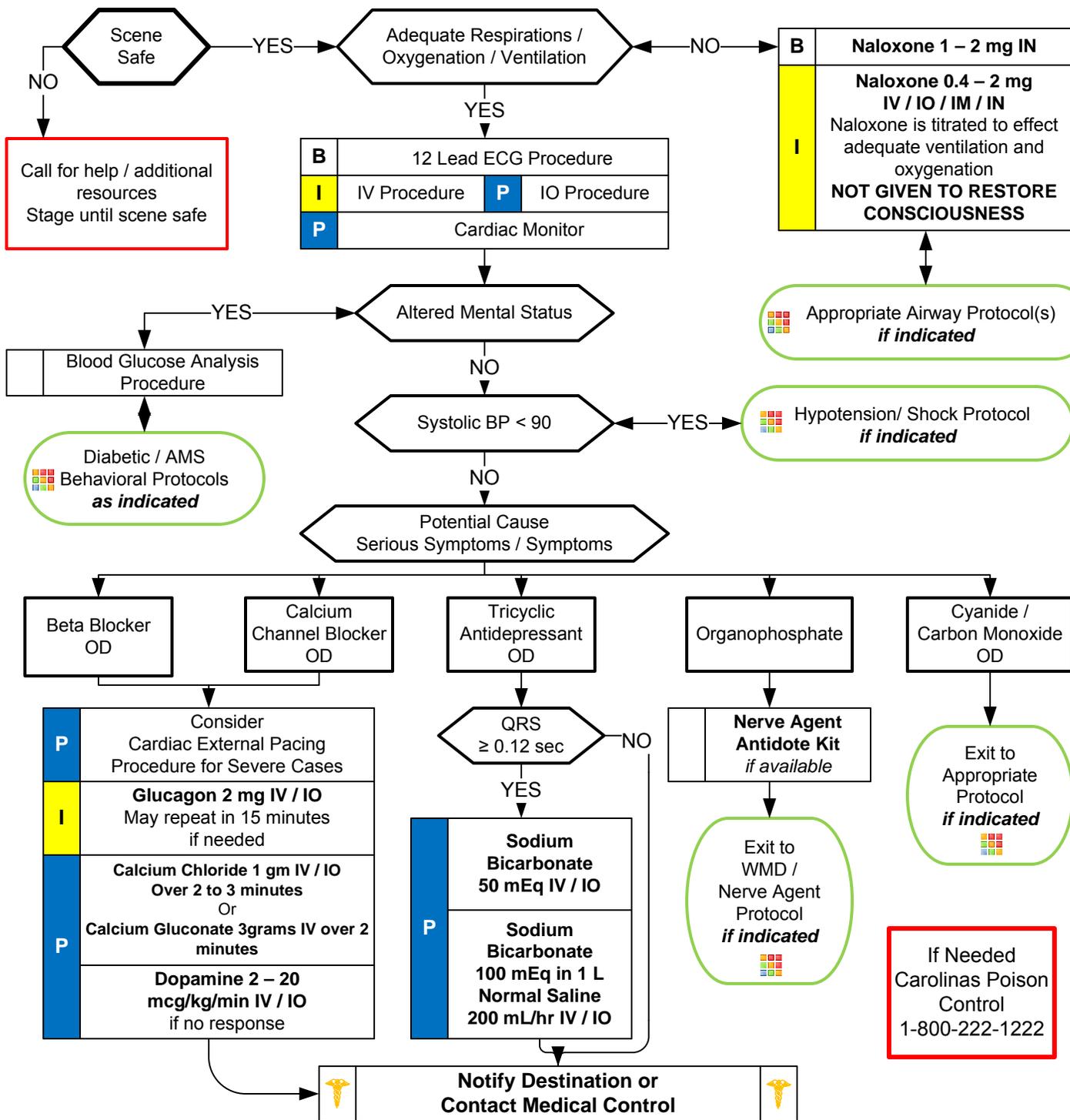
- Ingestion or suspected ingestion of a potentially toxic substance
- Substance ingested, route, quantity
- Time of ingestion
- Reason (suicidal, accidental, criminal)
- Available medications in home
- Past medical history, medications

## Signs and Symptoms

- Mental status changes
- Hypotension / hypertension
- Decreased respiratory rate
- Tachycardia, dysrhythmias
- Seizures
- S.L.U.D.G.E.
- D.U.M.B.B.E.L.S

## Differential

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



Adult Medical Section Protocols

# Overdose / Toxic Ingestion

## Notes:

### Pearls

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

### Disposition:

**EMS Transport:**      **ALS:** All patients unless cleared by medical control



# Seizure



## History

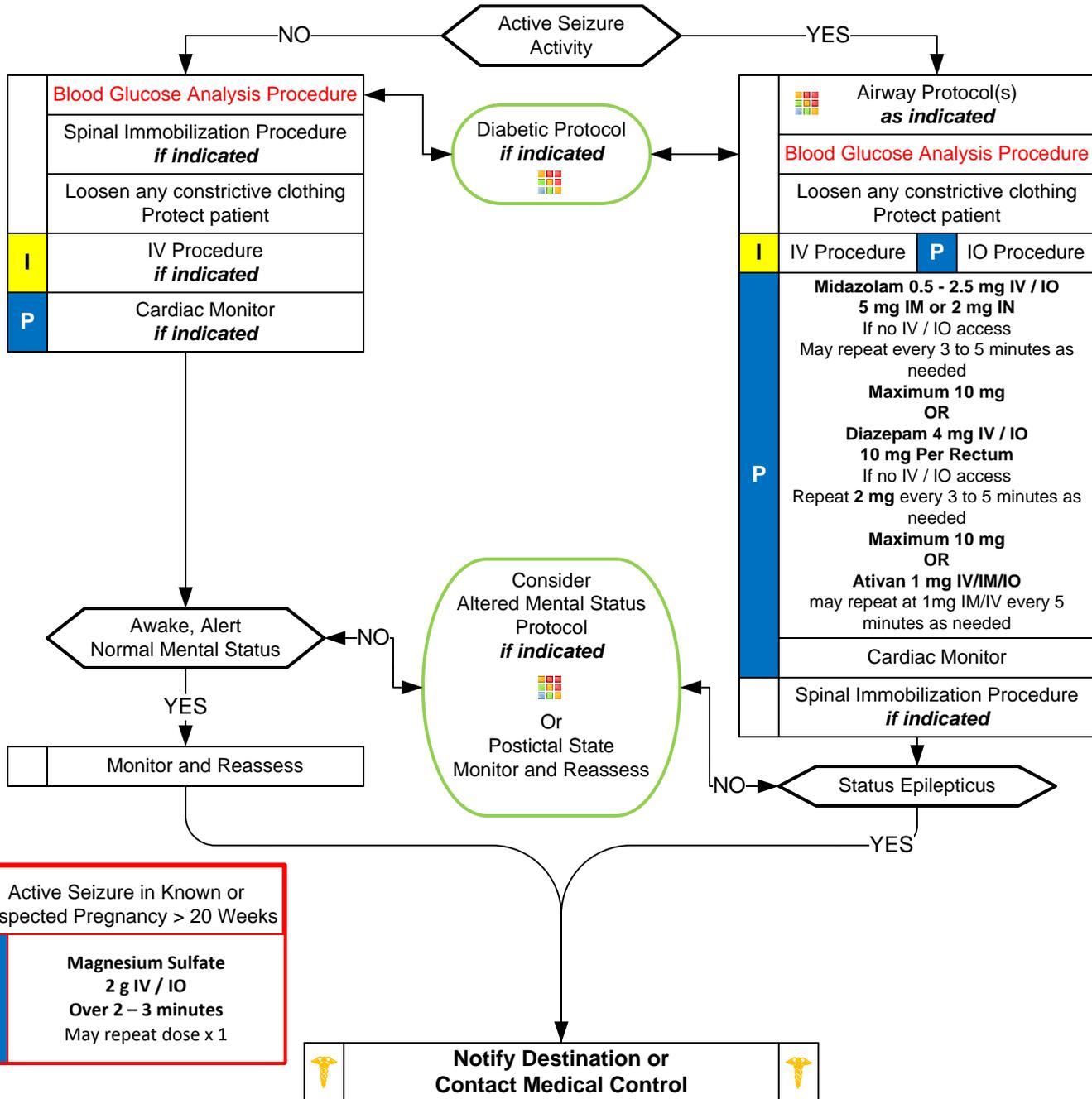
- Reported / witnessed seizure activity
- Previous seizure history
- Medical alert tag information
- Seizure medications
- History of trauma
- History of diabetes
- History of pregnancy
- Time of seizure onset
- Document number of seizures
- Alcohol use, abuse or abrupt cessation
- Fever

## Signs and Symptoms

- Decreased mental status
- Sleepiness
- Incontinence
- Observed seizure activity
- Evidence of trauma
- Unconscious

## Differential

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



Adult Medical Section Protocols

## Protocol 32

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012

# Seizure

## Notes:

### Pearls

- **Recommended Exam: Mental Status, HEENT, Heart, Lungs, Extremities, Neuro**
- **Items in Red Text are key performance measures used to evaluate protocol compliance and care**
- **Midazolam 5 – 10 mg IM is effective in termination of seizures. Do not delay IM administration with difficult IV or IO access. IM Preferred over IO.**
- **Status epilepticus** is defined as two or more successive seizures without a period of consciousness or recovery. This is a true emergency requiring rapid airway control, treatment, and transport.
- **Grand mal seizures (generalized)** are associated with loss of consciousness, incontinence, and tongue trauma.
- **Focal seizures (petit mal)** effect only a part of the body and are not usually associated with a loss of consciousness
- Be prepared for airway problems and continued seizures.
- Assess possibility of occult trauma and substance abuse.
- Be prepared to assist ventilations especially if diazepam or midazolam is used.
- For any seizure in a pregnant patient, follow the OB Emergencies Protocol.
- Diazepam (Valium) is not effective when administered IM. Give IV or Rectally. Midazolam is well absorbed when administered IM.

### Disposition:

#### EMS Transport

- ALS: All patients not cleared by medical control and not meeting criteria below  
BLS: Single seizure with return to baseline mental status with normal vital signs

#### MD Within 4 Hours:

Patient with previous seizure history, current seizure typical of history, and paramedic discussion with personal MD or Medical Control determines appropriateness of outpatient MD evaluation and there is a responsible adult present who will stay with the patient.

## Protocol 32

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director



# Suspected Stroke



## History

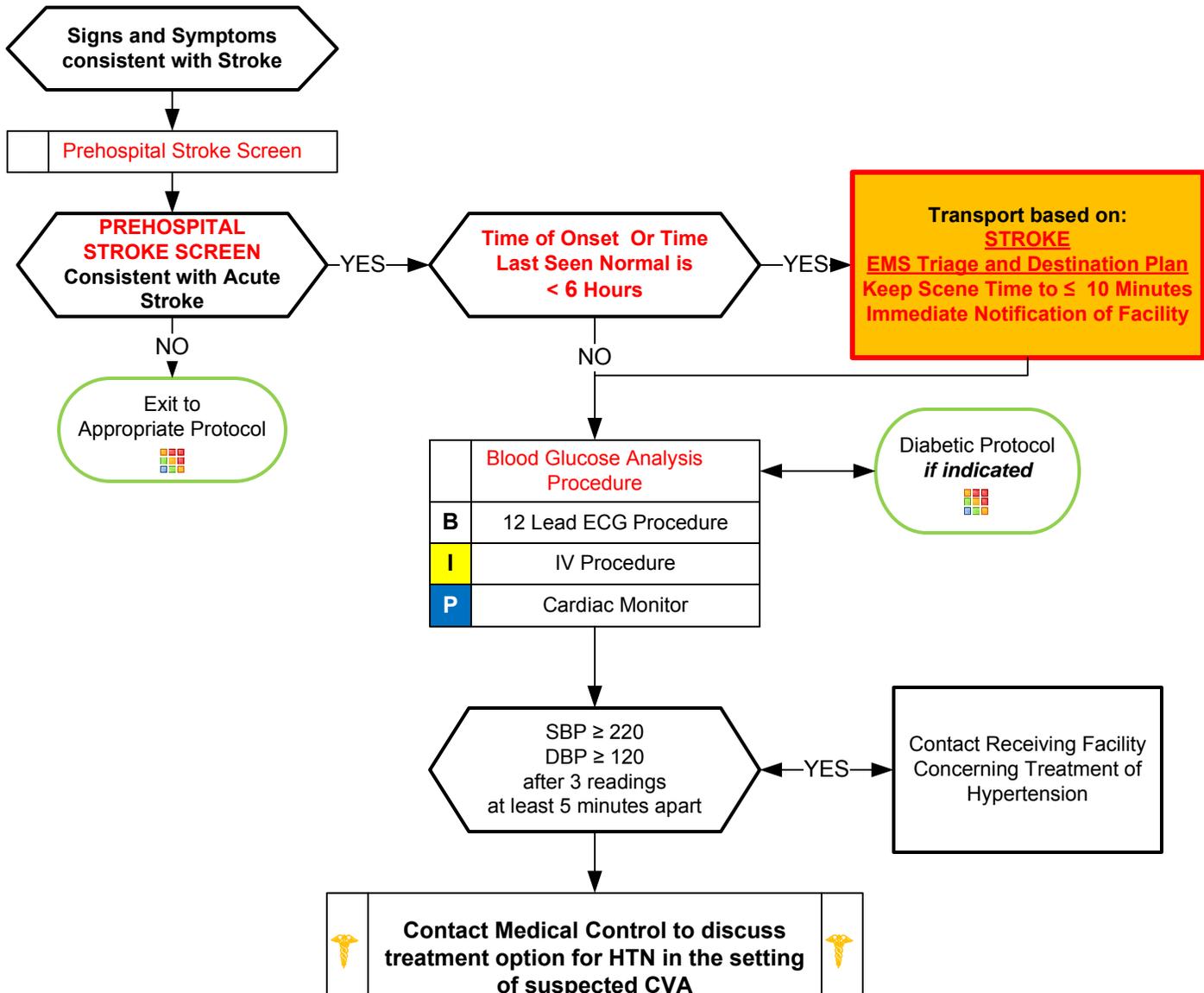
- Previous CVA, TIA's
- Previous cardiac / vascular surgery
- Associated diseases: diabetes, hypertension, CAD
- Atrial fibrillation
- Medications (blood thinners)
- History of trauma

## Signs and Symptoms

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

## Differential

- See Altered Mental Status
- TIA (Transient ischemic attack)
- Seizure
- Todd's Paralysis
- Hypoglycemia
- Stroke
  - Thrombotic or Embolic (~85%)
  - Hemorrhagic (~15%)
- Tumor
- Trauma
- Dialysis / Renal Failure



Adult Medical Section Protocols

# Suspected Stroke

## Notes:

## Pearls:

- **Recommended Exam: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro**
- **Items in Red Text are key performance measures used in the EMS Acute Stroke Care Toolkit.**
- **Acute Stroke care is evolving rapidly. Time of onset / last seen normal may be changed at any time depending on the capabilities and resources of your hospital based on Stroke: EMS Triage and Destination Plan.**
- **Time of Onset or Last Seen Normal: One of the most important items the pre-hospital provider can obtain, on which all treatment decisions are based. Be very precise in gathering data to establish the time of onset and report as an actual time (i.e. 13:47 NOT “about 45 minutes ago.”) Without this information patient may not be able to receive thrombolytics at facility. Wake up stroke: Time starts when patient last awake.**
- **The Reperfusion Checklist should be completed for any suspected stroke patient. With a duration of symptoms of less than 6 hours scene times should be limited to  $\leq 10$  minutes, early notification / activation of receiving facility should be performed and transport times should be minimized.**
- **Onset of symptoms** is defined as the last witnessed time the patient was symptom free (i.e. awakening with stroke symptoms would be defined as an onset time when the patient went to sleep or last time known to be symptom free.)
- The differential listed on the Altered Mental Status Protocol should also be considered.
- Be alert for airway problems (swallowing difficulty, vomiting/aspiration).
- Hypoglycemia can present as a localized neurologic deficit, especially in the elderly.
- Document the Stroke Screen results in the PCR.
- Agencies may use validated pre-hospital stroke screen of choice.

## Disposition:

**EMS Transport:**

**ALS:** All patients other than listed below

**BLS:** Hypoglycemia with normal exam post Dextrose



# Syncope



## History

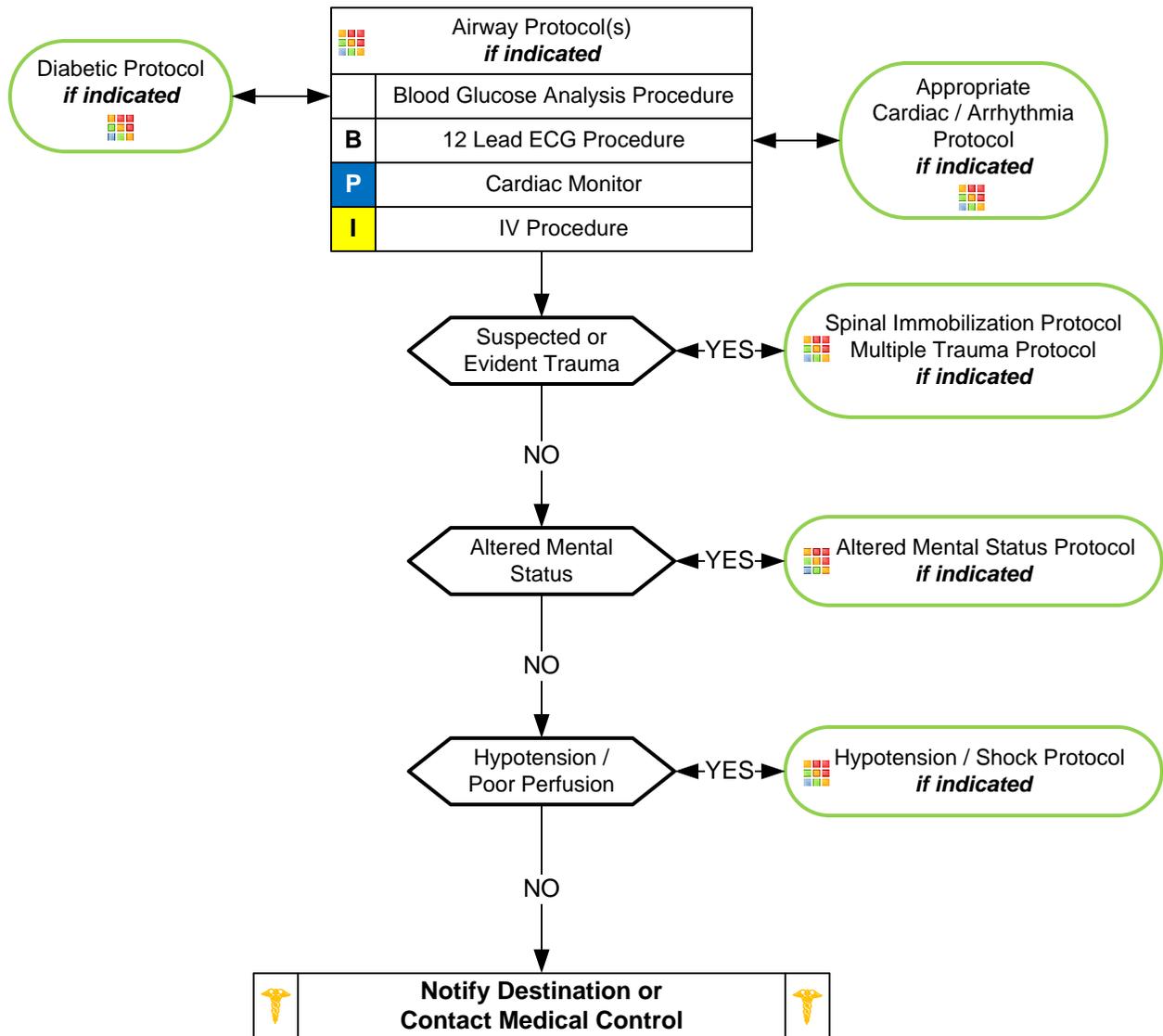
- Cardiac history, stroke, seizure
- Occult blood loss (GI, ectopic)
- Females: LMP, vaginal bleeding
- Fluid loss: nausea, vomiting, diarrhea
- Past medical history
- Medications

## Signs and Symptoms

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

## Differential

- Vasovagal
- Orthostatic hypotension
- Cardiac syncope
- Micturition / Defecation syncope
- Psychiatric
- Stroke
- Hypoglycemia
- Seizure
- Shock (see Shock Protocol)
- Toxicological (Alcohol)
- Medication effect (hypertension)
- PE
- AAA



# Syncope

## Notes:

### Pearls:

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

### Disposition:

**EMS Transport:**

**ALS:** All patients other than below

**BLS:** Hypoglycemia with normal exam post Dextrose

## Protocol 34

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director



# Vomiting and Diarrhea



## History

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

## Signs and Symptoms

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

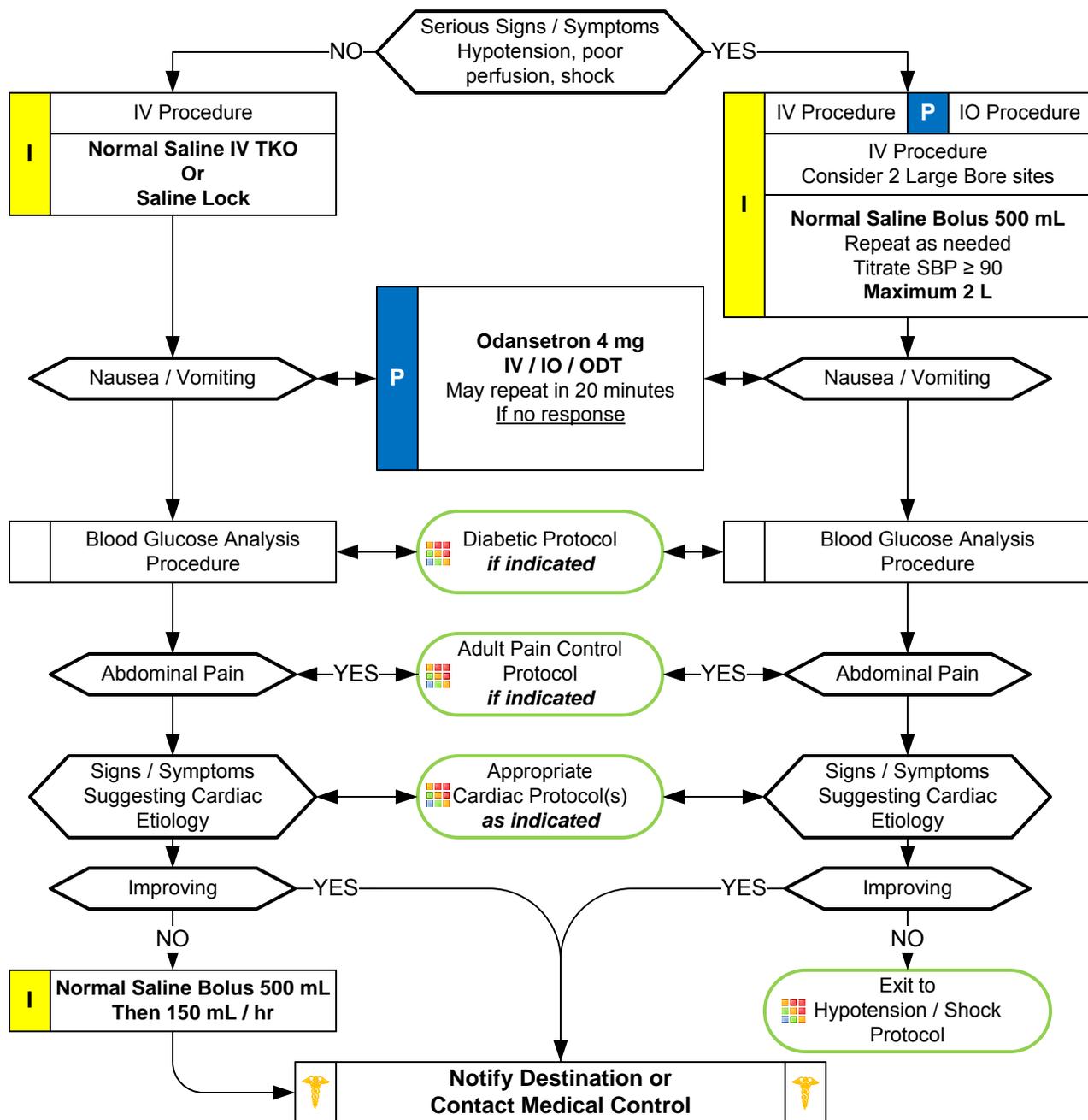
### Associated symptoms:

#### (Helpful to localize source)

Fever, headache, blurred vision, weakness, malaise, myalgias, cough, headache, dysuria, mental status changes, rash

## Differential

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



Adult Medical Section Protocols

# Vomiting and Diarrhea

## Notes:

### Pearls:

- **Recommended Exam: Mental Status, Skin, HEENT, Neck, Heart, Lungs, Abdomen, Back, Extremities, Neuro**
- Isolated vomiting in pediatrics may be caused by pyloric stenosis, bowel obstruction, and CNS processes (bleeding, tumors, or increased CSF pressures).

### Disposition:

**EMS Transport:**

**ALS:** All patients with orthostatic changes or potential for cardiac, CNS, renal, traumatic, or diabetic ketoacidosis etiologies.

**MD Within 4 Hours:**

**BLS:** No orthostatic changes and does not fit criteria below  
Isolated vomiting in adults and/or diarrhea with no associated symptoms and no orthostatic changes, and normal vital signs unless otherwise directed by paramedic-MD consultation.

# Adult Obstetrical





# Childbirth / Labor



## History

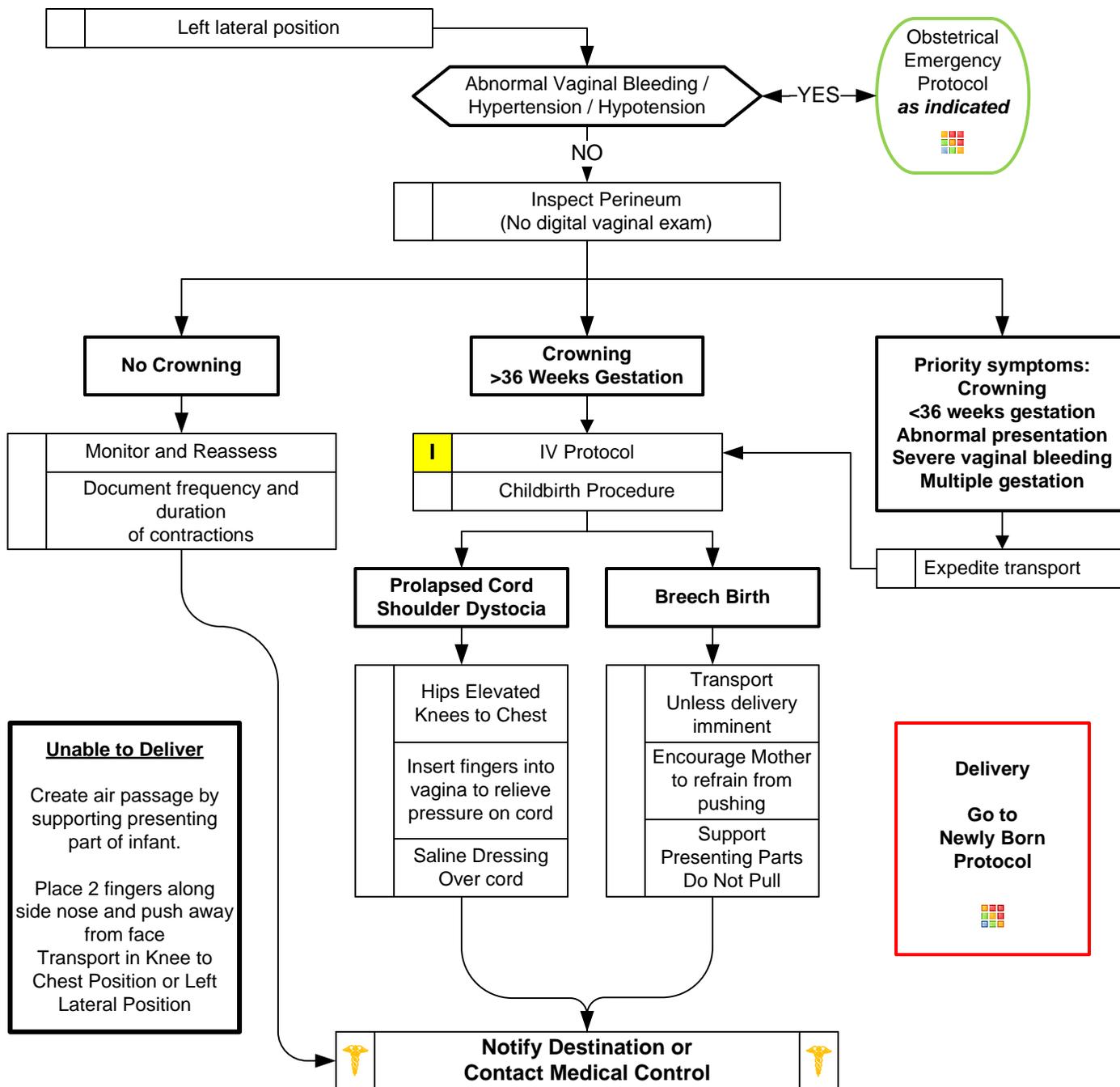
- Due date
- Time contractions started / how often
- Rupture of membranes
- Time / amount of any vaginal bleeding
- Sensation of fetal activity
- Past medical and delivery history
- Medications
- Gravida / Para Status
- High Risk pregnancy

## Signs and Symptoms

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

## Differential

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



Adult Obstetrical Section Protocols

## Protocol 37

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012

# Childbirth / Labor

## Notes:

### Pearls:

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

### Disposition:

**EMS Transport:**

**ALS:** Patient with priority symptoms, imminent delivery, or pregnancy risk factors

**BLS:** All other patients

## Protocol 37

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director



# Newly Born



## History

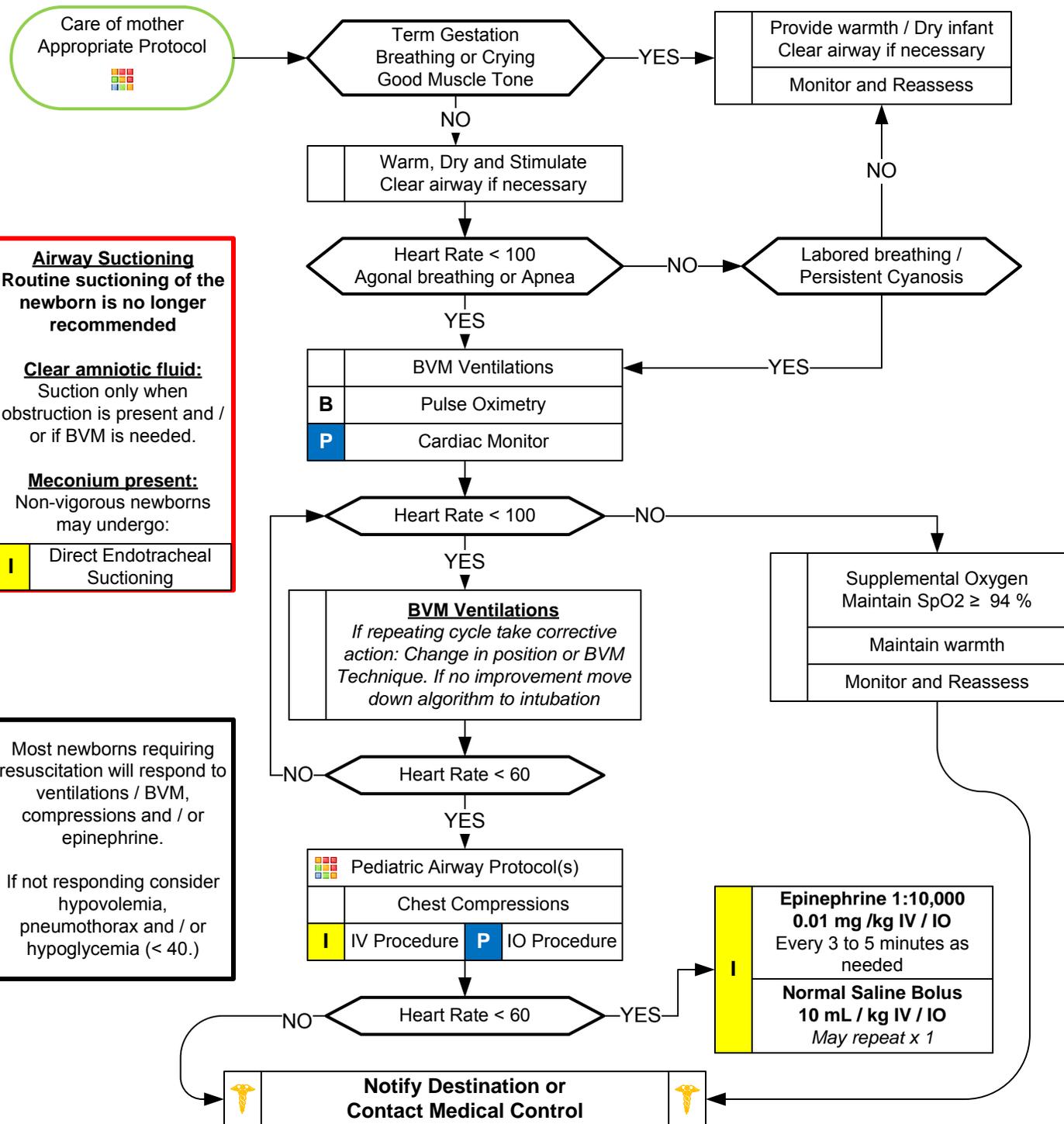
- Due date and gestational age
- Multiple gestation (twins etc.)
- Meconium
- Delivery difficulties
- Congenital disease
- Medications (maternal)
- Maternal risk factors
  - substance abuse
  - smoking

## Signs and Symptoms

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

## Differential

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



**Airway Suctioning**  
Routine suctioning of the newborn is no longer recommended

**Clear amniotic fluid:**  
Suction only when obstruction is present and / or if BVM is needed.

**Meconium present:**  
Non-vigorous newborns may undergo:

**I** Direct Endotracheal Suctioning

Most newborns requiring resuscitation will respond to ventilations / BVM, compressions and / or epinephrine.

If not responding consider hypovolemia, pneumothorax and / or hypoglycemia (< 40.)

Adult Obstetrical Section Protocols

## Protocol 38

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

# Newly Born

## Notes:

## Pearls:

- **Recommended Exam: Mental Status, Skin, HEENT, Neck, Chest, Heart, Abdomen, Extremities, Neuro**
- **Term gestation, strong cry / breathing and with good muscle tone generally will need no resuscitation.**
- **Most important vital signs in the newly born are respirations / respiratory effort and heart rate.**
- Heart rate best assessed by auscultation of the precordial pulse followed by palpation of the umbilical pulse.
- Pulse oximetry should be applied to the right side of the body.
- **Expected pulse oximetry readings:** Following birth at 1 minute = 60 - 65 %, 2 minutes = 65 – 70%, 3 minutes = 70 – 75 %, 4 minutes = 75 – 80 %, 5 minutes = 80 – 85 % and 10 minutes = 85 – 95%.
- CPR in infants is 120 compressions/minute with a 3:1 compression to ventilation ratio.
- It is extremely important to keep infant warm
- Maternal sedation or narcotics will sedate infant (Naloxone NO LONGER recommended-supportive care only).
- Consider hypoglycemia in infant.
- D10 = D50 diluted (1 ml of D50 with 4 ml of Normal Saline)
- Document 1 and 5 minute Apgars in PCR

## Disposition:

### EMS Transport:

**ALS:** All patients other than below.

**BLS:** Normal delivery with 5-minute APGAR 9 or 10.



# Obstetrical Emergency



## History

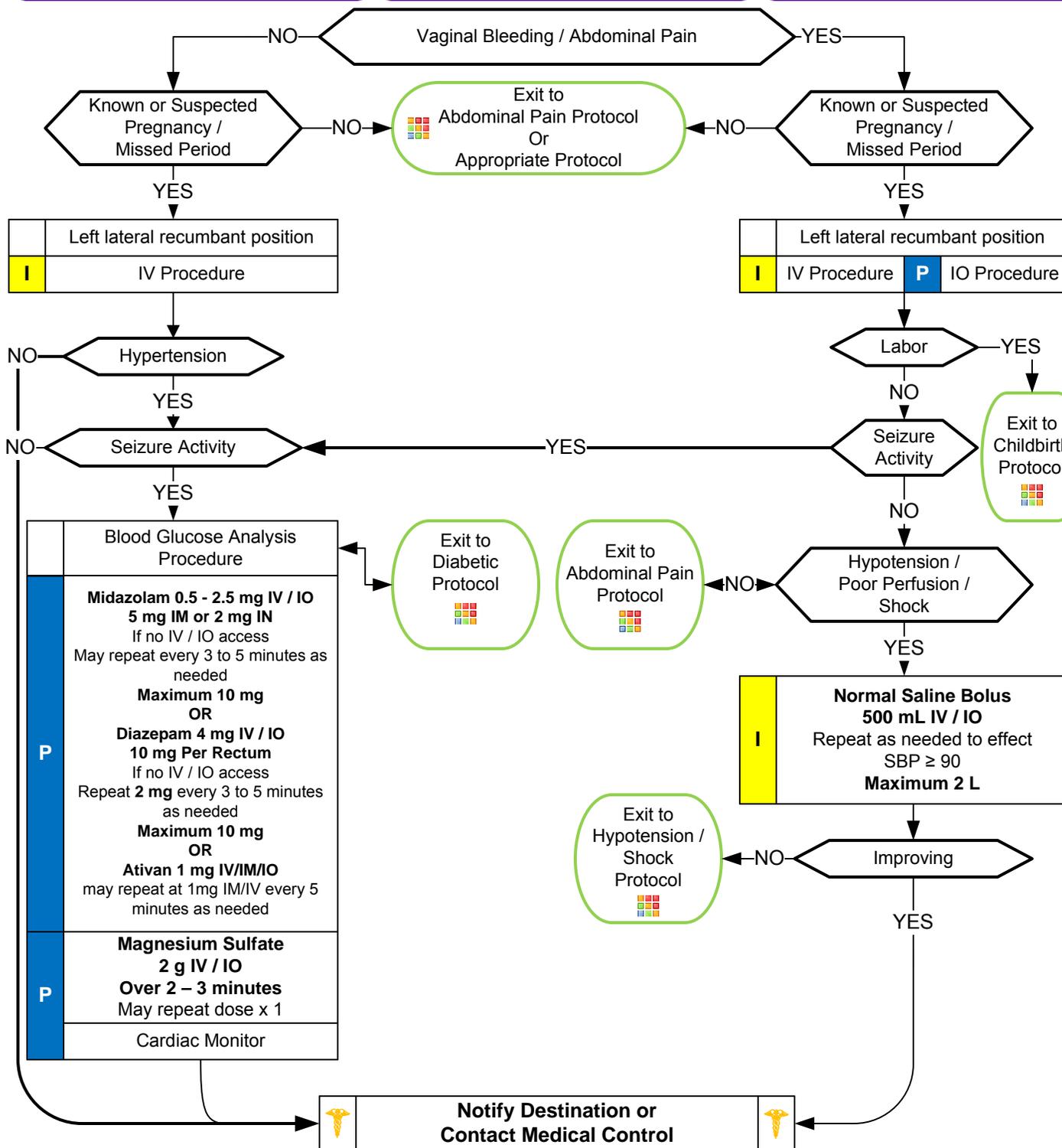
- Past medical history
- Hypertension meds
- Prenatal care
- Prior pregnancies / births
- Gravida / Para

## Signs and Symptoms

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

## Differential

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



Adult Obstetric Section Protocols

## Protocol 39

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012

# Obstetrical Emergency

## Notes:

### Pearls:

- **Recommended Exam: Mental Status, Abdomen, Heart, Lungs, Neuro**
- Severe headache, vision changes, or RUQ pain may indicate preeclampsia.
- In the setting of pregnancy, hypertension is defined as a BP greater than 140 systolic or greater than 90 diastolic, or a relative increase of 30 systolic and 20 diastolic from the patient's normal (pre-pregnancy) blood pressure.
- Maintain patient in a left lateral position to minimize risk of supine hypotensive syndrome.
- Ask patient to quantify bleeding - number of pads used per hour.
- Any pregnant patient involved in a MVC should be seen immediately by a physician for evaluation. Greater than 20 weeks generally require 4 to 6 hours of fetal monitoring. DO NOT suggest the patient needs an ultrasound.
- Magnesium may cause hypotension and decreased respiratory drive. Use with caution.
- **Midazolam 5 – 10 mg IM is effective in termination of seizures. Do not delay IM administration with difficult IV or IO access.**

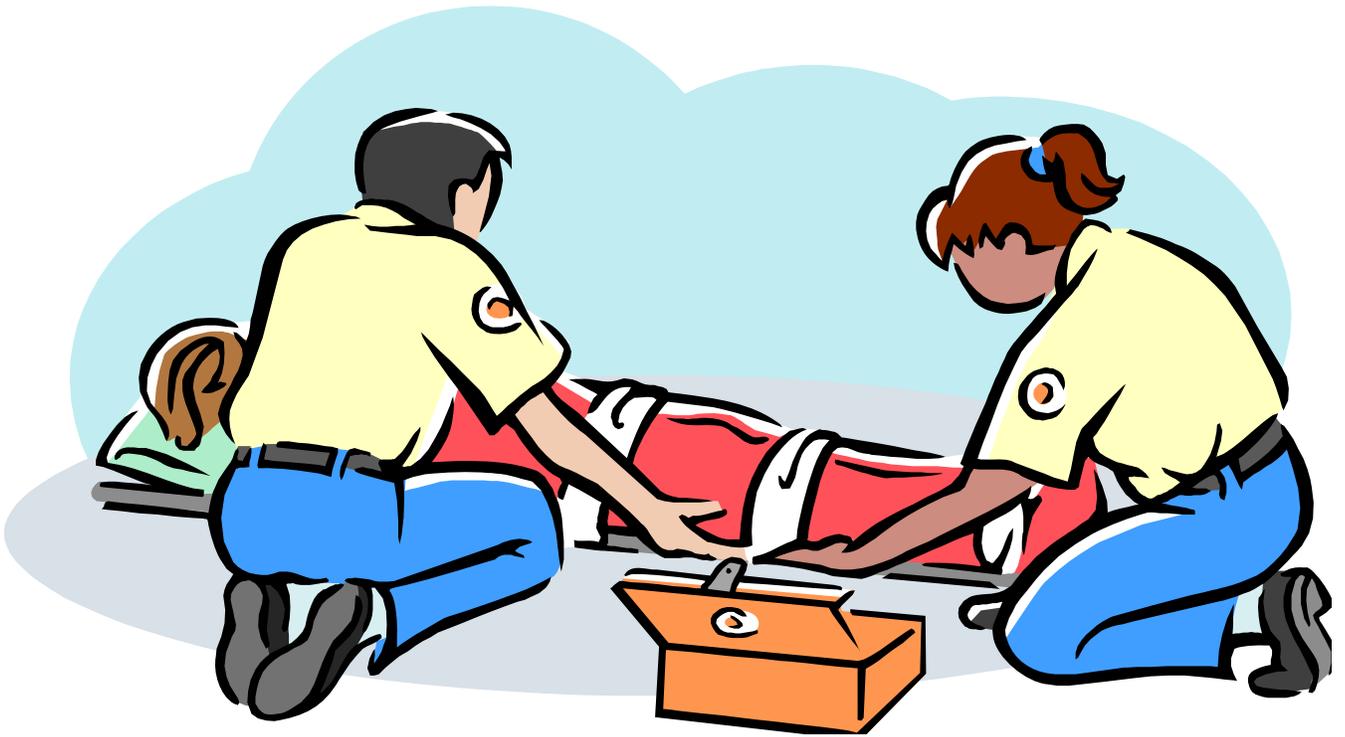
### Disposition:

- EMS Transport:**    **ALS:** Any patient other than listed below  
                                  **BLS:** First trimester bleeding without either hypotension or bleeding > 3 pads per hour

## Protocol 39

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director

# Adult Trauma



## History

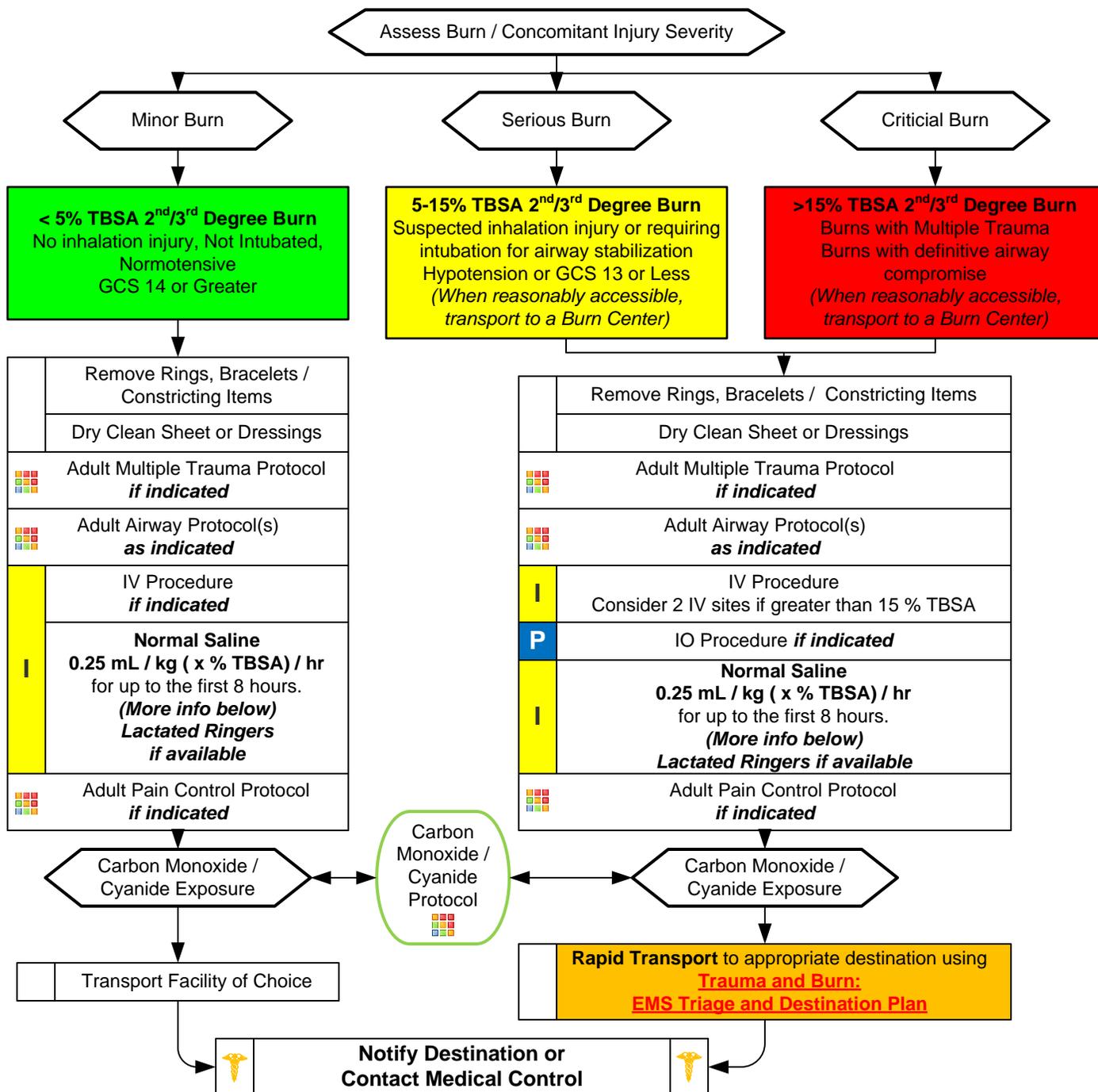
- Type of exposure (heat, gas, chemical)
- Inhalation injury
- Time of Injury
- Past medical history and Medications
- Other trauma
- Loss of Consciousness
- Tetanus/Immunization status

## Signs and Symptoms

- Burns, pain, swelling
- Dizziness
- Loss of consciousness
- Hypotension/shock
- Airway compromise/distress could be indicated by hoarseness/wheezing

## Differential

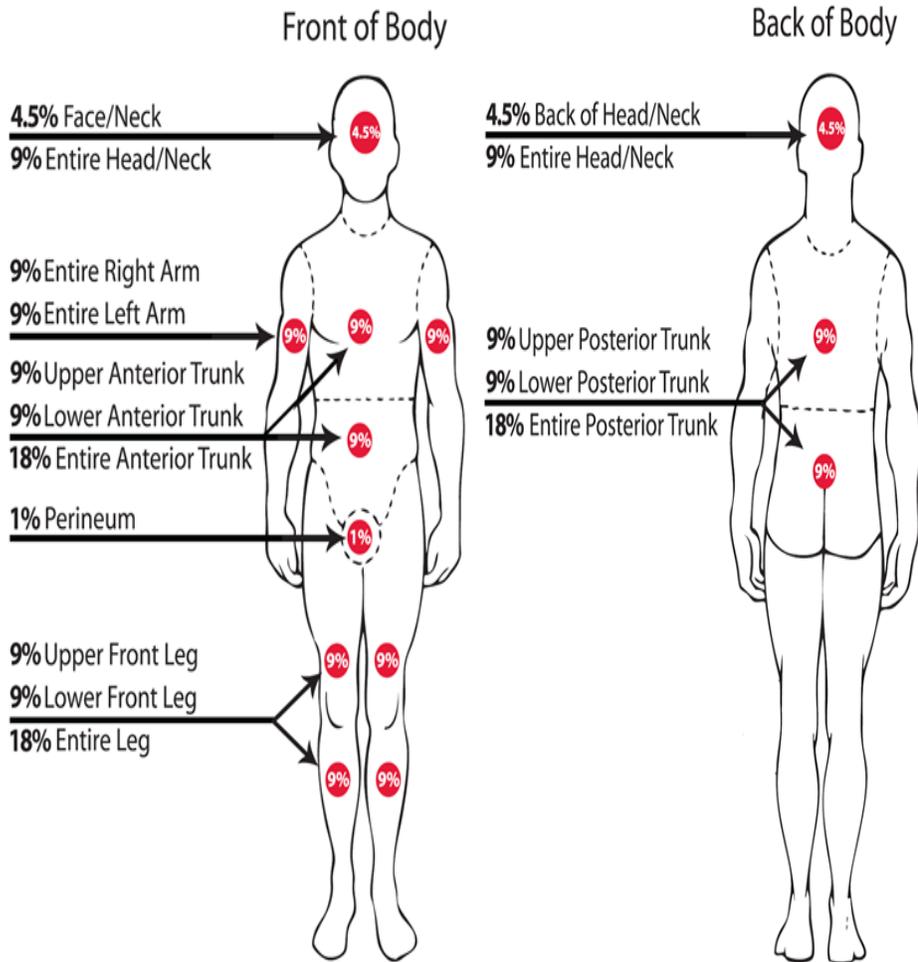
- Superficial (1<sup>st</sup> Degree) red - painful (Don't include in TBSA)
- Partial Thickness (2<sup>nd</sup> Degree) blistering
- Full Thickness (3<sup>rd</sup> Degree) painless/charred or leathery skin
- Thermal injury
- Chemical – Electrical injury
- Radiation injury
- Blast injury



Adult Trauma and Burn Section Protocols

1. Lactated Ringers preferred over Normal Saline. Use if available, if not change over once available.
2. Formula example; an 80 kg (196 lbs.) patient with 50% TBSA will need 1000 cc of fluid per hour.

# Adult Thermal Burn



## Rule of Nines

- Seldom do you find a complete isolated body part that is injured as described in the Rule of Nines.
- More likely, it will be portions of one area, portions of another, and an approximation will be needed.
- For the purpose of determining the extent of serious injury, differentiate the area with minimal or 1<sup>st</sup> degree burn from those of partial (2<sup>nd</sup>) or full (3<sup>rd</sup>) thickness burns.
- For the purpose of determining Total Body Surface Area (TBSA) of burn, include only Partial and Full Thickness burns. Report the observation of other superficial (1<sup>st</sup> degree) burns but do not include those burns in your TBSA estimate.
- Some texts will refer to 4<sup>th</sup> 5<sup>th</sup> and 6<sup>th</sup> degree burns. There is significant debate regarding the actual value of identifying a burn injury beyond that of the superficial, partial and full thickness burn at least at the level of emergent and primary care. For our work, all are included in Full Thickness burns.
- Other burn classifications in general include:
  - 4<sup>th</sup> referring to a burn that destroys the dermis and involves muscle tissue.
  - 5<sup>th</sup> referring to a burn that destroys dermis, penetrates muscle tissue, and involves tissue around the bone.
  - 6<sup>th</sup> referring to a burn that destroys dermis, destroys muscle tissue, and penetrates or destroys bone tissue.

## Pearls:

- **Recommended Exam: Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, and Neuro**
- **Green, Yellow and Red in burn severity do not apply to the Start / JumpStart Triage System.**
- **Critical or Serious Burns:**
  - > 5-15% total body surface area (TBSA) 2<sup>nd</sup> or 3<sup>rd</sup> degree burns, or 3<sup>rd</sup> degree burns > 5% TBSA for any age group, or circumferential burns of extremities, or electrical or lightning injuries, or suspicion of abuse or neglect, or inhalation injury, or chemical burns, or burns of face, hands, perineum, or feet
- Require direct transport to a Burn Center. Local facility should be utilized only if distance to Burn Center is excessive or critical interventions such as airway management are not available in the field.
- Burn patients are trauma patients, evaluate for multisystem trauma.
- Assure whatever has caused the burn is no longer contacting the injury. (Stop the burning process!)
- Early intubation is required when the patient experiences significant inhalation injuries.
- Circumferential burns to extremities are dangerous due to potential vascular compromise secondary to soft tissue swelling.
- Burn patients are prone to hypothermia - never apply ice or cool the burn, must maintain normal body temperature.
- Evaluate the possibility of child abuse with children and burn injuries.
- Never administer IM pain injections to a burn patient.

<b>Disposition:</b>	EMS Transport:	ALS:	All chemical, electrical, or radiological burns, all critical burns, any abnormal vital signs, or any suspected inhalation.
		BLS:	Patient with non-critical burns other than below and SPO <sub>2</sub> >96% room air and stable vital signs.
	MD Within 4 Hours:		Superficial burns, stable vital signs and SPO <sub>2</sub> > 96%.

## Protocol 40

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director



# Head Trauma



## History

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

## Signs and Symptoms

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

## Differential

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

**DO NOT HYPERVENTILATE**

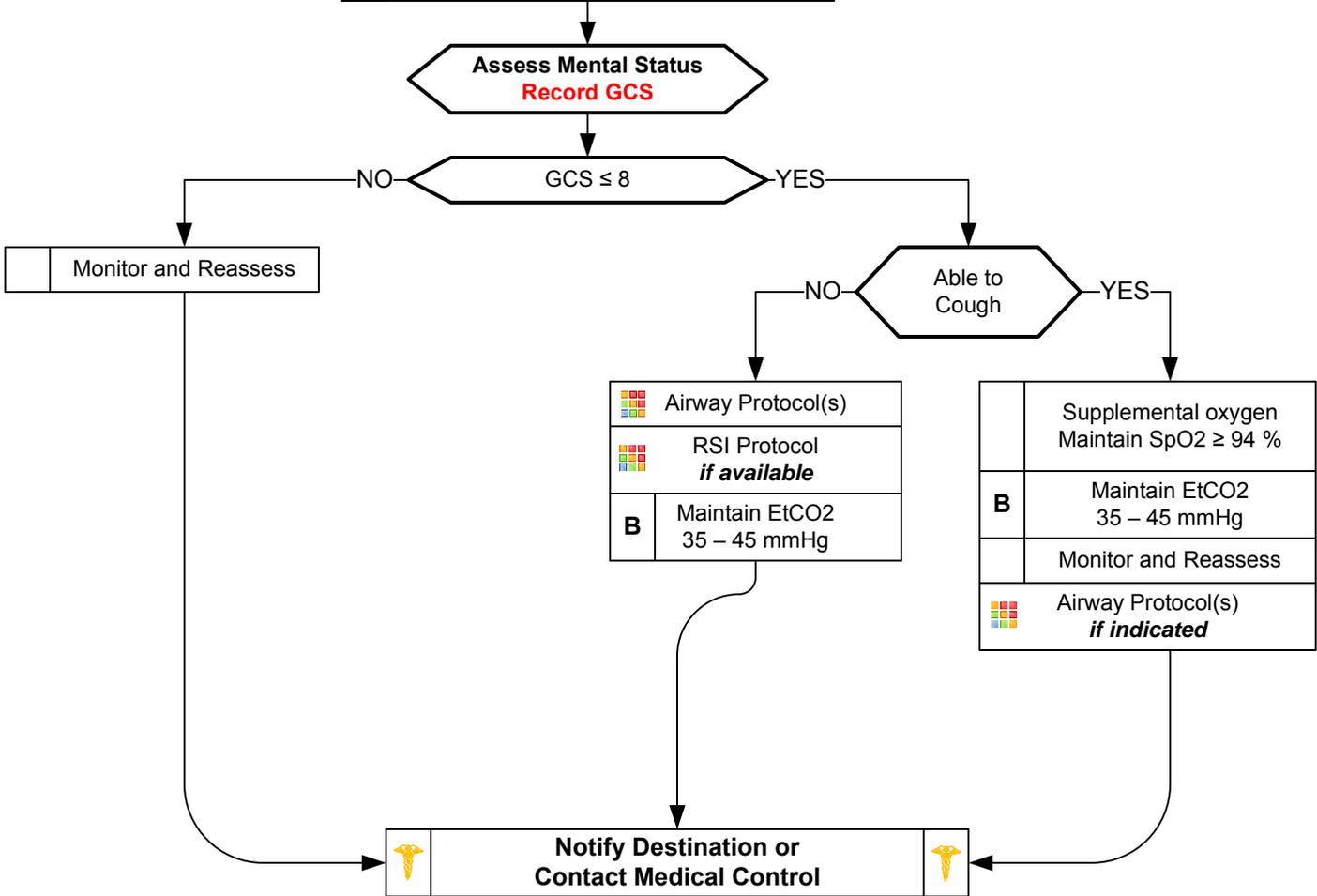
Ventilate 8 – 10 Breaths per minute to maintain EtCO<sub>2</sub> 35 – 45 mmHg

Spinal Immobilization Protocol <i>if indicated</i>	
Adult Multiple Trauma Protocol <i>if indicated</i>	
I IV Procedure	P IO Procedure
Altered Mental Status Protocol <i>if indicated</i>	
Seizure Protocol <i>if indicated</i>	
Blood Glucose Analysis Procedure	

**Brain Herniation**

Unilateral or Bilateral Dilation of Pupils / Posturing

Hyperventilate 14 – 16 Breaths per minutes to maintain EtCO<sub>2</sub> 30 – 35 mmHg



Adult Trauma and Burn Section Protocols

## Protocol 41

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012

# Head Trauma

## Notes:

### Pearls

- **Recommended Exam: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremities, Back, Neuro**
- **GCS is a key performance measure used in the EMS Acute Trauma Care Toolkit.**
- **If GCS < 12 consider air / rapid transport**
- **GCS < 14 in the setting of head trauma indicates the need for a Level 1 Trauma Center**
- **In areas with short transport times, RSI/Drug-Assisted Intubation is not recommended for patients who are spontaneously breathing and who have oxygen saturations of  $\geq 90\%$  with supplemental oxygen including BIAD / BVM.**
- Increased intracranial pressure (ICP) may cause hypertension and bradycardia (Cushing's Response).
- Hypotension usually indicates injury or shock unrelated to the head injury and should be aggressively treated.
- An important item to monitor and document is a change in the level of consciousness by serial examination.
- Consider Restraints if necessary for patient's and/or personnel's protection per the Restraint Procedure.
- Limit IV fluids unless patient is hypotensive.
- Concussions are traumatic brain injuries involving any of a number of symptoms including confusion, LOC, vomiting, or headache. Any prolonged confusion or mental status abnormality which does not return to normal within 15 minutes or any documented loss of consciousness should be evaluated by a physician ASAP.

<b>Disposition:</b>	<b>EMS Transport:</b>	<b>ALS:</b> Patient with abnormal neurologic exam, loss of consciousness, respiratory distress, significant mechanism of injury, or persistent vomiting
		<b>BLS:</b> Patients with normal neurological exam and physical findings suggestive of a head injury
	<b>MD Within 4 Hours:</b>	Patient with normal exam, normal vital signs, and none of the above findings.

## Protocol 41

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director



# Multiple Trauma



## History

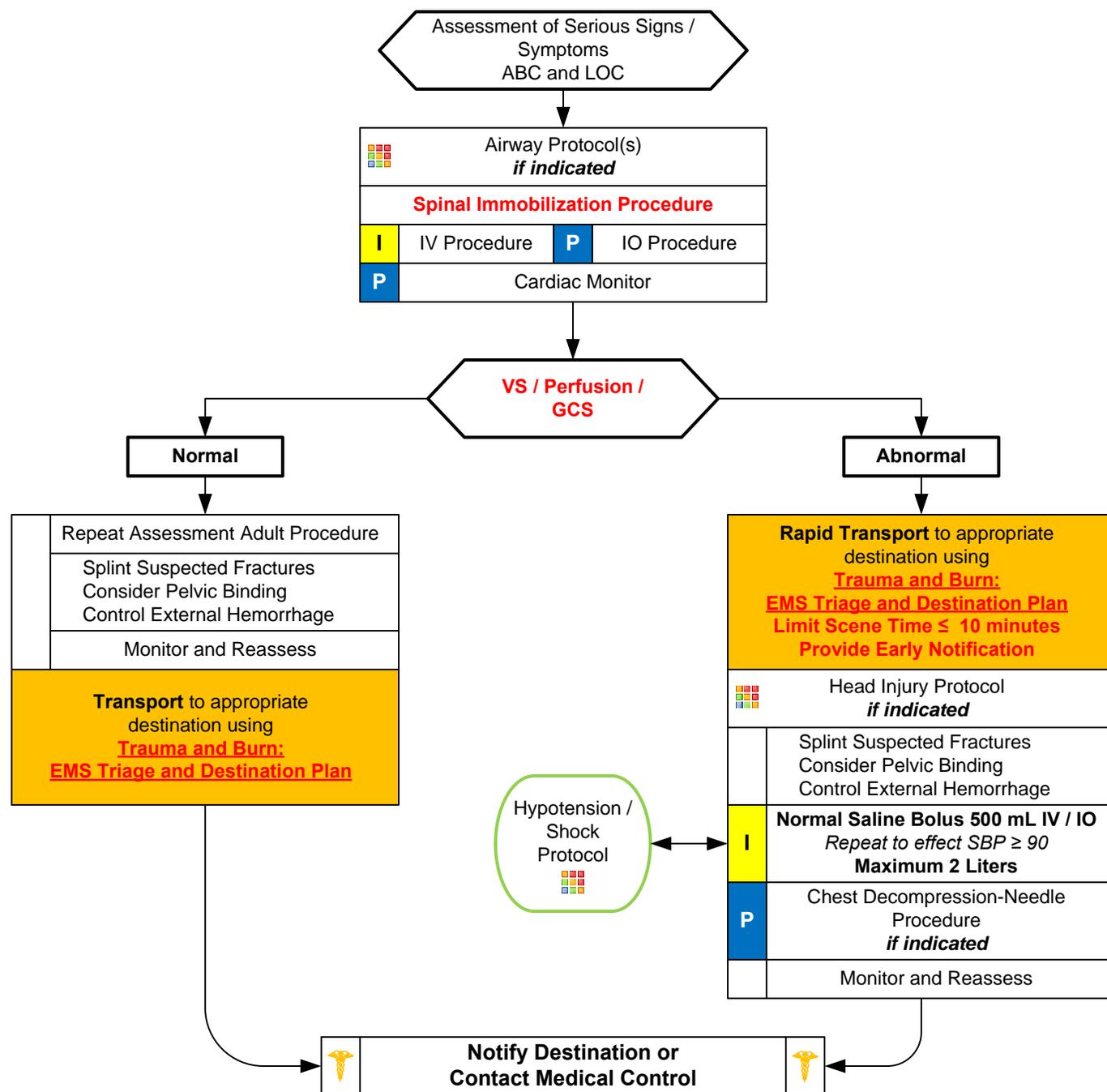
- Time and mechanism of injury
- Damage to structure or vehicle
- Location in structure or vehicle
- Others injured or dead
- Speed and details of MVC
- Restraints / protective equipment
- Past medical history
- Medications

## Signs and Symptoms

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

## Differential (Life threatening)

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



Adult Trauma and Burn Section Protocols

## Protocol 42

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012

# Multiple Trauma

## Notes:

### Pearls

- **Recommended Exam: Mental Status, Skin, HEENT, Heart, Lung, Abdomen, Extremities, Back, Neuro**
- **Items in Red Text are key performance measures used in the EMS Acute Trauma Care Toolkit**
- **Transport Destination is chosen based on the EMS System Trauma Plan with EMS pre-arrival notification.**
- **Scene times should not be delayed for procedures. These should be performed en route when possible. Rapid transport of the unstable trauma patient to the appropriate facility is the goal.**
- **Bag valve mask is an acceptable method of managing the airway if pulse oximetry can be maintained  $\geq 90\%$**
- Geriatric patients should be evaluated with a high index of suspicion. Often occult injuries are more difficult to recognize and patients can decompensate unexpectedly with little warning.
- In prolonged extrications or serious trauma, consider air transportation for transport times and the ability to give blood.
- Do not overlook the possibility of associated domestic violence or abuse.

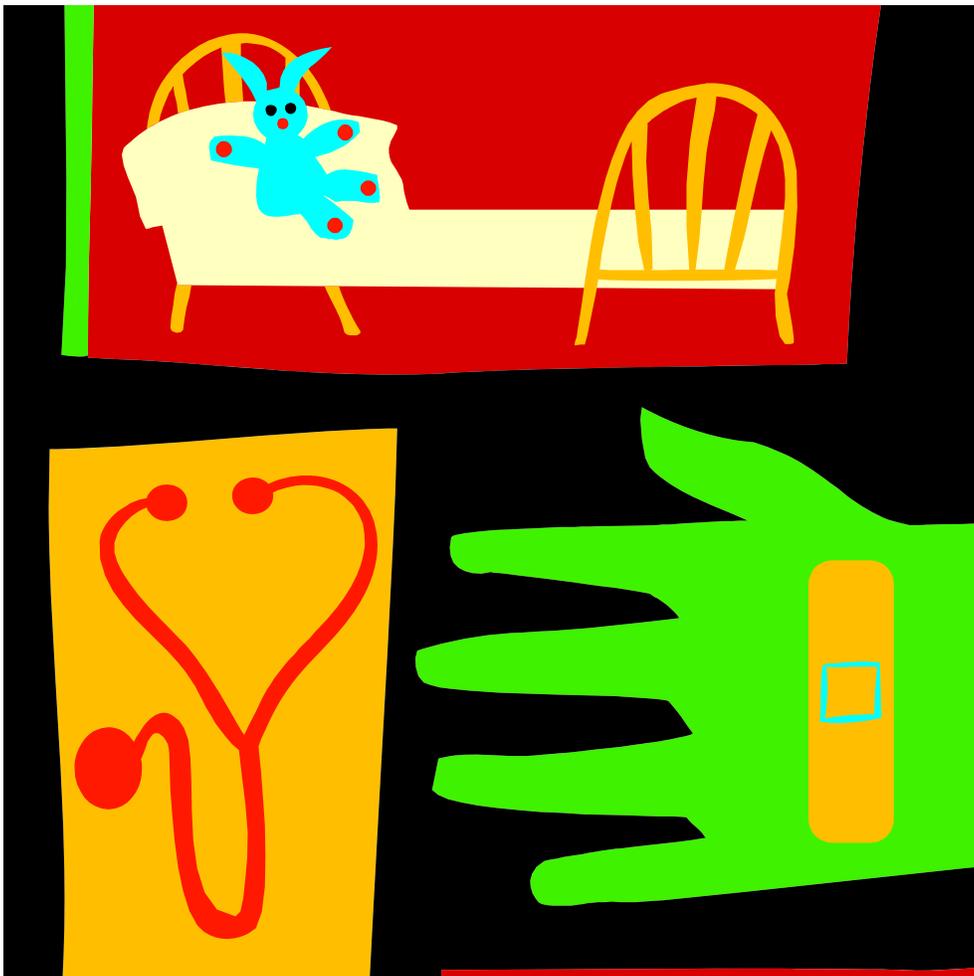
### Disposition:

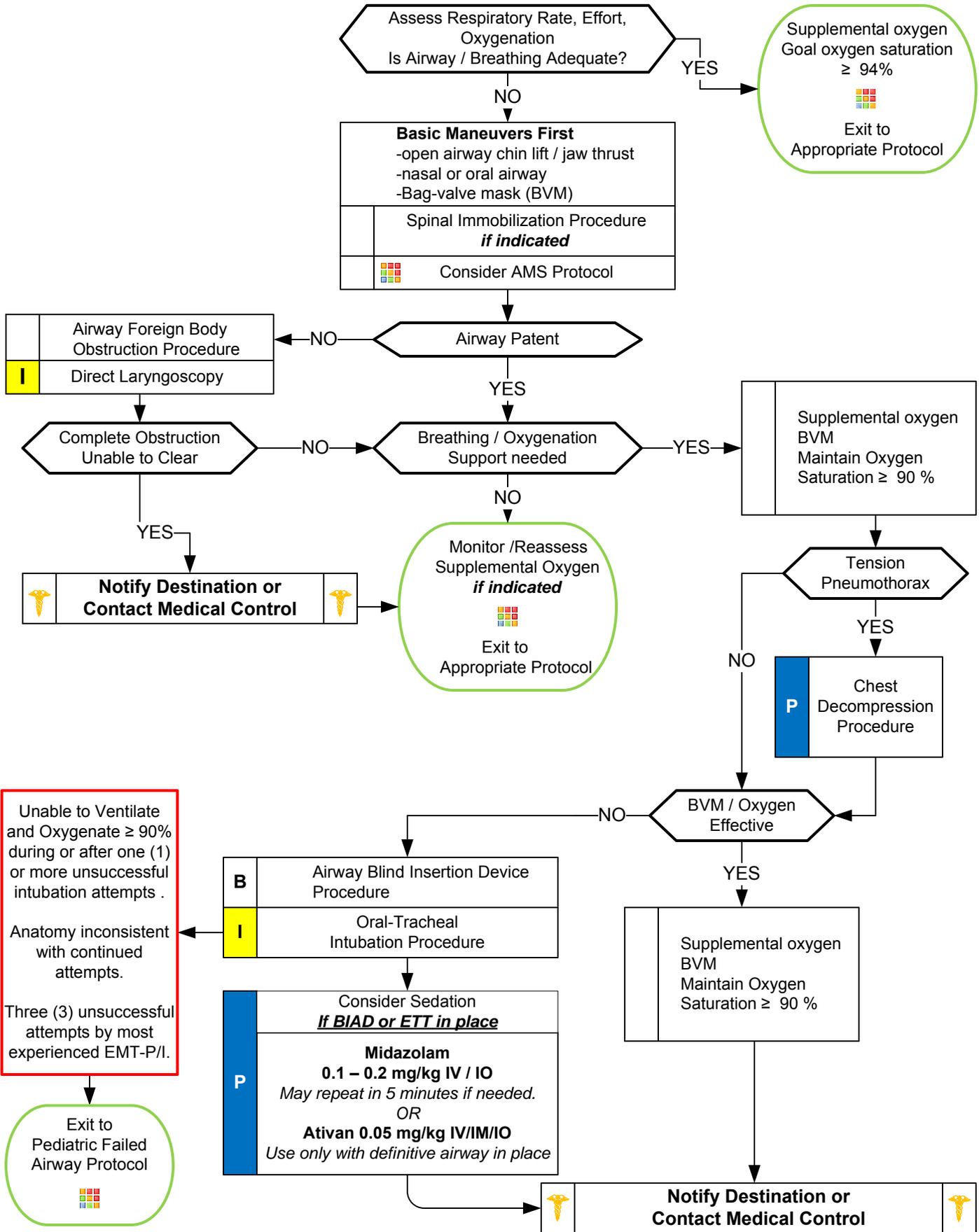
<b>EMS Transport:</b>	<b>ALS:</b> Abnormal exam Respiratory distress	Abnormal vital signs Significant mechanism of injury	Loss of consciousness
	<b>BLS:</b> All other patients		

## Protocol 42

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director

# Pediatric General





# Pediatric Airway

## Notes:

## Pearls:

- For this protocol, pediatric is defined as less than  $\leq 11$  years of age or any patient which can be measured within the Broselow-Luten tape.
- Capnometry (color) or capnography is mandatory with all methods of intubation. Document results.
- Continuous capnography (EtCO<sub>2</sub>) is strongly recommended with BIAD or endotracheal tube use.
- If an effective airway is being maintained by BVM with continuous pulse oximetry values of  $\geq 90\%$ , it is acceptable to continue with basic airway measures instead of using a BIAD or Intubation.
- For the purposes of this protocol a secure airway is when the patient is receiving appropriate oxygenation and ventilation.
- An intubation attempt is defined as passing the laryngoscope blade or endotracheal tube past the teeth or inserted into the nasal passage.
- Ventilatory rate should be 30 for Neonates, 25 for Toddlers, 20 for School Age, and for Adolescents the normal Adult rate of 12 per minute. Maintain a EtCO<sub>2</sub> between 35 and 45 and avoid hyperventilation.
- Hyperventilation in deteriorating head trauma should only be done to maintain a pCO<sub>2</sub> of 30-35.
- It is strongly encouraged to complete an Airway Evaluation Form with any BIAD or Intubation procedure.
- Intubation in patients who maintain a gag reflex is discouraged.
- Paramedics should consider using a BIAD if oral-tracheal intubation is unsuccessful.
- Cricoid pressure and BURP maneuver may be used to assist with difficult intubations. They may worsen view in some cases.
- Gastric tube placement should be considered in all intubated patients.
- It is important to secure the endotracheal tube well and consider c-collar (even in absence of trauma) to better maintain ETT placement. Manual stabilization of endotracheal tube should be used during all patient moves / transfers.

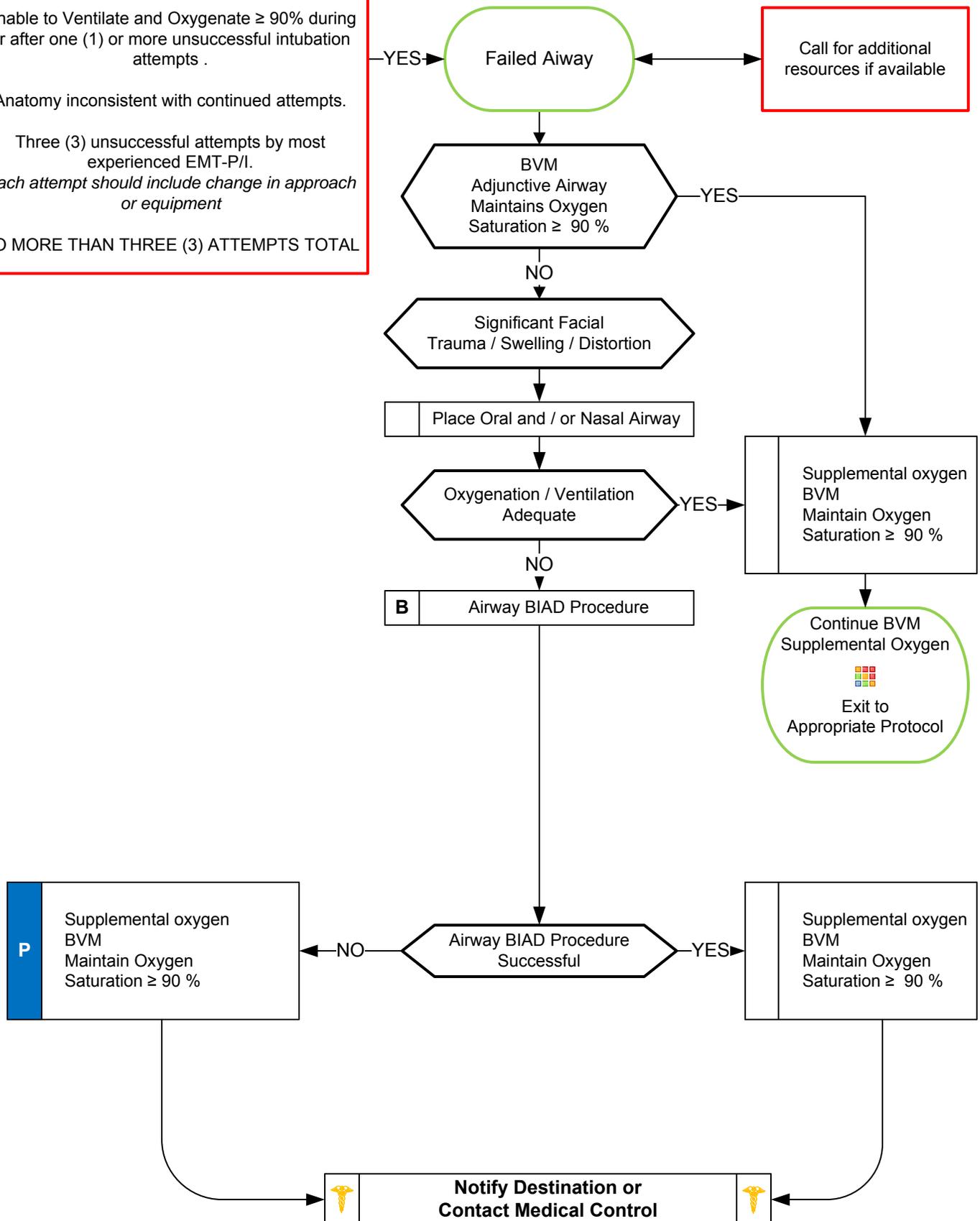
Unable to Ventilate and Oxygenate  $\geq 90\%$  during or after one (1) or more unsuccessful intubation attempts .

Anatomy inconsistent with continued attempts.

Three (3) unsuccessful attempts by most experienced EMT-P/I.  
Each attempt should include change in approach or equipment

NO MORE THAN THREE (3) ATTEMPTS TOTAL

Call for additional resources if available



# Pediatric Failed Airway

## Notes:

## Pearls

- For this protocol, pediatric is defined as less than  $\leq 11$  years of age or any patient which can be measured within the Broselow-Luten tape.
- Capnometry (color) or capnography is mandatory with all methods of intubation. Document results.
- Continuous capnography (EtCO<sub>2</sub>) is strongly recommended with BIAD or endotracheal tube use.
- If an effective airway is being maintained by BVM with continuous pulse oximetry values of  $\geq 90\%$ , it is acceptable to continue with basic airway measures instead of using a BIAD or Intubation.
- For the purposes of this protocol a secure airway is when the patient is receiving appropriate oxygenation and ventilation.
- An intubation attempt is defined as passing the laryngoscope blade or endotracheal tube past the teeth or inserted into the nasal passage.
- Ventilatory rate should be 30 for Neonates, 25 for Toddlers, 20 for School Age, and for Adolescents the normal Adult rate of 12 per minute. Maintain a EtCO<sub>2</sub> between 35 and 45 and avoid hyperventilation.
- Hyperventilation in deteriorating head trauma should only be done to maintain a pCO<sub>2</sub> of 30-35.
- It is strongly encouraged to complete an Airway Evaluation Form with any BIAD or Intubation procedure.
- If first intubation attempt fails, make an adjustment and then try again: Different laryngoscope blade; Gum Elastic Bougie; Different ETT size; Change cricoid pressure; Apply BURP; Change head positioning
- Paramedics should consider using a BIAD if oral-tracheal intubation is unsuccessful.
- Cricoid pressure and BURP maneuver may be used to assist with difficult intubations. They may worsen view in some cases.
- Gastric tube placement should be considered in all intubated patients.
- It is important to secure the endotracheal tube well and consider c-collar (even in absence of trauma) to better maintain ETT placement. Manual stabilization of endotracheal tube should be used during all patient moves / transfers.



# Pediatric Pain Control



## History

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

## Signs and Symptoms

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

## Differential

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

Allow for position of maximum comfort unless contraindicated

Enter from Protocol based on **Specific Complaint**

Mild

Assess Pain Severity  
Use combination of Pain Scale, Circumstances, MOI, Injury or Illness severity

Moderate to Severe

<b>B</b>	<b>Ibuprofen 10 mg/kg PO</b> <b>Maximum 600 mg</b> Or <b>Acetaminophen 15 mg/kg PO</b> <b>Maximum 1000 mg</b>
<b>I</b>	Consider IV Procedure <i>if indicated</i>
	Monitor and Reassess every 5 minutes

	IV Procedure	P	IO Procedure
<b>I</b>	<b>Ketorolac 0.5 mg/kg IV / IO / IM</b> <b>Maximum 30 mg</b>		
	Cardiac Monitor		
<b>P</b>	<b>Morphine 0.1 mg/kg IV / IO / IM</b> May repeat every 5 minutes <b>Maximum single dose 5 mg</b> <b>Maximum dose 10 mg</b> OR <b>Fentanyl 0.5-1 microgram/kg IV / IO</b> May be repeated at <b>0.5 mcg/kg</b> in 20 minutes as needed.		
	Monitor and Reassess every 5 minutes		

**Notify Destination or Contact Medical Control**

Pediatric General Section Protocols

## Pearls:

- **Recommended Exam: Mental Status, Area of Pain, Neuro**
- Pain severity (0-10) is a vital sign to be recorded pre and post IV or IM medication delivery and at disposition.
- For children use Wong-Baker faces scale or the FLACC score (see Assessment Pain Procedure)
- Vital signs should be obtained pre, 5 minutes post, and at disposition with all pain medications.
- Contraindications to Narcotic use include hypotension, head injury, or respiratory distress.
- All patients who receive IM or IV medications must be observed 15 minutes for drug reaction.
- Ketorolac (Toradol) and Ibuprofen should not be used in patients with known renal disease or renal transplant, in patients who have known drug allergies to NSAID's (non-steroidal anti-inflammatory medications), with active bleeding, headaches, head trauma, abdominal pain, stomach ulcers or in patients who may need surgical intervention such as open fractures or fracture deformities
- Do not administer any PO medications for patients who may need surgical intervention such as open fractures or fracture deformities.
- Use Numeric (> 9 yrs), Wong-Baker faces (4-16yrs) or FLACC scale (0-7 yrs) as needed to assess pain

## Disposition:

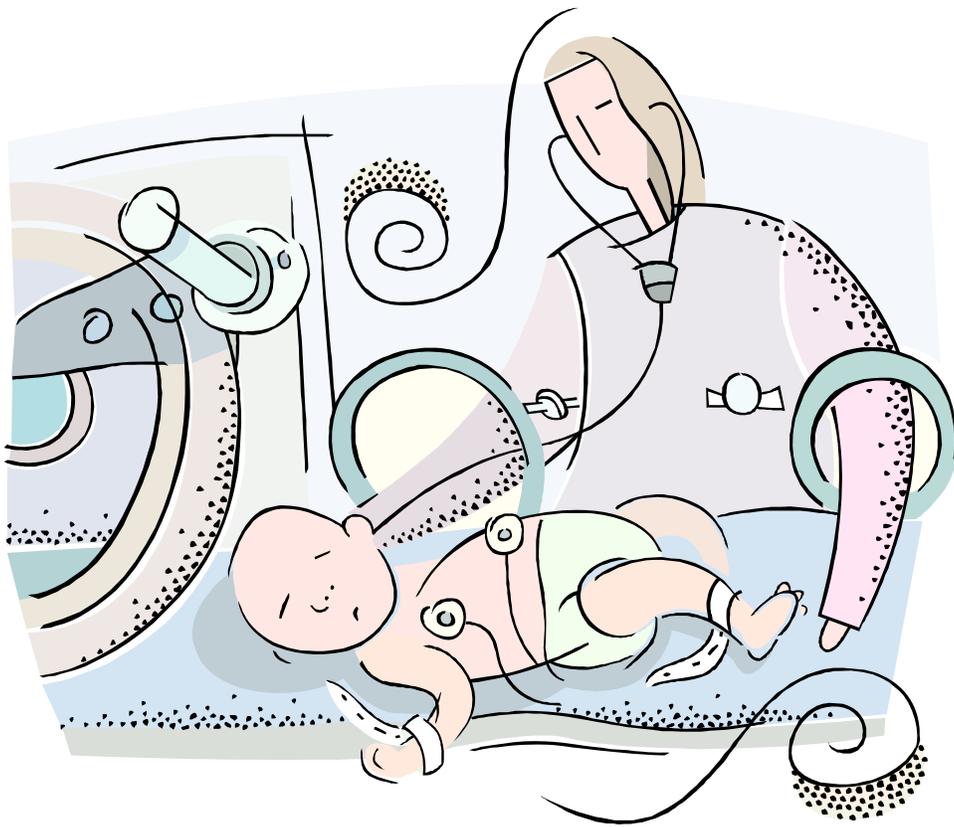
**EMS Transport:** **ALS:** Patient receives Morphine or per complaint specific protocol.  
**BLS:** Per complaint specific protocol.  
**MD Within 4 Hours:** Per complaint specific protocol or MD consult

## Protocol 46

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012

# Pediatric Cardiac



## History

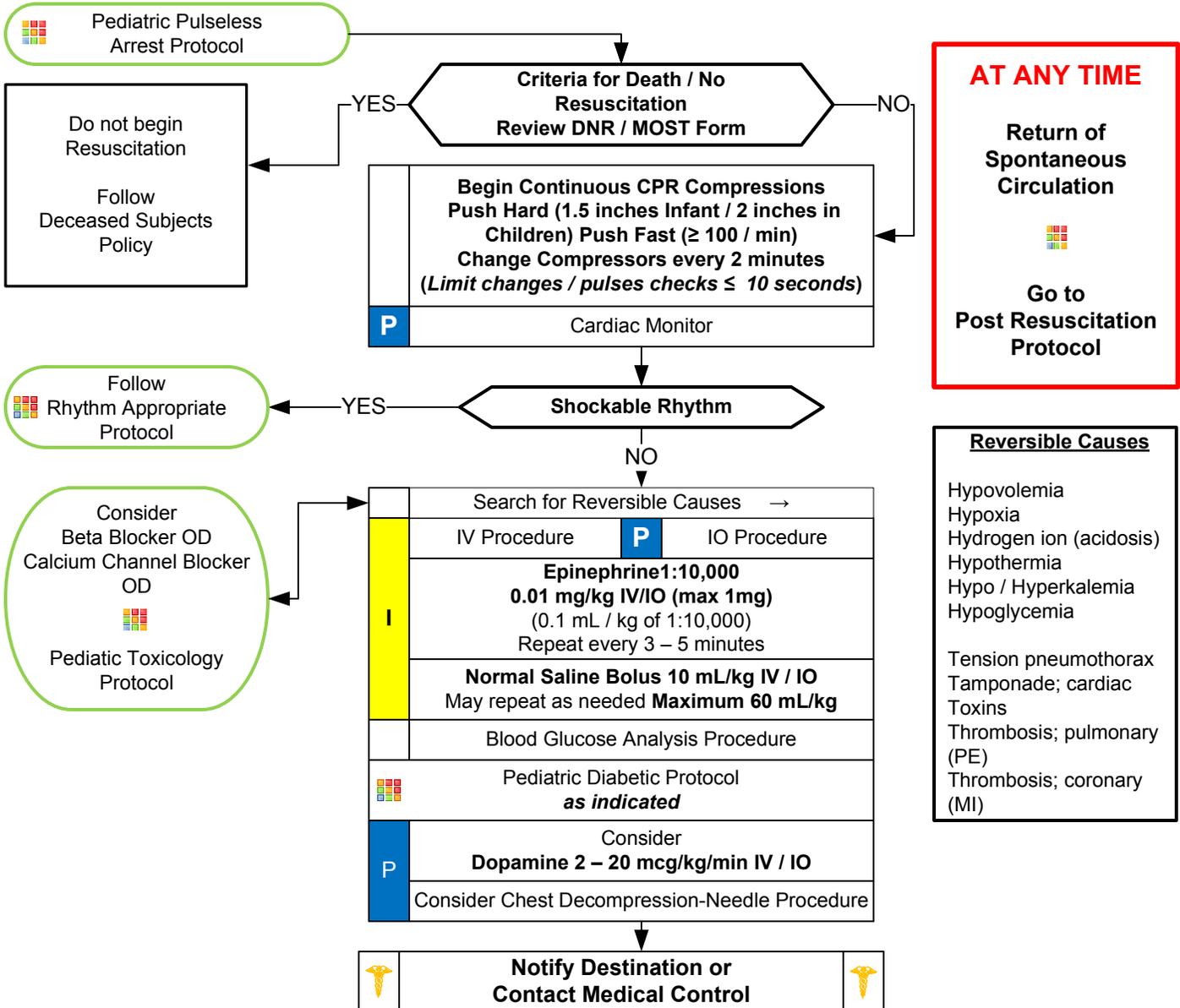
- Events leading to arrest
- Estimated downtime
- Past medical history
- Medications
- Existence of terminal illness
- Airway obstruction
- Hypothermia
- Suspected abuse; shaken baby syndrome, pattern of injuries
- SIDS

## Signs and Symptoms

- Unresponsive
- Cardiac Arrest
- Signs of lividity or rigor

## Differential

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



# Pediatric Asystole / PEA

## Notes:

### Pearls:

- In order to be successful in pediatric arrests, a cause must be identified and corrected.
- Respiratory arrest is a common cause of cardiac arrest. Unlike adults early airway intervention is critical.
- In most cases pediatric airways can be managed by basic interventions.
- If no IV / IO access may use **Epinephrine 1:1000 0.1 mg/kg (0.1 mL/kg)** via ETT (**Maximum 10 mg**)

### Disposition:

**EMS Transport:**      **ALS:** All patients unless directed otherwise by **Medical Control**

## Protocol 48

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director

## History

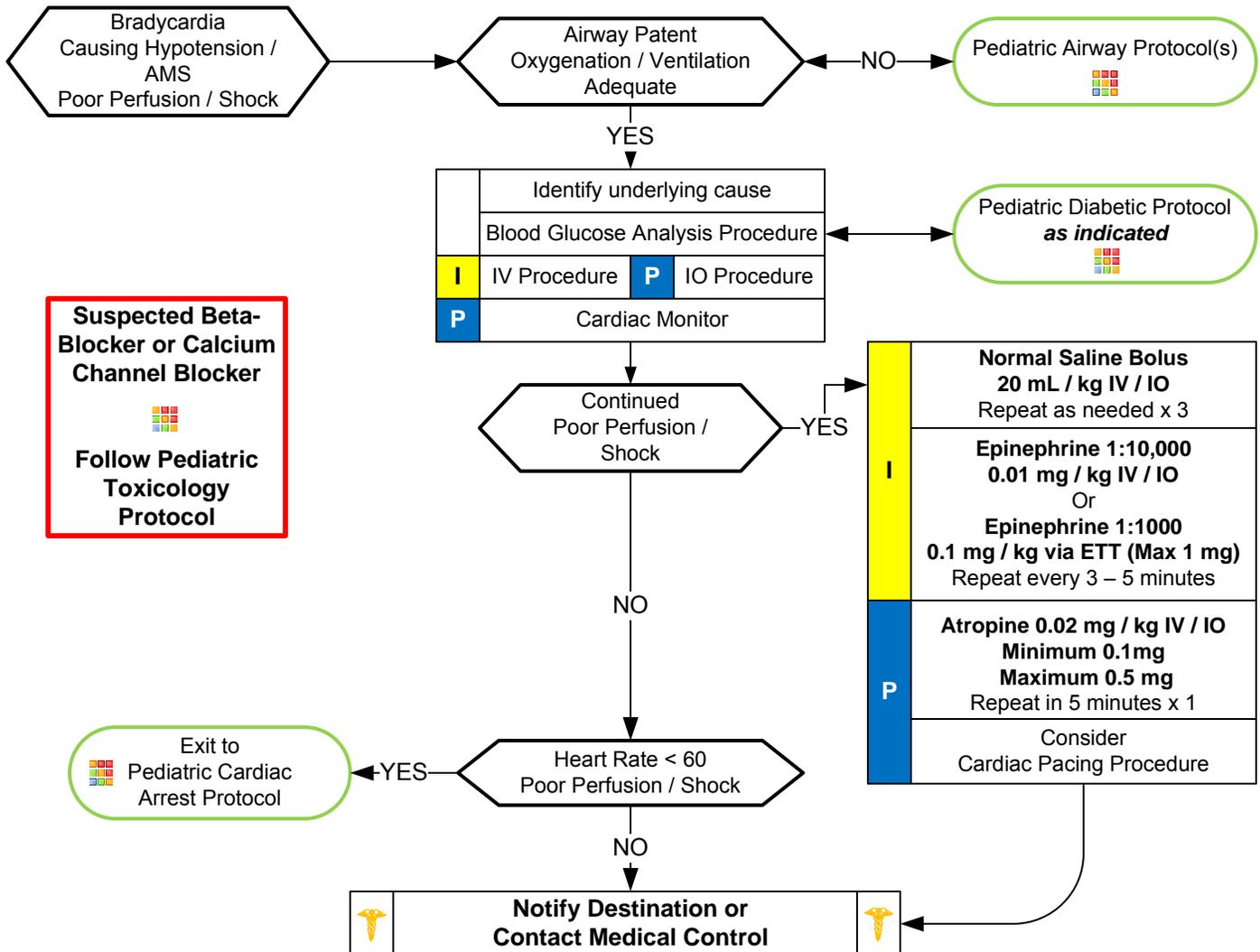
- Past medical history
- Foreign body exposure
- Respiratory distress or arrest
- Apnea
- Possible toxic or poison exposure
- Congenital disease
- Medication (maternal or infant)

## Signs and Symptoms

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

## Differential

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



# Pediatric Bradycardia

## Notes:

### Pearls:

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

### Disposition:

**EMS Transport:**    **ALS:** All patients

## Protocol 49

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

## History

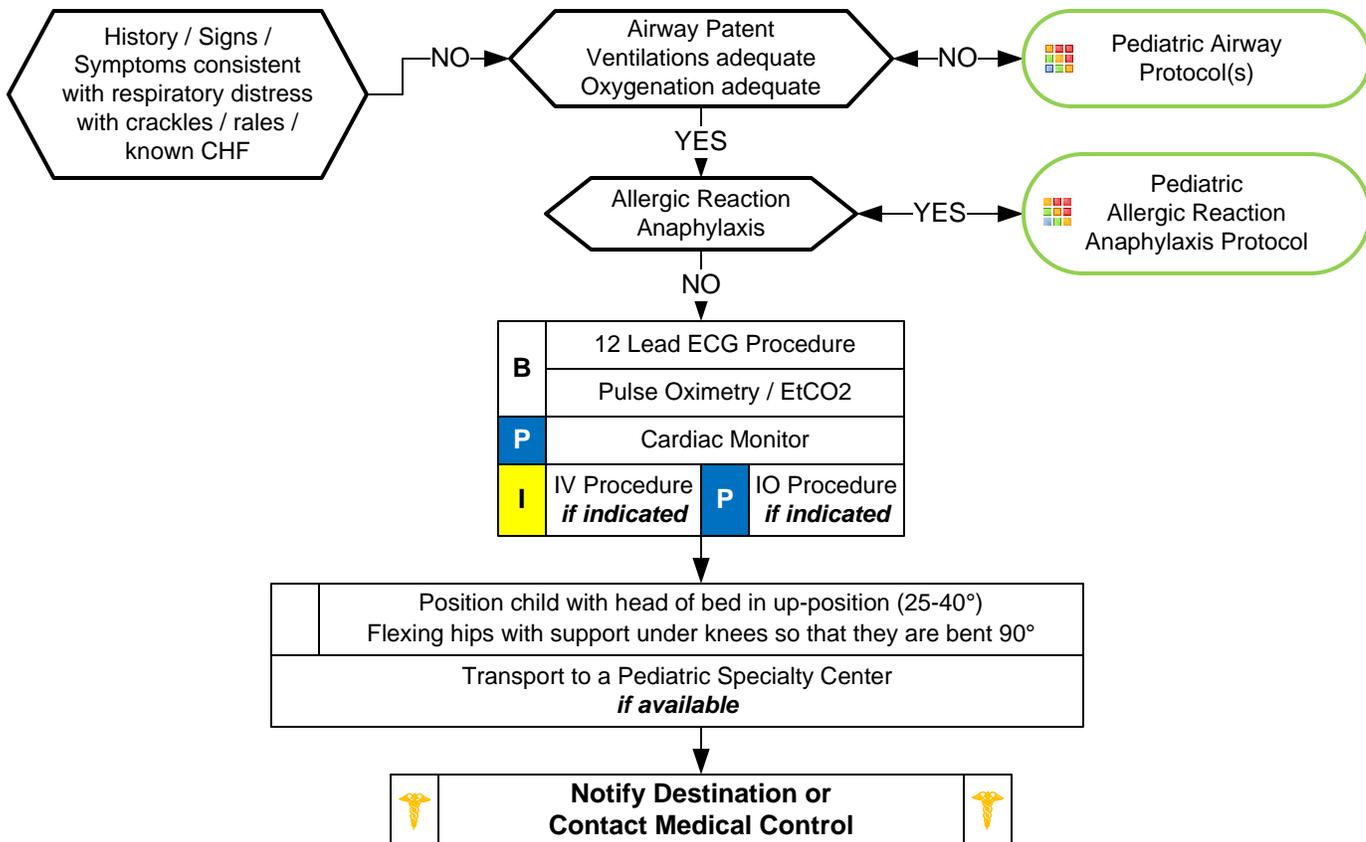
- Congenital Heart Disease
- Chronic Lung Disease
- Congestive heart failure
- Past medical history

## Signs/Symptoms

- Infant: Respiratory distress, poor feeding, lethargy, weight gain, +/- cyanosis
- Child/Adolescent: Respiratory distress, bilateral rales, apprehension, orthopnea, jugular vein distention (rare), pink, frothy sputum, peripheral edema, diaphoresis, chest pain
- Hypotension, shock

## Differential

- Congestive heart failure
- Asthma
- Anaphylaxis
- Aspiration
- Pleural effusion
- Pneumonia
- Pulmonary embolus
- Pericardial tamponade
- Toxic Exposure





# Pediatric Pulmonary Edema / CHF



## Notes:

### Pearls:

- **Recommended exam: Mental status, Respiratory, Cardiac, Skin, Neuro**
- **Contact Medical Control early in the care of the pediatric cardiac patient.**
- **Most children with CHF have a congenital heart defect, obtain a precise past medical history.**
- **Congenital heart disease varies by age:**
  - < 1 month: Tetralogy of Fallot, Transposition of the great arteries, Coarctation of the aorta.
  - 2 – 6 months: Ventricular septal defects (VSD), Atrioseptal defects (ASD).
  - Any age: Myocarditis, Pericarditis, SVT, heart blocks.
- **Treatment of Congestive Heart Failure / Pulmonary edema may vary depending on the underlying cause and may include the following with consultation by Medical Control:**
  - MorphineSulfate: 0.1 mg/kg IV / IO. Max single dose 5mg/dose**
  - Fentanyl: 1 mcg/kg IV / IO. Max single dose 50 mcg.**
  - Nitroglycerin: Dose determined after consultation of Medical Control.**
  - Lasix 1 mg/kg IV / IO.**
  - Dopamine 2 – 20 mcg/kg IV / IO. Titrate to age specific systolic blood pressure.**
- Do not assume all wheezing is pulmonary, especially in a cardiac child: avoid albuterol unless strong history of recurrent wheezing secondary to pulmonary etiology (discuss with Medical Control)

### Disposition:

**EMS Transport:**    **ALS:** All patients

### History

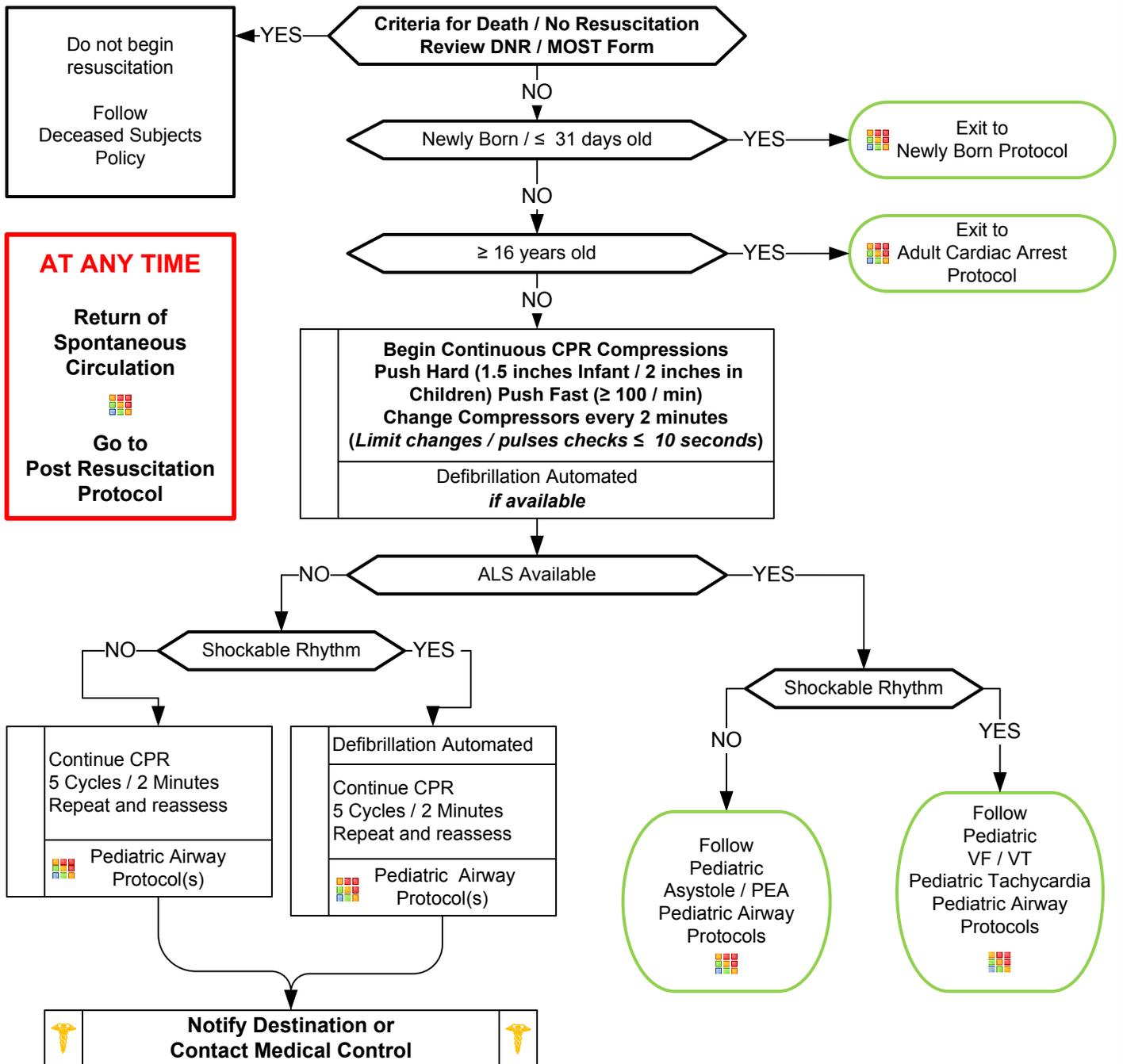
- Time of arrest
- Medical history
- Medications
- Possibility of foreign body
- Hypothermia

### Signs and Symptoms

- Unresponsive
- Cardiac arrest

### Differential

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



Pediatric Cardiac Section Protocols

# Pediatric Pulseless Arrest

## Notes:

### Pearls

- **Recommended Exam: Mental Status**
- **Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated. Compress  $\geq 1/3$  anterior-posterior diameter of chest, in infants 1.5 inches and in children 2 inches. Consider early IO placement if available and / or difficult IV access anticipated.**
- **DO NOT HYPERVENTILATE: If no advanced airway (BIAD, ETT) compressions to ventilations are 30:2. If advanced airway in place ventilate 8 – 10 breaths per minute with continuous, uninterrupted compressions.**
- **Do not interrupt compressions to place endotracheal tube. Consider BIAD first to limit interruptions.**
- Airway is a more important intervention in pediatric arrests. This should be accomplished quickly with BVM or supraglottic device. Patient survival is often dependent on proper ventilation and oxygenation / Airway Interventions.
- Success is based on proper planning and execution. Procedures require space and patient access. Make room to work. Consider Team Focused Approach assigning responders to predetermined tasks.
- Team Focused Approach / Pit-Crew Approach. Refer to optional protocol or development of local agency protocol.
- Reassess and document endotracheal tube placement and EtCO<sub>2</sub> frequently, after every move, and at transfer of care.
- Monophasic and Biphasic waveform defibrillators should use the same energy levels 2 joules / kg and increase to 4 joules / kg on subsequent shocks.
- In order to be successful in pediatric arrests, a cause must be identified and corrected.

### Disposition:

**EMS Transport:**

**ALS:** All patients unless directed otherwise by **Medical Control**

## History

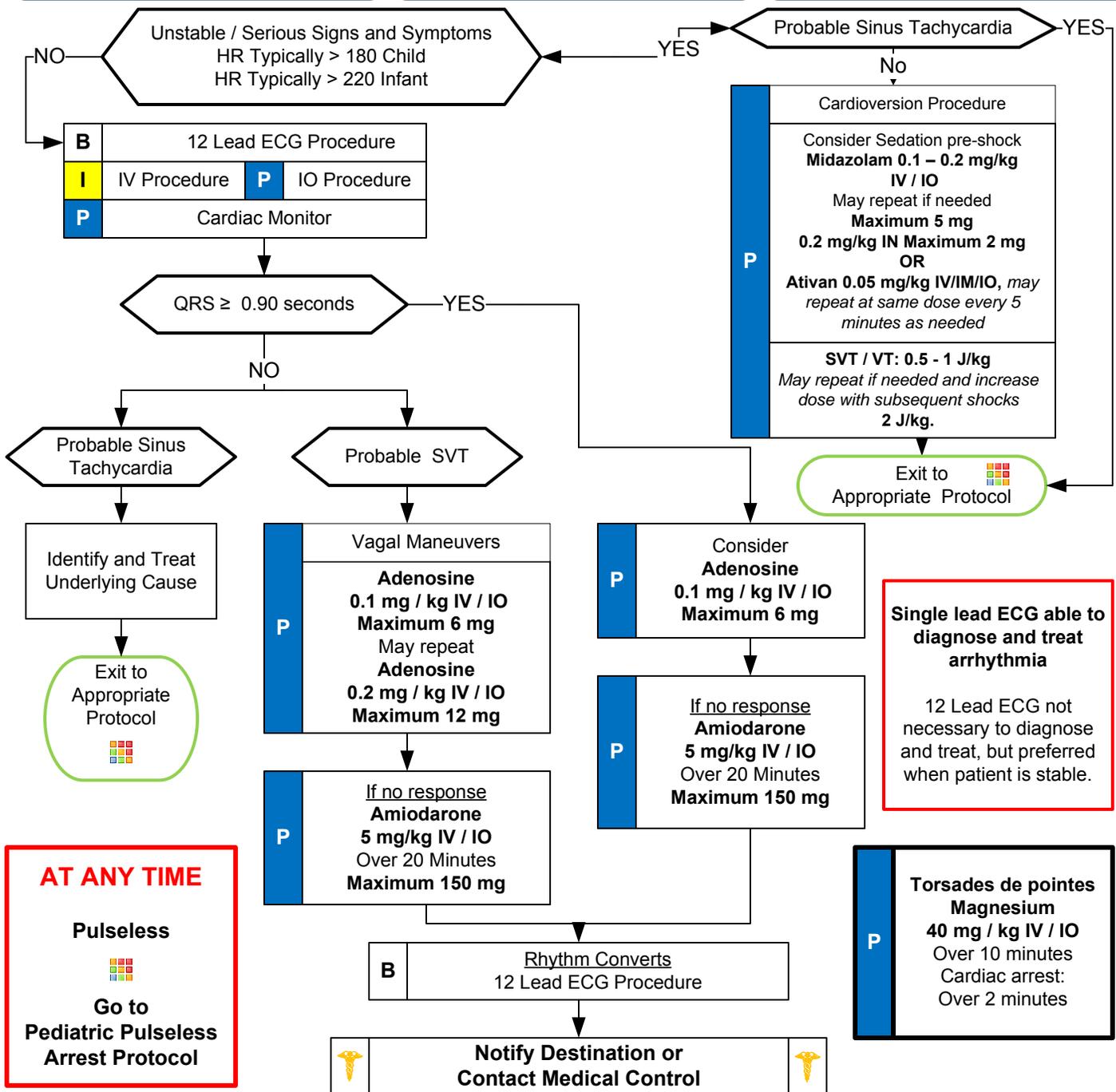
- Past medical history
- Medications or Toxic Ingestion (Aminophylline, Diet pills, Thyroid supplements, Decongestants, Digoxin)
- Drugs (nicotine, cocaine)
- Congenital Heart Disease
- Respiratory Distress
- Syncope or Near Syncope

## Signs and Symptoms

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

## Differential

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



Pediatric Cardiac Section Protocols

# Pediatric Tachycardia

## Notes:

### Pearls:

- **Recommended Exam: Mental Status, Skin, Neck, Lung, Heart, Abdomen, Back, Extremities, Neuro**
- **Serious Signs and Symptoms:**
  - Respiratory distress / failure.
  - Signs of shock / poor perfusion with or without hypotension.
  - AMS
  - Sudden collapse with rapid, weak pulse
- **Narrow Complex Tachycardia ( $\leq 0.09$  seconds):**
  - Sinus tachycardia: P waves present. Variable R-R waves. Infants usually  $< 220$  beats / minute. Children usually  $< 180$  beats / minute.
  - SVT:  $> 90\%$  of children with SVT will have a narrow QRS ( $\leq 0.09$  seconds.) P waves absent or abnormal. R-R waves not variable. Usually abrupt onset. Infants usually  $> 220$  beats / minute. Children usually  $> 180$  beats / minute.
  - Atrial Flutter / Fibrillation
- **Wide Complex Tachycardia ( $\geq 0.09$  seconds):**
  - SVT with aberrancy.
  - VT: Uncommon in children. Rates may vary from near normal to  $> 200$  / minute. Most children with VT have underlying heart disease / cardiac surgery / long QT syndrome / cardiomyopathy.
- **Torsades de Pointes / Polymorphic (multiple shaped) Tachycardia:**
  - Rate is typically 150 to 250 beats / minute.
  - Associated with long QT syndrome, hypomagnesaemia, hypokalemia, many cardiac drugs.
  - May quickly deteriorate to VT.
- **Vagal Maneuvers:**
  - Breath holding. Blowing a glove into a balloon. Have child blow out "birthday candles" or through an obstructed straw. Infants: May put a bag of ice water over the upper half of the face careful not to occlude the airway.
- Separating the child from the caregiver may worsen the child's clinical condition.
- Pediatric paddles should be used in children  $< 10$  kg or Broselow-Luten color Purple if available.
- Monitor for respiratory depression and hypotension associated if Diazepam or Midazolam is used.
- Continuous pulse oximetry is required for all SVT Patients if available.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
- Generally, the maximum sinus tachycardia rate is 220 – the patient's age in years.

### Disposition:

**EMS Transport:**      **ALS:** All patients

## History

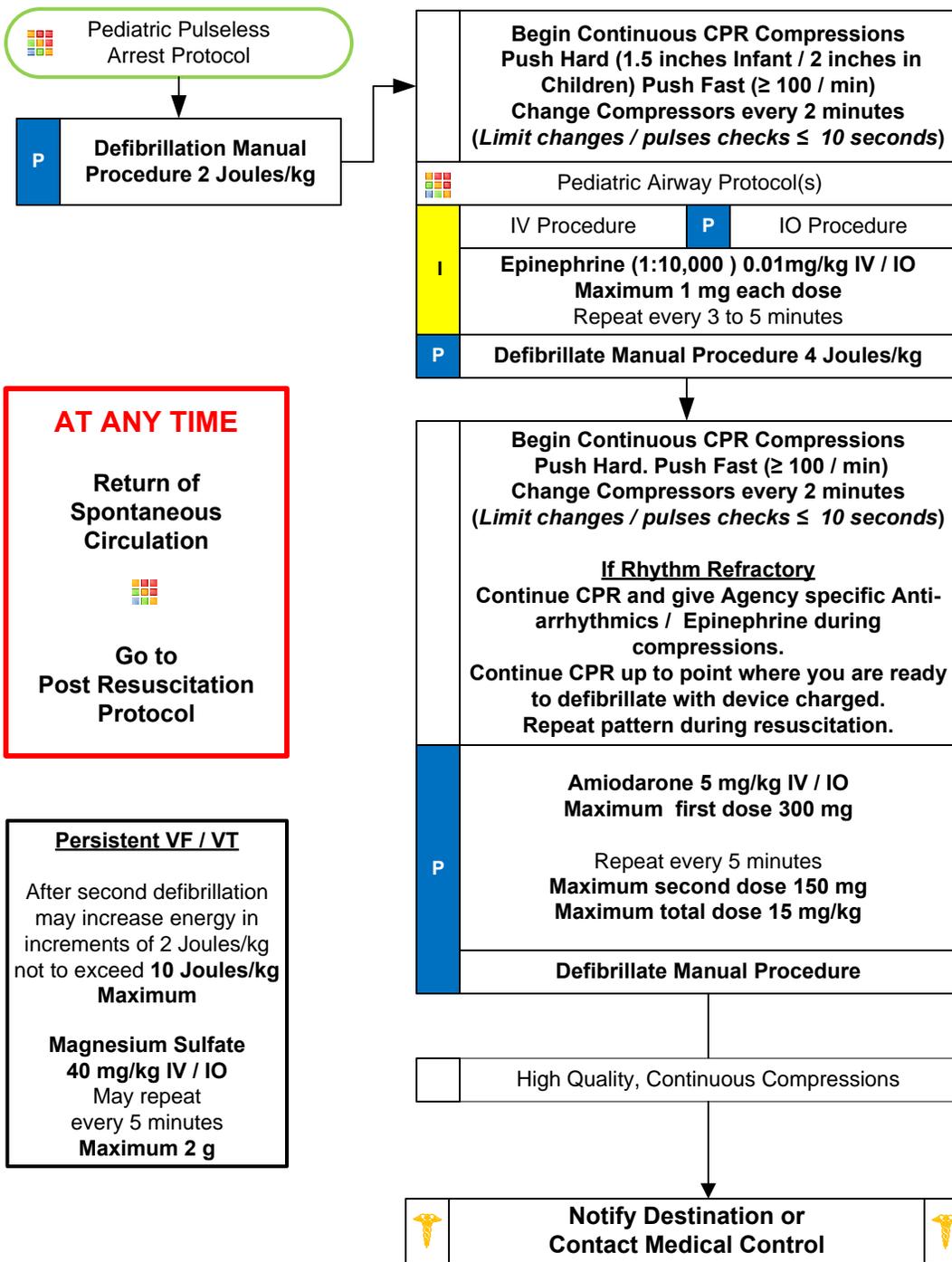
- Events leading to arrest
- Estimated downtime
- Past medical history
- Medications
- Existence of terminal illness
- Airway obstruction
- Hypothermia

## Signs and Symptoms

- Unresponsive
- Cardiac Arrest

## Differential

- Respiratory failure / Airway obstruction
- Hyper / hypokalemia
- Hypovolemia
- Hypothermia
- Hypoglycemia
- Acidosis
- Tension pneumothorax
- Tamponade
- Toxin or medication
- Thrombosis: Coronary / Pulmonary Embolism
- Congenital heart disease



**AT ANY TIME**

Return of Spontaneous Circulation

**Go to Post Resuscitation Protocol**

**Persistent VF / VT**

After second defibrillation may increase energy in increments of 2 Joules/kg not to exceed 10 Joules/kg  
**Maximum**

**Magnesium Sulfate 40 mg/kg IV / IO**  
May repeat every 5 minutes  
**Maximum 2 g**

**Tosades de pointes**

**P** Magnesium Sulfate 40 mg/kg IV / IO  
May repeat every 5 minutes  
**Maximum 2 g**

Pediatric Cardiac Section Protocols

# Pediatric Ventricular Fibrillation Pulseless Ventricular Tachycardia

## Notes:

### Pearls:

- **Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated. Compress  $\geq$  1/3 anterior-posterior diameter of chest, in infants 1.5 inches and in children 2 inches. Consider early IO placement if available and / or difficult IV access anticipated.**
- **DO NOT HYPERVENTILATE: If no advanced airway (BIAD, ETT) compressions to ventilations are 30:2. If advanced airway in place ventilate 8 – 10 breaths per minute with continuous, uninterrupted compressions.**
- **Do not interrupt compressions to place endotracheal tube. Consider BIAD first to limit interruptions.**
- Airway is a more important intervention in pediatric arrests. This should be accomplished quickly with BVM or supraglottic device. Patient survival is often dependent on proper ventilation and oxygenation / Airway Interventions
- In order to be successful in pediatric arrests, a cause must be identified and corrected.
- Respiratory arrest is a common cause of cardiac arrest. Unlike adults early ventilation intervention is critical.
- In most cases pediatric airways can be managed by basic interventions.
- Reassess and document endotracheal tube placement and EtCO<sub>2</sub> frequently, after every move, and at transfer of care.
- Monophasic and Biphasic waveform defibrillators should use the same energy levels 2 joules / kg and increase to 4 joules / kg on subsequent shocks.
- In order to be successful in pediatric arrests, a cause must be identified and corrected.

### Disposition:

**EMS Transport:**      **ALS:** All patients



# Pediatric Post Resuscitation



## History

- Respiratory arrest
- Cardiac arrest

## Signs/Symptoms

- Return of pulse

## Differential

- Continue to address specific differentials associated with the original dysrhythmia

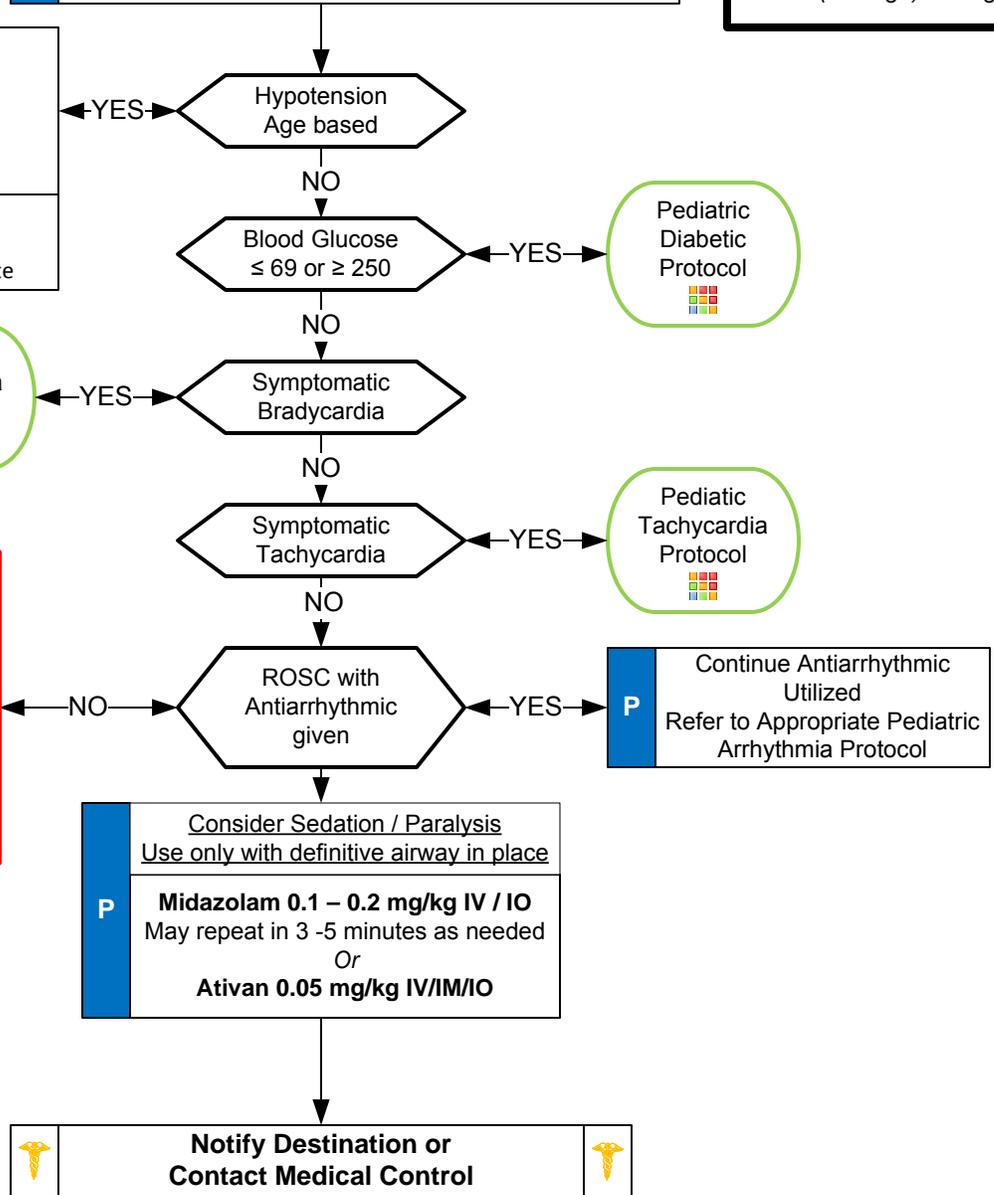
	<b>Repeat Primary Assessment</b>	
<b>B</b>	<b>Optimize Ventilation and Oxygenation</b> <ul style="list-style-type: none"> <li>• Maintain SpO2 ≥ 94 %</li> <li>• Advanced airway if indicated</li> <li>• ETCO2 ideally 35 – 45 mm Hg</li> <li>• Respiratory Rate 8 – 10</li> <li>• Remove Impedence Threshold Device</li> </ul> <b>DO NOT HYPERVENTILATE</b>	
	Monitor Vital Signs / Reassess	
<b>B</b>	12 Lead ECG Procedure	
<b>I</b>	IV Procedure	<b>P</b> IO Procedure
<b>P</b>	Cardiac Monitor	

<b>Hypotension Age Based</b>
<b>0 – 28 Days</b> < 60 mmHg
<b>1 Month to 1 Year</b> < 70 mmHg
<b>1 to 10 Years</b> < 70 + ( 2 x age ) mmHg
<b>11 Years and older</b> < 90 + ( 2 x age ) mmHg

<b>I</b>	<b>Normal Saline Bolus</b> <b>10 mL/kg IV / IO</b> May repeat to <b>60 mL/kg</b> if lungs remain clear
<b>P</b>	<b>Dopamine</b> <b>2 – 20 mcg/kg/min IV / IO</b> Titrate to SBP age appropriate

Arrhythmias are common and usually self limiting after ROSC

If Arrhythmia Persists follow Rhythm Appropriate Protocol



Pediatric Cardiac Section

## Protocol 54

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012

# Pediatric Post Resuscitation

## Notes:

### Pearls:

- **Recommended Exam: Mental Status, Neck, Skin, Lungs, Heart, Abdomen, Extremities, Neuro**
- Hyperventilation is a significant cause of hypotension / recurrence of cardiac arrest in post resuscitation phase and must be avoided.
- Appropriate post-resuscitation management may best be planned in consultation with medical control.

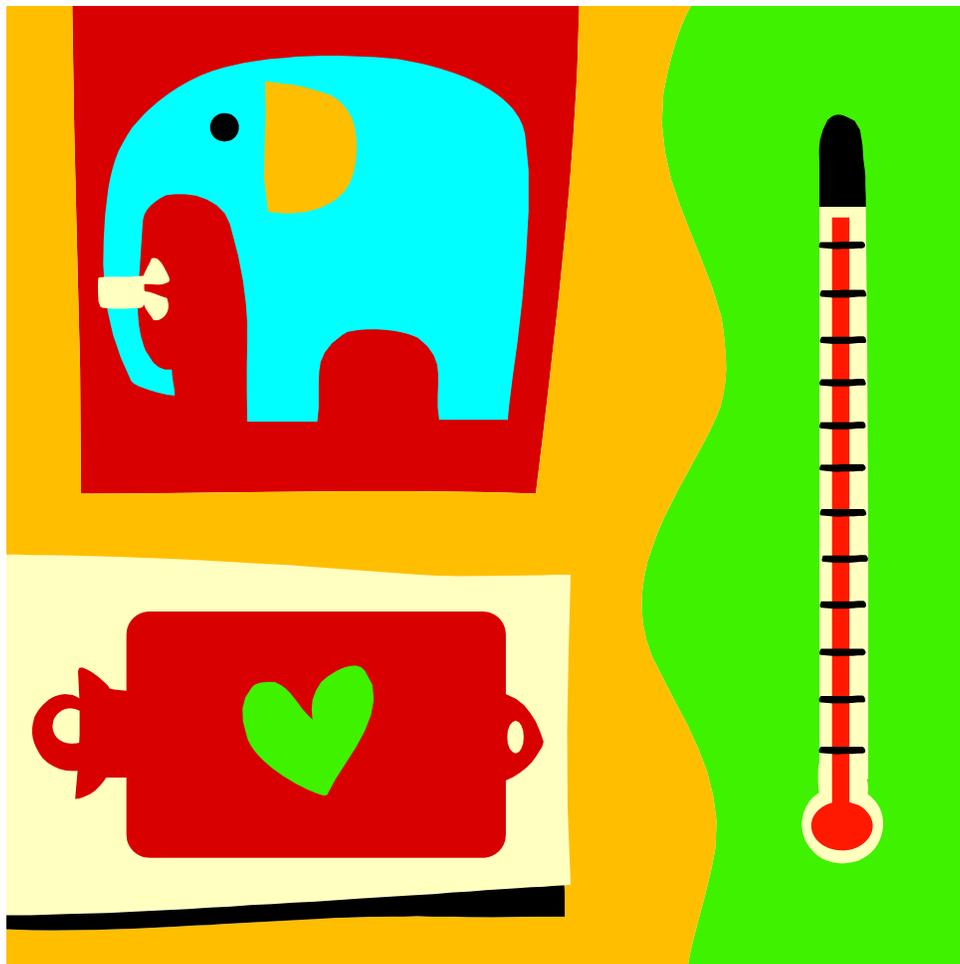
### Disposition:

**EMS Transport:**      **ALS:** All patients

## Protocol 54

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director

# Pediatric Medical





# Pediatric Allergic Reaction



## History

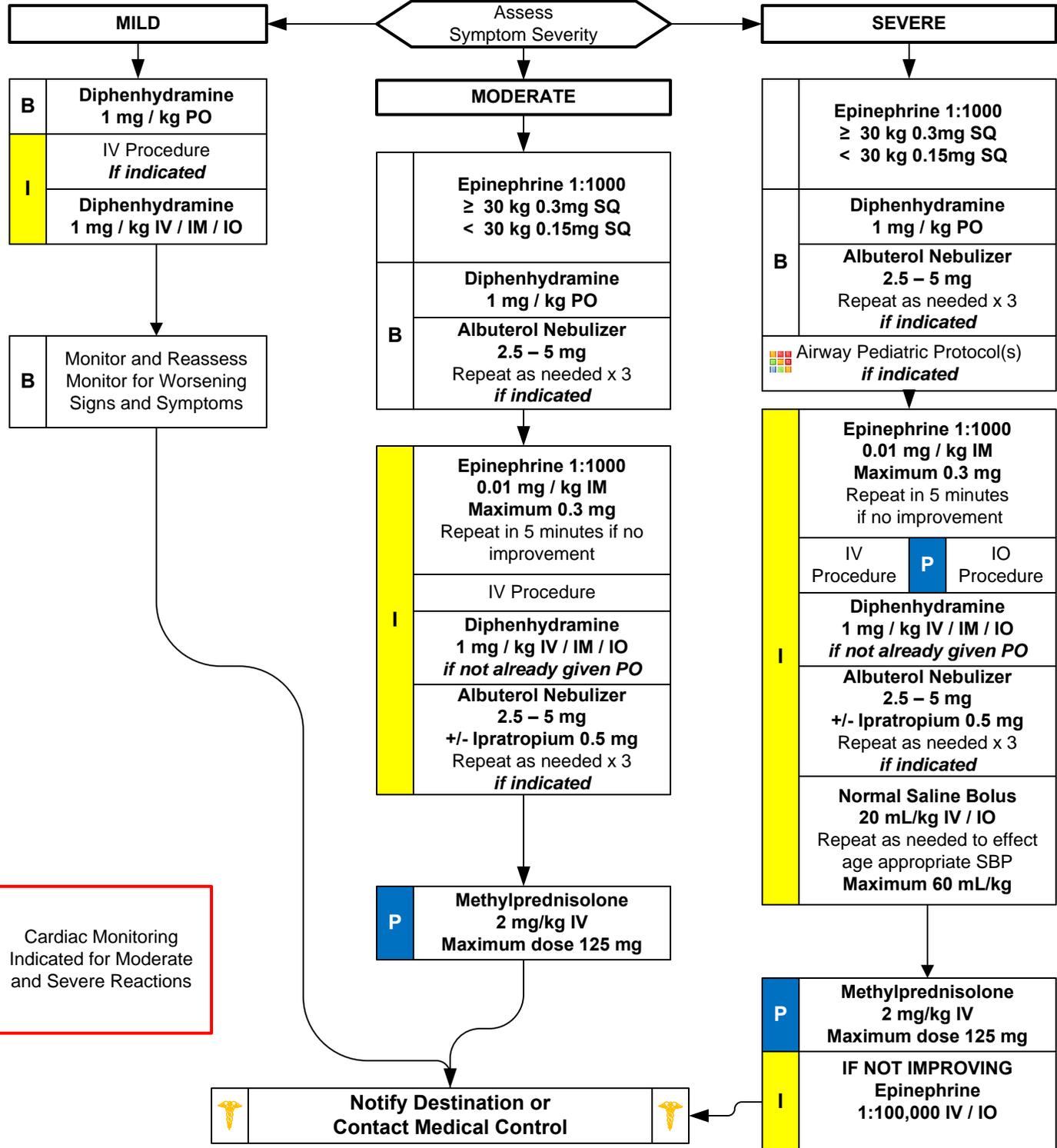
- Onset and location
- Insect sting or bite
- Food allergy / exposure
- Medication allergy / exposure
- New clothing, soap, detergent
- Past medical history / reactions
- Medication history

## Signs and Symptoms

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

## Differential

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



Pediatric Medical Section Protocols

# Pediatric Allergic Reaction

## Notes:

## Pearls

- **Recommended Exam: Mental Status, Skin, Heart, Lungs**
- **Anaphylaxis is an acute and potentially lethal multisystem allergic reaction.**
- **Epinephrine is the drug of choice and the first drug that should be administered in acute anaphylaxis (Moderate / Severe Symptoms.)**
- **IV / IO Epinephrine 1:10,000 (0.01 mg/kg) IVP (max 1 mg) in the presence of Shock. Several dosing regimens exist and should be determined by local medical director.**
- **Symptom Severity Classification:**
  - Mild symptoms:**  
Flushing, hives, itching, erythema with normal blood pressure and perfusion.
  - Moderate symptoms:**  
Flushing, hives, itching, erythema plus respiratory (wheezing, dyspnea, hypoxia) or gastrointestinal symptoms (nausea, vomiting, abdominal pain) with normal blood pressure and perfusion.
  - Severe symptoms:**  
Flushing, hives, itching, erythema plus respiratory (wheezing, dyspnea, hypoxia) or gastrointestinal symptoms (nausea, vomiting, abdominal pain) with hypotension and poor perfusion.
- Allergic reactions may occur with only respiratory and gastrointestinal symptoms and have no rash / skin involvement.
- Angioedema is seen in moderate to severe reactions and is swelling involving the face, lips or airway structures. This can also be seen in patients taking blood pressure medications like Prinivil / Zestril (lisinopril)-typically end in -il.
- Fluids and Medication titrated to maintain a SBP  $>70 + (\text{age in years} \times 2)$  mmHg.
- MR / EMT-B may administer Epinephrine IM as Auto-injector or if approved by Medical Director through the local credentialing process may administer 0.3mg SQ and may administer from EMS supply. EMT-B may administer diphenhydramine by oral route only and may administer from EMS supply.
- EMT-B may administer Albuterol if patient already prescribed and may administer from EMS supply. .
- Patients with moderate and severe reactions should receive a 12 lead ECG and should be continually monitored, but this should NOT delay administration of epinephrine.
- The shorter the onset from exposure to symptoms the more severe the reaction.

## Disposition:

- EMS Transport:** **ALS:** All patients who exhibit abnormal vital signs, facial swelling, and/or receive Epinephrine  
**BLS:** Increased rash, not improved with Diphenhydramine  
Persistent (or recurrent) rash
- MD Within 24 Hours:** Consult with MD and rash with no associated symptoms and responsive to diphenhydramine.



# Pediatric Altered Mental Status



## History

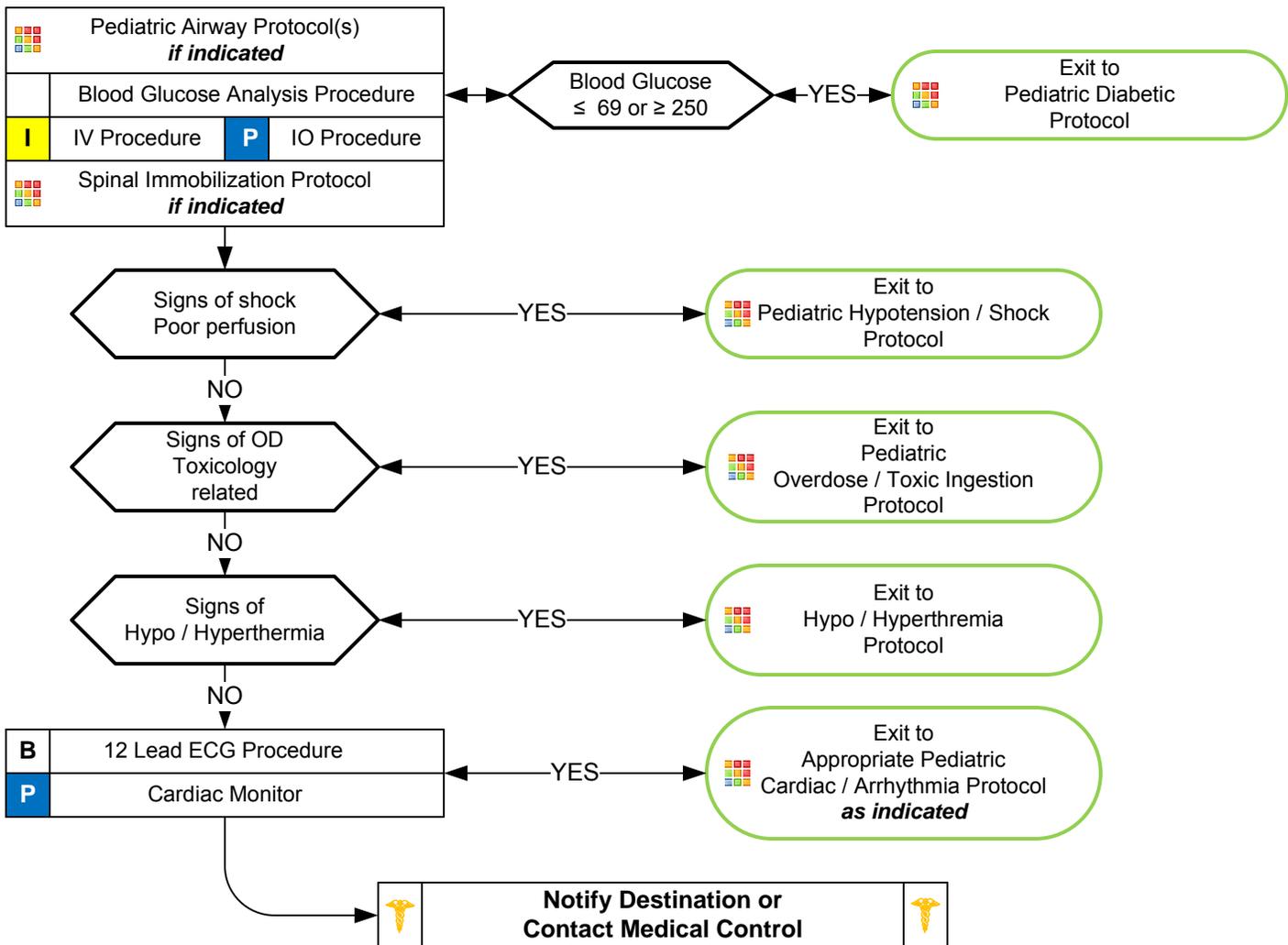
- Past medical history
- Medications
- Recent illness
- Irritability
- Lethargy
- Changes in feeding / sleeping
- Diabetes
- Potential ingestion
- Trauma

## Signs and Symptoms

- Decrease in mentation
- Change in baseline mentation
- Decrease in Blood sugar
- Cool, diaphoretic skin
- Increase in Blood sugar
- Warm, dry, skin, fruity breath, kussmaul respirations, signs of dehydration

## Differential

- Hypoxia
- CNS (trauma, stroke, seizure, infection)
- Thyroid (hyper / hypo)
- Shock (septic-infection, metabolic, traumatic)
- Diabetes (hyper / hypoglycemia)
- Toxicological
- Acidosis / Alkalosis
- Environmental exposure
- Electrolyte abnormalities
- Psychiatric disorder



Pediatric Medical Section Protocols

# Pediatric Altered Mental Status

## Notes:

### Pearls

- **Recommended Exam: Mental Status, HEENT, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro**
- **Pay careful attention to the head exam for signs of bruising or other injury.**
- Be aware of AMS as presenting sign of an environmental toxin or Haz-Mat exposure and protect personal safety.
- It is safer to assume hypoglycemia than hyperglycemia if doubt exists. Recheck blood glucose after Dextrose or Glucagon
- Consider alcohol, prescription drugs, illicit drugs and Over the Counter preparations as a potential etiology.
- Consider Restraints if necessary for patient's and/or personnel's protection per the restraint procedure.

### Disposition:

**EMS Transport:**      **ALS:** All patients unless approved by MD consult

## Protocol 57

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

### History

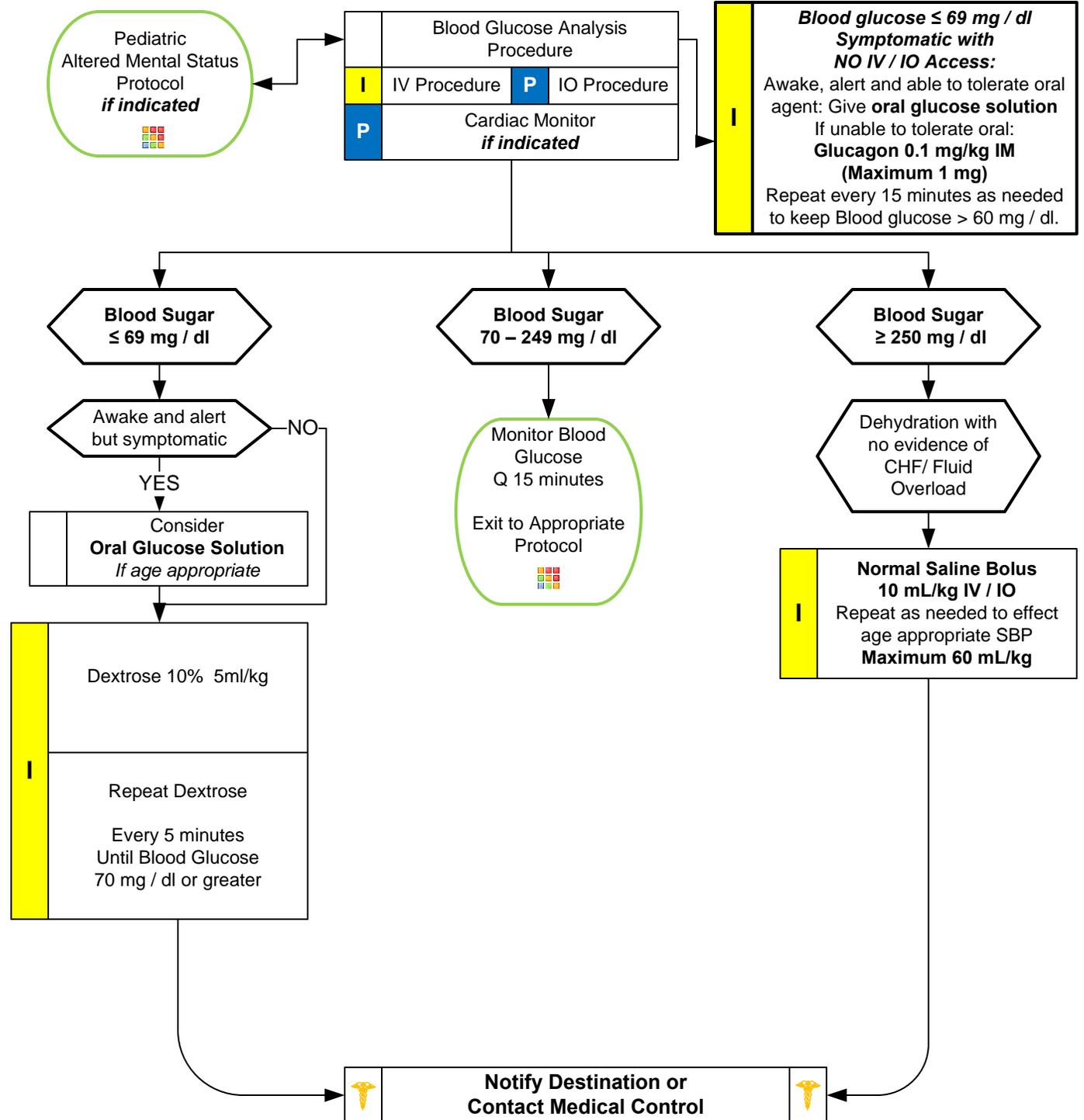
- Past medical history
- Medications
- Recent blood glucose check
- Last meal

### Signs and Symptoms

- Altered mental status
- Combative / irritable
- Diaphoresis
- Seizures
- Abdominal pain
- Nausea / vomiting
- Weakness
- Dehydration
- Deep / rapid breathing

### Differential

- Alcohol / drug use
- Toxic ingestion
- Trauma; head injury
- Seizure
- CVA
- Altered baseline mental status.



## Protocol 58

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

# Pediatric Diabetic

## Notes:

### Pearls:

- **Recommended Exam: Mental Status, HEENT, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro**
- Patients with prolonged hypoglycemia may not respond to glucagon.
- Do not administer oral glucose to patients that are not able to swallow or protect their airway.
- Contact medical control for advice.
- Quality control checks should be maintained per manufacturers recommendation for all glucometers.
- **Patient Refusal:**  
Adult caregiver must be present with pediatric patient. Blood sugar must be 100 or greater and patient has ability to eat and availability of food with responders on scene. Patient must have known history of diabetes and not be taking any oral diabetic agents. Otherwise contact medical control.

### Disposition:

**EMS Transport:**      **ALS:** All patients other than listed below  
**BLS:** Hypoglycemia with normal exam post Dextrose

### History

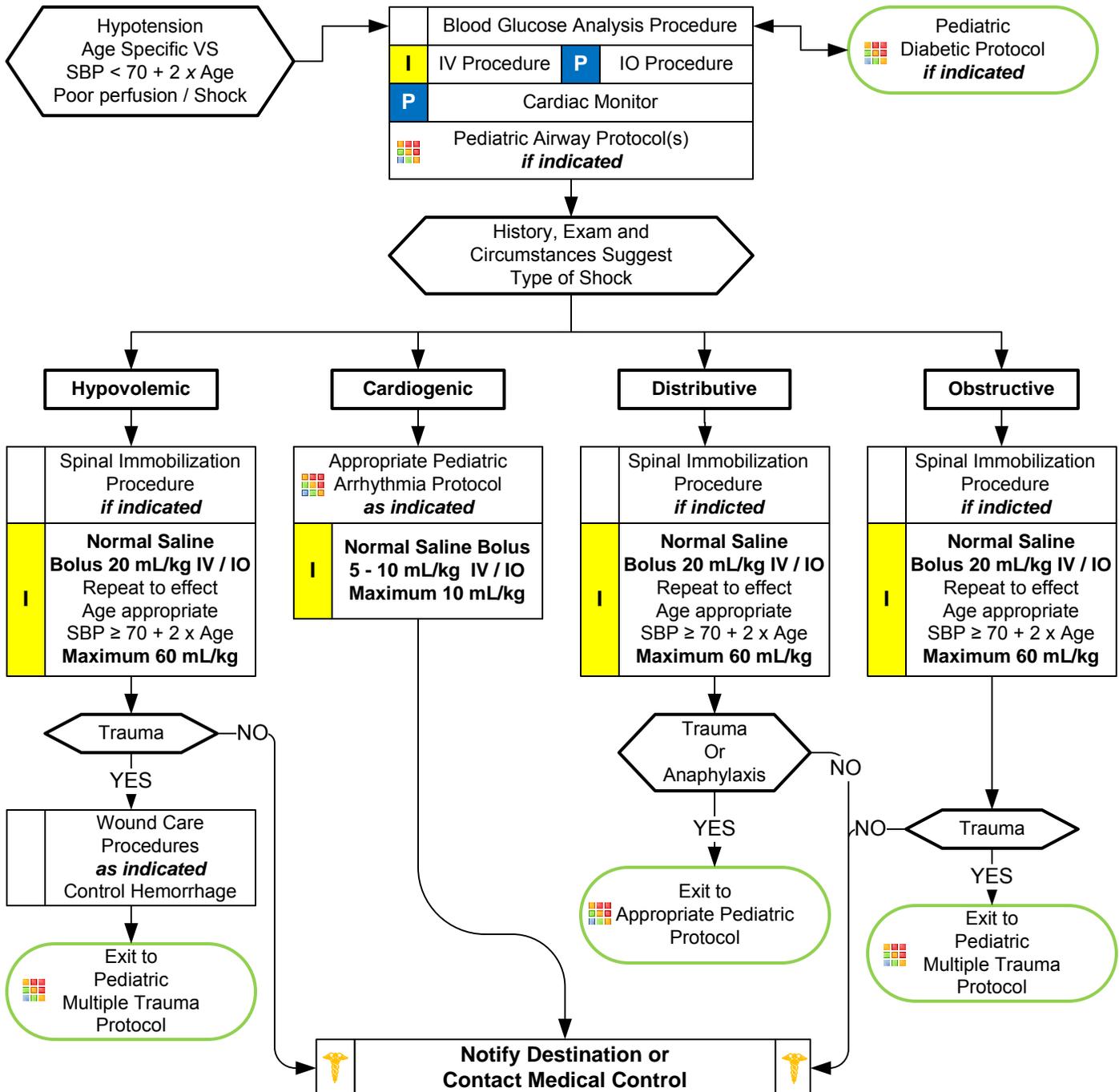
- Blood loss
- Fluid loss
- Vomiting
- Diarrhea
- Fever
- Infection

### Signs and Symptoms

- Restlessness, confusion, weakness
- Dizziness
- Tachycardia
- Hypotension (Late sign)
- Pale, cool, clammy skin
- Delayed capillary refill
- Dark-tarry stools

### Differential

- Shock
  - Hypovolemic
  - Cardiogenic
  - Septic
  - Neurogenic
  - Anaphylactic
- Trauma
- Infection
- Dehydration
- Congenital heart disease
- Medication or Toxin



# Pediatric Hypotension / Shock

## Notes:

## Pearls:

- **Recommended Exam: Mental Status, Skin, Heart, Lungs, Abdomen, Back, Extremities, Neuro**
- **Lowest blood pressure by age: < 31 days: > 60 mmHg. 31 days to 1 year: > 70 mmHg. Greater than 1 year: 70 + 2 x age in years.**
- **Consider all possible causes of shock and treat per appropriate protocol. Majority of decompensation in pediatrics is airway related.**
- **Decreasing heart rate and hypotension occur late in children and are signs of imminent cardiac arrest.**
- **Shock may be present with a normal blood pressure initially.**
- **Shock often is present with normal vital signs and may develop insidiously. Tachycardia may be the only manifestation.**
- **Consider all possible causes of shock and treat per appropriate protocol.**
- **Hypovolemic Shock:**  
Hemorrhage, trauma, GI bleeding, ruptured aortic aneurysm or pregnancy-related bleeding.
- **Cardiogenic Shock:**  
Heart failure: MI, Cardiomyopathy, Myocardial contusion, Ruptured ventricular / septum / valve.
- **Distributive Shock:**  
Sepsis  
Anaphylactic  
Neurogenic: Hallmark is warm, dry, pink skin with normal capillary refill time and typically alert.  
Toxins
- **Obstructive Shock:**  
Pericardial tamponade. Pulmonary embolus. Tension pneumothorax.  
Signs may include hypotension with distended neck veins, tachycardia, unilateral decreased breath sounds or muffled heart sounds.
- **Acute Adrenal Insufficiency:** State where body cannot produce enough steroids (glucocorticoids / mineralocorticoids.) May have primary adrenal disease or more commonly have stopped a steroid like prednisone. Usually hypotensive with nausea, vomiting, dehydration and / or abdominal pain. If suspected EMT-P should give **Methylprednisolone 2 mg/kg IV / IO**

## Disposition:

**EMS Transport:**      **ALS:** All patients



# Pediatric Overdose / Toxic Ingestion



## History

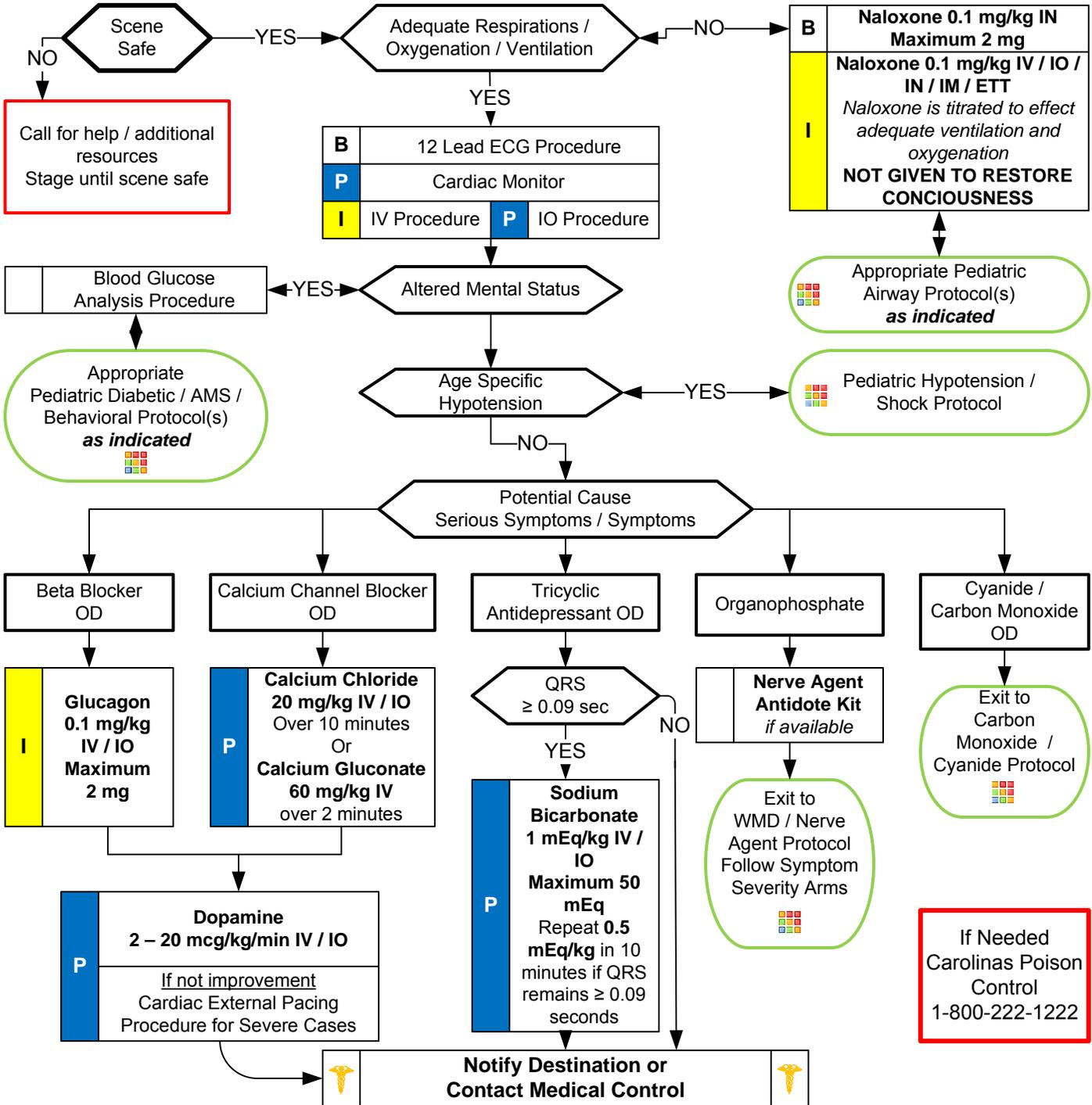
- Ingestion or suspected ingestion of potentially toxic substance
- Substance ingested, route, quantity
- Time of Ingestion is important
- Reason (suicidal, accidental, criminal)
- Available medications in home
- Past medical history, medications, past psychiatric history

## Signs and Symptoms

- Mental status changes
- Hypotension / hypertension
- Decreased respiratory rate
- Tachycardia, dysrhythmias
- Seizures
- Salivation, Lacrimation, Urination; increased, loss of control, Defecation / Diarrhea, GI Upset; Abdominal pain / cramping, Emesis, Muscle Twitching

## Differential

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



Pediatric Medical Section Protocols

# Pediatric Overdose / Toxic Ingestion

## Notes:

### Pearls

- **Recommended Exam: Mental Status, Skin, HEENT, Heart, Lungs, Abdomen, Extremities, Neuro**
- **Do not rely on patient history of ingestion, especially in suicide attempts. Make sure patient is still not carrying other medications or has any weapons. Bring bottles, contents, emesis to ED.**
- **Age specific blood pressure 0 – 28 days > 60 mmHg, 1 month - 1 year > 70 mmHg, 1 - 10 years > 70 + (2 x age)mmHg and 11 years and older > 90 mmHg.**
- **Tricyclic:** 4 major areas of toxicity: seizures, dysrhythmias, hypotension, decreased mental status or coma; rapid progression from alert mental status to death.
- **Acetaminophen:** initially normal or nausea/vomiting. If not detected and treated, causes irreversible liver failure
- **Aspirin:** Early signs consist of abdominal pain and vomiting. Tachypnea and altered mental status may occur later. Renal dysfunction, liver failure, and or cerebral edema among other things can take place later.
- **Depressants:** decreased HR, decreased BP, decreased temperature, decreased respirations, non-specific pupils
- **Stimulants:** increased HR, increased BP, increased temperature, dilated pupils, seizures
- **Anticholinergic:** increased HR, increased temperature, dilated pupils, mental status changes
- **Cardiac Medications:** dysrhythmias and mental status changes
- **Solvents:** nausea, coughing, vomiting, and mental status changes
- **Insecticides:** increased or decreased HR, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils
- Consider restraints if necessary for patient's and/or personnel's protection per the Restraint Procedure.
- **Nerve Agent Antidote kits** contain 2 mg of Atropine and 600 mg of pralidoxime in an autoinjector for self administration or patient care. These kits may be available as part of the domestic preparedness for Weapons of Mass Destruction.
- Consider contacting the North Carolina Poison Control Center for guidance.

### Disposition:

**EMS Transport:**

**ALS:** All patients unless cleared by medical control and there is a responsible adult present who will stay with the patient

### History

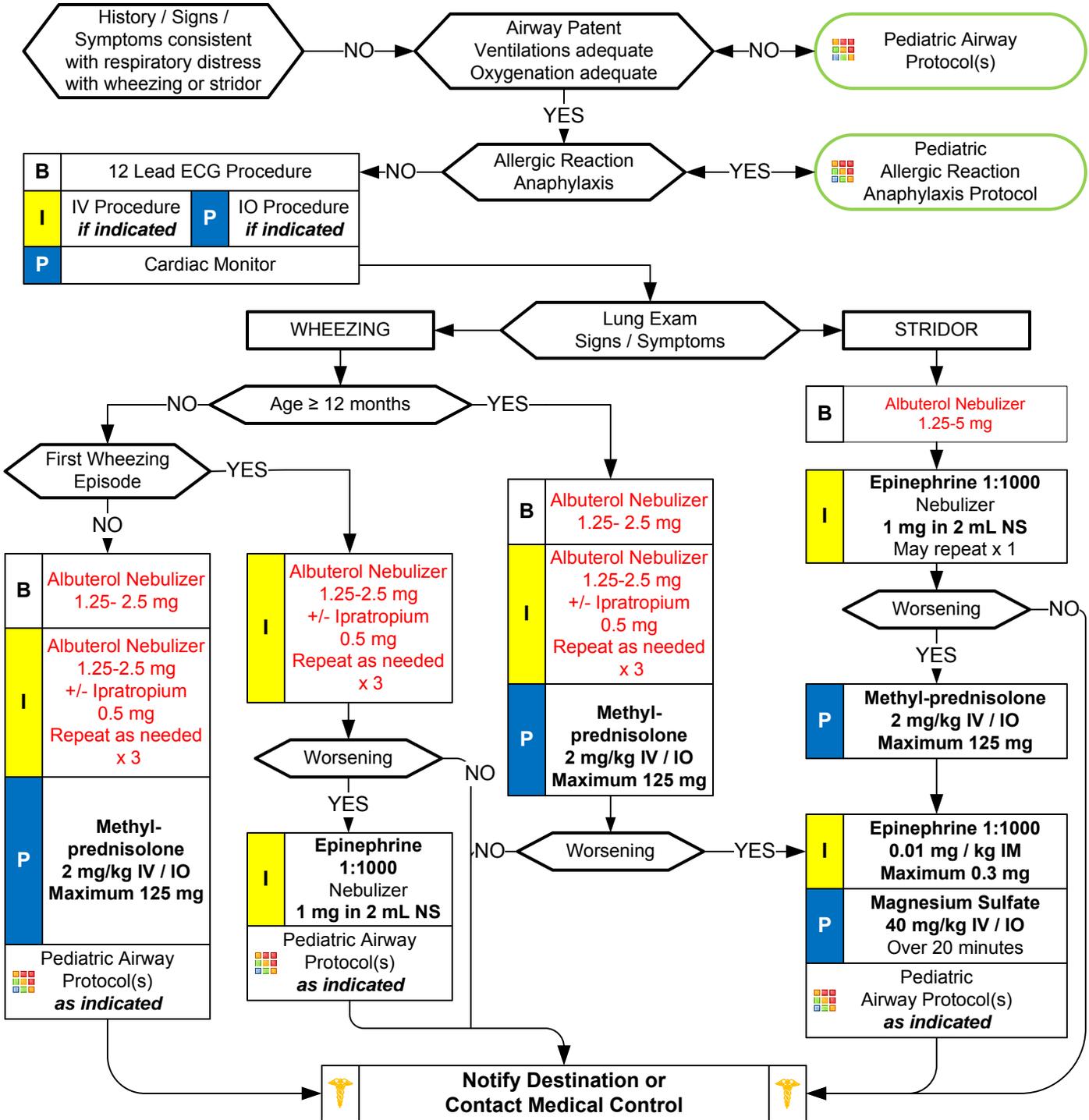
- Time of onset
- Possibility of foreign body
- Past Medical History
- Medications
- Fever / Illness
- Sick Contacts
- History of trauma
- History / possibility of choking
- Ingestion / OD
- Congenital heart disease

### Signs and Symptoms

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

### Differential

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



## Protocol 61

# Pediatric Respiratory Distress

## Notes:

## Pearls:

- **Recommended Exam: Mental Status, HEENT, Skin, Neck, Heart, Lungs, Abdomen, Extremities, Neuro**
- **Items in Red Text are key performance measures used to evaluate protocol compliance and care.**
- **Pulse oximetry should be monitored continuously in the patient with respiratory distress.**
- **EMT-B may administer Albuterol if patient already prescribed and may administer from EMS supply.**
- **Albuterol dosing:  $\leq$  1 year of age 1.25mg; 1-6 years 1.25-2.5 mg; 6-14 years 2.5 mg;  $>$  15 years 2.5-5mg.**
- **Consider IV access when Pulse oximetry remains  $\leq$  92 % after first beta agonist treatment.**
- Do not force a child into a position, allow them to assume position of comfort. They will protect their airway by their body position.
- The most important component of respiratory distress is airway control.
- Bronchiolitis is a viral infection typically affecting infants which results in wheezing which may not respond to beta-agonists. Consider Epinephrine if patient  $<$  18 months and not responding to initial beta-agonist treatment.
- Croup typically affects children  $<$  2 years of age. It is viral, possible fever, gradual onset, no drooling is noted.
- Epiglottitis typically affects children  $>$  2 years of age. It is bacterial, with fever, rapid onset, possible stridor, patient wants to sit up to keep airway open, drooling is common. Airway manipulation may worsen the condition.
- In patients using levalbuterol (Xopenex) you may use Albuterol for the first treatment then use the patient's supply for repeat nebulizers or agency's supply.

<b>Disposition:</b>	<b>EMS Transport:</b>	<b>ALS:</b>	With a Hx of respiratory distress
			Any patient with stridor and all patients other than below
		<b>BLS:</b>	Pulse oximetry $>$ 96%, speaking comfortably post Albuterol, and no retractions
	<b>MD Within 4 Hours:</b>		Asymptomatic post Albuterol, history of respiratory disease AND there is a responsible adult present who will stay with the patient.



# Pediatric Seizure



## History

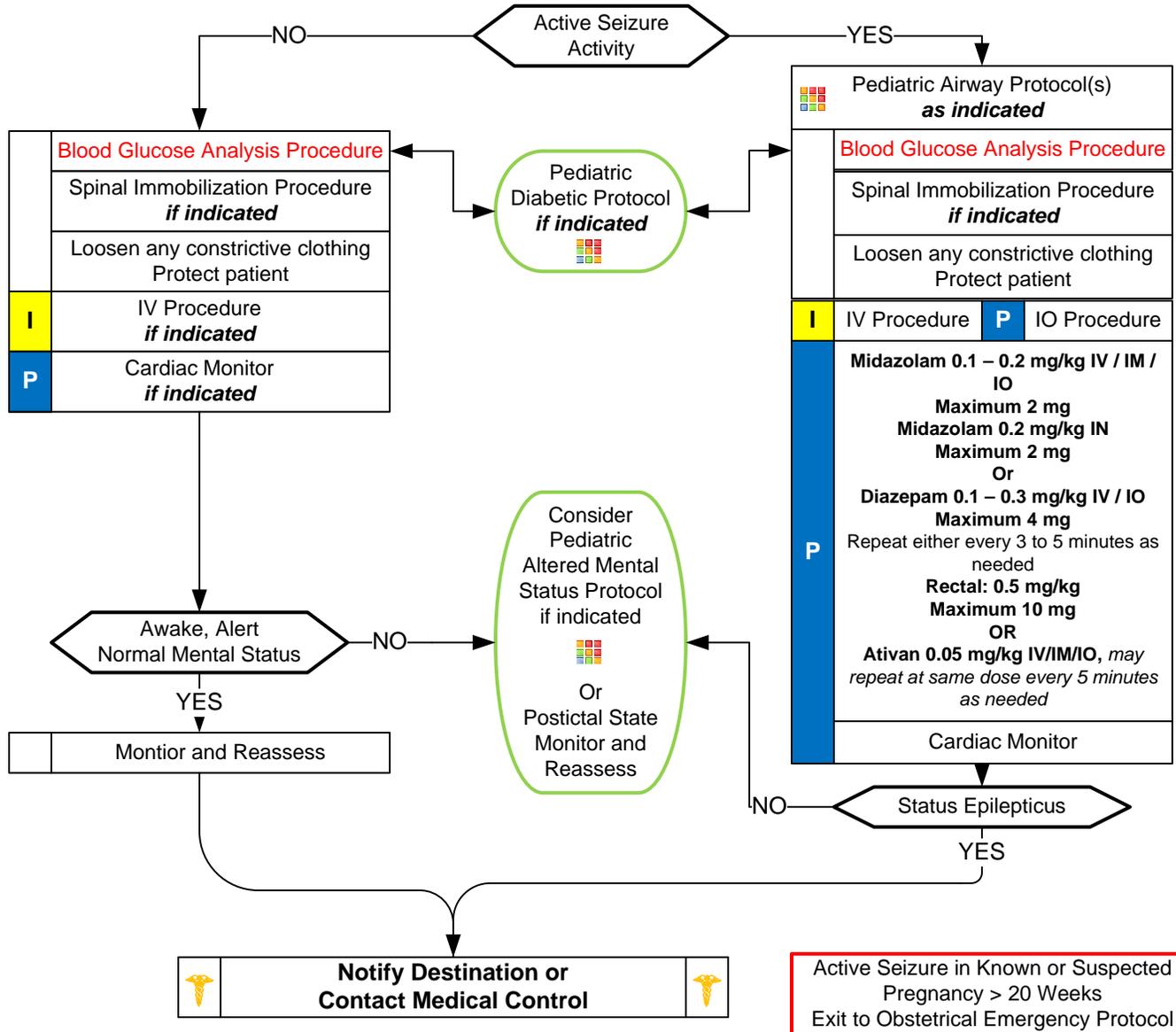
- Fever
- Sick contacts
- Prior history of seizures
- Medication compliance
- Recent head trauma
- Whole body vs unilateral seizure activity
- Duration, Single/multiple
- Congenital Abnormality

## Signs and Symptoms

- Fever; hot, dry skin
- Seizure activity
- Incontinence
- Tongue trauma
- Rash
- Nuchal rigidity
- Altered mental status

## Differential

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



Pediatric Medical Section Protocols

## Protocol 62

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

# Pediatric Seizure

## Notes:

### Pearls:

- **Recommended Exam: Mental Status, HEENT, Heart, Lungs, Extremities, Neuro**
- **Items in Red Text are key performance measures used to evaluate protocol compliance and care**
- **Midazolam 0.2 mg/kg (Maximum 10 mg) IM is effective in termination of seizures. Do not delay IM administration with difficult IV or IO access.**
- Addressing the ABCs and verifying blood glucose is as important as stopping the seizure.
- Be prepared to assist ventilations especially if a benzodiazepine is used. Avoiding hypoxemia is extremely important.
- In an infant, a seizure may be the only evidence of a closed head injury.
- Status epilepticus is defined as two or more successive seizures without a period of consciousness or recovery. This is a true emergency requiring rapid airway control, treatment, and transport.
- Assess possibility of occult trauma and substance abuse, overdose or ingestion / toxins and fever.

### Disposition:

#### EMS Transport

**ALS:** All patients not cleared by medical control and not meeting criteria below

#### MD Within 4 Hours:

Patient with previous seizure history, current seizure typical of history, and paramedic discussion with personal MD or Medical Control determines appropriateness of outpatient MD evaluation and there is a responsible adult present who will stay with the patient.

## Protocol 62

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

### History

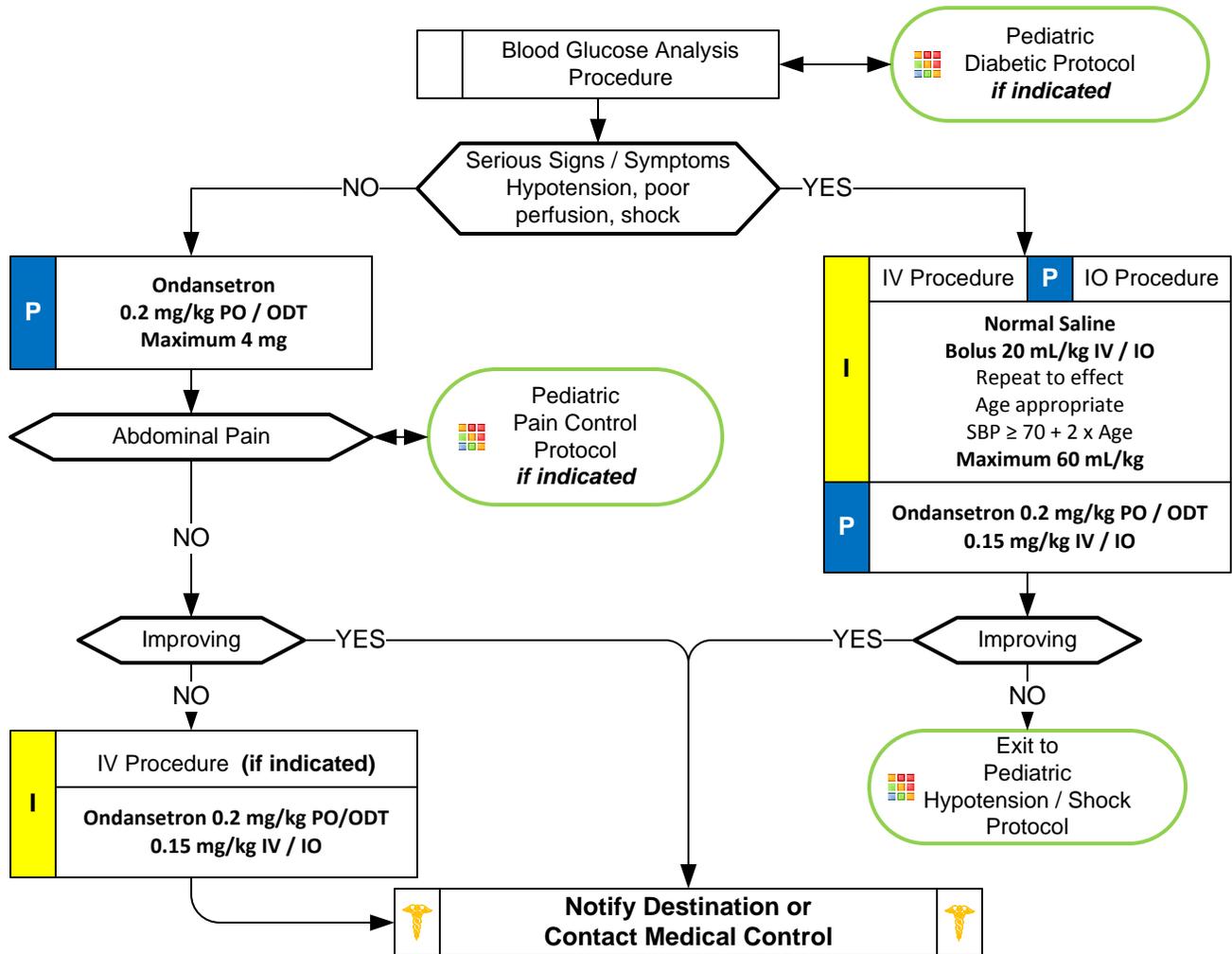
- Age
- Time of last meal
- Last bowel movement / emesis
- Improvement or worsening with food or activity
- Other sick contacts
- Past Medical History
- Past Surgical History
- Medications
- Travel history
- Bloody Emesis or diarrhea

### Signs and Symptoms

- Pain
- Distension
- Constipation
- Diarrhea
- Anorexia
- Fever
- Cough,
- Dysuria

### Differential

- CNS (Increased pressure, headache, tumor, trauma or hemorrhage)
- Drugs
- Appendicitis
- Gastroenteritis
- GI or Renal disorders
- Diabetic Ketoacidosis
- Infections (pneumonia, influenza)
- Electrolyte abnormalities



Pediatric Medical Section Protocols

# Pediatric Vomiting / Diarrhea

## Notes:

### Pearls

- **Recommended Exam: Mental Status, Skin, HEENT, Neck, Heart, Lungs, Abdomen, Back, Extremities, Neuro**
- **Heart Rate: One of the first clinical signs of dehydration, tachycardia increases as dehydration becomes more severe, very unlikely to be significantly dehydrated if heart rate is close to normal.**
- **Age specific blood pressure 0 – 28 days > 60 mmHg, 1 month - 1 year > 70 mmHg, 1 - 10 years > 70 + (2 x age) mmHg and 11 years and older > 90 mmHg.**
- Beware of isolated vomiting in children. Pyloric stenosis, bowel obstruction, and CNS processes (bleeding, tumors, or increased CSF pressures) all often present with vomiting.

### Disposition:

<b>EMS Transport:</b>	<b>ALS:</b> All patients with abnormal vital signs, orthostatic changes or potential for cardiac, CNS, renal, traumatic, or diabetic ketoacidosis etiologies.
<b>MD Within 4 Hours:</b>	<b>BLS:</b> No Orthostatic changes and does not fit criteria below No orthostatic changes, and normal vital signs unless otherwise directed by paramedic-MD consultation and responsible adult present.

## Protocol 63

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director

# Pediatric Trauma





# Pediatric Head Trauma



## History

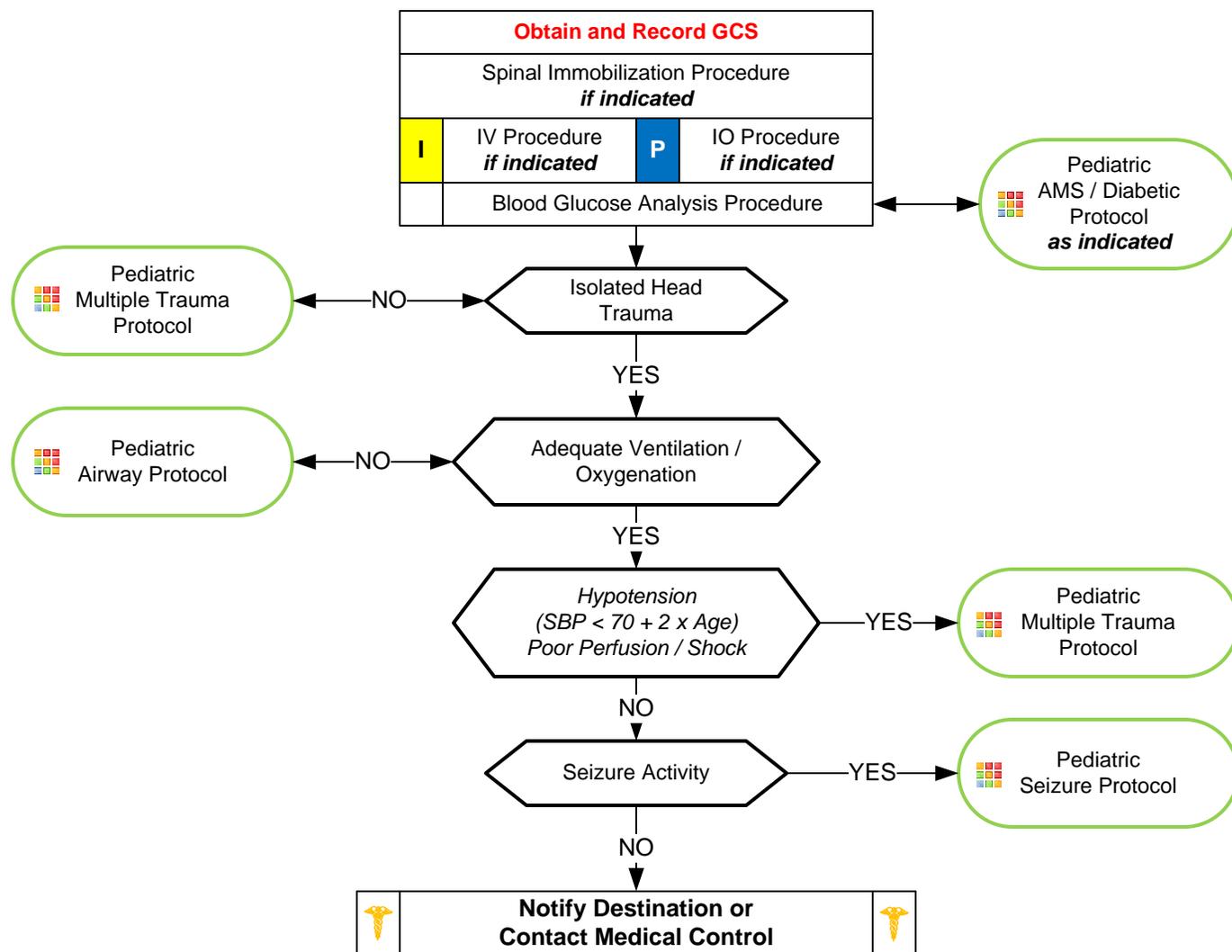
- Time of injury
- Mechanism (blunt vs. penetrating)
- Loss of consciousness
- Bleeding
- Past medical history
- Medications
- Evidence for multi-trauma

## Signs and Symptoms

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

## Differential

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



Pediatric Trauma and Burn Section Protocols

# Pediatric Head Trauma

Notes:

## Pearls:

- **Recommended Exam: Mental Status, HEENT, Heart, Lungs, Abdomen, Extremities, Back, Neuro**
- **GCS is a key performance measure used to evaluate protocol compliance and care**
- **GCS < 14 in the setting of head trauma indicates the need for trauma center evaluation**
- **If GCS < 12 consider air / rapid transport and if GCS < 9 intubation should be anticipated.**
- **Hyperventilate the patient only if evidence of herniation (blown pupil, decorticate / decerebrate posturing, bradycardia, decreasing GCS). If hyperventilation is needed (35 / minute for infants < 1 year and 25 / minute for children > 1 year) EtCO<sub>2</sub> should be maintained between 30 - 35 mmHg.**
- Increased intracranial pressure (ICP) may cause hypertension and bradycardia (Cushing's Response).
- Hypotension usually indicates injury or shock unrelated to the head injury and should be treated aggressively.
- An important item to monitor and document is a change in the level of consciousness by serial examination.
- Concussions are traumatic brain injuries involving any of a number of symptoms including confusion, LOC, vomiting, or headache. Any prolonged confusion or mental status abnormality which does not return to normal within 15 minutes or any documented loss of consciousness should be evaluated by a physician ASAP.
- Fluid resuscitation should be titrated to maintain at least a systolic BP of  $> 70 + 2 \times$  the age in years.

<b>Disposition:</b>	<b>EMS Transport:</b>	<b>ALS:</b>	Patient with abnormal neurologic exam, loss of consciousness, respiratory distress, significant mechanism of injury, or persistent vomiting
		<b>BLS:</b>	Patients with normal neurological exam and physical findings suggestive of a head injury
	<b>MD Within 4 Hours:</b>		Age > than 12 months, Patient with normal Exam, normal vital signs, and none of the above findings.

## Protocol 65

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director



# Pediatric Multiple Trauma



## History

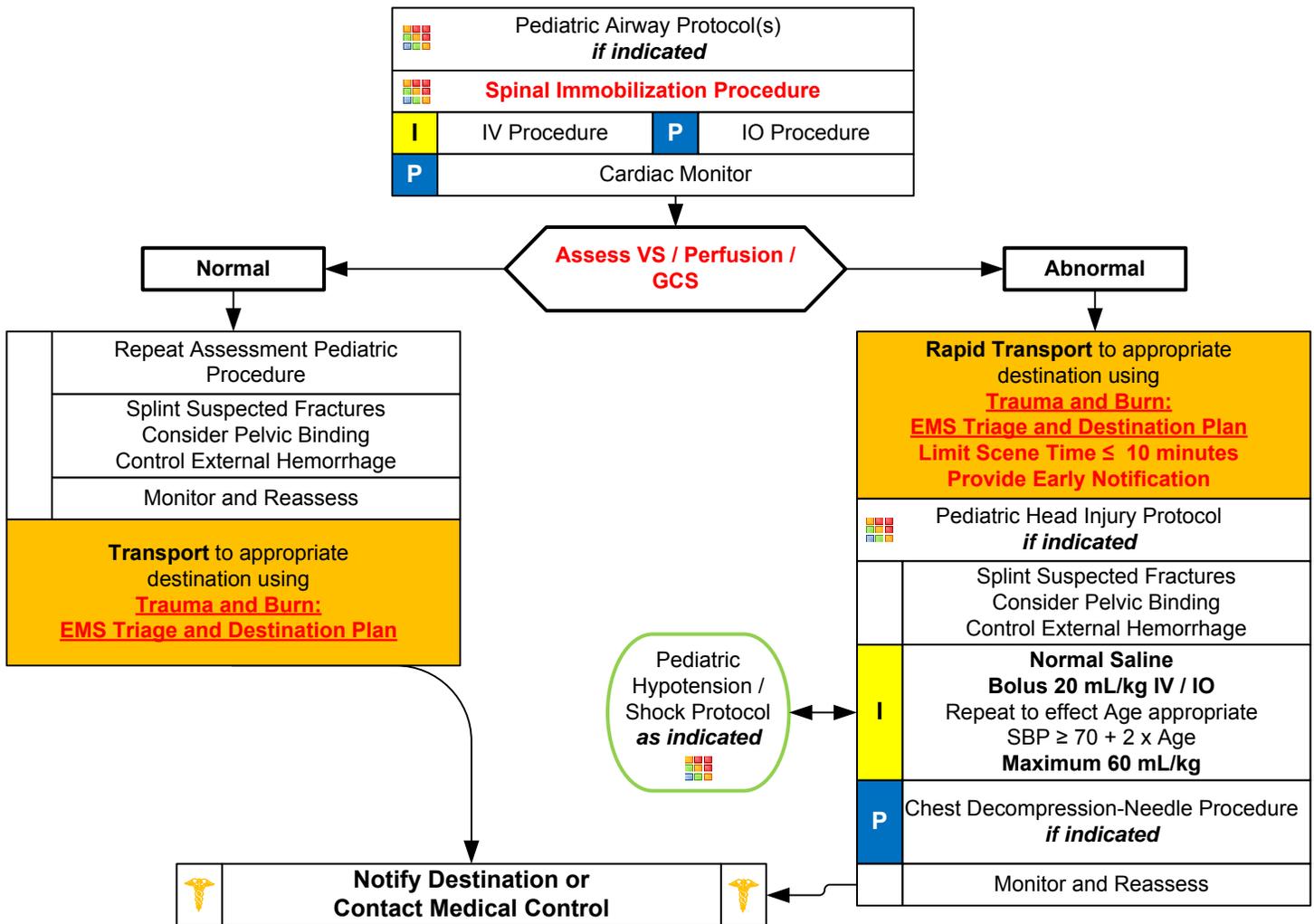
- Time and mechanism of injury
- Damage to structure or vehicle
- Location in structure or vehicle
- Others injured or dead
- Speed and details of MVC
- Restraints / protective equipment
- Past medical history
- Medications

## Signs and Symptoms

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

## Differential

- Chest: Tension pneumothorax  
Flail chest, Hemothorax  
Pericardial tamponade  
Open chest wound
- Intra-abdominal bleeding
- Pelvis / Femur / Spine fracture, cord injury
- Head injury (see Head Trauma)
- Extremity fracture / Dislocation
- HEENT (Airway obstruction)
- Hypothermia



# Pediatric Multiple Trauma

## Notes:

### Pearls:

- **Items in Red Text are key performance measures used in the EMS Acute Trauma Care Toolkit**
- **Scene times should not be delayed for procedures. These should be performed en route when possible. Rapid transport of the unstable trauma patient to the appropriate facility is the goal.**
- **Bag valve mask is an acceptable method of managing the airway if pulse oximetry can be maintained  $\geq 90\%$**
- Age specific blood pressure 0 – 28 days > 60 mmHg, 1 month - 1 year > 70 mmHg, 1 - 10 years > 70 + (2 x age)mmHg and 11 years and older > 90 mmHg.
- Consider Chest Decompression with signs of shock and injury to torso and evidence of tension pneumothorax.
- See Regional Trauma Guidelines when declaring Trauma Activation.
- Severe bleeding from an extremity not rapidly controlled with direct pressure may necessitate the application of a tourniquet.
- Do not overlook the possibility of child abuse.

### Disposition:

#### EMS Transport:

- |             |                      |                                 |                       |
|-------------|----------------------|---------------------------------|-----------------------|
| <b>ALS:</b> | Abnormal exam        | Abnormal vital signs            | Loss of consciousness |
|             | Respiratory distress | Significant mechanism of injury |                       |
| <b>BLS:</b> | All other patients   |                                 |                       |

## Protocol 66

This protocol has been altered from the original 2012 NCEP Protocol by the local EMS Medical Director



# Pediatric Thermal Burn



## History

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

## Signs and Symptoms

- Burns, pain, swelling
- Dizziness
- Loss of consciousness
- Hypotension/shock
- Airway compromise/distress could be indicated by hoarseness/wheezing

## Differential

- Superficial (1<sup>st</sup> Degree) red - painful (Don't include in TBSA)
- Partial Thickness (2<sup>nd</sup> Degree) blistering
- Full Thickness (3<sup>rd</sup> Degree) painless/charred or leathery skin
- Thermal
- Chemical – Electrical

Assess Burn / Concomitant Injury Severity

Minor Burn

Serious Burn

Critical Burn

**< 5% TBSA 2<sup>nd</sup>/3<sup>rd</sup> Degree Burn**  
 No inhalation injury, Not Intubated,  
 Normotensive  
 GCS 14 or Greater

**5-15% TBSA 2<sup>nd</sup>/3<sup>rd</sup> Degree Burn**  
 Suspected inhalation injury or requiring  
 intubation for airway stabilization  
 Hypotension or GCS 13 or Less  
 (When reasonably accessible,  
 transport to a Burn Center)

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

Remove Rings, Bracelets / Constricting Items

Dry Clean Sheet or Dressings

Pediatric Multiple Trauma Protocol *if indicated*

Pediatric Airway Protocol(s) *as indicated*

IV Procedure *if indicated*

**Normal Saline**  
**0.25 mL / kg ( x % TBSA ) / hr**  
 for up to the first 8 hours.  
 (More info below)  
**Lactated Ringers**  
*if available*

Pediatric Pain Control Protocol *if indicated*

Remove Rings, Bracelets / Constricting Items

Dry Clean Sheet or Dressings

Pediatric Multiple Trauma Protocol *if indicated*

Pediatric Airway Protocol(s) *as indicated*

IV Procedure  
Consider 2 IV sites if greater than 15 % TBSA

**Normal Saline**  
**0.25 mL / kg ( x % TBSA ) / hr**  
 for up to the first 8 hours.  
 (More info below)  
**Lactated Ringers**  
*if available*

IO Procedure *if indicated*

Pediatric Pain Control Protocol *if indicated*

Carbon Monoxide / Cyanide Exposure

NO

Transport Facility of Choice

Carbon Monoxide / Cyanide Protocol

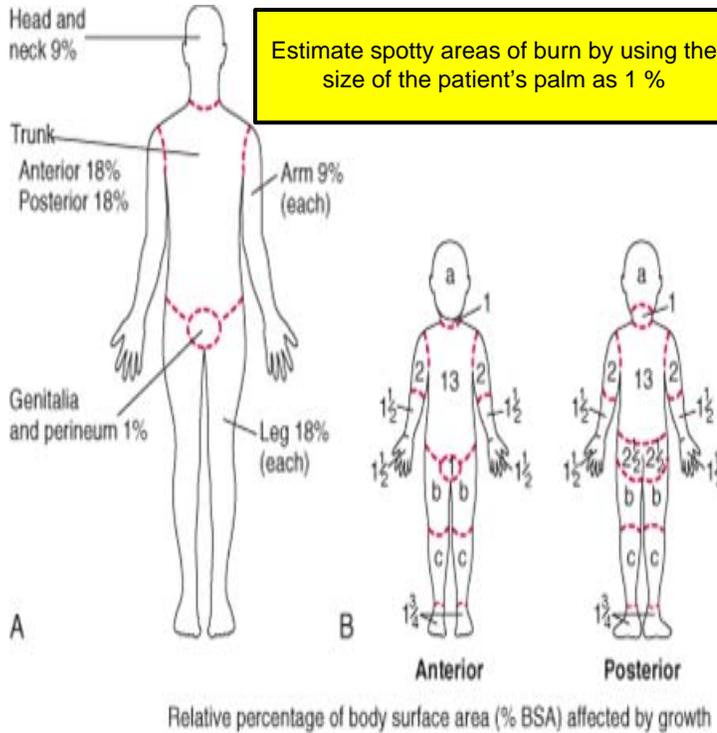
Carbon Monoxide / Cyanide Exposure

NO

**Rapid Transport to appropriate destination using**  
**Trauma and Burn:**  
**EMS Triage and Destination Plan**

Notify Destination or Contact Medical Control

1. Lactated Ringers preferred over Normal Saline. Use if available, if not change over once available.
2. Formula example: an 80 kg (196 lbs.) patient with 50% TBSA will need 1000 cc of fluid per hour.



## Rule of Nines

- Seldom do you find a complete isolated body part that is injured as described in the Rule of Nines.
- More likely, it will be portions of one area, portions of another, and an approximation will be needed.
- For the purpose of determining the extent of serious injury, differentiate the area with minimal or 1<sup>st</sup> degree burn from those of partial (2<sup>nd</sup>) or full (3<sup>rd</sup>) thickness burns.
- For the purpose of determining Total Body Surface Area (TBSA) of burn, include only Partial and Full Thickness burns. Report the observation of other superficial (1<sup>st</sup> degree) burns but do not include those burns in your TBSA estimate.
- Some texts will refer to 4<sup>th</sup> 5<sup>th</sup> and 6<sup>th</sup> degree burns. There is significant debate regarding the actual value of identifying a burn injury beyond that of the superficial, partial and full thickness burn at least at the level of emergent and primary care. For our work, all are included in Full Thickness burns.
- Other burn classifications in general include:
  - 4<sup>th</sup> referring to a burn that destroys the dermis and involves muscle tissue.
  - 5<sup>th</sup> referring to a burn that destroys dermis, penetrates muscle tissue, and involves tissue around the bone.
  - 6<sup>th</sup> referring to a burn that destroys dermis, destroys muscle tissue, and penetrates or destroys bone tissue.

Relative percentage of body surface area (% BSA) affected by growth

Body Part	Age				
	0 yr	1 yr	5 yr	10 yr	15 yr
a = 1/2 of head	9 1/2	8 1/2	6 1/2	5 1/2	4 1/2
b = 1/2 of 1 thigh	2 3/4	3 1/4	4	4 1/4	4 1/2
c = 1/2 of 1 lower leg	2 1/2	2 1/2	2 3/4	3	3 1/4

## Pearls:

- **Recommended Exam: Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, and Neuro**
- **Green, Yellow and Red In burn severity do not apply to the Start / JumpStart Triage System.**

### Critical or Serious Burns:

- **> 5-15% total body surface area (TBSA) 2<sup>nd</sup> or 3<sup>rd</sup> degree burns, or**
- **3<sup>rd</sup> degree burns > 5% TBSA for any age group, or**
- **circumferential burns of extremities, or**
- **electrical or lightning injuries, or**
- **suspicion of abuse or neglect, or**
- **inhalation injury, or**
- **chemical burns, or**
- **burns of face, hands, perineum, or feet, or**
- **any burn requiring hospitalization.**
- Require direct transport to a Burn Center. Local facility should be utilized only if distance to Burn Center is excessive or critical interventions such as airway management are not available in the field.
- Burn patients are trauma patients, evaluate for multisystem trauma.
- Ensure whatever has caused the burn is no longer contacting the injury. (Stop the burning process!)
- Early intubation is required when the patient experiences significant inhalation injuries.
- Circumferential burns to extremities are dangerous due to potential vascular compromise secondary to soft tissue swelling.
- Burn patients are prone to hypothermia - never apply ice or cool the burn, must maintain normal body temperature.
- Evaluate the possibility of child abuse with children and burn injuries.
- Never administer IM pain injections to a burn patient.

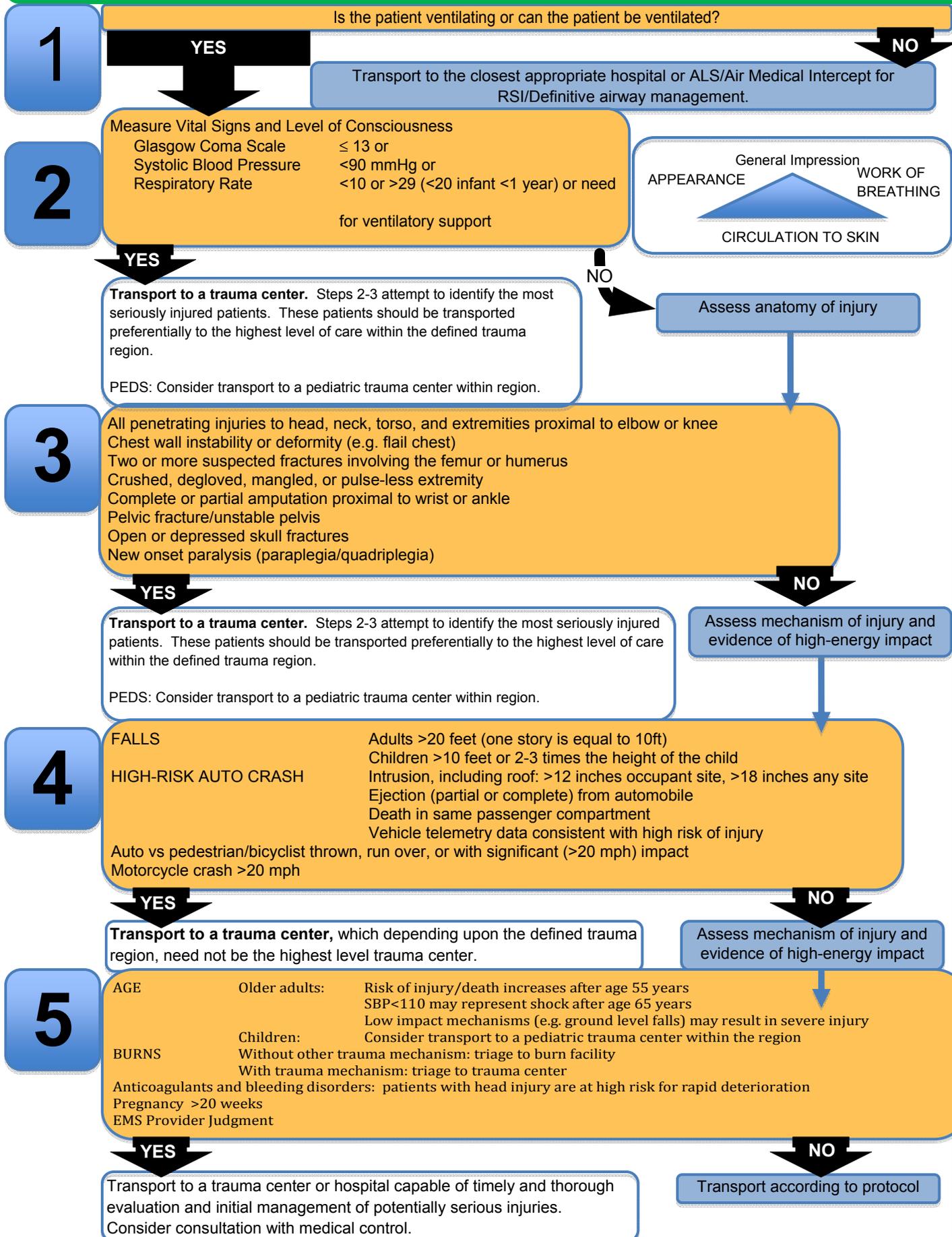
<b>Disposition:</b>	EMS Transport:	ALS:	All chemical, electrical, or radiological burns, all critical burns, any abnormal vital signs, or any suspected inhalation.
		BLS:	Patient with non-critical burns other than below and SPO <sub>2</sub> >96% room air and stable vital signs.
	MD Within 4 Hours:		Superficial burns, stable vital signs and SPO <sub>2</sub> > 96%.

# Adult Pediatric General





# Trauma Field Triage



When in doubt, transport to a Level I or II Trauma Center

# Trauma Field Triage

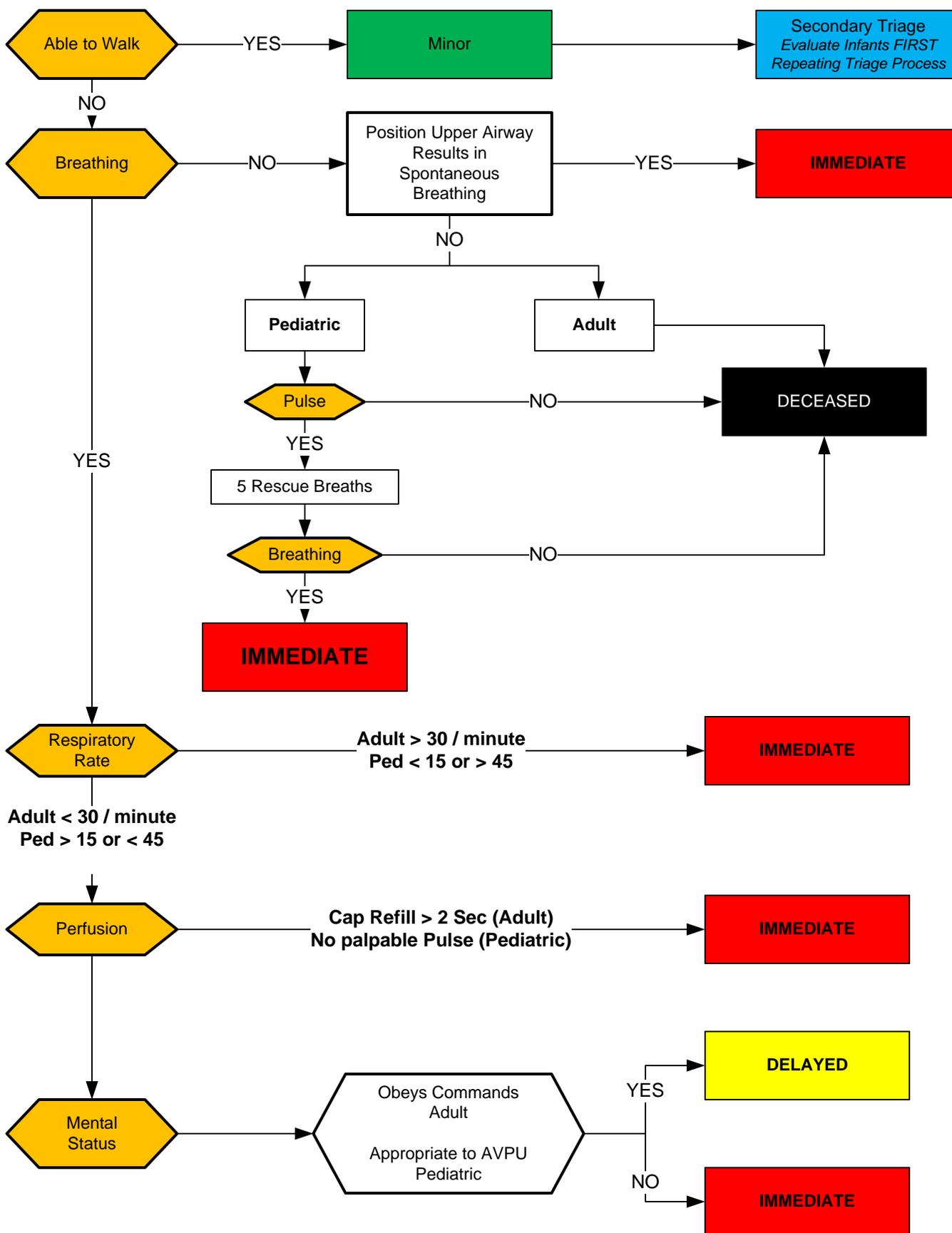
Notes:

## Pearls

- Limit scene time to **10** minutes
- Be sure to provide the trauma center with timely report that includes relevant but concise information
- Pay close attention to systolic blood pressure readings, even one isolated reading at or below 90 systolic may be indicative of impending decompensation



# MCI Triage



Adult / Pediatric General Section Protocols

## Protocol 69

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012



# MCI Triage



Notes:

## Pearls

- First evaluate all children who did not walk under their own power where possible and provider safety allows.
- Capillary refill can be altered by many factors including skin temperature. Age-appropriate heart rate may also be used in triage decisions.



# Dental Problems



## History

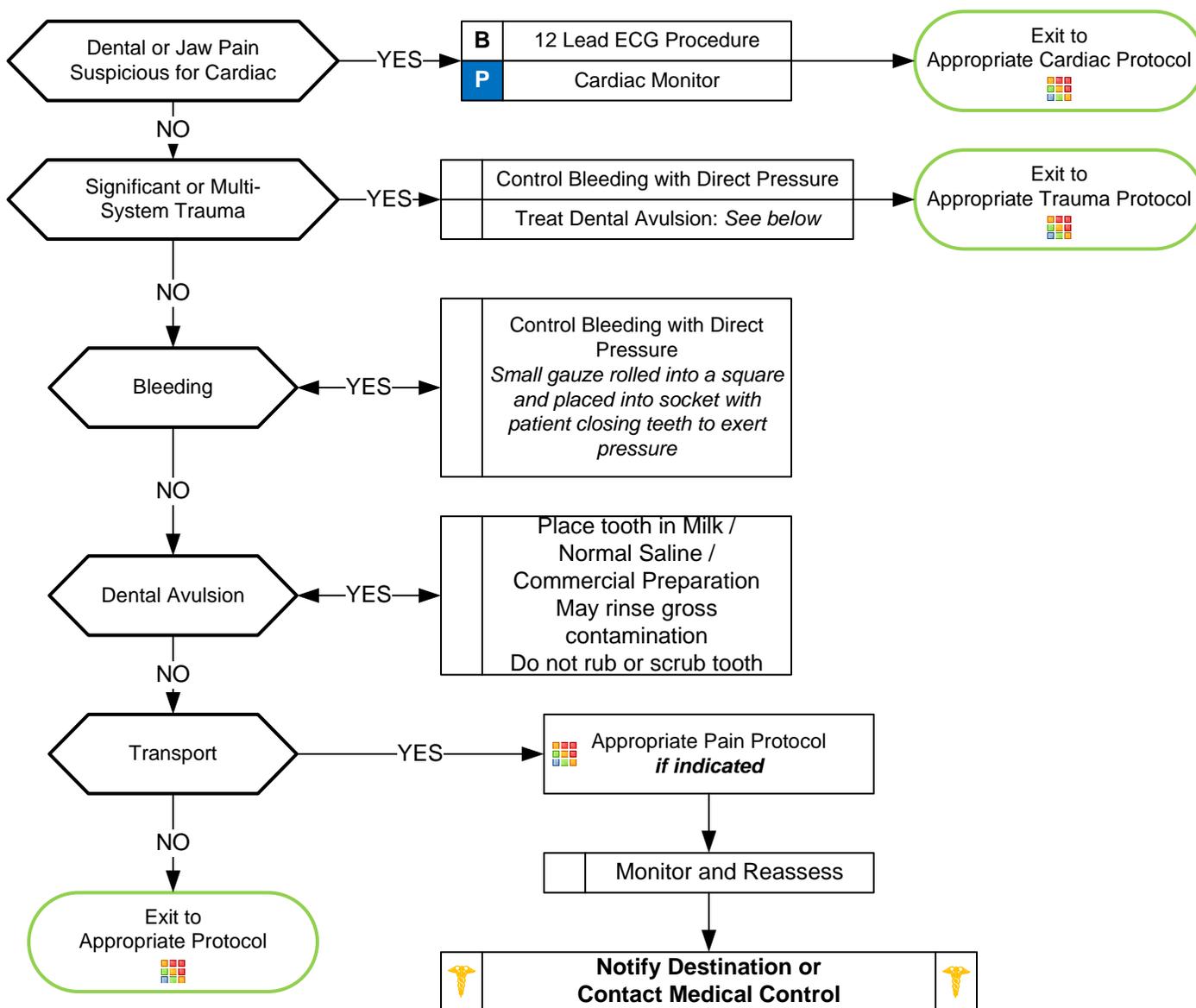
- Age
- Past medical history
- Medications
- Onset of pain / injury
- Trauma with "knocked out" tooth
- Location of tooth
- Whole vs. partial tooth injury

## Signs and Symptoms

- Bleeding
- Pain
- Fever
- Swelling
- Tooth missing or fractured

## Differential

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



Adult / Pediatric General Section Protocols



# Dental Problems



## Notes:

### Pearls:

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

### Disposition:

- EMS Transport:**      **ALS:** Significant soft tissue swelling with potential airway obstruction, atypical pain possibly related to referred cardiac pain
- BLS:** Significant soft tissue swelling or tooth avulsion within 4 hour time frame and no available transportation
- DDS Within 4 Hours:** Isolated tooth problem, minimal soft tissue swelling, normal exam otherwise.
- DDS Within 24 Hours:** No detected abnormality other than tooth pain.

## Protocol 70

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director



# Epistaxis



## History

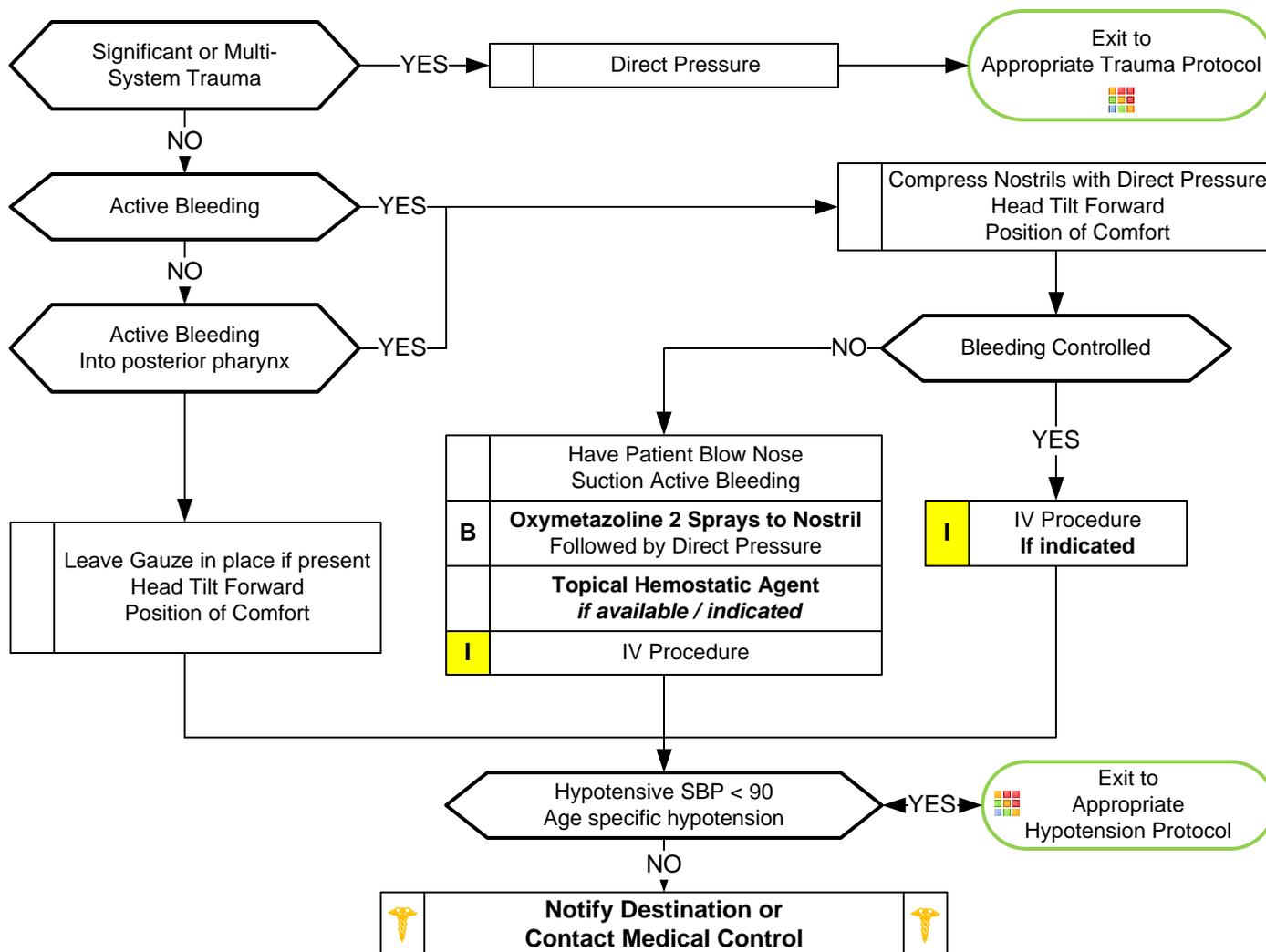
- Age
- Past medical history
- Medications (HTN, anticoagulants, aspirin, NSAIDs)
- Previous episodes of epistaxis
- Trauma
- Duration of bleeding
- Quantity of bleeding

## Signs and Symptoms

- Bleeding from nasal passage
- Pain
- Nausea
- Vomiting

## Differential

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



Adult / Pediatric General Section Protocols



# Epistaxis



## Notes:

### Pearls:

- **Recommended Exam: Mental Status, HEENT, Heart, Lungs, Neuro**
- **Avoid Afrin in patients who have a blood pressure of greater than 110 diastolic or known coronary artery disease.**
- Age specific hypotension: 0 – 28 days < 60 mmHg, 1 month – 1 year < 70 mmHg, 1 year – 10 years < 70 + ( 2 x age)mmHg, 11 years and greater < 90 mmHg.
- It is very difficult to quantify the amount of blood loss with epistaxis.
- Bleeding may also be occurring posteriorly. Evaluate for posterior blood loss by examining the posterior pharynx.
- Anticoagulants include warfarin (Coumadin), heparin, enoxaparin (Lovenox), dabigatran (Pradaxa), rivaroxaban (Xarelto), and many over the counter headache relief powders.
- Anti-platelet agents like aspirin, clopidogrel (Plavix), aspirin/dipyridamole (Aggrenox), and ticlopidine (Ticlid) can contribute to bleeding.

### Disposition:

EMS Transport:	ALS: All patients with orthostatic changes or elevated diastolic BP of > 110 or any airway concerns, any profuse uncontrolled bleeding
	BLS: Patient taking anticoagulants or anti-platelet medication. Any minor continued bleeding despite Afrin and no orthostatic changes.
MD Within 4 Hours:	Resolved epistaxis with no orthostatic changes unless otherwise directed by paramedic-personal MD consultation.

## Protocol 71

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director



# Fever / Infection Control



## History

- Age
- Duration of fever
- Severity of fever
- Past medical history
- Medications
- Immunocompromised (transplant, HIV, diabetes, cancer)
- Environmental exposure
- Last acetaminophen or ibuprofen

## Signs and Symptoms

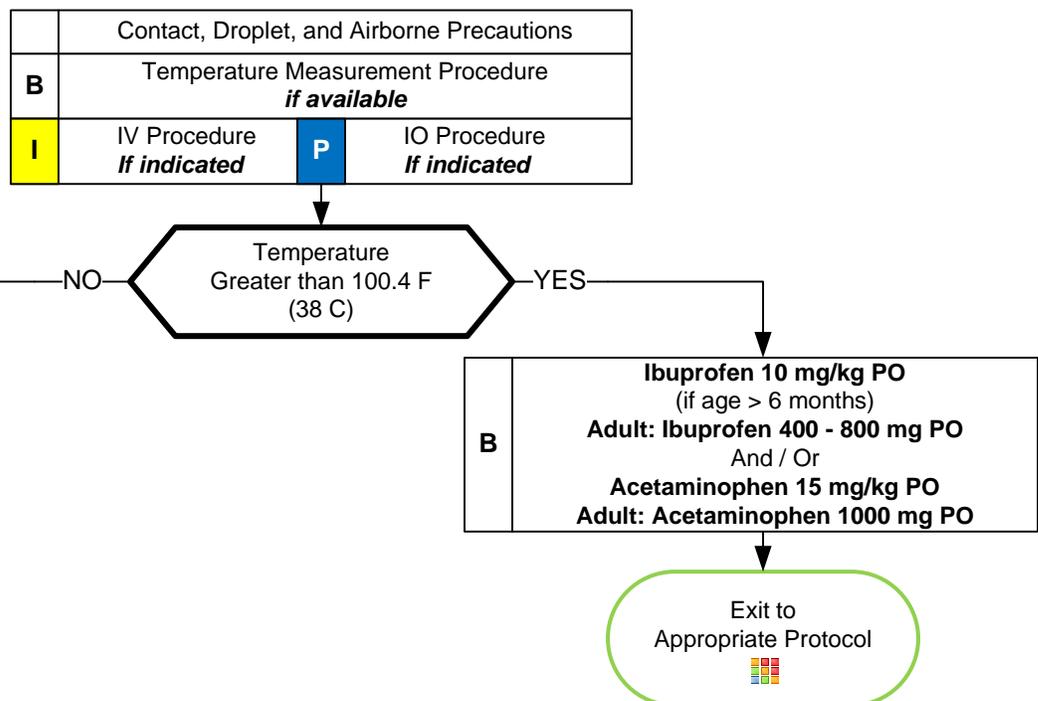
- Warm
- Flushed
- Sweaty
- Chills/Rigors

### Associated Symptoms (Helpful to localize source)

- myalgias, cough, chest pain, headache, dysuria, abdominal pain, mental status changes, rash

## Differential

- Infections / Sepsis
- Cancer / Tumors / Lymphomas
- Medication or drug reaction
- Connective tissue disease
  - Arthritis
  - Vasculitis
- Hyperthyroidism
- Heat Stroke
- Meningitis



## Protocol 72

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director



# Fever / Infection Control



## Notes:

### Pearls:

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

### Disposition:

- EMS Transport:**
- ALS:** Orthostatic patients, pulse oximetry < 92% on room air, ALS transport otherwise based on specific protocol.
  - BLS:** Age < 1 or > 65 and no orthostatic changes, pulse oximetry between 92% and 96%
- MD Within 4 Hours:** Age > 1 and < 65 with no orthostatic changes, normal vital signs, and pulse ox > 96%

## Protocol 72

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director



# Police Custody



## History

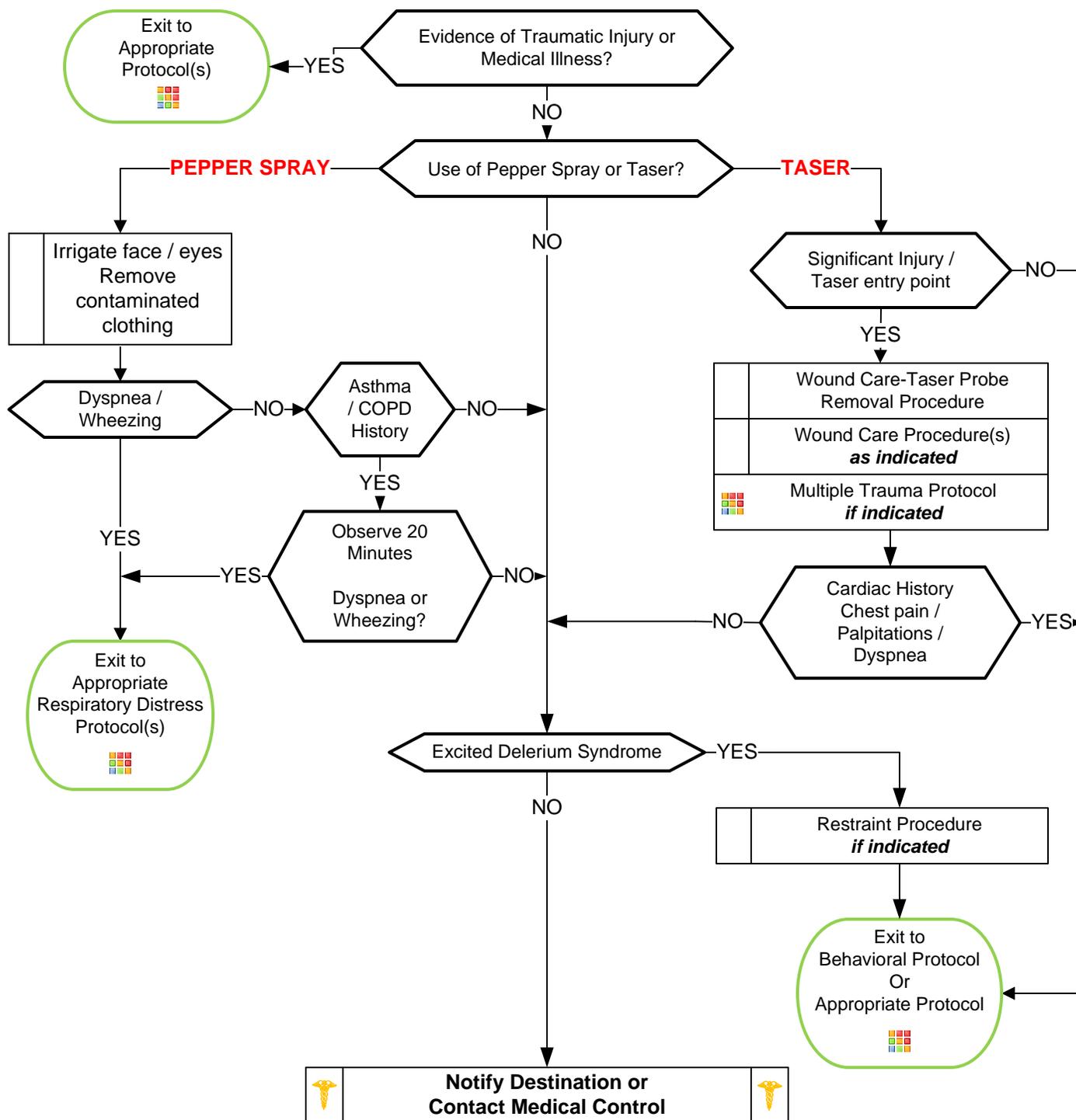
- Traumatic Injury
- Drug Abuse
- Cardiac History
- History of Asthma
- Psychiatric History

## Signs and Symptoms

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

## Differential

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



Adult / Pediatric General Section Protocols



# Police Custody



## Notes:

## Pearls:

- **Patient does not have to be in police custody or under arrest to utilize this protocol.**
- Local EMS agencies should formulate a policy with local law enforcement agencies concerning patients requiring EMS and Law Enforcement simultaneously. Agencies should work together to formulate a disposition in the best interest of the patient.
- **Patients restrained by law enforcement devices must be accompanied in the patient compartment by a law enforcement officer who is capable of removing the devices. However when rescuers have utilized restraints in accordance with Restraint Procedure, law enforcement may follow behind the ambulance during transport.**
- The responsibility for patient care rests with the highest authorized medical provider on scene per North Carolina law.
- If an asthmatic patient is exposed to pepper spray and released to law enforcement, all parties should be advised to immediately contact EMS if wheezing/difficulty breathing occurs.
- All patients in police custody retain the right to participate in decision making regarding their care and may request care of EMS.
- If extremity / chemical / law enforcement restraints are applied, follow Restraint Procedure.
- **Consider Haldol or Ziprasidone for patients with history of psychosis or a benzodiazepine for patients with presumed substance abuse.**
- **All patients who receive either physical or chemical restraint must be continuously observed by ALS personnel on scene or immediately upon their arrival.**
- **Excited Delirium Syndrome:**
  - Medical emergency: Combination of delirium, psychomotor agitation, anxiety, hallucinations, speech disturbances, disorientation, violent / bizarre behavior, insensitivity to pain, hyperthermia and increased strength. Potentially life-threatening and associated with use of physical control measures, including physical restraints and Tasers. Most commonly seen in male subjects with a history of serious mental illness and/or acute or chronic drug abuse, particularly stimulant drugs such as cocaine, crack cocaine, methamphetamine, amphetamines or similar agents. Alcohol withdrawal or head trauma may also contribute to the condition.
- If patient is suspected of agitated delirium suffers cardiac arrest, consider a fluid bolus and sodium bicarbonate early
- Do not position or transport any restrained patient in such a way that could impact the patients respiratory or circulatory status.

**Disposition:** Per Appropriate Protocol



# Emergencies Involving Indwelling Central Lines



## History

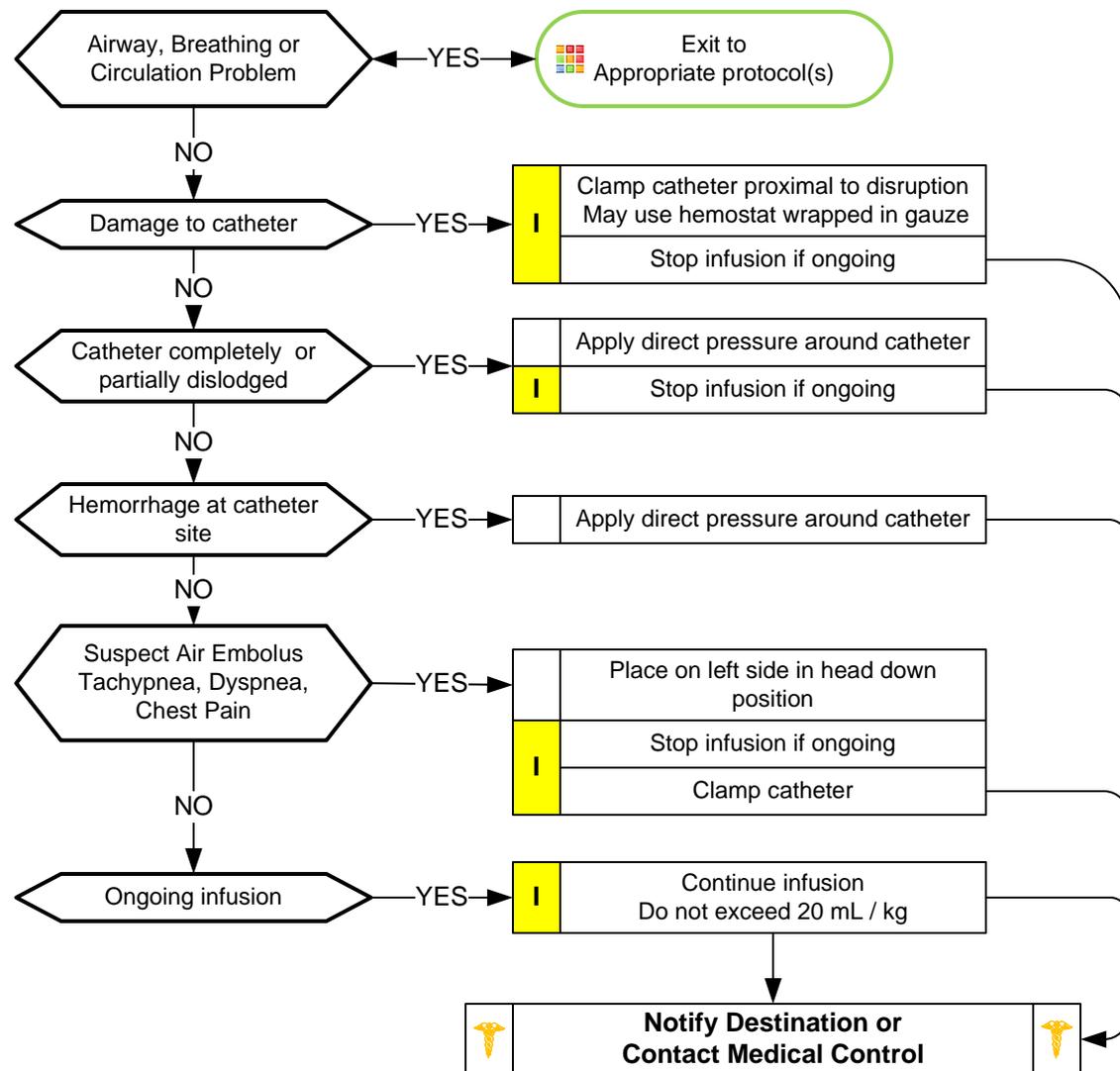
- Central Venous Catheter Type  
Tunneled Catheter (Broviac / Hickman)
- PICC (peripherally inserted central catheter)
- Implanted catheter (Mediport / Hickman)
- Occlusion of line
- Complete or partial dislodge
- Complete or partial disruption

## Signs and Symptoms

- External catheter dislodgement
- Complete catheter dislodgement
- Damaged catheter
- Bleeding at catheter site
- Internal bleeding
- Blood clot
- Air embolus
- Erythema, warmth or drainage about catheter site indicating infection

## Differential

- Fever
- Hemorrhage
- Reactions from home nutrient or medication
- Respiratory distress
- Shock



Adult / Pediatric General Section Protocols

## Pearls

- **Always talk to family / caregivers as they have specific knowledge and skills.**
- Use strict sterile technique when accessing / manipulating an indwelling catheter.
- Do not place a tourniquet or BP cuff on the same side where a PICC line is located.
- Do not attempt to force catheter open if occlusion evident.
- Some infusions may be detrimental to stop. Ask family or caregiver if it is appropriate to stop or change infusion.
- Cardiac arrest: Access central catheter and utilize if functioning properly.
- Hyperalimantation infusions (IV nutrition): If stopped for any reason monitor for hypoglycemia.

## Protocol 74

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012

## History

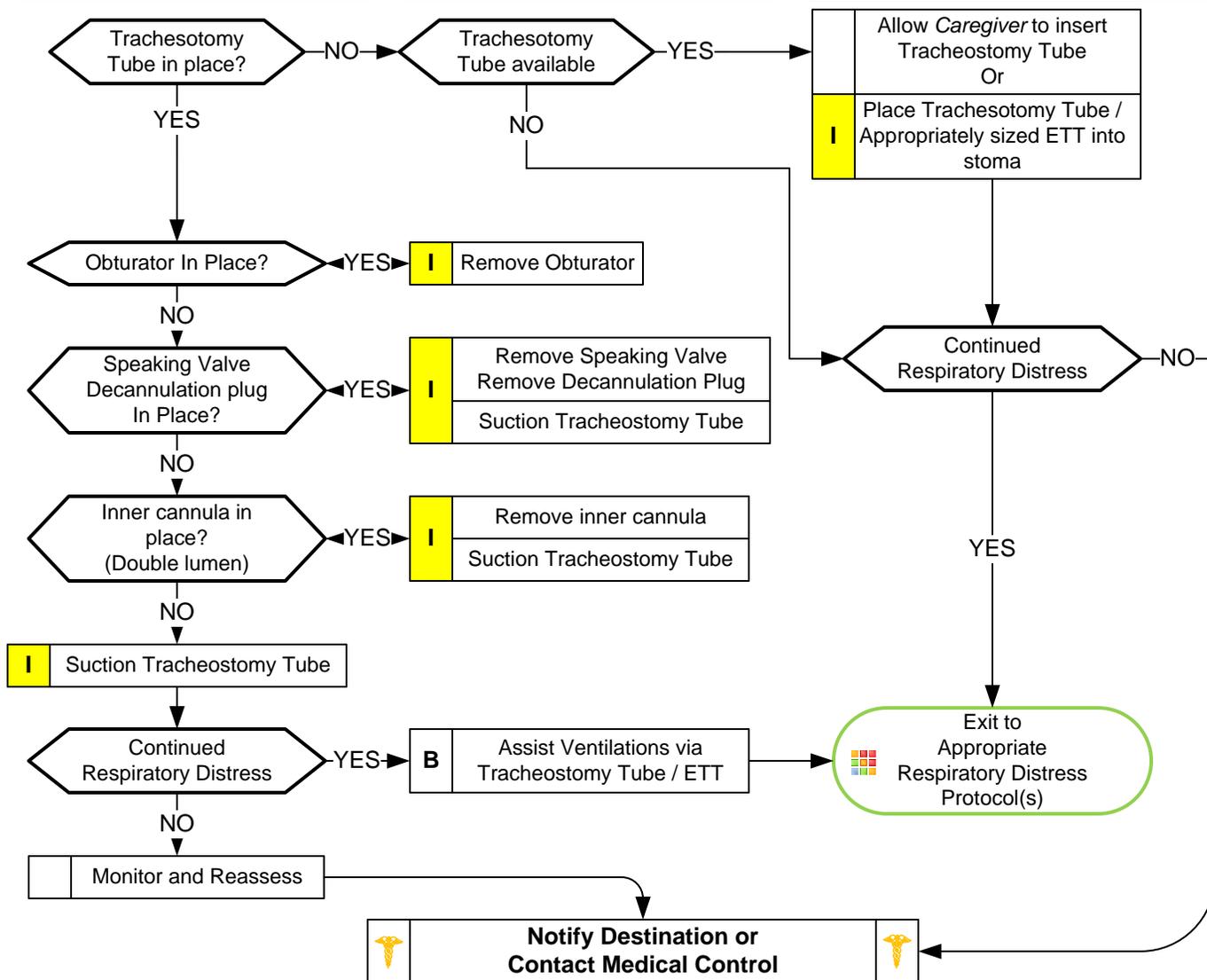
- Birth defect (tracheal atresia, tracheomalacia, craniofacial abnormalities)
- Surgical complications (accidental damage to phrenic nerve)
- Trauma (post-traumatic brain or spinal cord injury)
- Medical condition (bronchial or pulmonary dysplasia, muscular dystrophy)

## Signs and Symptoms

- Nasal flaring
- Chest wall retractions (with or without abnormal breath sounds)
- Attempts to cough
- Copious secretions noted coming out of the tube
- Faint breath sounds on both sides of chest despite significant respiratory effort
- AMS
- Cyanosis

## Differential

- Mucous Plug
- Allergic reaction
- Asthma
- Aspiration
- Septicemia
- Foreign body
- Infection
- Congenital heart disease
- Medication or toxin
- Trauma



## Pearls

- **Always talk to family / caregivers as they have specific knowledge and skills.**
- Use patients equipment if available and functioning properly.
- Estimate suction catheter size by doubling the inner tracheostomy tube diameter and rounding down.
- Suction depth: Ask family / caregiver. No more than 3 to 6 cm typically. Instill 2 – 3 mL of NS before suctioning.
- Do not suction more than 10 seconds each attempt and pre-oxygenate before and between attempts.
- DO NOT force suction catheter. If unable to pass, then tracheostomy tube should be changed.
- Always deflate tracheal tube cuff before removal. Continual pulse oximetry and EtCO2 monitoring if available.
- **DOPE:** Displaced tracheostomy tube / ETT, **O**bststructed tracheostomy tube / ETT, **P**neumothorax and **E**quipment failure.



# Emergencies Involving Ventilators



## History

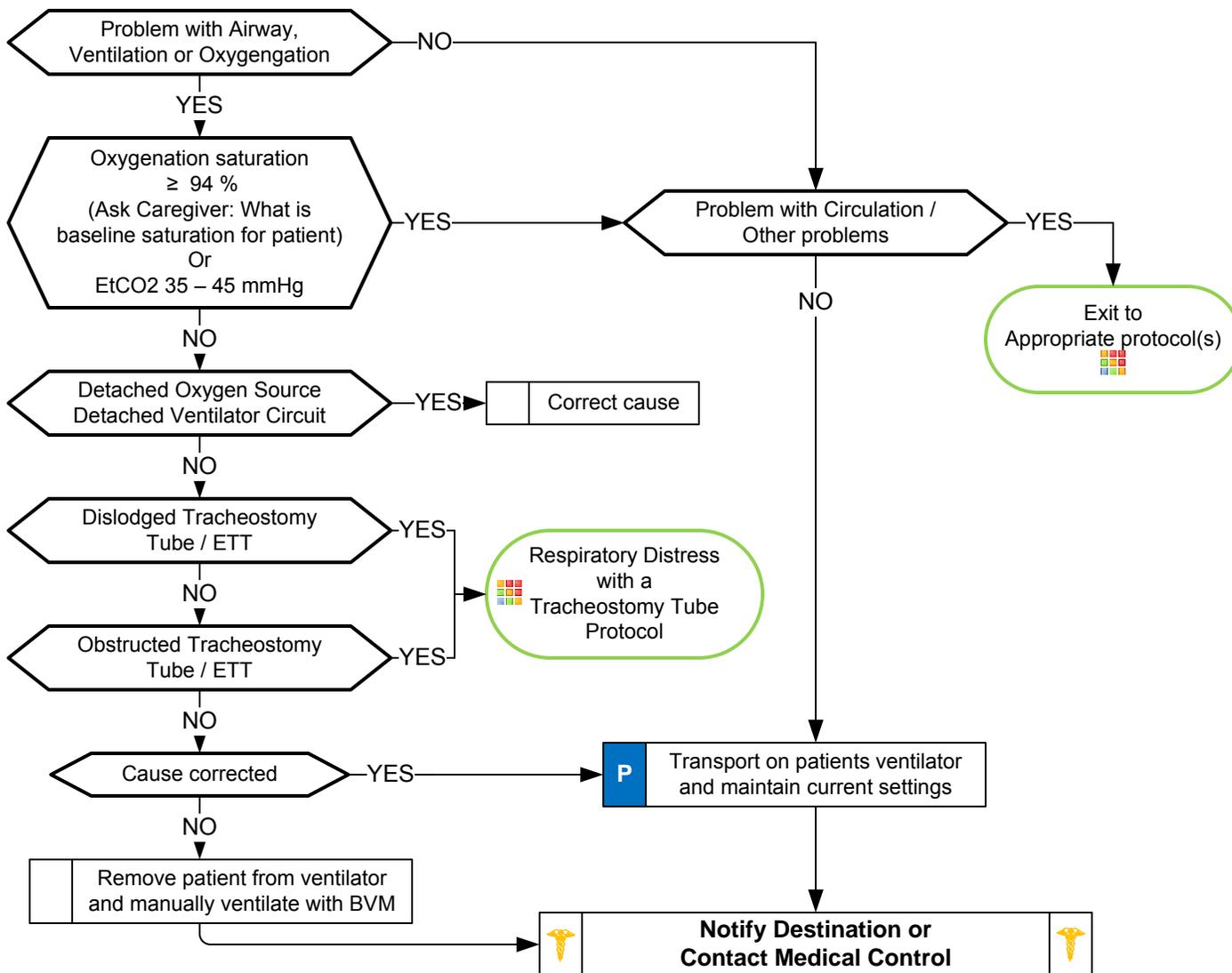
- Birth defect (tracheal atresia, tracheomalacia, craniofacial abnormalities)
- Surgical complications (damage to phrenic nerve)
- Trauma (post-traumatic brain or spinal cord injury)
- Medical condition (bronchopulmonary dysplasia, muscular dystrophy)

## Signs and Symptoms

- Transport requiring maintenance of a mechanical ventilator
- Power or equipment failure at residence

## Differential

- Disruption of oxygen source
- Dislodged or obstructed tracheostomy tube
- Detached or disrupted ventilator circuit
- Cardiac arrest
- Increased oxygen requirement / demand
- Ventilator failure



Adult / Pediatric General Section Protocols

## Pearls

- **Always talk to family / caregivers as they have specific knowledge and skills.**
- Always use patient's equipment if available and functioning properly.
- Continuous pulse oximetry and end tidal CO2 monitoring must be utilized during assessment and transport.
- **DOPE:** Displaced tracheostomy tube / ETT, Obstructed tracheostomy tube / ETT, Pneumothorax and Equipment failure.
- Unable to correct ventilator problem: Remove patient from ventilator and manually ventilate using BVM. Take patient's ventilator to hospital even if not functioning properly.
- Typical alarms:
  - Low Pressure / Apnea: Loose or disconnected circuit, leak in circuit or around tracheostomy site.
  - Low Power: Internal battery depleted.
  - High Pressure: Plugged / obstructed airway or circuit.

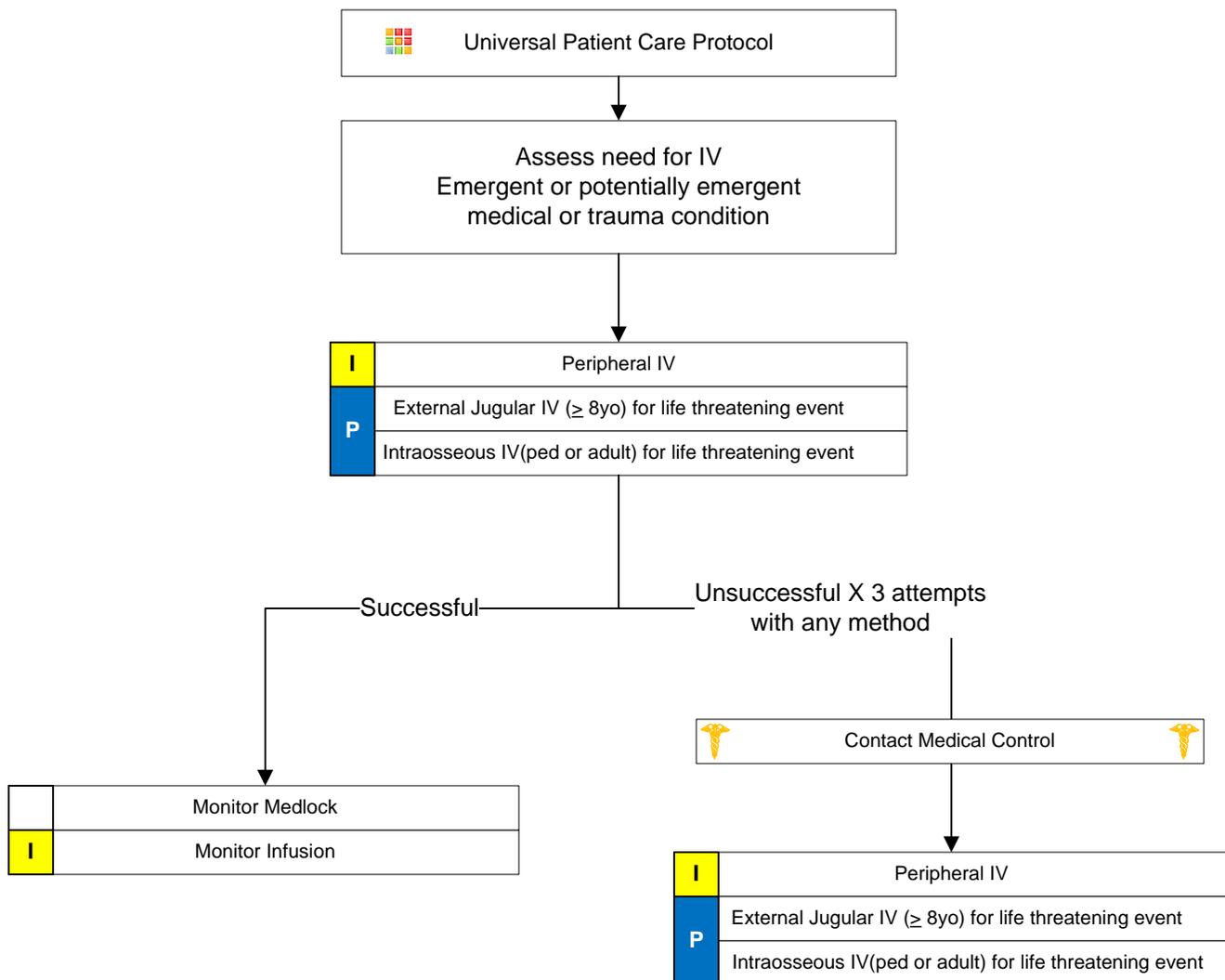
## Protocol 76

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012



# IV Access



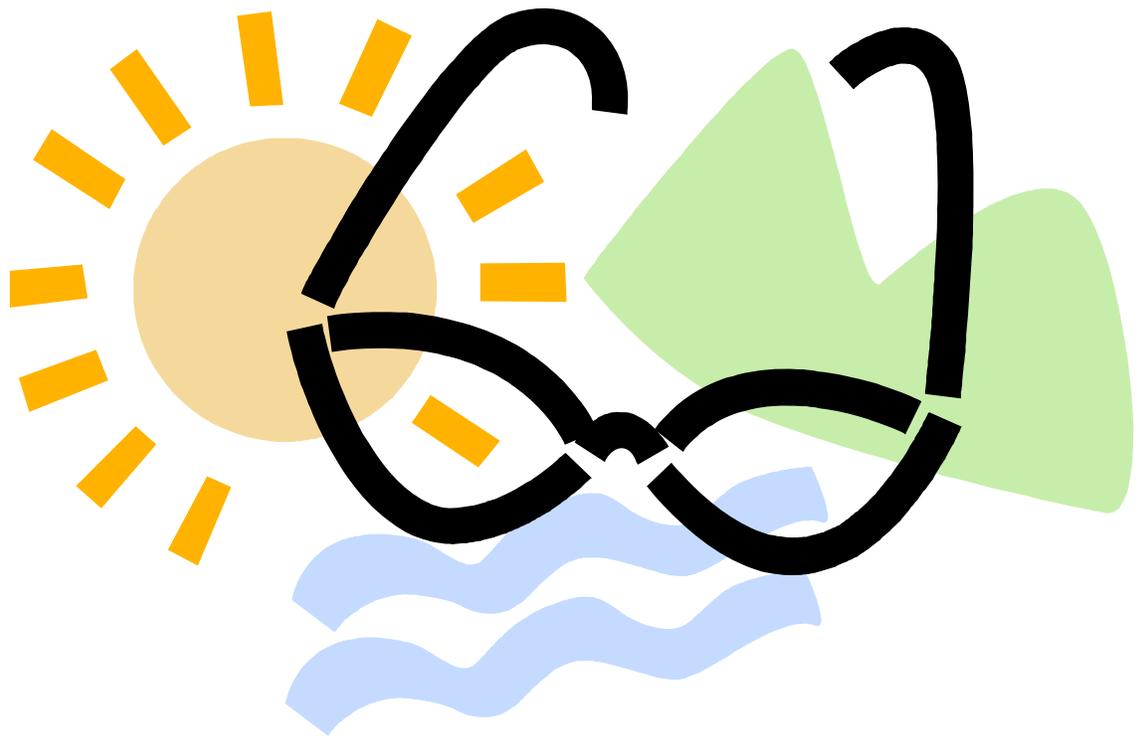
## Pearls:

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

## Protocol 77

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

# Adult Pediatric Environmental





# Bites and Envenomations



## History

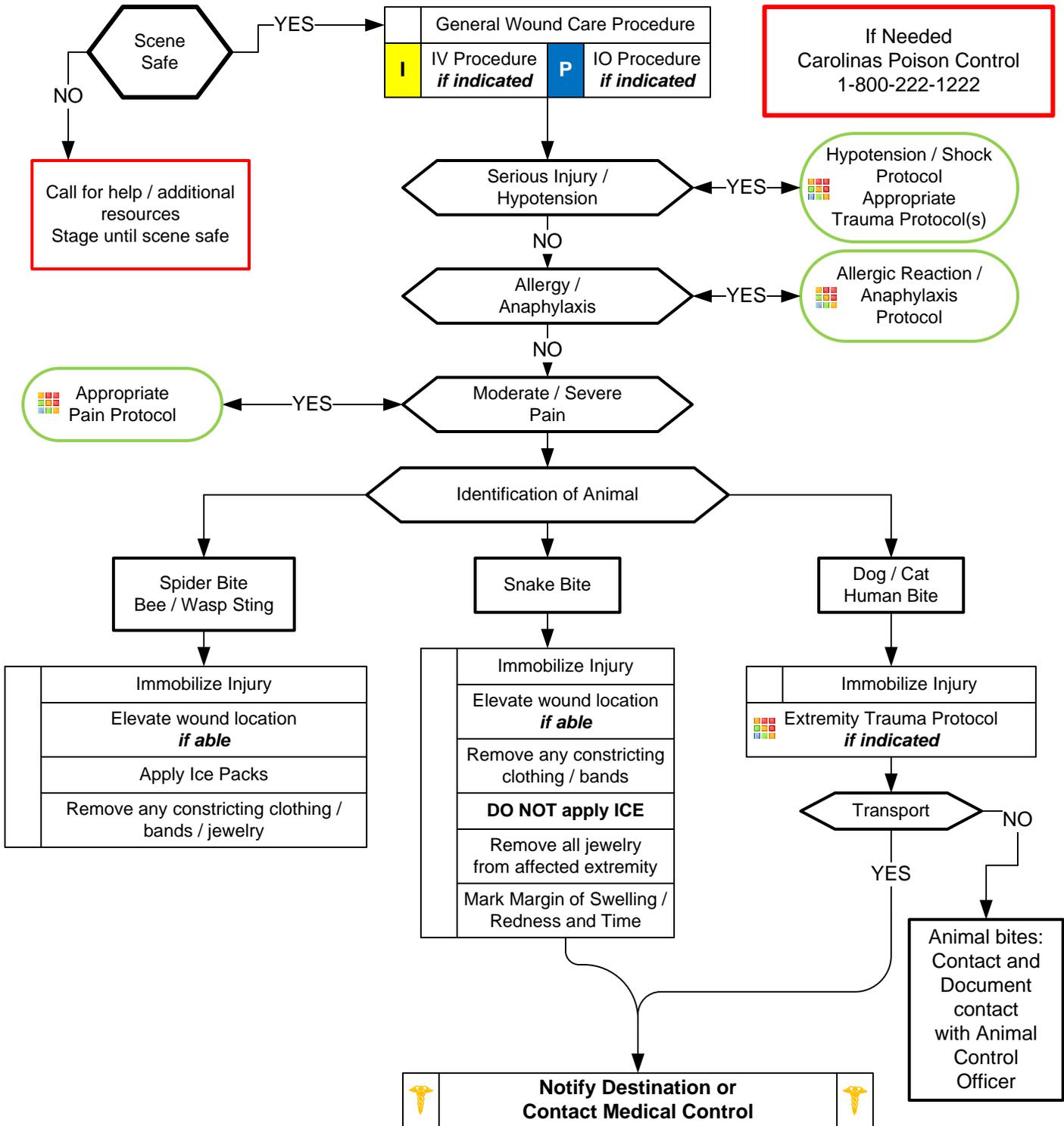
- Type of bite / sting
- Description or bring creature / photo with patient for identification
- Time, location, size of bite / sting
- Previous reaction to bite / sting
- Domestic vs. Wild
- Tetanus and Rabies risk
- Immunocompromised patient

## Signs and Symptoms

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

## Differential

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



Adult / Pediatric Environmental Section Protocols



# Bites and Envenomations



## Notes:

### Pearls:

- **Recommended Exam: Mental Status, Skin, Extremities (Location of injury), and a complete Neck, Lung, Heart, Abdomen, Back, and Neuro exam if systemic effects are noted**
- Human bites have higher infection rates than animal bites due to normal mouth bacteria.
- Carnivore bites are much more likely to become infected and all have risk of Rabies exposure.
- Cat bites may progress to infection rapidly due to a specific bacteria (Pasteurella multocida).
- Poisonous snakes in this area are generally of the pit viper family: rattlesnake and copperhead.
- Coral snake bites are rare: Very little pain but very toxic. "Red on yellow - kill a fellow, red on black - venom lack."
- Amount of envenomation is variable, generally worse with larger snakes and early in spring.
- If no pain or swelling, envenomation is unlikely. About 25 % of snake bites are "dry" bites.
- Black Widow spider bites tend to be minimally painful, but over a few hours, muscular pain and severe abdominal pain may develop (spider is black with red hourglass on belly) in those instances midazolam may be considered after contacting medical control.
- Brown Recluse spider bites are minimally painful to painless. Little reaction is noted initially but tissue necrosis at the site of the bite develops over the next few days (brown spider with fiddle shape on back).
- Evidence of infection: swelling, redness, drainage, fever, red streaks proximal to wound.
- Immunocompromised patients are at an increased risk for infection: diabetes, chemotherapy, transplant patients.
- Consider contacting the North Carolina Poison Control Center for guidance (1-800-84-TOXIN).

### Disposition:

<b>EMS Transport:</b>	<b>ALS:</b>	Anaphylaxis Respiratory distress Poisonous snakebite	Rapid progression of symptoms Difficulty swallowing / speaking Uncontrolled bleeding Significant swelling	Hypotension Chest pain SQ Epinephrine used
<b>MD Within 4 Hours:</b>		Human bite Immunocompromised Spider bite with blister	Unknown animal or strange behavior Laceration requiring sutures Bite to face or hand	Evidence of infection Fever
<b>MD Within 24 Hours:</b>		All other patients		



# Carbon Monoxide / Cyanide



## History

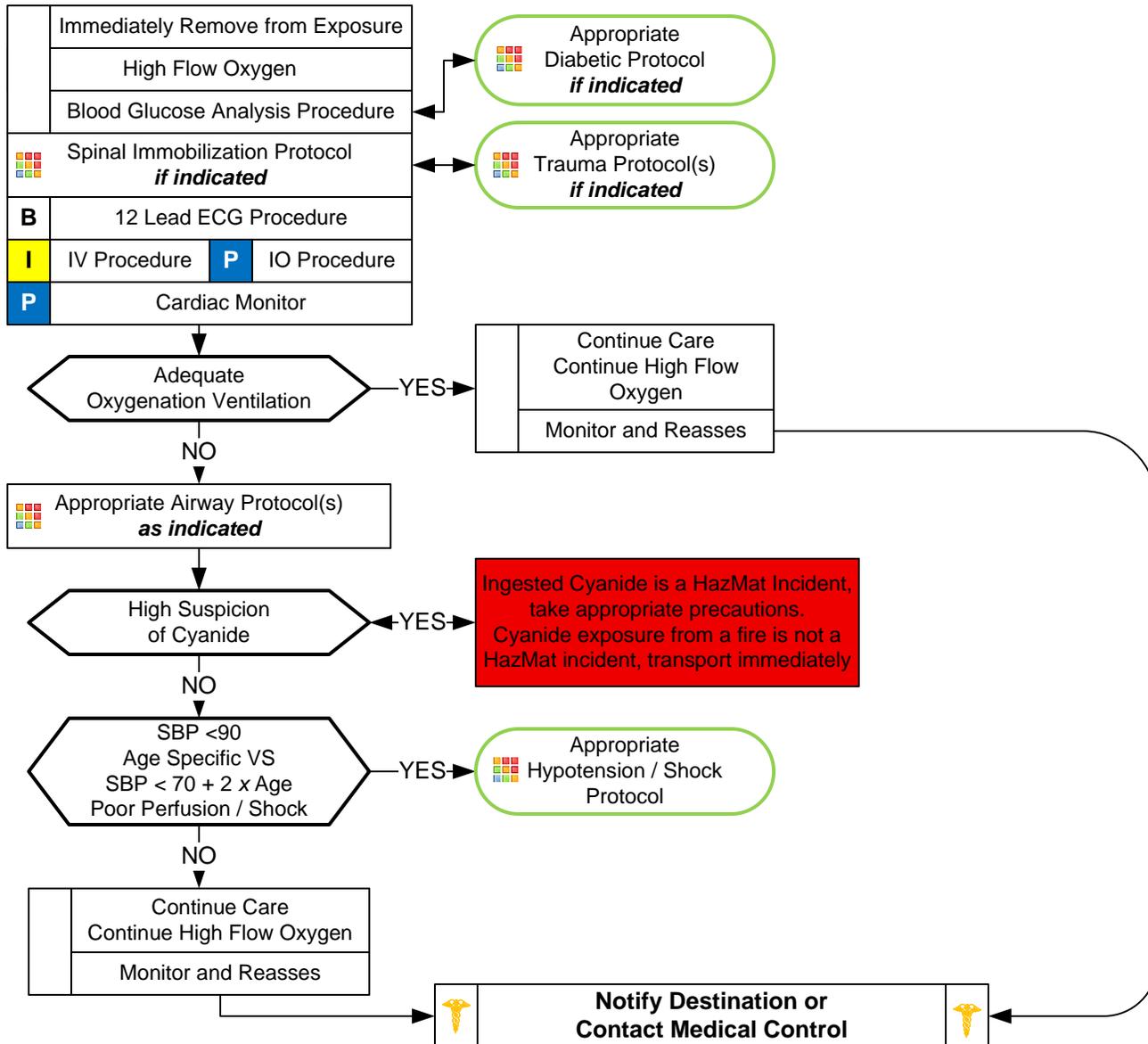
- Smoke inhalation
- Ingestion of cyanide
- Eating large quantity of fruit pits
- Industrial exposure
- Trauma
- Reason: Suicide, criminal, accidental
- Past Medical History
- Time / Duration of exposure

## Signs and Symptoms

- AMS
- Malaise, weakness, flu like illness
- Dyspnea
- GI Symptoms; N/V; cramping
- Dizziness
- Seizures
- Syncope
- Reddened skin
- Chest pain

## Differential

- Diabetic related
- Infection
- MI
- Anaphylaxis
- Renal failure / dialysis problem
- Head injury / trauma
- Co-ingestant or exposures



Adult / Pediatric Environmental Section Protocols

## Pearls:

- **Recommended exam: Neuro, Skin, Heart, Lungs, Abdomen, Extremities**
- **Scene safety is priority.**
- Consider CO and Cyanide with any product of combustion
- Normal environmental CO level does not exclude CO poisoning.
- Symptoms present with lower CO levels in pregnancy, children and the elderly.
- Continue high flow oxygen regardless of pulse ox readings.
- Consider transport to Duke for patients presenting with suspected CO exposure in the absence of burns

**Disposition:** Per Appropriate Protocol

## Protocol 79

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

### History

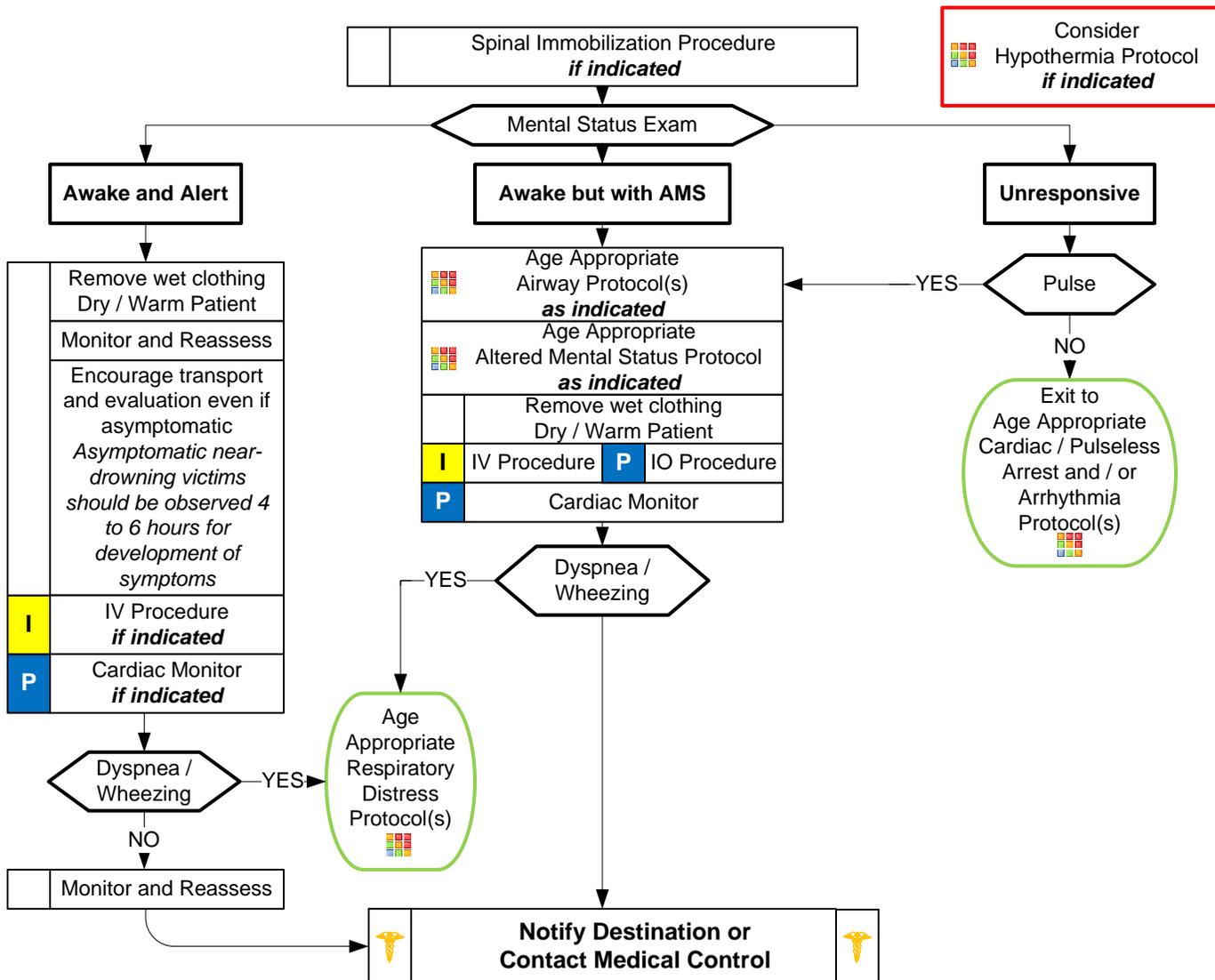
- Submersion in water regardless of depth
- Possible history of trauma ie: diving board
- Duration of immersion
- Temperature of water or possibility of hypothermia
- Degree of water contamination

### Signs and Symptoms

- Unresponsive
- Mental status changes
- Decreased or absent vital signs
- Vomiting
- Coughing, Wheezing, Rales, Rhonci, Stridor
- Apnea

### Differential

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





# Drowning / Submersion Injury



## Notes:

### Pearls:

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

### Disposition:

**EMS Transport:**    **ALS:**    All patients

## Protocol 80

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

### History

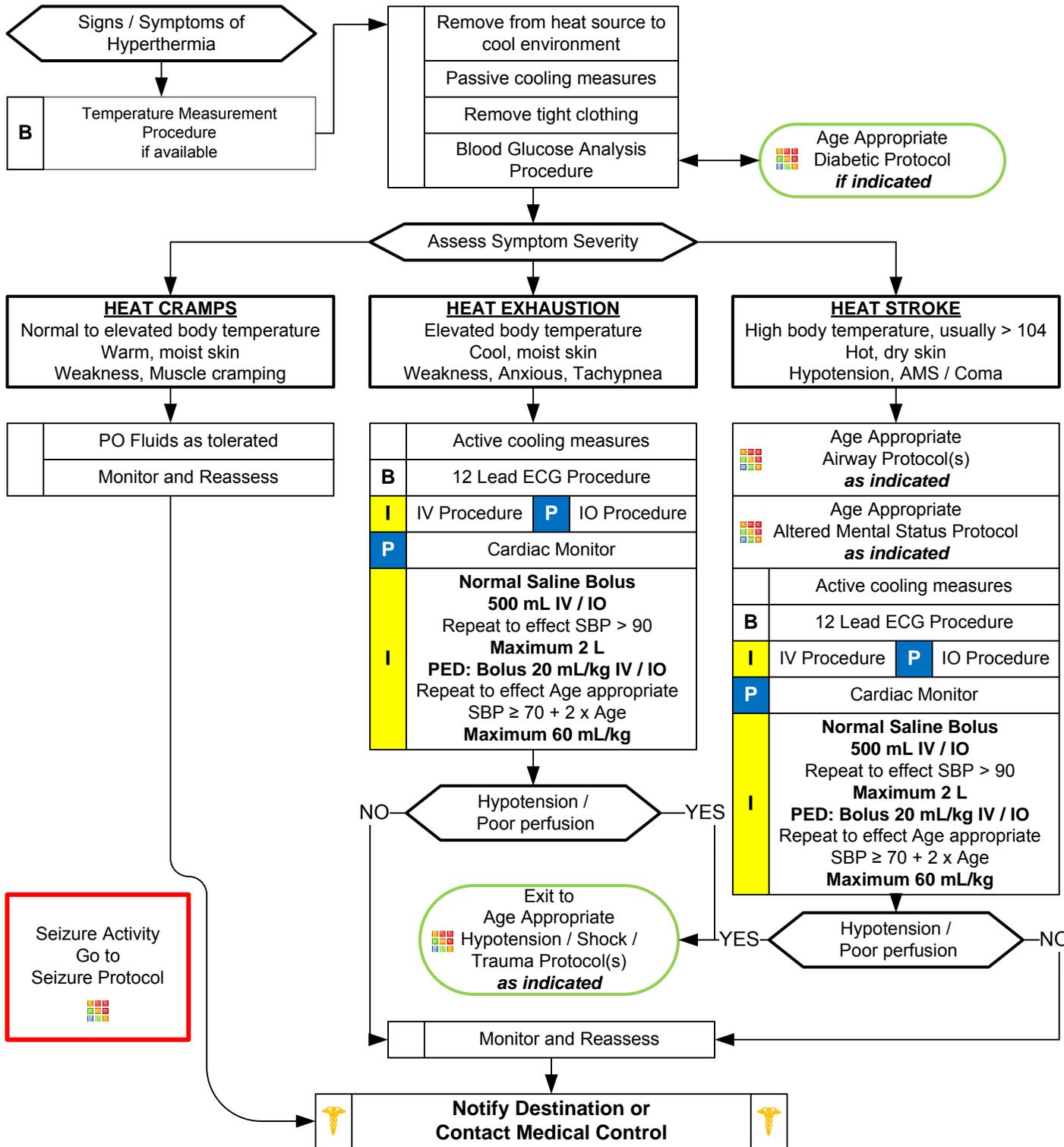
- Age, very young and old
- Exposure to increased temperatures and / or humidity
- Past medical history / Medications
- Time and duration of exposure
- Poor PO intake, extreme exertion
- Fatigue and / or muscle cramping

### Signs and Symptoms

- Altered mental status / coma
- Hot, dry or sweaty skin
- Hypotension or shock
- Seizures
- Nausea

### Differential

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





# Hyperthermia



### Pearls:

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

### Disposition:

<b>EMS Transport:</b>	<b>ALS:</b>	Mental Status Changes Temperature >101° F Nausea and Vomiting	Hypotension Orthostatic Changes Dehydration	Seizures Significant Dehydration Severe Cramping
	<b>BLS:</b>	Patient without above conditions and limited improvement with hydration and cooling		
<b>MD Within 4 Hours:</b>		Normal Exam or a return to baseline		

### History

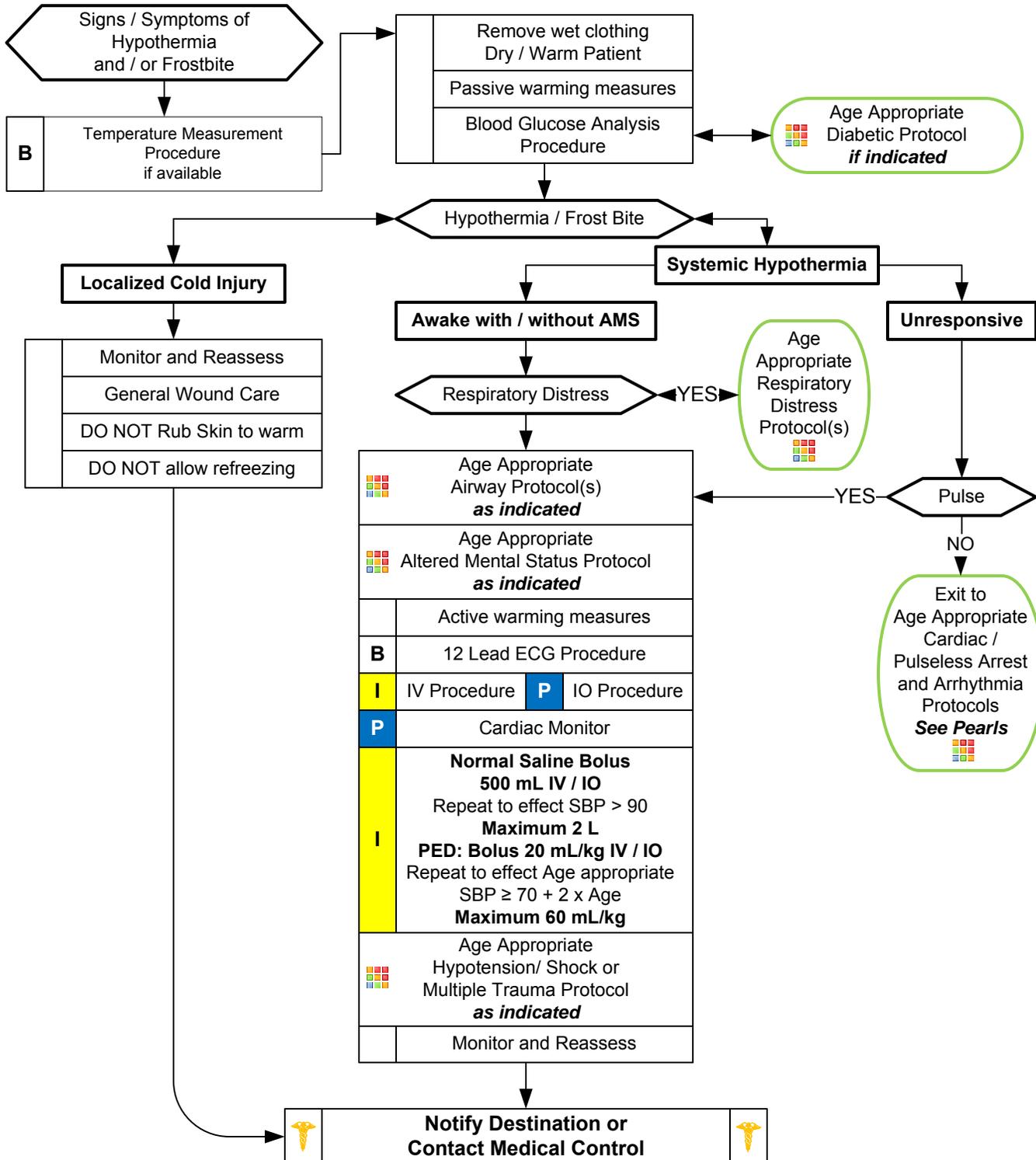
- Age, very young and old
- Exposure to decreased temperatures but may occur in normal temperatures
- Past medical history / Medications
- Drug use: Alcohol, barbituates
- Infections / Sepsis
- Length of exposure / Wetness / Wind chill

### Signs and Symptoms

- Altered mental status / coma
- Cold, clammy
- Shivering
- Extremity pain or sensory abnormality
- Bradycardia
- Hypotension or shock

### Differential

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





# Hypothermia / Frostbite



## Notes:

### Pearls

- **Recommended Exam: Mental Status, Heart, Lungs, Abdomen, Extremities, Neuro**
- **NO PATIENT IS DEAD UNTIL WARM AND DEAD (Body temperature  $\geq$  93.2 degrees F, 32 degrees C.)**
- **Hypothermia categories:**
  - Mild 90 – 95 degrees F ( 32 – 35 degrees C)
  - Moderate 82 – 90 degrees F ( 28 – 32 degrees C)
  - Severe < 82 degrees F ( < 28 degrees C)
- **Mechanisms of hypothermia:**
  - Radiation: Heat loss to surrounding objects via infrared energy ( 60 % of most heat loss.)
  - Convection: Direct transfer of heat to the surrounding air.
  - Conduction: Direct transfer of heat to direct contact with cooler objects (important in submersion.)
  - Evaporation: Vaporization of water from sweat or other body water losses.
- Contributing factors of hypothermia: Extremes of age, malnutrition, alcohol or other drug use.
- If the temperature is unable to be measured, treat the patient based on the suspected temperature.
- **CPR:**
  - Severe hypothermia may cause cardiac instability and rough handling of the patient theoretically can cause ventricular fibrillation. This has not been demonstrated or confirmed by current evidence. Intubation and CPR techniques should not be withheld due to this concern.
  - Intubation can cause ventricular fibrillation so it should be done gently by most experienced person.
  - Below 86 degrees F (30 degrees C) antiarrhythmics may not work and if given should be given at reduced intervals. Contact medical control for direction. Epinephrine / Vasopressin can be administered. Below 86 degrees F (30 degrees) pacing should not be done
  - Consider withholding CPR if patient has organized rhythm or has other signs of life. Contact Medical Control.
  - If the patient is below 86 degrees F (30 degree C) then defibrillate 1 time if defibrillation is required. Deferring further attempts until more warming occurs is controversial. Contact medical control for direction.
  - Hypothermia may produce severe bradycardia so take at least 45 second to palpate a pulse.
- Hot packs can be activated and placed in the armpit and groin area if available. Care should be taken not to place the packs directly against the patient's skin.

### Disposition:

<b>EMS Transport:</b>	<b>ALS:</b> Temperature <95° F (35° C) Hypotension	Mental status change Hypoglycemia	Bradycardia
	<b>BLS:</b> All other patients		



# Marine Envenomations / Injury



## History

- Type of bite / sting
- Identification of organism
- Previous reaction to marine organism
- Immunocompromised
- Household pet

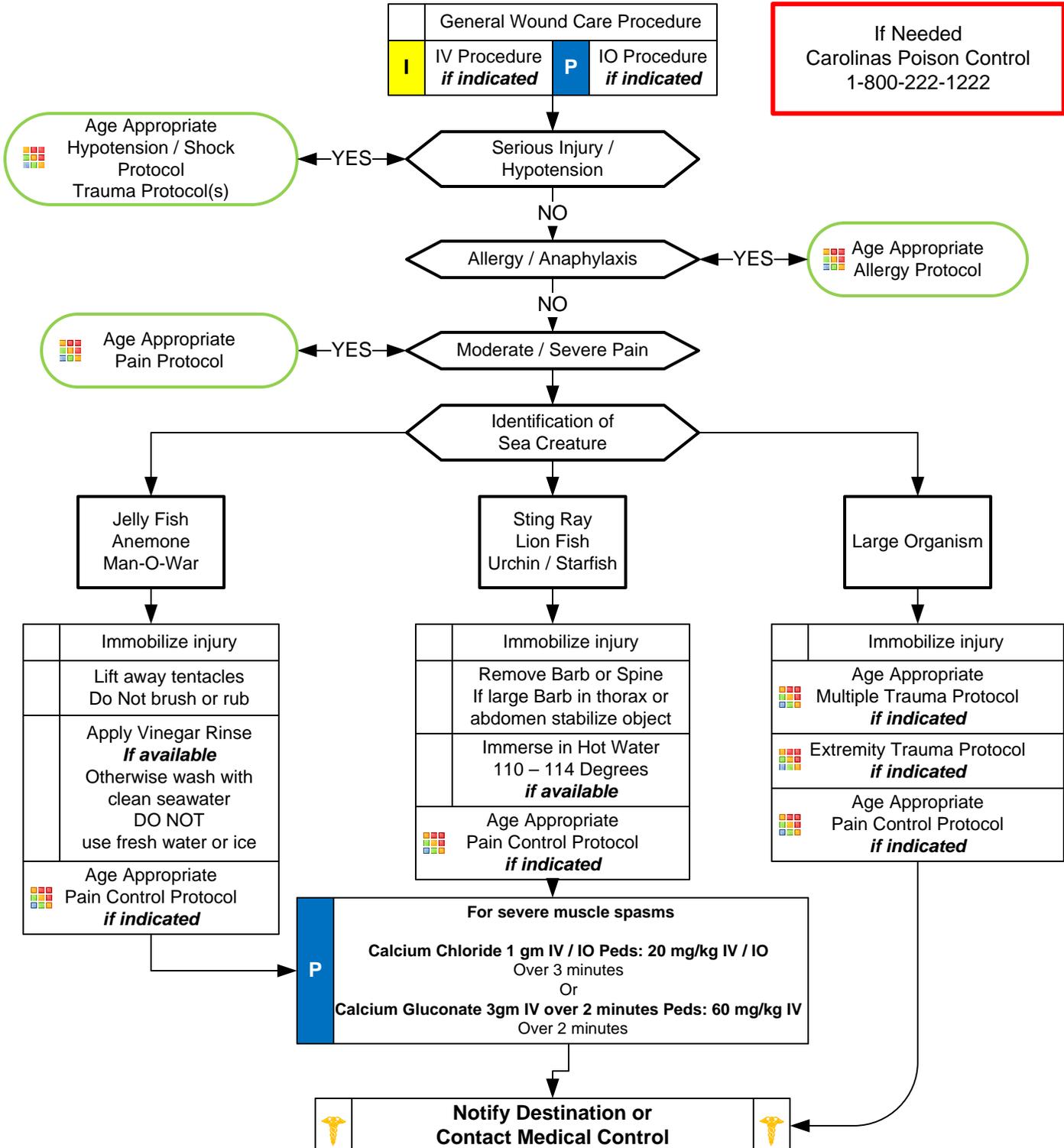
## Signs and Symptoms

- Intense localized pain
- Increased oral secretions
- Nausea / vomiting
- Abdominal cramping
- Allergic reaction / anaphylaxis

## Differential

- Jellyfish sting
- Sea Urchin sting
- Sting ray barb
- Coral sting
- Swimmers itch
- Cone Shell sting
- Fish bite
- Lion Fish sting

If Needed  
Carolinans Poison Control  
1-800-222-1222



Adult / Pediatric Environmental Section Protocols

## Protocol 83

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012



# Marine Envenomations / Injury



## Notes:

### Pearls

- Ensure your safety: Avoid the organism or fragments of the organism as they may impart further sting / injury.
- Patients can suffer cardiovascular collapse from both the venom and / or anaphylaxis even in seemingly minor envenomations.
- Sea creature stings and bites impart moderate to severe pain.
- Arrest the envenomation by inactivation of the venom as appropriate.
- Ensure good wound care, immobilization and pain control.

### Disposition:

<b>EMS Transport:</b>	<b>ALS:</b>	Anaphylaxis Respiratory distress Poisonous envenomation SQ Epi Administered	Rapid progression of symptoms Difficulty swallowing / speaking Uncontrolled bleeding Significant swelling	Hypotension Chest pain Calcium administered Morphine administered
<b>MD Within 4 Hours:</b>		Unknown animal Immunocompromised Spider bite with blister	Evidence of infection Laceration requiring sutures Bite to face or hand	Fever
<b>MD Within 24 Hours:</b>		All other patients		



# WMD-Nerve Agent Protocol



## History

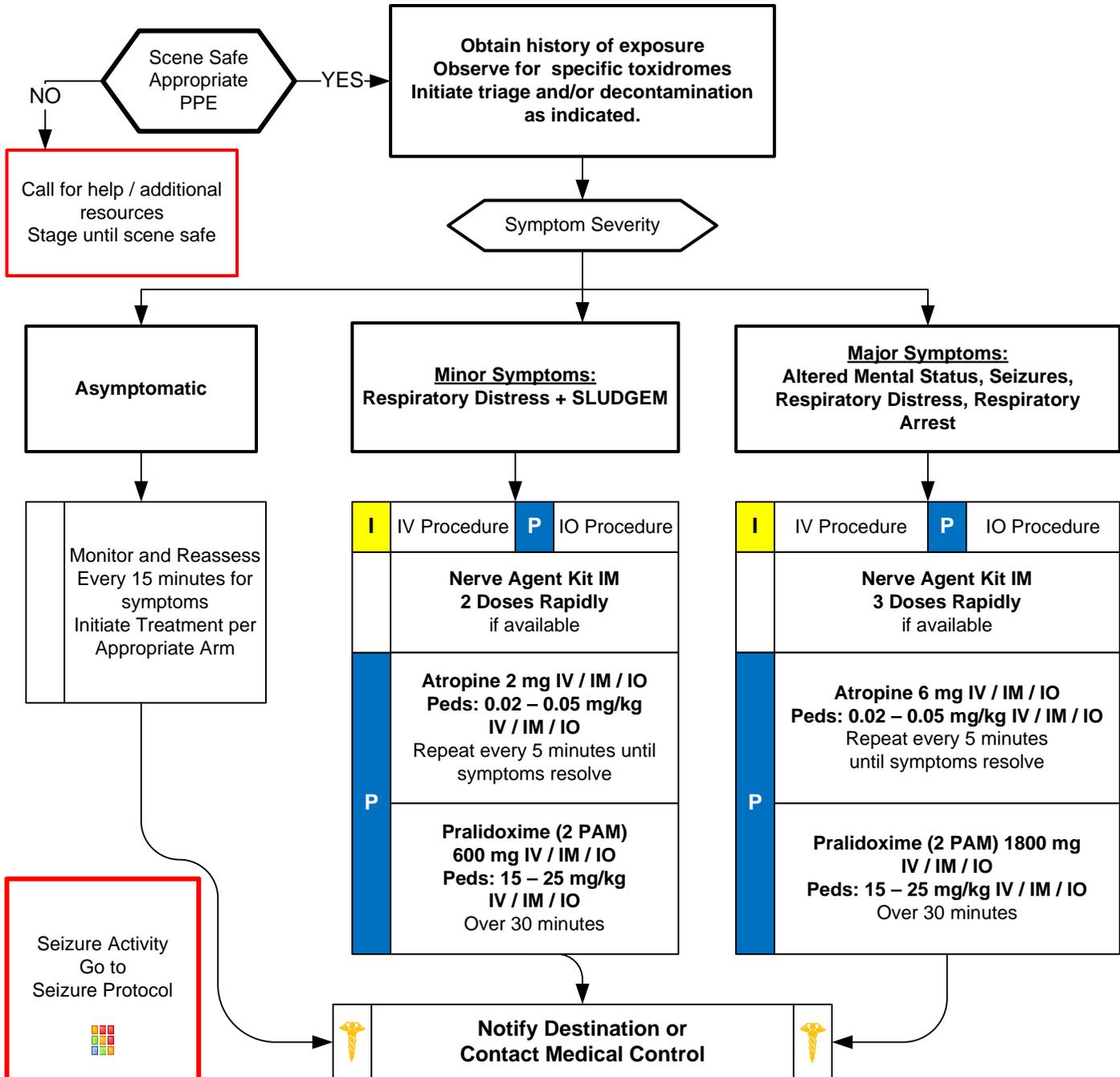
- Exposure to chemical, biologic, radiologic, or nuclear hazard
- Potential exposure to unknown substance/hazard

## Signs and Symptoms

- **S**alivation
- **L**acrimation
- **U**rination; increased, loss of control
- **D**efecation / Diarrhea
- **G**I Upset; Abdominal pain / cramping
- **E**mesis
- **M**uscle Twitching
- Seizure Activity
- Respiratory Arrest

## Differential

- Nerve agent exposure (e.g., VX, Sarin, Soman, etc.)
- Organophosphate exposure (pesticide)
- Vesicant exposure (e.g., Mustard Gas, etc.)
- Respiratory Irritant Exposure (e.g., Hydrogen Sulfide, Ammonia, Chlorine, etc.)





# WMD-Nerve Agent Protocol



## Notes:

## Pearls:

- **Recommended Exam: Mental Status, Skin, HEENT, Heart, Lungs, Gastrointestinal, Neuro**
- **Follow local HAZMAT protocols for decontamination and use of personal protective equipment.**
- In the face of a bona fide attack, begin with 1 Nerve Agent Kit for patients less than 7 years of age, 2 Nerve Agent Kits from 8 to 14 years of age, and 3 Nerve Agent Kits for patients 15 years of age and over.
- If Triage/MCI issues exhaust supply of Nerve Agent Kits, use pediatric atropines (if available). Use the 0.5 mg dose if patient is less than 40 pounds (18 kg), 1 mg dose if patient weighs between 40 to 90 pounds (18 to 40 kg), and 2 mg dose for patients greater than 90 pounds (>40 kg).
- Each Nerve Agent Kit contains 600 mg of Pralidoxime (2-PAM) and 2 mg of Atropine.
- **Seizure Activity: Any benzodiazepine by any route is acceptable.**
- For patients with major symptoms, there is no limit for atropine dosing.
- Carefully evaluate patients to ensure they not from exposure to another agent (e.g., narcotics, vesicants, etc.)
- The main symptom that the atropine addresses is excessive secretions so atropine should be given until salivation improves.
- EMS personnel, public safety officers and Medical Responders / EMT-B may carry, self-administer or administer to a patient atropine / pralidoxime by protocol. Agency medical director may require Contact of Medical Control prior to administration.

## Disposition:

**EMS Transport:**

**ALS:** Respiratory distress

Abnormal vital signs

Loss of consciousness

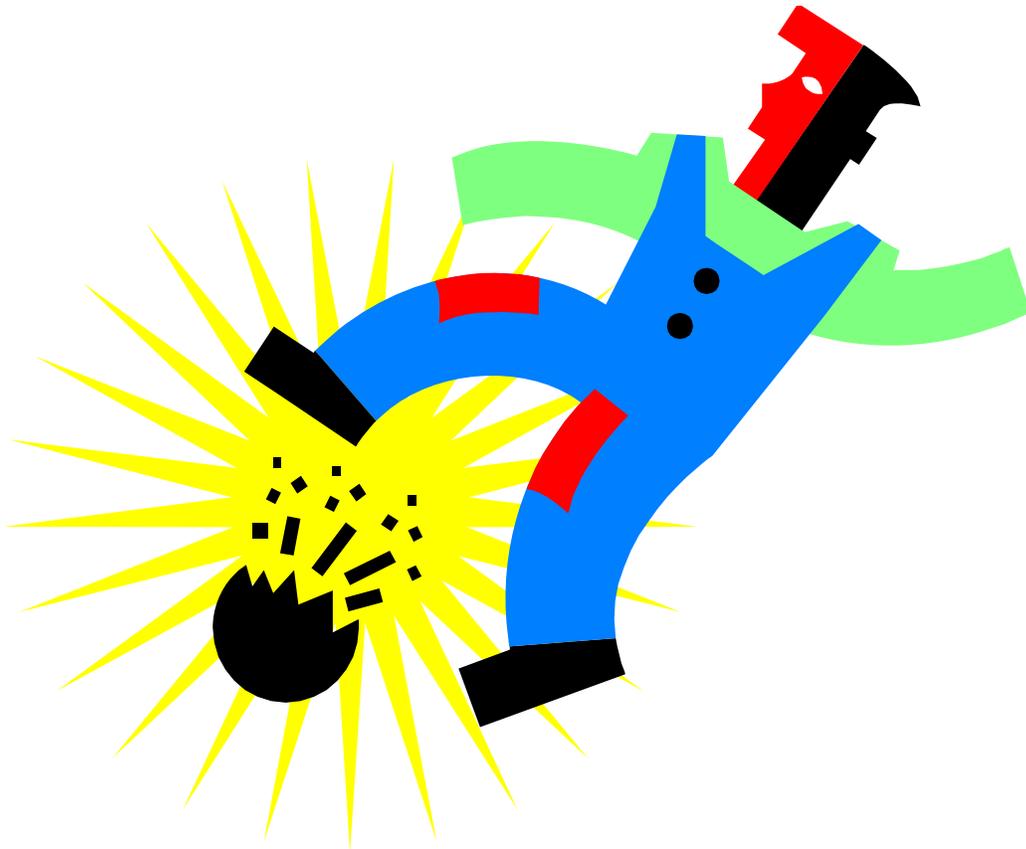
**BLS:** All other patients

## Protocol 84

Revised  
11/19/2012

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

# Adult Pediatric Trauma





# Blast Injury / Incident



## History

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

## Signs and Symptoms

- Burns, pain, swelling
- Dizziness
- Loss of consciousness
- Hypotension/shock
- Airway compromise/distress could be indicated by hoarseness/ wheezing / Hypotension

## Differential

- Superficial (1<sup>st</sup> Degree) red - painful (Don't include in TBSA)
- Partial Thickness (2<sup>nd</sup> Degree) blistering
- Full Thickness (3<sup>rd</sup> Degree) painless/charred or leathery skin
- Thermal injury
- Chemical – Electrical injury
- Radiation injury
- Blast injury

**Nature of Device:** Agent / Amount. Industrial Explosion. Terrorist Incident. Improvised Explosive Device.

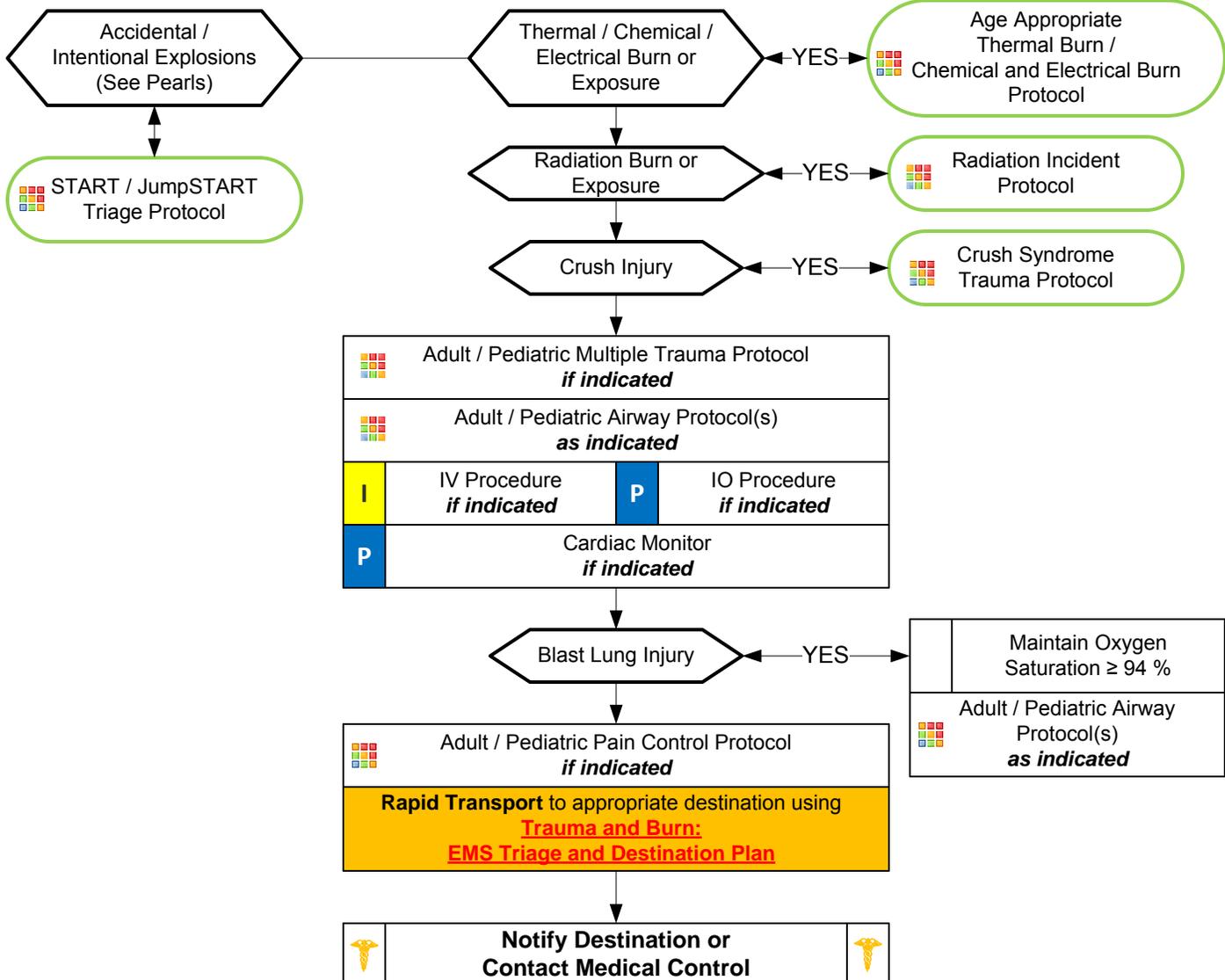
**Method of Delivery:** Incendiary / Explosive

**Nature of Environment:** Open / Closed.

**Distance from Device:** Intervening protective barrier. Other environmental hazards,

**Evaluate for:** Blunt Trauma / Crush Injury / Compartment Syndrome / Traumatic Brain Injury / Concussion / Tympanic Membrane Rupture / Abdominal hemorrhage or Evisceration, Blast Lung Injury and Penetrating Trauma.

### Scene Safety / Quantify and Triage Patients / Load and Go with Assessment / Treatment Enroute



Adult / Pediatric Trauma and Burn Section Protocols



# Blast Injury / Incident



## Notes:

### Pearls

- **Types of Blast Injury:**
  - Primary Blast Injury: From pressure wave.
  - Secondary Blast Injury: Impaled objects. Debris which becomes missiles / shrapnel.
  - Tertiary Blast Injury: Patient falling or being thrown / pinned by debris.
  - Most Common Cause of Death: Secondary Blast Injuries.
- **Triage of Blast Injury patients:**
  - Blast Injury Patients with Burn Injuries Must be Triageed using the Thermal / Chemical / Electrical Burn Destination Guidelines for Critical / Serious / Minor Trauma and Burns
- **Care of Blast Injury Patients:**
  - Blast Injury Patients with Burn Injuries Must be cared for using the Thermal / Chemical / Electrical Burn Protocols.
  - Use Lactated Ringers (if available) for all Critical or Serious Burns.
- **Blast Lung Injury:**
  - Blast Lung Injury is characterized by respiratory difficulty and hypoxia. Can occur (rarely) in patients without external thoracic trauma. More likely in enclosed space or in close proximity to explosion.
  - Symptoms: Dyspnea, hemoptysis cough, chest pain, wheezing and hemodynamic instability.
  - Signs: Apnea, tachypnea, hypopnea, hypoxia, cyanosis and diminished breath sounds.
  - Air embolism should be considered and patient transported prone and in slight left-lateral decubitus position.
  - Blast Lung Injury patients may require early intubation but positive pressure ventilation may exacerbate the injury, avoid hyperventilation.
  - Air transport may worsen lung injury as well and close observation is mandated. Tension pneumothorax may occur requiring chest decompression. Be judicious with fluids as volume overload may worsen lung injury.
- **Accident Explosions:**
  - Attempt to determine source of the blast to include any potential threat for partialization of hazardous materials.
  - Evaluate scene safety to include the source of the blast that may continue to spill explosive liquids or gases.
  - Consider structural collapse / Environmental hazards / Fire.
  - Conditions that led to the initial explosion may be returning and lead to a second explosion.
  - Patients who can, typically will attempt to move as far away from the explosive source as they safely can.
- **Intentional Explosions:**
  - Attempt to determine source of the blast to include any potential threat for partialization of hazardous materials.
  - Greatest concern is potential threat for a secondary device.
  - Evaluate surroundings for suspicious items; unattended back packs or packages, or unattended vehicles.
  - If patient is unconscious or there is(are) fatality(fatalities) and you are evaluating patient(s) for signs of life: Before moving note if there are wires coming from the patient(s), or it appears the patient(s) is(are) lying on a package/pack, or bulky item, do not move the patient(s), quickly back away and immediately notify a law enforcement officer.** If no indications the patient is connected to a triggering mechanism for a secondary device, expeditiously remove the patient(s) from the scene and begin transport to the hospital.
  - Protect the airway and cervical spine, however, beyond the primary survey, care and a more detailed assessment should be deferred until the patient is in the ambulance.
  - If there are signs the patient was carrying the source of the blast, notify law enforcement immediately and most likely, a law enforcement officer will accompany your patient to the hospital.
  - Consider the threat of structural collapse, contaminated particles and / or fire hazards.

### Disposition:

#### EMS Transport:

- ALS:** Suspected inhalation      All critical burns  
 Abnormal exam                      Abnormal vital signs  
 Respiratory distress                Significant mechanism of injury  
 All chemical, electrical, or radiological burns  
 Loss of consciousness

- BLS:** Patient with non-critical injuries and SPO2 >96% room air and stable vital signs.



# Chemical and Electrical Burn



## History

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

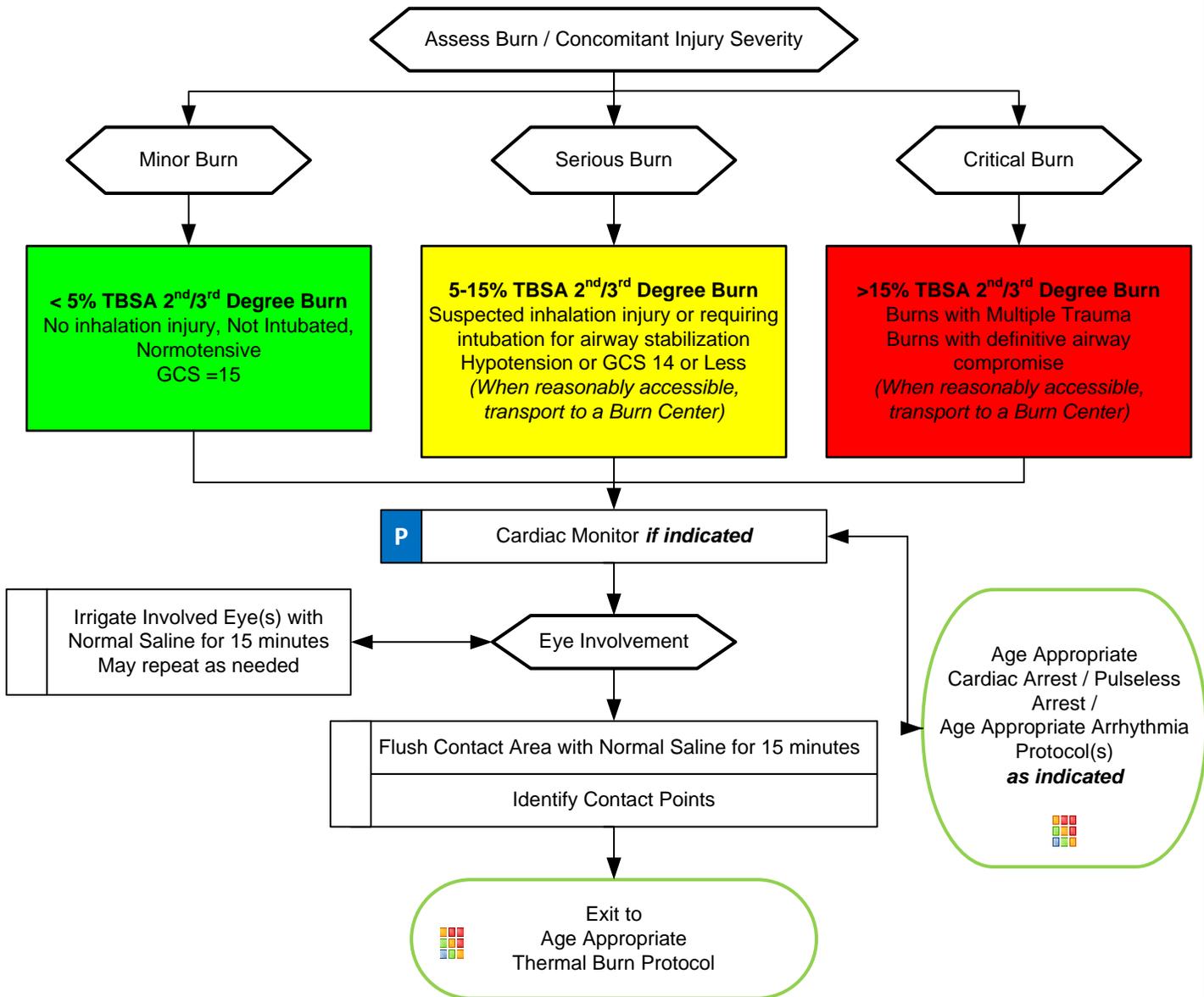
## Signs and Symptoms

- Burns, pain, swelling
- Dizziness
- Loss of consciousness
- Hypotension/shock
- Airway compromise/distress could be indicated by hoarseness/ wheezing / Hypotension

## Differential

- Superficial (1<sup>st</sup> Degree) red - painful (Don't include in TBSA)
- Partial Thickness (2<sup>nd</sup> Degree) blistering
- Full Thickness (3<sup>rd</sup> Degree) painless/charred or leathery skin
- Thermal injury
- Chemical – Electrical injury
- Radiation injury
- Blast injury

**Assure Chemical Source is NOT Hazardous to Responders.**  
**Assure Electrical Source is NO longer in contact with patient before touching patient.**



Adult / Pediatric Trauma and Burn Section Protocols



# Chemical and Electrical Burn



## Notes:

## Pearls

- **Recommended Exam: Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, and Neuro**
- **Green, Yellow and Red In burn severity do not apply to the Start / JumpStart Triage System.**
- **Refer to Rule of Nines: Remember the extent of the obvious external burn from an electrical source, does not always reflect more extensive internal damage not seen.**
- **Chemical Burns:**  
Refer to Decontamination Procedure.  
Normal Saline or Sterile Water is preferred, however if not available, do not delay irrigation using tap water. Other water sources may be used based on availability. Flush the area as soon as possible with the cleanest readily available water or saline solution using copious amounts of fluids.
- **Electrical Burns:**  
DO NOT contact patient until you are certain the source of the electrical shock is disconnected.  
Attempt to locate contact points (generally there will be two or more.) A point where the patient contacted the source and a point(s) where the patient is grounded. Sites will generally be full thickness. **Do not refer to as entry and exit sites or wounds.**  
Cardiac Monitor: Anticipate ventricular or atrial irregularity including VT, VF, atrial fibrillation and / or heart blocks.  
Attempt to identify then nature of the electrical source (AC / DC,) the amount of voltage and the amperage the patient may have been exposed to during the electrical shock.

## Disposition:

**EMS Transport: ALS: All patients**

## Protocol 87

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director



# Crush Syndrome Trauma



## History

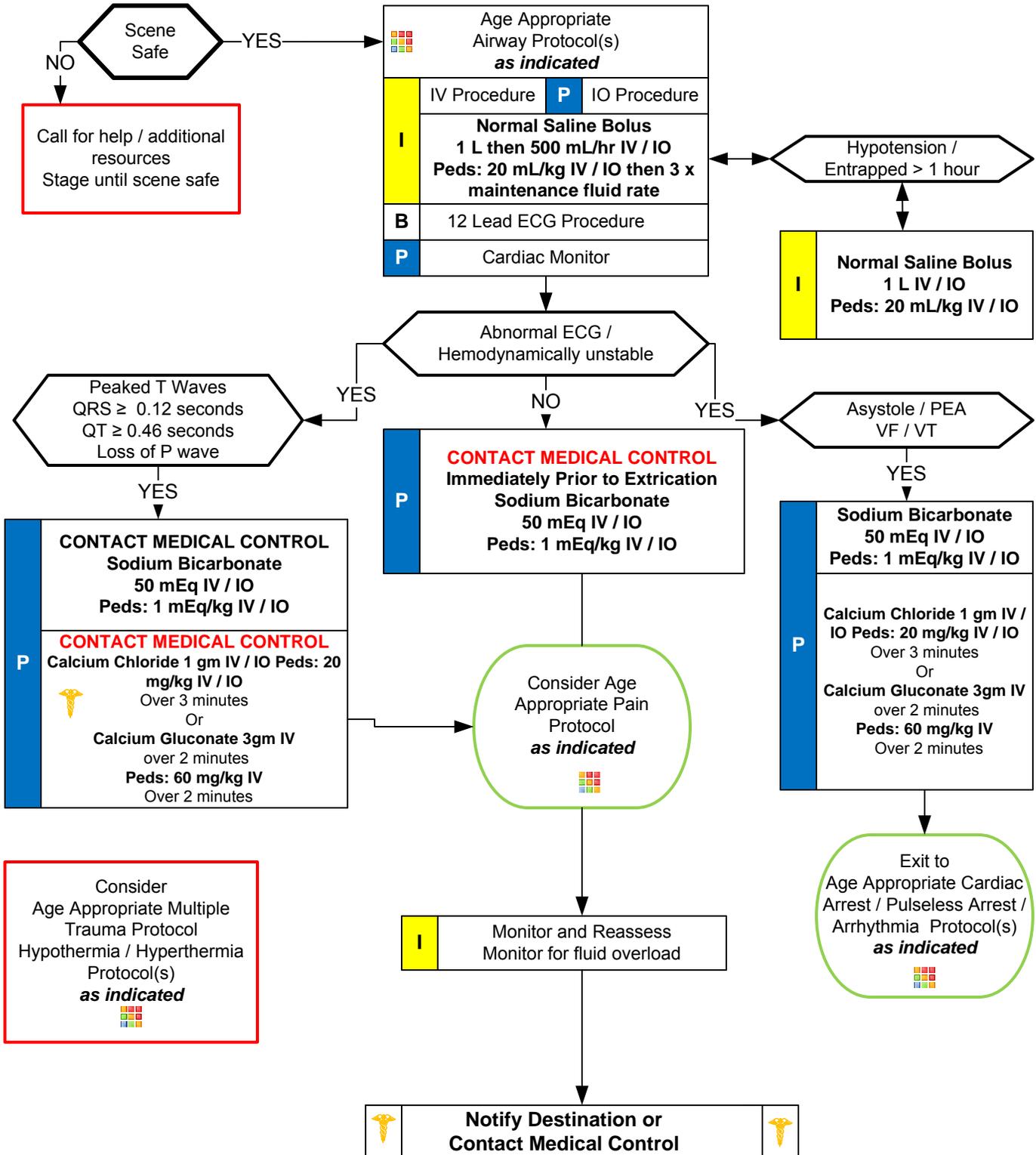
- Entrapped and crushed under heavy load > 30 minutes
- Extremity / body crushed
- Building collapse, trench collapse, industrial accident, pinned under heavy equipment

## Signs and Symptoms

- Hypotension
- Hypothermia
- Abnormal ECG findings
- Pain
- Anxiety

## Differential

- Entrapment without crush syndrome
- Entrapment without significant crush
- Altered mental status



Adult / Pediatric Trauma and Burn Section Protocols

Consider  
Age Appropriate Multiple  
Trauma Protocol  
Hypothermia / Hyperthermia  
Protocol(s)  
*as indicated*

## Protocol 88



# Crush Syndrome Trauma



## Notes:

### Pearls

- **Recommended exam: Mental Status, Musculoskeletal, Neuro**
- **Scene safety is of paramount importance as typical scenes pose hazards to rescuers. Call for appropriate resources.**
- **Crush injury is compression of extremities or other parts of the body causing muscle swelling and/or neurological disturbances in the affected areas of the body. Cases commonly occur in catastrophes such as earthquakes or building collapse.**
- Avoid Ringers Lactate IV Solution due to potassium and potential worsening hyperkalemia
- Hyperkalemia from crush syndrome can produce ECG changes described in protocol, but may also be a bizarre, wide complex rhythm. Wide complex rhythms should also be treated using the VF/Pulseless VT Protocol.
- Patients may become hypothermic even in warm environments.
- Pediatric IV Fluid maintenance rate: 4 mL per first 10 kg of weight + 2 mL per second 10 kg of weight + 1 mL for every additional kg in weight.

### Disposition:

**EMS Transport:**    **ALS:**    All patients



# Extremity Trauma



## History

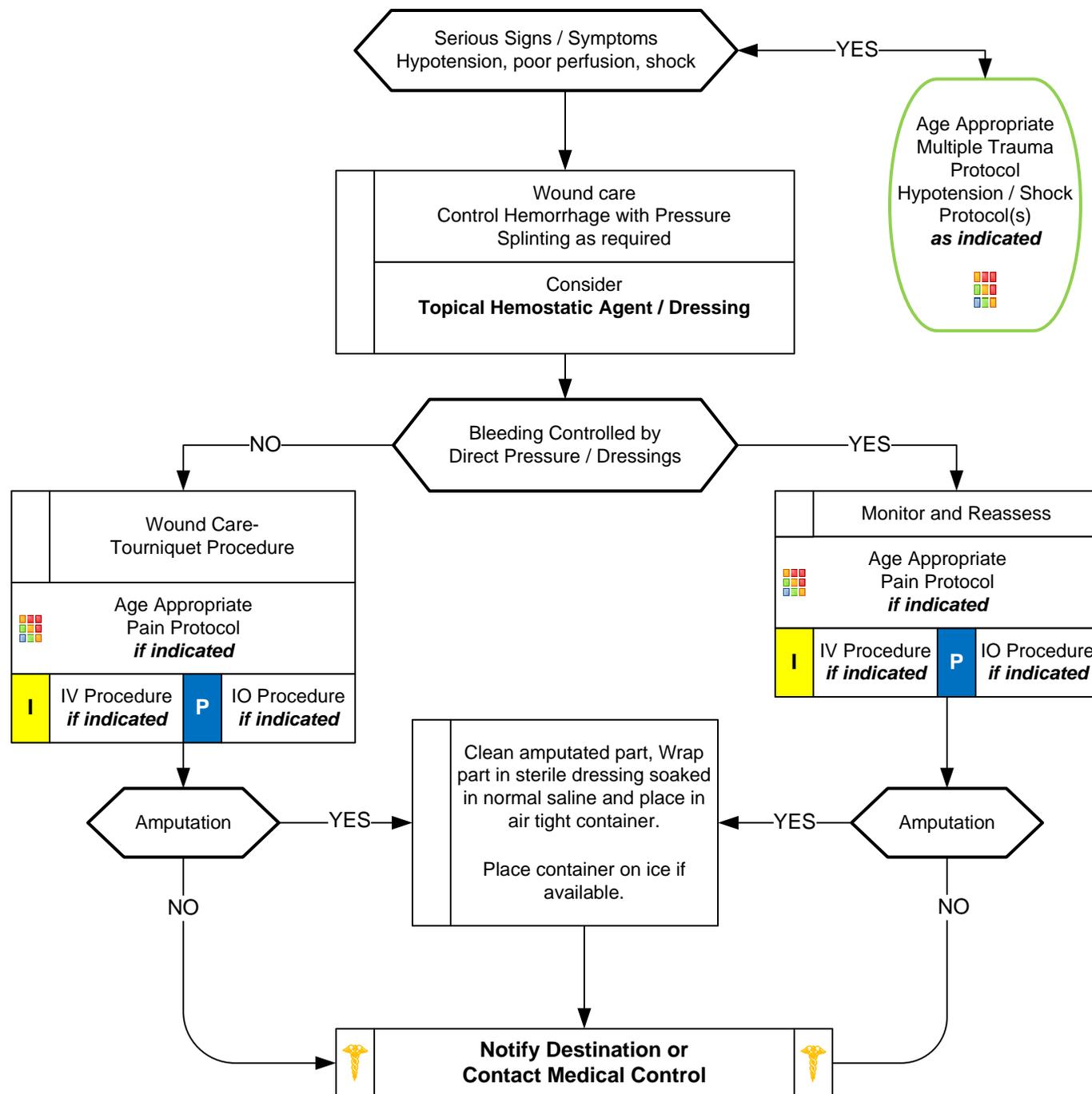
- Type of injury
- Mechanism: crush / penetrating / amputation
- Time of injury
- Open vs. closed wound / fracture
- Wound contamination
- Medical history
- Medications

## Signs and Symptoms

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

## Differential

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



Adult / Pediatric Trauma and Burn Section Protocols



# Extremity Trauma



## Notes:

### Pearls

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

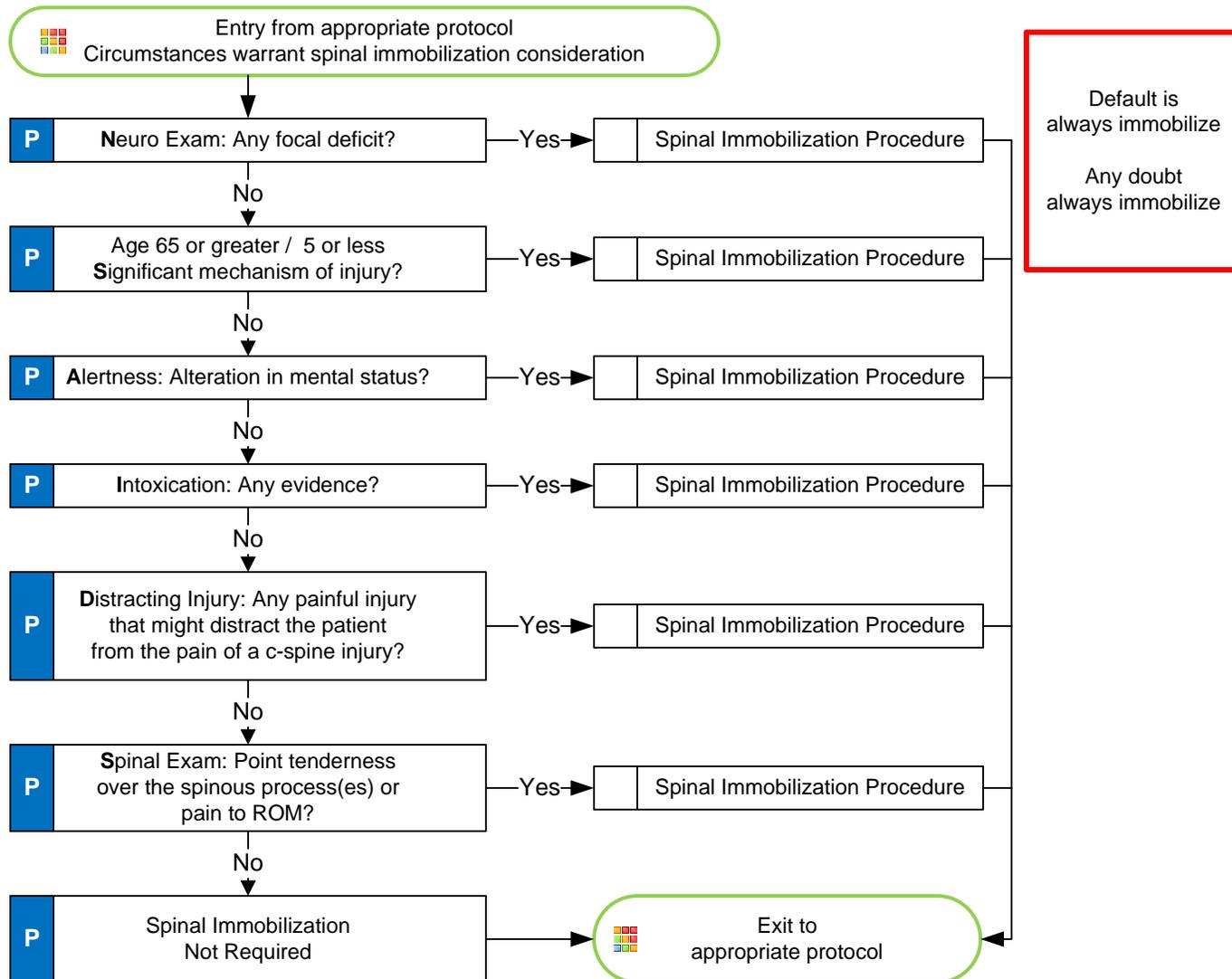
### Disposition:

**EMS Transport: ALS:** Patient with multisystem trauma, abnormal vital signs, uncontrolled bleeding, abnormal vascular or neurologic exam.

**BLS:** Patient with normal exam who has isolated extremity injury, extensive wound with controlled bleeding or deformed fracture or dislocation.

**MD Within 4 Hours:** Patient with lacerations requiring repair or isolated extremity injury (no deformity) who has a normal exam and is mobile for private transportation.

**MD Within 24 Hours:** Patient with isolated extremity injury with normal exam, no lacerations.



## Pearls

- **Recommended Exam: Mental Status, Skin, Neck, Heart, Lungs, Abdomen, Back, Extremities, Neuro**
- Consider immobilization in any patient with arthritis, cancer, dialysis or other underlying spinal or bone disease.
- The decision to NOT implement spinal immobilization in a patient is the responsibility of the paramedic solely.
- In very old and very young, a normal exam may not be sufficient to rule out spinal injury.
- Significant mechanism includes high-energy events such as ejection, high falls, and abrupt deceleration crashes and may indicate the need for spinal immobilization in the absence of symptoms.
- Range of motion should NOT be assessed if patient has midline spinal tenderness. Patient's range of motion should not be assisted. The patient should touch their chin to their chest, extend their neck (look up), and turn their head from side to side (shoulder to shoulder) without spinal process pain.
- **The acronym "NSAIDS" should be used to remember the steps in this protocol.**
  - "N" = Neurologic exam. Look for focal deficits such as tingling, reduced strength, or numbness in an extremity.
  - "S" = Significant mechanism or extremes of age.
  - "A" = Alertness. Is patient oriented to person, place, time, and situation? Any change to alertness with this incident?
  - "I" = Intoxication. Is there any indication that the person is intoxicated, impaired decision-making ability (alcohol, drugs)?
  - "D" = Distracting injury. Is there any other injury producing significant pain in this patient? Any injury which the patient seems to focus on and rate 6 or greater on the pain scale is likely distracting.
  - "S" = Spinal exam. Look for point tenderness in any spinal process or spinal process tenderness with range of motion. Each of 7 cervical spinal processes must be palpated during the exam.
- Apply appropriate padding to fill voids especially in the elderly, very young and / or obese patients.



# Radiation Incident



## History

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

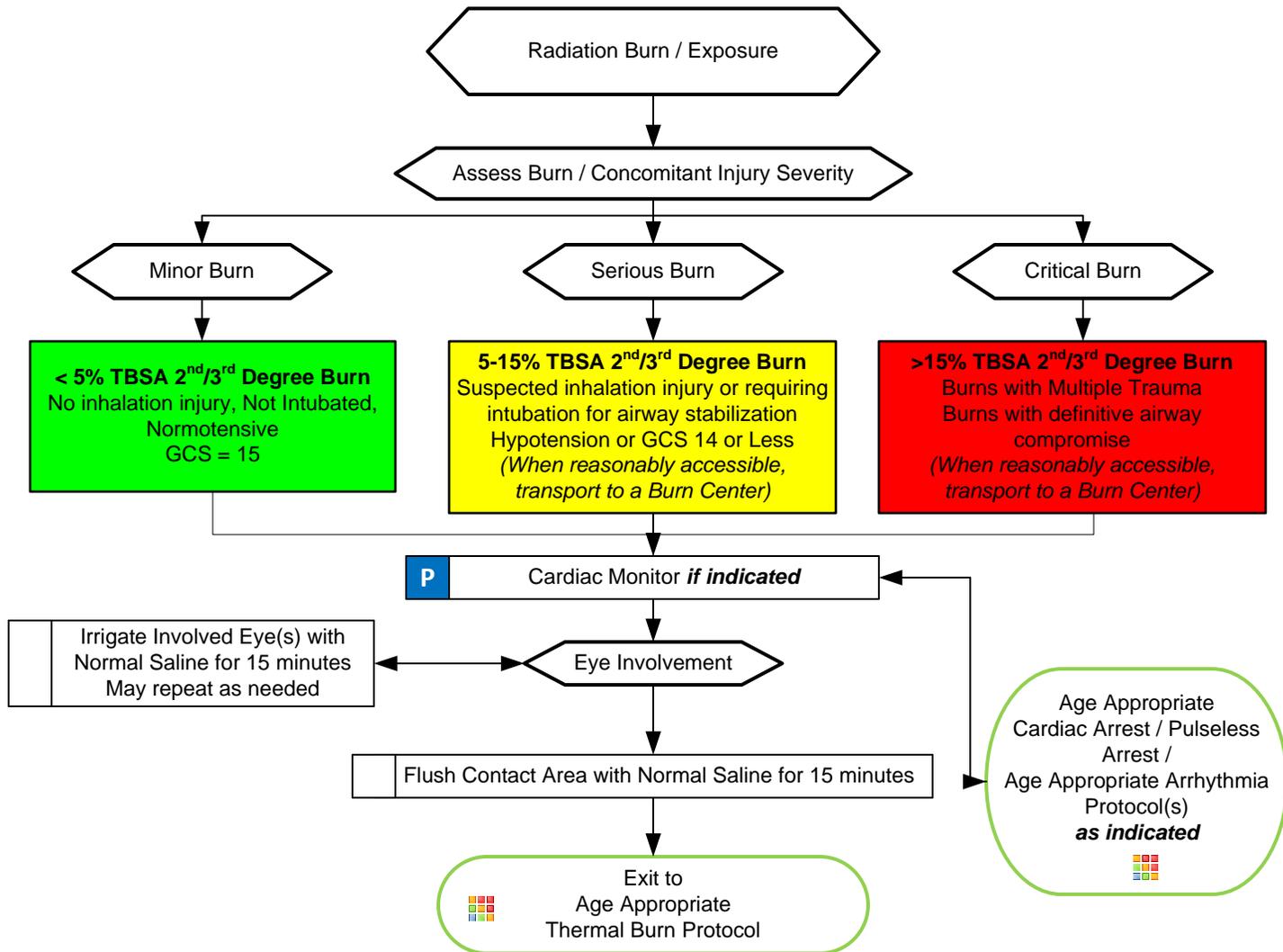
## Signs and Symptoms

- Burns, pain, swelling
- Dizziness
- Loss of consciousness
- Hypotension/shock
- Airway compromise/distress could be indicated by hoarseness/ wheezing / Hypotension

## Differential

- Superficial (1<sup>st</sup> Degree) red - painful (Don't include in TBSA)
- Partial Thickness (2<sup>nd</sup> Degree) blistering
- Full Thickness (3<sup>rd</sup> Degree) painless/charred or leathery skin
- Thermal injury
- Chemical – Electrical injury
- Radiation injury
- Blast injury

**Scene Safety / Quantify and Triage Patients / Load and Go with Assessment / Treatment Enroute**



Adult / Pediatric Trauma and Burn Section Protocols

**Collateral Injury:** Most all injuries immediately seen will be a result of collateral injury, such as heat from the blast, trauma from concussion, treat collateral injury based on typical care for the type of injury displayed.

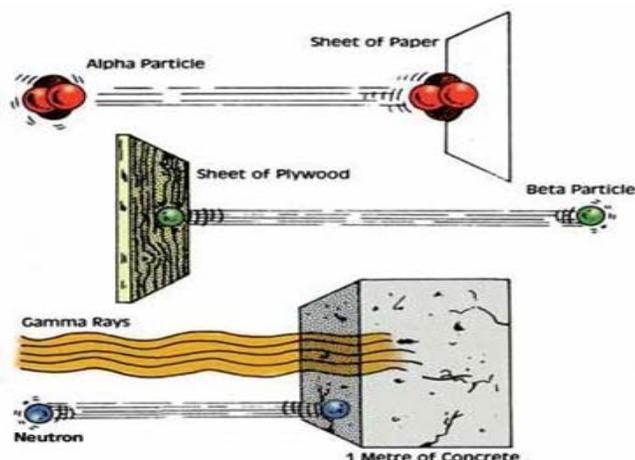
**Qualify:** Determine exposure type; external irradiation, external contamination with radioactive material, internal contamination with radioactive material.

**Quantify:** Determine exposure (generally measured in Grays/Gy). Information may be available from those on site who have monitoring equipment, do not delay transport to acquire this information.

## Protocol 91

This protocol has been altered from the original 2012 NCCEP Protocol by the local EMS Medical Director

2012



**Time Phases of Radiation Injury  
(Exposure Dose vs Clinical Outcome)**

Exposure Dose (Gy)	Prodrome Severity	Manifest Illness - Symptom Severity			Prognosis
		Hematologic	Gastrointestinal	Neurologic	
0.5 to 1.0	+	+	0	0	Survival almost certain
1.0 to 2.0	+/++	+	0	0	Survival >90 percent
2.0 to 3.5	++	++	0	0	Probable survival
3.5 to 5.5	+++	+++	+	0	Death in 50% at 3.5 to 6 wks
5.5 to 7.5	+++	+++	++	0	Death probable in 2-3 wks
7.5 to 10	+++	+++	+++	0*	Death probable in 1-2.5 wks
10 to 20	+++	+++	+++	+++	Death certain in 5-12 days
> 20	+++	+++	+++	+++**	Death certain in 2-5 days

**Abbreviations:** Gy: dose in Grey;  
0: no effects; +: mild; ++: moderate; +++: severe or marked

\* Hypotension  
\*\* Also cardiovascular collapse, fever, shock

Modified from: Waselenko, JK, MacVittie, TJ, Blakely, WF, et al. Medical management of the acute radiation syndrome: Recommendations of the strategic national stockpile radiation working group. Ann Int Med 2004; 140:1039.

Adult / Pediatric Trauma and Burn Section Protocols

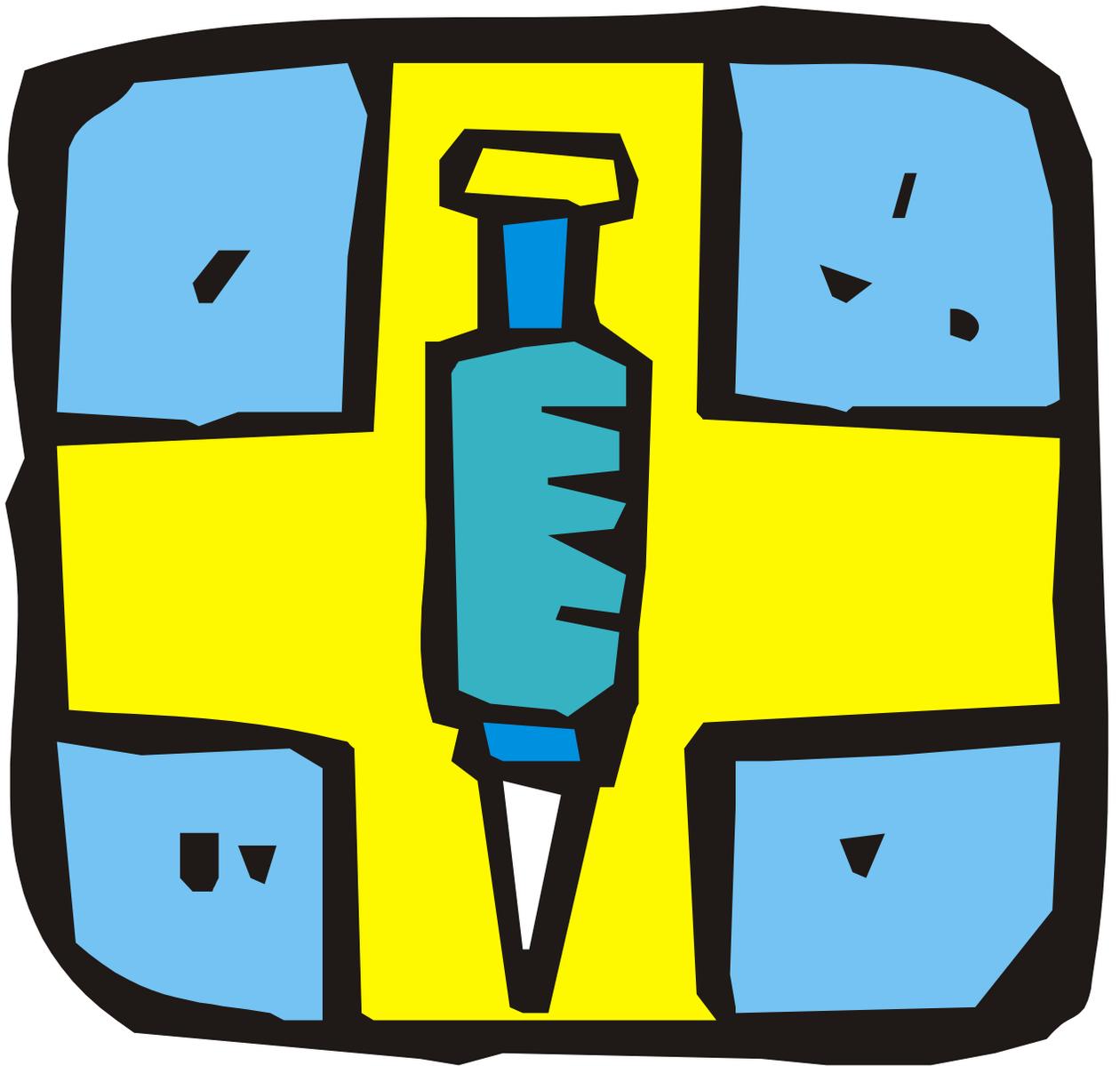
## Pearls

- Dealing with a patient with a radiation exposure can be a frightening experience. Do not ignore the ABC's, a dead but decontaminated patient is not a good outcome. Refer to the Decontamination Procedure for more information.
- Normal Saline or Sterile Water is preferred, however if not available, do not delay irrigation using tap water. Other water sources may be used based on availability. Flush the area as soon as possible with the cleanest readily available water or saline solution using copious amounts of fluids.
- Three methods of exposure:**
  - External irradiation
  - External contamination
  - Internal contamination
- Two classes of radiation:**
  - Ionizing radiation (greater energy) is the most dangerous and is generally in one of three states: Alpha Particles, Beta Particles and Gamma Rays.
  - Non-ionizing (lower energy) examples include microwaves, radios, lasers and visible light.
- Radiation burns with early presentation are unlikely, it is more likely this is a combination event with either thermal or chemical burn being presented as well as a radiation exposure. Where the burn is from a radiation source, it indicates the patient has been exposed to a significant source, (> 250 rem).
- Patients experiencing radiation poisoning are not contagious. Cross contamination is only a threat with external and internal contamination.
- Typical ionizing radiation sources in the civilian setting include soil density probes used with roadway builders and medical uses such as x-ray sources as well as radiation therapy. Sources used in the production of nuclear energy and spent fuel are rarely exposure threats as is military sources used in weaponry. Nevertheless, these sources are generally highly radioactive and in the unlikely event they are the source, consequences could be significant and the patient's outcome could be grave.
- The three primary methods of protection from radiation sources:**
  - Limiting time of exposure
  - Distance from
  - Shielding from the source
- Dirty bombs ingredients generally include previously used radioactive material and combined with a conventional explosive device to spread and distribute the contaminated material.
- Refer to Decontamination Procedure / WMD / Nerve Agent Protocol for dirty contamination events.
- If there is a time lag between the time of exposure and the encounter with EMS, key clinical symptom evaluation includes: Nausea/ Vomiting, hypothermia/hyperthermia, diarrhea, neurological/cognitive deficits, headache and hypotension.
- This event may require an activation of the National Radiation Injury Treatment Network, RITN. UNC Hospitals, Wake Forest-Baptist and Duke are the NC hospitals, with burns managed at UNC and Wake Forest.

## Disposition:

**EMS Transport: ALS: All patients**

# Procedures





# 12 Lead ECG

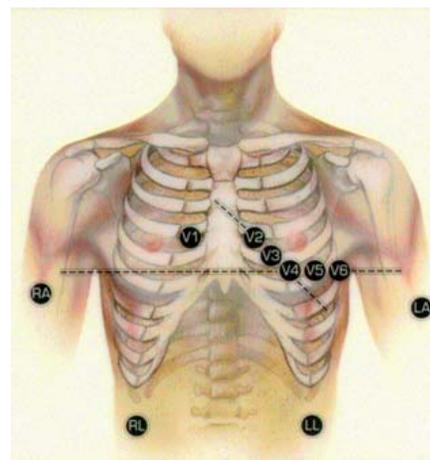
## Clinical Indications:

- Suspected cardiac patient
- Suspected tricyclic overdose
- Electrical injuries
- Syncope

B	EMT	B
I	EMT- I	I
P	EMT- P	P

## 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. Enter the required patient information (patient name, etc.) into the 12 lead ECG device.
6. Expose chest and prep as necessary. Modesty of the patient should be respected.
7. Apply chest leads and extremity leads using the following landmarks:
  - RA -Right arm
  - LA -Left arm
  - RL -Right leg
  - LL -Left leg
  - V1 -4<sup>th</sup> intercostal space at right sternal border
  - V2 -4<sup>th</sup> intercostal space at left sternal border
  - V3 -Directly between V2 and V4
  - V4 -5<sup>th</sup> intercostal space at midclavicular line
  - V5 -Level with V4 at left anterior axillary line
  - V6 -Level with V5 at left midaxillary line
8. Instruct patient to remain still.
9. Press the appropriate button to acquire the 12 Lead ECG.
10. If the monitor detects signal noise (such as patient motion or a disconnected electrode), the 12 Lead acquisition will be interrupted until the noise is removed.
11. Once acquired, transmit the ECG data by fax to the appropriate hospital.
12. Contact the receiving hospital to notify them that a 12 Lead ECG has been sent.
13. Monitor the patient while continuing with the treatment protocol.
14. Download data as per guidelines and attach a copy of the 12 lead to the ACR.
15. Document the procedure, time, and results on/with the patient care report (PCR)



## Certification Requirements:

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



# 12 Lead ECG - LifeNET®

## Clinical Indications:

- STEMI
- Post Resuscitation 12 Leads
- Any ECG constituting a call to the “bat phone”

B	EMT	B
I	EMT- I	I
P	EMT- P	P

The transmission of the 12 lead does not replace the call to the “bat phone”.

Paramedics are expected to accurately interpret the 12 lead and to communicate with the attending ED physician. Modems have been installed in all fourteen LIFEPAK 12's. These modems are securely housed in a side pocket of the monitor and will not be moved. The modems plug into the same connector as the data cable and should be plugged in prior to and during transmission.

1. Perform a 12 lead within **5** minutes of patient contact (patient care permitting)
2. Ensure the patient's last and first name are entered in the machine.
3. Select Transmit
4. Select Data
5. You Must select the appropriate 12-Lead report even if there is only one.  
(DO NOT Send any other report as this may render the system non functional)
6. Select **UNC** as the appropriate site
7. Unplug the data upload cable
8. Plug in the modem
9. When lights are illuminated the modem is working (The modems have cellular wireless data transmission capability and will continuously search for wireless signal)
10. Press the send button
11. Press the home button to return to the monitoring screen
12. The transmission will continue to run in the background and will be visible at bottom of the screen
13. No further action is required unless a failure message is received after transmission
14. After transmission is complete a transmission report will print
15. Once a 12 lead is transmitted, OCES administration and OCES medical directors will receive real-time notification.
16. Report any transmission failure or problem via webEOC and to the on-duty supervisor.

# Airway: King® Airway

## Clinical Indications for King® Airway:

B	EMT	B
I	EMT- I	I
P	EMT- P	P

- Inability to adequately ventilate a patient with a Bag Valve Mask or longer EMS transport distances require a more advanced airway.
- Appropriate intubation is impossible due to patient access or difficult airway anatomy.
- 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.
- Patient must be unconscious.

## Contraindications

- Responsive patients with an intact gag reflex
- Patients with known esophageal disease
- Patients who have ingested caustic substances



### Cuff Inflation by Size

- Size 3 – 50 mL
- Size 4 – 70 mL
- Size 5 – 80 mL

## Procedure:

1. Preoxygenate and hyperventilate the patient.
2. Select the appropriate tube size for the patient.
3. Lubricate the tube.
4. Grasp the patient's tongue and jaw with your gloved hand and pull forward.
5. Gently insert the tube rotated laterally 45-90 degrees so that the blue orientation line is touching the corner of the mouth.
6. Once the tip is at the base of the tongue, rotate the tube back to midline. Insert the airway until the base of the connector is in line with the teeth and gums.
7. Inflate the pilot balloon with 45-90 ml of air depending on the size of the device used.
8. Ventilate the patient while gently withdrawing the airway until the patient is easily ventilated.
9. Auscultate for breath sounds and sounds over the epigastrium and look for the chest to rise and fall.
10. The large pharyngeal balloon secures the device.
11. Confirm tube placement using end-tidal CO<sub>2</sub> detector.
12. **It is strongly recommended that the airway be monitored continuously through Capnography and Pulse Oximetry.**
13. **It is strongly recommended that an Airway Evaluation Form be completed with any BIAD use.**

## Certification Requirements:

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



# Airway: BLS Airway

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

**Clinical Indications:**

- Patient with need for supplemental oxygenation, assisted ventilation, or basic airway protective measures.

**Procedure:**

- Provide supplemental oxygen to patients through a device appropriate for the desired concentration of oxygen: Nasal cannula for low-concentration, partial rebreather mask for high-concentration. Set the oxygen flow to a rate designed for the delivery device: 1-6 liters per minute for nasal cannula, 8 or more liters per minute for a mask.
- Assist ventilations for patients who are not adequately ventilating themselves or who are having difficulty adequately ventilating themselves.
- Use a bag-valve-mask device with a face mask of appropriate size for the patient.
- Connect the BVM to high-flow oxygen. Rescuer one should position themselves at the patient's head.
- Hold the mask securely over the mouth and nose of the patient by compressing the mask against the face using the heel of both hands while performing a jaw thrust with the fingers of both hands.
- If assisting a spontaneously breathing patient, match your rate of ventilations to the patient's intrinsic respiratory rate.
- If ventilating a non-breathing patient, ventilate at a rate of 8-10 full ventilations per minute for an adult patient or 20 full ventilations per minute (q 3 sec) for an infant or child.
- End tidal CO<sub>2</sub> (ETCO<sub>2</sub>) monitoring, when available, should be applied whenever patients are being ventilated. Target ETCO<sub>2</sub> of 35-45.
- Protect the airway of patients that are unresponsive or have an altered level of consciousness.
- Attempt to place an appropriately sized oral airway, using an approved method of insertion. If the patient has a gag reflex, do not place the oral airway.
- Attempt to place an appropriately sized and lubricated nasal airway.

**Certification Requirements:**

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

# Airway: CPAP

I	EMT- I	I
P	EMT- P	P

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

- CPAP is indicated in spontaneously breathing patients in whom inadequate ventilation is suspected. This could be as a result of pulmonary edema, pneumonia, COPD, etc.

## Clinical Contraindications for Continuous Positive Airway Pressure (CPAP) Use:

- Decreased Mental Status.
- Facial features or deformities that prevent an adequate mask seal.
- Excessive respiratory secretions.



## Procedure:

1. Ensure adequate oxygen supply to ventilation device.
2. Explain the procedure to the patient.
3. Consider placement of a nasopharyngeal airway.
4. Place the delivery mask over the mouth and nose. Oxygen should be flowing through the device at this point. It is preferable to roll the mask from the chin to the nose for an optimal seal, allowing the patient to hold the mask until it is in the position of comfort with psychological reassurance.
5. Adjust the forehead bar and pull the mesh cap over the patient's head. Snap the mesh cap in place, adjusting one side at a time, for comfort and to ensure minimal air leakage.
6. If the Positive End Expiratory Pressure (PEEP) is adjustable on the CPAP device adjust the PEEP beginning at 0 cmH<sub>2</sub>O of pressure and slowly titrate to achieve a positive pressure as follows:
  - 5 – 10 cmH<sub>2</sub>O for Pulmonary Edema, Near Drowning, possible aspiration or pneumonia
  - 3 – 5 cm H<sub>2</sub>O for COPD
7. Evaluate the response of the patient assessing breath sounds, oxygen saturation, and general appearance.
8. Attach the intubated end tidal CO<sub>2</sub> adaptor to the mask, then attach the green adaptor to the end tidal adapter. Lastly, attach the peak flow meter to the green adaptor at the end of the line. If indicated by protocol a nebulizer reservoir and t adapter may be attached between the peak flow meter and the end tidal adapter.
8. Titrate oxygen levels to the patient's response. Many patients respond to low FIO<sub>2</sub> (30-50%).
9. Encourage the patient to allow forced ventilation to occur. Observe closely for signs of complications.
10. Document time and response on patient care report (PCR).

## Certification Requirements:

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



# Airway: Cricothyrotomy-Surgical

## Clinical Indications:

P

EMT- P

P

- Failed Airway Protocol
- Management of an airway when standard airway procedures cannot be performed or have failed in a patient  $\geq$  12 years old.

## Procedure

1. Don appropriate PPE.
2. Have suction and supplies available and ready.
3. Locate the cricothyroid membrane utilizing anatomical landmarks.
4. Prep the area with an antiseptic swab (Betadine).
5. Attach a 5-cc syringe to an 18G - 1 & 1/2-inch needle.
6. Insert the needle (with syringe attached) perpendicularly through the cricothyroid membrane with the needle directed posteriorly.
7. During needle insertion, gentle aspiration should be applied to the syringe. Rapid aspiration of air into the syringe indicates successful entry into the trachea. Do not advance the needle any further. Attach forceps and remove syringe.
8. With the needle remaining in place, make a 1-inch vertical incision through the skin and subcutaneous tissue above and below the needle using a scalpel. Using blunt dissection technique, expose the cricothyroid membrane. This is a bloody procedure. The needle should act as a guide to the cricothyroid membrane.
9. With the needle still in place, make a horizontal stabbing incision approx. 1/2 inch through the membrane on each side of the needle. Remove the needle.
10. Using (skin hook, tracheal hook, or gloved finger) to maintain surgical opening, insert the cuffed tube into the trachea. (Cric tube from the kit or a #6 endotracheal tube is usually sufficient).
11. Inflate the cuff with 5-10cc of air and ventilate the patient while manually stabilizing the tube.
12. All of the standard assessment techniques for insuring tube placement should be performed (auscultation, chest rise & fall, end-tidal CO<sub>2</sub> detector, etc.) Esophageal bulb devices are not accurate with this procedure.
13. Secure the tube.
14. Apply end tidal carbon dioxide monitor (Capnography) and record readings on scene, en route to the hospital, and at the hospital.
15. Document in the patient care report ETT size, time, result (success), and placement location by the centimeter marks at the skin
16. Document all devices used to confirm initial tube placement and after each movement of the patient.
17. Consider placing an NG or OG tube to clear stomach contents after the airway is secured.
- 18. It is strongly recommended that the airway (if equipment is available) be monitored continuously through Capnography and Pulse Oximetry.**
- 19. It is strongly recommended that an Airway Evaluation Form be completed with all intubations**

## Certification Requirements:

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

# Airway: Endotracheal Tube Introducer (Bougie)



## Clinical Indications:

- Patients meet clinical indications for oral intubation
- Initial intubation attempt(s) unsuccessful
- Predicted difficult intubation

I	EMT- I	I
P	EMT- P	P

## Contraindications:

- Three attempts at orotracheal intubation (utilize failed airway protocol)
- Age less than eight (8) or ETT size less than 6.5 mm

## Procedure:

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

## Certification Requirements:

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



# Airway: Foreign Body Obstruction

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Clinical Indications:

- Sudden onset of respiratory distress often with coughing, wheezing, gagging, or stridor due to a foreign-body obstruction of the upper airway.

## Procedure:

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

## Certification Requirements:

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



## Airway: Infant Meconium Aspiration

### Clinical Indications:

I	EMT- I	I
P	EMT- P	P

Meconium is present in the amniotic fluid of a baby being delivered and the infant is not vigorous.

### Procedure:

1. If amniotic fluid is known to contain meconium prior to delivery, prepare all equipment beforehand.
2. If meconium is discovered at the time of delivery, you must work quickly to reduce the chance of meconium aspiration syndrome.
3. If the meconium is thick (pea soup) rather than thin (watery), then the infant should be orally intubated.
4. A meconium aspirator should be attached to the endotracheal tube and connected to suction. The hole in the aspirator should be covered to apply suction to the ETT, and the ET should be slowly withdrawn from the trachea under continuous suction.
5. If the infant has been intubated and suctioned, a repeat intubation and suction with an ETT may be necessary if there is copious thick meconium present.
6. When the infant's condition is unstable, it may not be possible to clear the trachea of all meconium before positive pressure ventilation must be initiated.

### Certification Requirements:

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



# North Carolina College of Emergency Physicians Standards Procedure (Skill) Airway Intubation Confirmation – End-Tidal CO<sub>2</sub> Detector



B	EMT	B
I	EMT- I	I
P	EMT- P	P

### Clinical Indications:

- The End-Tidal CO<sub>2</sub> detector shall be used with any Endotracheal Tube or Blind Insertion Airway Device use.

**It is strongly recommended that continuous Capnography be used in place of or in addition to the use of an End-Tidal CO<sub>2</sub> detector.**

### Procedure:

1. Attach End-Tidal CO<sub>2</sub> detector to the Blind Insertion Airway Device or the Endotracheal Tube.
2. Note color change. A color change or CO<sub>2</sub> detection will be documented on each respiratory failure or cardiac arrest patient.
3. The CO<sub>2</sub> detector shall remain in place with the airway and monitored throughout the prehospital care and transport unless continuous Capnography is used. Any loss of CO<sub>2</sub> detection or color change is to be documented and monitored as procedures are done to verify or correct the airway problem.
4. Tube placement should be verified frequently and always with each patient move or loss of color change in the End-Tidal CO<sub>2</sub> detector.
5. Document the procedure and the results on/with the Patient Care Report (PCR) as well as on the Airway Evaluation Form.

### Certification Requirements:

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



# Airway: Intubation Nasotracheal

## Clinical Indications:

I	EMT- I	I
P	EMT- P	P

- A spontaneously breathing patient in need of intubation (inadequate respiratory effort, evidence of hypoxia or carbon dioxide retention, or need for airway protection).
- Rigidity or clenched teeth prohibiting other airway procedures.
- Patient must be 12 years of age or older.

## Procedure:

1. Don appropriate PPE.
2. Pre-medicate the patient with nasal spray.
3. Select the largest and least obstructed nostril and insert a lubricated nasal airway to help dilate the nasal passage.
4. Pre-oxygenate the patient. Lubricate the tube. The use of a BAAM device is recommended.
5. Remove the nasal airway and gently insert the tube keeping the bevel of the tube toward the septum.
6. Continue to pass the tube listening for air movement and looking for to and fro vapor condensation in the tube. As the tube approaches the larynx, the air movement gets louder.
7. Gently and evenly advance the tube through the glottic opening on the inspiration. This facilitates passage of the tube and reduces the incidence of trauma to the vocal cords.
8. Upon entering the trachea, the tube may cause the patient to cough, buck, strain, or gag. Do not remove the tube! This is normal, but be prepared to control the cervical spine and the patient, and be alert for vomiting.
9. Auscultate for bilaterally equal breath sounds and absence of sounds of the epigastrium. Observe for symmetrical chest expansion. The 15mm adapter usually rests close to the nostril with proper positioning.
10. Inflate the cuff with 5-10 cc of air.
- 11. Confirm tube placement using end-tidal CO2 monitoring.**
12. Secure the tube.
13. Reassess airway and breath sounds after transfer to the stretcher and during transport. These tubes are easily dislodged and require close monitoring and frequent reassessment.
14. Document the procedure, time, and result (success) on/with the patient care report (PCR).
- 15. It is strongly recommended that the airway (if equipment is available) be monitored continuously through Capnography and Pulse Oximetry.**
- 16. It is strongly recommended that an Airway Evaluation Form be completed with all intubations**

## Certification Requirements:

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



## Airway: Intubation Oral Tracheal

### Clinical Indications:

I	EMT- I	I
P	EMT- P	P

- Inability to adequately ventilate a patient with a Bag Valve Mask or longer EMS transport distances require a more advanced airway.
- An unconscious patient without a gag reflex who is apneic or is demonstrating inadequate respiratory effort.
- A component of Drug Assisted Intubation

### Procedure:

1. Prepare, position and oxygenate the patient with 100% Oxygen.
2. Select proper ET tube (and stylette, if used), have suction ready.
3. Using laryngoscope, visualize vocal cords. (Use Sellick maneuver/BURP to assist you).
4. Limit each intubation attempt to 30 seconds with BVM between attempts.
5. Visualize tube passing through vocal cords.
- 6. Confirm and document tube placement using an end-tidal CO<sub>2</sub> monitoring.**
7. Inflate the cuff with 3-to10 cc of air; secure the tube to the patient's face.
8. Auscultate for bilaterally equal breath sounds and absence of sounds over the epigastrium. If you are unsure of placement, remove tube and ventilate patient with bag-valve mask.
9. Consider using a Blind Insertion Airway Device if intubation efforts are unsuccessful.
10. If Available apply end tidal carbon dioxide monitor (Capnography) and record readings on scene, en route to the hospital, and at the hospital.
11. Document ETT size, time, result (success), and placement location by the centimeter marks either at the patient's teeth or lips on/with the patient care report (PCR). Document all devices used to confirm initial tube placement. Also document positive or negative breath sounds before and after each movement of the patient.
12. Consider placing an NG or OG tube to clear stomach contents after the airway is secured with an ET tube.
- 13. It is strongly recommended that the airway (if equipment is available) be monitored continuously through Capnography and Pulse Oximetry.**
- 14. It is strongly recommended that an Airway Evaluation Form be completed with all intubations**

### Certification Requirements:

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



**Clinical Indications:**

- Patients experiencing bronchospasm.

B	EMT	B
I	EMT- I	I
P	EMT- P	P

**Procedure:**

1. Gather the necessary equipment.
2. Assemble the nebulizer kit.
3. Instill the premixed drug (such as Albuterol or other approved drug) into the reservoir well of the nebulizer.
4. Connect the nebulizer device to oxygen at 4 - 6 liters per minute or adequate flow to produce a steady, visible mist.
5. Instruct the patient to inhale normally 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 solution is depleted. Tapping the reservoir well near the end of the treatment will assist in utilizing all of the solution.
7. Monitor the patient for medication effects. This should include the patient’s assessment of his/her response to the treatment and reassessment of vital signs, ECG, and breath sounds.
8. Assess and document peak flows before and after nebulizer treatments.
9. Document the treatment, dose, and route on/with the patient care report (PCR).

**Certification Requirements:**

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



## Airway: ResQPOD Impedance Threshold Device

### Clinical Indications:

- The Impedance Threshold Device (ITD) should be utilized to assist with control of ventilatory rate and improve cardiac preload for patients who are receiving CPR.
- The ITD may be utilized with an endotracheal tube, BVM, or King LT.

I	EMT- I	I
P	EMT- P	P

### Contraindications:

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

### Procedure:

1. Ensure airway is adequate per airway/failed airway protocol.
2. If available, place an elbow O<sub>2</sub> device in the top of the ITD.
3. Place the ITD between the bag and the EtCO<sub>2</sub> detector (for intubated patients) or between the bag and mask (for patients ventilated with the BVM). The elbow O<sub>2</sub> device should be between the ITD and the bag.
4. Flip the red switch to the “on” position so that the respiratory timing lights flash.
5. Provide one ventilation after each flash of the LED timing lights.
6. Perform **continuous** chest compression per the CPR procedure, if you are using an advanced airway. Otherwise perform compressions and ventilations at the rate recommended in the CPR procedure.
7. If there is return of spontaneous circulation and the EtCO<sub>2</sub> climbs above 40, remove the ITD. Base further ventilation rate on the patient’s EtCO<sub>2</sub> (ventilate faster if EtCO<sub>2</sub> >50, ventilate slower if EtCO<sub>2</sub><30). The ITD should also be removed if the patient has spontaneous respirations.
8. Carefully monitor the placement of the endotracheal tube after movement of the patient, placement of the ITD, and/or removal of the ITD.
9. Document the procedure and results in the Patient Care Report (PCR).

### Certification Requirements:

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



# Airway: Suctioning-Advanced

I	EMT- I	I
P	EMT- P	P

## Clinical Indications:

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

## Procedure:

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

## Certification Requirements:

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



# Airway: Suctioning-Basic

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Clinical Indications:

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

## Procedure:

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

## Certification Requirements:

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



## Airway: Tracheostomy Tube Change

### Clinical Indications:

I	EMT- I	I
P	EMT- P	P

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

### Procedure:

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

### Certification Requirements:

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



## Arterial Access: Line Maintenance

### Clinical Indications:

P EMT-P P

- Transport of a patient with an existing arterial line.

### Procedure:

1. Make certain arterial line is secured prior to transport, including intersection of arterial catheter and IV/Monitoring lines.
2. Use available equipment for monitoring of arterial pressures via arterial line.
3. Do not use the arterial line for administration of any fluids or medications.
4. If there is any question regarding dislodgement of the arterial line and bleeding results, remove the line and apply direct pressure over the site for at least five minutes before checking to ensure hemostasis.

### Certification Requirements:

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



# Assessment: Adult

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Clinical Indications:

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

## Procedure:

- Scene size-up, including universal precautions, scene safety, environmental hazards assessment, need for additional resources, by-stander safety, and patient/caregiver interaction
- Assess need for additional resources.
- Initial assessment includes a general impression as well as the status of a patient's airway, breathing, and circulation.
- Assess mental status (e.g., AVPU) and disability (e.g., GCS).
- Control major hemorrhage and assess overall priority of patient.
- Perform a focused history and physical based on patient's chief complaint.
- Assess need for critical interventions.
- Complete critical interventions and perform a complete secondary exam to include a baseline set of vital signs as directed by protocol.
- 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.
- Document all findings and information associated with the assessment, performed procedures, and any administration of medications on the PCR.

## Certification Requirements:

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

## Pain Assessment and Documentation

### Clinical Indications:

- Any patient with pain.

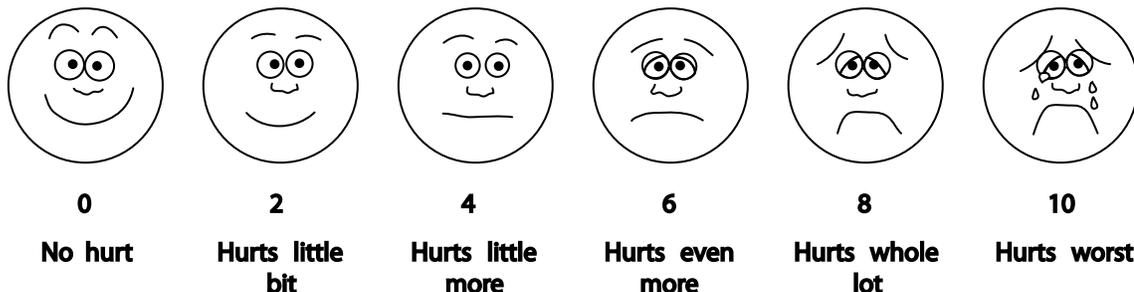
### Definitions:

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

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

### Procedure:

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



From Hockenberry MJ, Wilson D, Winkelstein ML: Wong's Essentials of Pediatric Nursing, ed. 7, St. Louis, 2005, p. 1259. Used with permission. Copyright, Mosby.

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

CATEGORIES	SCORING		
	0	1	2
FACE	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested.	Frequent to constant quivering chin, clenched jaw.
LEGS	Normal position or relaxed.	Uneasy, restless, tense.	Kicking, or legs drawn up.
ACTIVITY	Lying quietly, normal position moves easily.	Squirming, shifting back and forth, tense.	Arched, rigid or jerking.
CRY	No cry, (awake or asleep)	Moans or whimpers; occasional complaint	Crying steadily, screams or sobs, frequent complaints.
CONSOLABILITY	Content, relaxed.	Reassured by occasional touching hugging or being talked to, distractable.	Difficulty to console or comfort

### Certification Requirements:

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



# Assessment: Pediatric

## Clinical Indications:

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

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Procedure:

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

## Certification Requirements:

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



# Blood Glucose Analysis

## Clinical Indications:

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

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Procedure:

1. Gather and prepare equipment.
2. Blood samples for performing glucose analysis can be obtained through a finger-stick or when possible simultaneously with intravenous access.
3. Place correct amount of blood on reagent strip or site on glucometer per the manufacturer's instructions.
4. Time the analysis as instructed by the manufacturer.
5. Document the glucometer reading and treat the patient as indicated by the analysis and protocol.
6. Repeat glucose analysis as indicated for reassessment after treatment and as per protocol.
7. Perform Quality Assurance on glucometers at least once every 7 days, if any clinically suspicious readings are noted, and/or as recommended by the manufacturer and document in the log.

## Certification Requirements:

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



# Capnography

B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Clinical Indications:

- Capnography shall be used when available with the use of all invasive airway procedure including endotracheal, nasotracheal, cricothyrotomy, or Blind Insertion Airway Devices (BIAD).
- Capnography should also be used when possible with CPAP.

## Procedure:

1. Attach capnography sensor to the BIAD, endotracheal tube, or oxygen delivery device.
2. Note CO<sub>2</sub> level and waveform changes. These will be documented on each respiratory failure, cardiac arrest, or respiratory distress patient.
3. The capnometer shall remain in place with the airway and be monitored throughout the prehospital care and transport.
4. Any loss of CO<sub>2</sub> detection or waveform indicates an airway problem and should be documented.
5. The capnogram should be monitored as procedures are performed to verify or correct the airway problem.
6. Document the procedure and results on/with the Patient Care Report (PCR) and the Airway Evaluation Form.

## Certification Requirements:

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



# Cardiac: External Pacing

## Clinical Indications:

P EMT-P P

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

## Procedure:

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

## Certification Requirements:

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



# North Carolina College of Emergency Physicians Standards Procedure (Skill) Cardiopulmonary Resuscitation (CPR)



## Clinical Indications:

- Basic life support for the patient in cardiac arrest

## Procedure:

1. Assess the patient's level of responsiveness (shake and shout)
2. If no response, check for pulse (carotid for adults and older children, brachial for infants) for at least 10 seconds. If no pulse, begin chest compressions based on chart below.
3. Open the patient's airway with the head-tilt, chin-lift and look, listen, and feel for respiratory effort. If the patient may have sustained C-spine trauma, use the modified jaw thrust while maintaining immobilization of the C-spine. For infants, positioning the head in the sniffing position is the most effective method for opening the airway. \*for suspected trauma patients this step occurs prior to number 2.

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

Age	Location	Depth	Rate
<b>Infant</b>	Over sternum, between nipples (inter-mammary line), 2-3 fingers	1.5 inches	At least 100/minute
<b>Child</b>	Over sternum, just cephalad from xyphoid process, heel of one hand	2 inches	At least 100/minute (3 compressions Every 2 seconds)
<b>Adult</b>	Over sternum, just cephalad from xyphoid process, hands with interlocked fingers	At least 2 inches	At least 100/minute (3 compressions Every 2 seconds)

4. Attempt to give two ventilations. If air moves successfully, go to step 5. If air movement fails, proceed to the Airway Obstruction Procedure.
5. If no advanced airway (BIAD, ETT) compressions to ventilations are 30:2 for adults, children, and infants.
6. If advanced airway is in place ventilate provide 8 - 10 breaths per minute with the BVM with uninterrupted, continuous chest compressions. Use EtCO<sub>2</sub> to guide your ventilations as directed in the Cardiac Arrest Protocol.
7. Chest compressions should be provided in an uninterrupted manner. Only brief interruptions (< 5 seconds with a maximum of 10 seconds) are allowed for rhythm analysis, defibrillation, and performance of procedures.
8. Document the time and procedure in the Patient Care Report (PCR).

## Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other



# Cardioversion

## Clinical Indications:

P EMT- P P

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

## Procedure:

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

## Certification Requirements:

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



# CHARTE Documentation

B	EMT	B
I	EMT- I	I
P	EMT- P	P

Clinical Indications:

- All patient encounters shall be documented on approved OCEM patient care reports and the documentation method used by all personnel should follow the CHARTE narrative method, as outlined below.

Procedure:

- [C] Chief complaint: what the patient tells you, i.e. their description of the incident or problem.
  - What the patient reports. Patient quotes are useful here.
- [H] History: the immediate history and any precipitating events. Medications and allergies are included here.
  - What lead up to this event
  - Past medical history
  - Medications and allergies
- [A] Assessment: the full assessment, including initial assessment and focused history / physical exam.
  - Focus on the key findings – pertinent positive and negative findings that justify your treatment and protocol selection. Why you did or did not do something.
- [R] Treatment: any treatment given to the patient, including FR and all on scene procedures.
  - Focus on the patient's response to treatment and procedures performed.
- [T] Transport: the treatment that was given enroute to the ED and the mode of transport.
- [E] Exceptions: the problems that were encountered during the incident.
  - Unusual events or problems such as I would consider carefully what is required to be put in a chart versus an incident report.:
  - Prolonged response time
  - Prolonged scene time
  - Partial refusal of care
  - Extrication
  - Confusion about DNR status
  - Law enforcement involvement
  - Any other impediments while on the call
- Note the section of the CHARTE on the PCR with a circle, quotes or parentheses around the letter. Examples: © (H) "A" ® (T) "E"
- PCR completion instructions are included in [appendix A](#) .



# Chest Decompression

## Clinical Indications:

P EMT-P P

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

## Procedure:

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

## Certification Requirements:

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



# Childbirth

## Clinical Indications:

- Imminent delivery with crowning

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Procedure:

1. Delivery should be controlled so as to allow a slow controlled delivery of the infant. This will prevent injury to the mother and infant.
2. Support the infant's head as needed.
3. Check the umbilical cord surrounding the neck. If it is present, slip it over the head. If unable to free the cord from the neck, double clamp the cord and cut between the clamps.
4. Suction the airway with a bulb syringe.
5. Grasping the head with hands over the ears, gently pull down to allow delivery of the anterior shoulder.
6. Gently pull up on the head to allow delivery of the posterior shoulder.
7. Slowly deliver the remainder of the infant.
8. Clamp the cord 2 inches from the abdomen with 2 clamps and cut the cord between the clamps.
9. Record APGAR scores at 1 and 5 minutes.
10. Follow the **Newly Born Protocol** for further treatment.
11. The placenta will deliver spontaneously, usually within 5 minutes of the infant. Do not force the placenta to deliver.
12. Massaging the uterus may facilitate delivery of the placenta and decrease bleeding by facilitating uterine contractions.
13. Continue rapid transport to the hospital.

## Certification Requirements:

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



# North Carolina College of Emergency Physicians Standards Procedure (Skill) CNS Catheter: Epidural Catheter Maintenance



## Clinical Indications:

P EMT-P P

- Presence of an epidural catheter in a patient requiring transport

## Procedure:

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

## Certification Requirements:

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



# North Carolina College of Emergency Physicians Standards Procedure (Skill) Decontamination



	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

### Clinical Indications:

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

### Procedure:

- In coordination with HazMAT and other Emergency Management personnel, establish hot, warm and cold zones of operation.
- Ensure that personnel assigned to operate within each zone have proper personal protective equipment.
- 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).
- Initial triage of patients should occur after step #3. Immediate life threats should be addressed prior to technical decontamination.
- Assist patients with technical decontamination (unless contraindicated based on #3 above). This may include removal of all clothing and gentle cleansing with soap and water. All body areas should be thoroughly cleansed, although overly harsh scrubbing which could break the skin should be avoided.
- Place triage identification on each patient. Match triage information with each patient's personal belongings which were removed during technical decontamination. Preserve these personnel affects for law enforcement.
- Monitor all patients for environmental illness.
- Transport patients per local protocol.

### Certification Requirements:

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



# Defibrillation: Automated

## Clinical Indications:

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

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Contraindication:

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

## Procedure:

1. If multiple rescuers available, one rescuer should provide uninterrupted chest compressions while the AED is being prepared for use.
2. Apply defibrillator pads per manufacturer recommendations. Based on 2010 guidelines, place pads preferably in AP or AL position when implanted devices (pacemakers, AICDs) occupy preferred pad positions and attempt to avoid placing directly over device.
3. Remove any medication patches on the chest and wipe off any residue.
4. If necessary, connect defibrillator leads: white to the anterior chest pad and the red to the posterior pad.
5. Activate AED for analysis of rhythm.
6. **Stop CPR and clear the patient** for rhythm analysis. Keep interruption in CPR as brief as possible.
7. Defibrillate if appropriate by depressing the “shock” button. **Assertively state “CLEAR” and visualize that no one, including yourself, is in contact with the patient prior to defibrillation.** The sequence of defibrillation charges is preprogrammed for monophasic defibrillators. Biphasic defibrillators will determine the correct joules accordingly.
8. Begin CPR (chest compressions and ventilations) immediately after the delivery of the defibrillation.
9. After 2 minutes of CPR, analyze rhythm and defibrillate if indicated. Repeat this step every 2 minutes.
10. If “no shock advised” appears, perform CPR for two minutes and then reanalyze.
11. Transport and continue treatment as indicated.
12. **Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.**
13. If pulse returns please use the Post Resuscitation Protocol

## Certification Requirements:

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



# Defibrillation: Manual

P EMT-P P

## Clinical Indications:

- Cardiac arrest with ventricular fibrillation or pulseless ventricular tachycardia

## Procedure:

1. **Ensure that Chest Compressions are adequate and interrupted only when absolutely necessary.**
2. Clinically confirm the diagnosis of cardiac arrest and identify the need for defibrillation.
3. After application of an appropriate conductive agent if needed, apply defibrillation hands free pads (recommended to allow more continuous CPR) or paddles to the patient's chest in the proper position
  - Paddles: right of sternum at 2nd ICS and anterior axillary line at 5th ICS
  - Pads: anterior-posterior position

For patients with implanted pacers/defibrillators, paddles or pads can be in AP or AL positions. The presence of implanted pacers/defibrillators should not delay defibrillation. Attempt to avoid placing paddles or pads directly above device.

4. Set the appropriate energy level
5. Charge the defibrillator to the selected energy level. **Continue chest compressions while the defibrillator is charging.**
6. If using paddles, assure proper contact by applying 25 pounds of pressure on each paddle.
7. **Hold Compressions, assertively state, "CLEAR" and visualize that no one, including yourself, is in contact with the patient.**
8. Deliver the countershock by depressing the discharge button(s) when using paddles, or depress the **shock button** for hands free operation.
9. Immediately resume chest compressions and ventilations for 2 minutes. After 2 minutes of CPR, analyze rhythm and check for pulse only if appropriate for rhythm.
10. Repeat the procedure every two minutes as indicated by patient response and ECG rhythm.
11. Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation.

## Certification Requirements:

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



# Gastric Tube Insertion

## Clinical Indications:

P EMT-P P

- Gastric decompression in intubated patients

## Procedure:

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

## Certification Requirements:

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



# North Carolina College of Emergency Physicians Standards Procedure (Skill) Injections: Autoinjector



B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Clinical Indications:

Patient needing urgent medication administration when the specific medication may be given via an autoinjector.

## Procedure:

1. Receive and confirm medication order or perform according to standing orders.
2. Prepare equipment and medication.
3. Explain the procedure to the patient and reconfirm patient allergies.
4. The most common site for autoinjector injection is the thigh.
5. Expose the selected area and cleanse the injection site with alcohol.
6. Remove the cap of the autoinjector. This releases the safety catch.
7. Firmly press the autoinjector against the anterior face of the thigh.
8. Hold the autoinjector in place for fifteen seconds to allow the full injection of the medication.
9. Withdraw the needle quickly and dispose of properly without recapping.
10. Apply pressure to the site.
11. Monitor the patient for the desired therapeutic effects as well as any possible side effects.

## Certification Requirements:

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



# Injections: Subcutaneous and Intramuscular

I	EMT- I	I
P	EMT- P	P

## Clinical Indications:

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

## Procedure:

- Receive and confirm medication order or perform according to standing orders.
- Prepare equipment and medication expelling air from the syringe.
- Explain the procedure to the patient and reconfirm patient allergies.
- The most common site for subcutaneous injection is the arm.
  - Injection volume should not exceed 1 cc.
- The possible injection sites for intramuscular injections include the arm, buttock and thigh.
  - Injection volume should not exceed 1 cc for the arm
  - Injection volume should not exceed 2 cc in the thigh or buttock.
- The thigh should be used for injections in pediatric patients and injection volume should not exceed 1 cc.
- Expose the selected area and cleanse the injection site with alcohol.
- Insert the needle into the skin with a smooth, steady motion

**SQ: 45-degree angle  
skin pinched**

**IM: 90-degree angle  
skin flattened**

- Aspirate for blood
- Inject the medication.
- Withdraw the needle quickly and dispose of properly without recapping.
- Apply pressure to the site.
- Monitor the patient for the desired therapeutic effects as well as any possible side effects.
- Document the medication, dose, route, and time on/with the patient care report (PCR).

## Certification Requirements:

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



# Irrigation

## Clinical Indications:

- Patient in need of irrigation for chemical exposure or limited thermal burns.

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Procedure (chemical exposure):

1. Ensure appropriate personal protective equipment, including mask and gloves.
2. Remove as much dry chemical as possible by brushing and removing clothes.
3. While maintaining modesty and temperature of patient, flush chemical with copious water.
4. If the eyes are exposed, flush thoroughly and continuously with normal saline, flushing from the bridge of the nose outward toward the corner of the eye.
5. Monitor the patient for any possible effects of the exposure.
6. Notify ED as early as possible with chemical contaminate.

## Procedure (thermal or flame burn):

1. Determine the approximate area burned (see [appendix E](#)).
2. Cover burned areas with a clean cloth dressing.
3. If body surface area burned is less than ten percent, apply cool water or saline to the burn dressings to cool the burned area.
4. Burned patients are susceptible to hypothermia. Use caution and maintain the patient's body temperature.
5. Monitor the patient for any adverse effects or signs of hypothermia.

## Certification Requirements:

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



## Medication Administration: Intranasal

B	EMT	B
I	EMT- I	I
P	EMT- P	P

### Clinical Indications:

- Patient needing medication administration when the specific medication must be given via the intranasal route or as an alternative route in selected medications.

### Contraindication:

- Lack of a nose
- Destruction of nasal mucosa from surgery or cocaine abuse



### Procedure:

1. Confirm the correct medication, expiration date, and dosage. Read the label to verify the drug is intended for nasal administration (okay if labeled for intravenous use). Check to see if the dose to be administered is dependent upon the patient's weight or other variable factors.
2. Assess the patient to be sure they are not allergic to the drug.
3. Recheck the order/dose for milliliters and verify that you have correctly calculated and drawn up the appropriate volume dose.
4. Attach the MAD (Mucosal Atomizer Device) nasal atomizer.
5. Place the atomizer 1.5 cm into the patient's nostril.
6. Briskly compress the syringe to administer  $\frac{1}{2}$  of the medication.
7. Remove and repeat into the other nostril until all of the medication has been administered.
8. Volumes greater than 1ml are too large and will lead to failure because the drug cannot be absorbed by the nasal mucosa quickly enough.
9. Factors that negatively affect mucosal absorption of medication may include recent use of vasoconstrictors, i.e. cocaine or afrin, epistaxis, nasal congestion and/or discharge.
10. Monitor the patient for the desired therapeutic effects as well as any possible side effects.

### Certification Requirements:

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



# North Carolina College of Emergency Physicians Standards Procedure (Skill)



## Medication Administration: Intravenous and Intraosseous

### Clinical Indications:

I	EMT- I	I
P	EMT- P	P

- Patient in need of medication which should be given intravenously.

### Procedure:

1. Confirm the correct medication, expiration date, and dosage. Read the label to verify the drug is intended for intravenous administration. Check to see if the dose to be administered is dependent upon the patient's weight or other variable factors.
2. Assess the patient to be sure they are not allergic to the drug.
3. Recheck the order / dose for milliliters and verify that you have correctly calculated and drawn up the appropriate volume dose.
4. Assure patency of IV
5. Cleanse the port w/ an alcohol prep pad if sterility is in question.
6. Insert the needle or needleless device into the injection port.
7. Pinch the IV tubing above the injection port and push the syringe plunger to inject the correct volume of medication into the tubing while observing for infiltration. Remove the syringe from the injection port.
8. Release the pinched tubing flush the medication into the vein.
9. Readjust the IV / IO flow rate as appropriate.
10. Document the medication, dosage, route and time of administration.
11. Monitor the patient for any adverse or allergic reactions.

### Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations,



# North Carolina College of Emergency Physicians Standards Procedure (Skill)



## Medication Administration: Oral

### Clinical Indications:

- Patient in need of medication which should be given orally.

B	EMT	B
I	EMT- I	I
P	EMT- P	P

### Procedure:

1. Confirm the correct medication, expiration date, and dosage. Read the label to verify the drug is intended for oral administration. Check to see if the dose to be administered is dependent upon the patient's weight or other variable factors.
2. Assess the patient to be sure they are conscious and sufficiently alert to tolerate the oral administration, and that they are not allergic to the drug.
3. Recheck the order / dose for milliliters, ounces, teaspoons or tablespoons. Make sure you have calculated the dose correctly.
4. Transfer the correct dose of the medication into the appropriate container (spoon, cup, or patient's hand for tablets). If the medication is for a child, a syringe or dose measuring spoon may be appropriate. For pills or tablets, examine them to assure they are intact and unspoiled.
5. Give the medication to the patient and instruct them to drink the liquid or swallow the tablets. Have a small amount of water available for patients taking pills or tablets.
6. For oral glucose, if the patient is conscious but has AMS, you may be able to have them squeeze the medication into their mouth and swallow. If not, you may need to assist the patient. Using a tongue blade to make a pocket between the patient's cheek and gum and squeezing the glucose into this area in small amounts best does this. Care should be taken to avoid placing the glucose deep into the patient's mouth. If the patient is not able to protect their airway, this may not be appropriate. Discretion is left with the individual paramedic.
7. Document the medication, dosage, route and time of administration.
8. Monitor the patient for reactions.

### Certification Requirements:

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



## Medication Administration: Rectal

### Clinical Indications:

P EMT-P P

- Treatment of status seizures in pediatric patients (< 5 yo) where IV access is unobtainable

### Procedure:

1. Attach an injection cap to a #8 French (15 inches in length) feeding tube.
2. Insert the diazepam syringe into the injection cap. Make sure the needle does not puncture the lumen of the feeding tube.
3. Insure that the needle attached to the diazepam syringe is not near the rectum.
4. Do not lubricate the tube prior to insertion. The lubrication may occlude the openings on the distal end of the tube and prevent administration of the diazepam.
5. Advance the feeding tube **2 inches** into the rectum. Do not force the tube. The tube should advance with little or no resistance.
6. Administer the correct dose of diazepam.
7. Flush the injection cap and feeding tube using a syringe filled with 1 cc of normal saline to insure delivery of the diazepam. Do not use > 1 cc to flush the feeding tube as additional flush solution may cause the patient to expel the solution and the diazepam.
8. Hold the buttocks together for 1-2 minutes to prevent leakage of the medication.

### Certification Requirements:

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



## Medication Administration: Sublingual

B	EMT	B
I	EMT- I	I
P	EMT- P	P

### Clinical Indications:

- Administration of nitroglycerine

### Procedure:

1. Confirm the correct medication, expiration date, and dosage. Read the label to verify the drug is intended for sublingual administration.
2. Assess the patient to be sure they are not allergic to the drug.
3. Avoid Nitroglycerin in any patient who has taken an erectile dysfunction medication such as Viagra (sildenafil) or Levitra (vardenafil) in the past 24 hours or Cialis (tadalafil) in the past 36 hours due to potential severe hypotension.
4. Ask the patient to hold their tongue up and spray one squirt of the drug onto the tissue beneath the patient's tongue.
5. Advise the patient that they may experience some signs or symptoms because of the medication, including dizziness, headache, or a "rush." Ask the patient to report any of these symptoms to you.
6. Document the procedure, including time of administration and patient response.

### Certification Requirements:

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



## Medication Administration: Transdermal

### Clinical Indications:

I	EMT- I	I
P	EMT- P	P

- Administration of nitroglycerine paste

### Procedure:

1. Confirm the correct medication, expiration date, and dosage. Read the label to verify the drug is intended for transdermal administration. Check to see if the dose to be administered is dependent upon the patient's weight or other variable factor.
2. Assess the patient to be sure they are not allergic to the drug.
3. Avoid Nitroglycerin in any patient who has taken an erectile dysfunction medication such as Viagra (sildenafil) or Levitra (vardenafil) in the past 24 hours or Cialis (tadalafil) in the past 36 hours due to potential severe hypotension.
4. Measure out the appropriate dose by length onto the applicator paper.
5. Apply the applicator paper to the patient's skin, medication side down.
6. Advise the patient that they may experience signs and symptoms in response to the medication. Ask them to report any burning at the site, headache, dizziness, or blurred vision.
7. Monitor the patient for appropriate response to the medication.
8. Document the procedure, including time of administration and patient response.
9. Be prepared to stop medication administration by removing the applicator paper and wiping off all remaining medication.

### Certification Requirements:

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

North Carolina College of Emergency Physicians  
Standards Procedure (Skill)  
**Orthostatic Blood Pressure Measurement**

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

**Clinical Indications:**

- Patient situations with suspected blood, fluid loss, or dehydration with no indication for spinal immobilization. Orthostatic vital signs are not routinely recommended.
- Patients  $\geq$  8 years of age, or patients larger than the Broselow-Luten tape

**Procedure:**

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

**Certification Requirements:**

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



# Pulse Oximetry

## Clinical Indications:

- Patients with suspected hypoxemia.

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Procedure:

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

## Certification Requirements:

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



# North Carolina College of Emergency Physicians Standards Procedure (Skill) Refusal



B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Clinical Indications:

- Any patient who refuses EMS care after EMS has explained the necessity of transport to the Emergency Department.

## Procedure:

- If patient refuses care, or insists on being transported to a facility other than the destination recommended by the ambulance personnel, utilize "Patient Refusal Section of the ePCR" approved by Orange County Emergency Services.
- Conduct assessment as outlined in the Refusal Policy.
- Contact Medical Control, if necessary
- Determine who may sign refusal form as outlined in the Refusal Policy
- Complete all sections of Refusal Section
- Review form with patient or authorized signer
- Provide detailed explanation of possible risks and danger signs to patient or other authorized signer
- Inform the patient to call 911, call their doctor or go to an emergency department if symptoms persist or get worse or any of the danger signs you inform them of appear.
- Read the "Patient Advice" section of the electronic referral form to patient or authorized signer.
- Complete the "Patient Advice" section on the electronic referral form by filling in the appropriate blanks and by documenting the advice or instructions you gave to the patient on the appropriate line.
- Obtain the signature of the patient or authorized signer. If the patient refuses to sign, document this fact on the Refusal section as well as the narrative of the ePCR.
- Obtain signature of a witness; preferably the witness should be someone who witnessed your explanation of risks and benefits to the patient, heard you read the "Patient Advice" to the patient, and who watched the patient sign the form.
- If no witness is available, a crew member may sign as a last resort.
- Witnesses may include law enforcement personnel.
- All witnesses should be 18 years of age (with proof of age) or older if possible.
- If no witnesses are available, leave blank. Write the witnesses' address and telephone number in the refusal section.
- Complete ePCR in addition to Refusal section. ePCR narrative must include the following documentation:
  - Competency assessments (listed above).
  - Results of history and physical exam.
  - The clinical symptoms upon which the need for transport was based.
  - Information provided to fully inform the patient and/or other authorized individual of the consequences of their refusal of treatment/transport.
  - The patient's understanding of the risk and complications of his/her choice to refuse.
  - Medical Control instructions, if any
  - Alternatives offered
  - Crew signatures
- Patients not transported via EMS will be given written discharge instructions.



# Reperfusion Checklist

## Clinical Indications:

Rapid evaluation of a patient with suspected acute stroke and/or acute myocardial infarction (STEMI) to:

- Determine eligibility and potential benefit from fibrinolysis..
- Rapid identification of patients who are not eligible for fibrinolysis and will require interventional therapy.

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Procedure:

1. Follow the appropriate protocol for the patient's complaint to assess and identify an acute condition which could potentially benefit from fibrinolysis. If a positive finding is noted on one of the following assessments, proceed to step 2.
  - Perform a 12-lead ECG to identify an acute ST elevation myocardial infarction (STEMI).
  - Perform the Los Angeles Pre-hospital Stroke Screen to identify an acute stroke
2. Complete the Reperfusion Check Sheet to identify any potential contraindications to fibrinolysis. (See Appendix)
  - Systolic Blood Pressure greater than 180 mm Hg
  - Diastolic Blood Pressure greater than 110 mm Hg
  - Right vs. Left Arm Systolic Blood Pressure difference of greater than 15 mm Hg
  - History of structural Central Nervous System disease (age >= 18, history of aneurysm or AV-malformation, tumors, masses, hemorrhage, etc.)
  - Significant closed head or facial trauma within the previous 3 months
  - Recent (within 6 weeks) major trauma, surgery (including laser eye surgery), gastrointestinal bleeding, or severe genital-urinary bleeding
  - Bleeding or clotting problem or on blood thinners
  - CPR performed greater than 10 minutes
  - Currently Pregnant
  - Serious Systemic Disease such as advanced/terminal cancer or severe liver or kidney failure.
3. Identify if the patient is currently in heart failure or cardiogenic shock. For these patients, a percutaneous coronary intervention is more effective.
  - Presence of pulmonary edema (rales greater than halfway up lung fields)
  - Systemic hypoperfusion (cool and clammy)
4. If any contraindication is noted using the check list and an acute Stroke is suspected by exam or a STEMI is confirmed by ECG, activate the EMS Stroke Plan or EMS STEMI Plan for fibrinolytic ineligible patients. This may require the EMS Agency, an Air Medical Service, or a Specialty Care Transport Service to transport directly to a specialty center capable of interventional care within the therapeutic window of time.
5. Record all findings in the Patient Care Report (PCR).

## Certification Requirements:

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



# Restraints: Physical

B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Clinical Indications:

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

## Procedure:

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

## Certification Requirements:

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



# Spinal Immobilization

## Clinical Indications:

- Need for spinal immobilization as determined by protocol

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Procedure:

1. Gather a backboard, straps, C-collar appropriate for patient's size, tape, and head rolls or similar device to secure the head.
2. Explain the procedure to the patient
3. Place the patient in an appropriately sized C-collar while maintaining in-line stabilization of the C-spine. This stabilization, to be provided by a second rescuer, should not involve traction or tension but rather simply maintaining the head in a neutral, midline position while the first rescuer applied the collar.
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 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 available that allows maintenance of in-line spinal stability.
6. Stabilize the patient with straps and head rolls/tape or other similar device. Once the head is secured to the backboard, the second rescuer may release manual in-line stabilization.
7. NOTE: Some patients, due to size or age, will not be able to be immobilized through in-line stabilization with standard backboards and C-collars. Never force a patient into a non-neutral position to immobilize them. Such situations may require a second rescuer to maintain manual stabilization throughout the transport to the hospital. Special equipment such as football players in full pads and helmet may remain immobilized with helmet and pads in place.
8. Document the time of the procedure in the patient care report (PCR).

## Certification Requirements:

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



# Splinting

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Clinical Indications:

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

## Procedure:

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

## Certification Requirements:

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



# North Carolina College of Emergency Physicians Standards Procedure (Skill)



## SpO<sub>2</sub>/CO/MET

B	EMT	B
I	EMT- I	I
P	EMT- P	P

### Clinical Indications:

- Per appropriate protocol for the non invasive monitoring of SPO<sub>2</sub>/CO/MetHgb levels

### Procedure:

1. Use a dry and appropriately sized sensor.
2. Choose a site that is well perfused (ring finger preferred).
3. Choose a site that least restricts patient movement (finger of non-dominant hand).
4. Observe all warning and cautions noted in sensor's direction for use.
5. Connect Rainbow sensor to the SpO<sub>2</sub> port on the monitor
6. Place patient's finger in sensor until tip of finger touches the "raised digit stop".
7. Ensure sensor is secure and properly aligned with fleshy part of the digit completely covering the detector.
8. Keep sensor site at the same level as the patient's heart.
9. Press ON
10. Observe the pulse bar for fluctuations (amplitude indicates relative signal quality)
11. Confirm that SpO<sub>2</sub> reading appears and is stable. (See Procedure 45-Pulse Oximetry)
12. For SpCO and SpMET minimize patient movement and shield the sensor from ambient light.
13. Press PRINT – SpCO and SpMET levels appear at top of printout or use SPEED DIAL to select SpO<sub>2</sub> area and selects PARAMETER and then SpCO or SpMET
14. For any SpCO reading > 5%, always check SpMET%

### SpCO% Interpretation (carboxyhemoglobin)

0 – 5%	Normal in non-smokers
5 – 10%	Normal in smokers For non-smokers, assess for signs/symptoms, treat with high flow O <sub>2</sub> if present
10 – 15%	(In any patient) assess for signs/symptoms, treat with high flow O <sub>2</sub> if present
> 15%	High flow O <sub>2</sub> X 30 minutes then reassess  If SpCO remains > 10% or if signs/symptoms are present, consider transport
> 30%, or unconscious, or pregnant	Consider immediate transport to closest hyperbaric treatment facility



# North Carolina College of Emergency Physicians Standards Procedure (Skill)



## SPO<sub>2</sub>/CO/MetHgb

### SpMET% Interpretation (methemoglobin)

0 – 3%	Normal in all patients
> 3%	Elevated MET may falsely raise SpCO levels – interpret cautiously
> 5%	If MET levels are greater than 5%, SpCO readings will not be accurate
> 10%	Clinically significant MET Assess for signs/symptoms, consult medical control for direction
> 30%	Assess for signs/symptoms, provide high flow O <sub>2</sub> , and transport

### Certification Requirements:

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



# Stroke Screen: LA Prehospital

## Clinical Indications:

- Suspected Stroke Patient

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Procedure:

1. Assess and treat suspected stroke patients as per protocol.
2. The Los Angeles Prehospital Stroke Screen (LAPSS) form should be completed for all suspected stroke patients (see appendix). There are six screening criteria items on the LAPSS form.
3. Screen the patient for the following criteria:
  - Age over 45 years
  - No history of a seizure disorder
  - New onset of symptoms in last 24 hours
  - Patient ambulatory prior to event
  - Blood glucose between 60-400
4. 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.
5. **If all of the LAPSS screening criteria are met (“yes” to all criteria OR if unknown), follow the EMS System Stroke Plan and alert the receiving hospital of a possible stroke patient as early as possible.**
6. All sections of the LAPSS form must be completed.
7. The completed LAPSS form should be attached or documented in the PCR.

## Certification Requirements:

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



# Temperature Measurement

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Clinical Indications:

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

## Procedure:

- For adult patients that are conscious, cooperative, and in no respiratory distress, an oral temperature is preferred (steps 2 to 4 below). For infants or adults that do not meet the criteria above, a rectal temperature is preferred (steps 5 to 7 below).
- 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 covering.
- Have the patient seal their mouth closed around thermometer.
- If using an electric thermometer, leave the device in place until there is indication an accurate temperature has been recorded (per the "beep" or other indicator specific to the device). 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 8.
- Prior to obtaining a rectal temperature, assess whether the patient has suffered any rectal trauma by history and/or brief examination as appropriate for patient's complaint.
- To obtain a rectal temperature, cover the thermometer with an appropriate sterile cover, apply lubricant, and insert into rectum no more than 1 to 2 cm beyond the external anal sphincter.
- Follow guidelines in step 5 above to obtain temperature.
- Record time, temperature, method (oral, rectal), and scale (C° or F°) in Patient Care Report (PCR).

## Certification Requirements:

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



# Valsalva Manuever

## Clinical Indications:

Patients with supraventricular tachycardia.

P EMT- P P

## Procedure:

1. Oxygen and ECG monitoring must be established prior to performing Valsalva maneuvers. Emergency medications and equipment should be immediately available.
2. Record the ECG rhythm continuously while performing all vagal maneuvers.
3. Place the patient in a sitting or semi-sitting position with his or her head tilted down.
4. Instruct the patient to take a deep breath and to “bear down” as if to have a bowel movement.
5. The procedure may be repeated twice before moving to carotid sinus massage.

## Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure.

Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate.



# Venous Access: Blood Draw

## Clinical Indications:

- Collection of a patient's blood for laboratory analysis

I	EMT- I	I
P	EMT- P	P

## Procedure:

1. Utilize universal precautions as per OSHA.
2. Select 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 patients name, along with the date and time the sample was collected).
6. Deliver the blood tubes to the appropriate individual at the hospital.

## Certification Requirements:

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



# North Carolina College of Emergency Physicians Standards Procedure (Skill) Venous Access: Central Line Maintenance



## Clinical Indications:

P EMT-P P

- Transport of a patient with a central venous pressure line already in place

## Procedure:

1. Prior to transportation, ensure the line is secure.
2. Medications and IV fluids may be administered through a central venous pressure line. Such infusions must be held while the central venous pressure is transduced to obtain a central venous pressure, but may be restarted afterwards.
3. Do not manipulate the central venous catheter.
4. If the central venous catheter becomes dysfunctional, does not allow drug administration, or becomes dislodged, contact medical control.
5. Document the time of any pressure measurements, the pressure obtained, and any medication administration in the patient care report (PCR).

## Certification Requirements:

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



# North Carolina College of Emergency Physicians Standards Procedure (Skill) Venous Access: Existing Catheters



## Clinical Indications:

P EMT-P P

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

## Procedure:

1. Clean the port of the catheter with alcohol wipe.
2. Using sterile technique, withdraw 5-10 ml of blood and discard syringe in sharps container.
3. Using 5cc of normal saline, access the port with sterile technique and gently attempt to flush the saline.
4. 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.
5. Begin administration of medications or IV fluids slowly and observe for any signs of infiltration. If difficulties are encountered, stop the infusion and reassess.
6. Record procedure, any complications, and fluids/medications administered in the Patient Care Report (PCR).

## Certification Requirements:

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



# North Carolina College of Emergency Physicians Standards Procedure (Skill) Venous Access: External Jugular Access



I	EMT- I	I
P	EMT- P	P

## Clinical Indications:

- External jugular vein cannulation is indicated in a critically ill patient  $\geq 8$  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. Align the catheter with the vein and aim toward the same side shoulder.
5. Compressing the vein lightly with one finger above the clavicle, puncture the vein midway between the angle of the jaw and the clavicle and cannulate the vein in the usual method.
6. Attach the IV and secure the catheter avoiding circumferential dressing or taping.
7. Document the procedure, time, and result (success) on/with the patient care report (PCR).

## Certification Requirements:

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



# Venous Access: Extremity

## Clinical Indications:

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

I	EMT- I	I
P	EMT- P	P

## Procedure:

- Saline locks may be used as an alternative to an IV tubing and IV fluid in every protocol at the discretion of the ALS professional.
- Paramedics can use intraosseous access where threat to life exists as provided for in the Venous Access-Intraosseous procedure.
- Use the largest catheter bore necessary based upon the patient's condition and size of veins.
- Fluid and setup choice is preferably:
  - Normal Saline with a macro drip (10 gtt/cc) for medical conditions, trauma or hypotension
  - Normal Saline with a micro drip (60 gtt/cc) for medication infusions
- Inspect the IV solution for expiration date, cloudiness, discoloration, leaks, or the presence of particles.
- 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.
- Place a tourniquet around the patient's extremity to restrict venous flow only.
- Select a vein and an appropriate gauge catheter for the vein and the patient's condition.
- Prep the skin with an antiseptic solution.
- Insert the needle with the bevel up into the skin in a steady, deliberate motion until the bloody flashback is visualized in the catheter.
- Advance the catheter into the vein. **Never** reinsert the needle through the catheter. Dispose of the needle into the proper container without recapping.
- Draw blood samples when appropriate.
- Remove the tourniquet and connect the IV tubing or saline lock.
- Open the IV to assure free flow of the fluid and then adjust the flow rate as per protocol or as clinically indicated.
 

**Rates are preferably:**

  - Adult: KVO: 60 cc/hr (1 gtt/ 6 sec for a macro drip set)
  - Pediatric: KVO: 30 cc/hr (1 gtt/ 12 sec for a macro drip set)

**If shock is present:**

  - Adult: 500 cc fluid boluses repeated as long as lungs are dry and BP < 90. Consider a second IV line.
  - Pediatric: 20 cc/kg blouses repeated PRN for poor perfusion.
- Cover the site with a sterile dressing and secure the IV and tubing.
- Label the IV with date and time, catheter gauge, and name/ID of the person starting the IV.
- Document the procedure, time and result (success) on/with the patient care report (PCR).

## Certification Requirements:

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



# North Carolina College of Emergency Physicians Standards Procedure (Skill) Venous Access: Intraosseous



P EMT- P P

## Clinical Indications:

- Patients where rapid, regular IV access is unavailable with any of the following:
- Cardiac arrest.
- Multisystem trauma with severe hypovolemia.
- Severe dehydration with vascular collapse and/or loss of consciousness.
- Respiratory failure / Respiratory arrest.
- Burns.

## Contraindications:

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

## Procedure:

1. Don personal protective equipment (gloves, eye protection, etc.).
2. Identify anteromedial aspect of the proximal tibia (bony prominence below the knee cap). The insertion location will be 1-2 cm (2 finger widths) below this. If this site is not suitable, and patient >12 years of age, identify the anteromedial aspect of the distal tibia (2 cm proximal to the medial malleolus). Proximal humerus is also an acceptable insertion site: for patients > 40 Kg, lateral aspect of the humerus, 2 cm distal to the greater tuberosity.
3. Prep the site recommended by the device manufacturer with providone-iodine ointment or solution.
4. For manual pediatric devices, hold the intraosseous needle at a 60 to 90 degree angle, aimed away from the nearby joint and epiphyseal plate, twist the needle handle with a rotating grinding motion applying controlled downward force until a “pop” or “give” is felt indicating loss of resistance. Do not advance the needle any further.
5. For the EZ-IO intraosseous device, hold the intraosseous needle at a 60 to 90 degree angle, aimed away from the nearby joint and epiphyseal plate, power the driver until a “pop” or “give” is felt indicating loss of resistance. Do not advance the needle any further. Utilize the yellow needle for the proximal humerus. The pink needle is only intended for use in neonatal patients.
6. For the Bone Injection Gun (BIG), find and mark the manufacturers recommended site. Position the device and pull out the safety latch. Trigger the BIG at 90° to the surface and remove the injection device.
7. Remove the stylette and place in an approved sharps container.
8. Attach a syringe filled with at least 5 cc NS; aspirate bone marrow for manual devices only, to verify placement; then inject at least 5 cc of NS to clear the lumen of the needle.
9. Attach the IV line and adjust flow rate. A pressure bag may assist with achieving desired flows.
10. Stabilize and secure the needle with dressings and tape.
11. You may administer 10 to 20 mg (1 to 2 cc) of 2% Lidocaine in adult patients who experience infusion-related pain. This may be repeated prn to a maximum of 60 mg (6 cc).
12. Following the administration of any IO medications, flush the IO line with 10 cc of IV fluid.
13. Document the procedure, time, and result (success) on/with the patient care report (PCR).

## Certification Requirements:

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



# Vital Signs

## Clinical Indications:

- Patient needing evaluation of vital signs.

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Procedure:

1. If automated vital sign readings seem inconsistent with the patient's clinical presentation, manual assessment of vital signs should be conducted.
2. **Pulse rate:** Palpate the pulse rate at a convenient site by compressing the relevant artery against an underlying bone and counting the number of pulses in a fifteen or thirty second period. Multiply the count by either four (for fifteen seconds) or two (for thirty seconds) to determine the pulse rate (per minute).
3. **Respiratory rate:** Count the number of respirations in a thirty second period. Do not make the patient aware that you are observing their breathing, as this may cause the patient to alter their breathing rate or effort. Watch for subtle changes in neck muscles if chest rise and fall cannot be easily seen. Multiply the count of respirations in the thirty second period by two to determine the respiratory rate.
4. **Blood pressure:** Use an appropriately sized blood pressure cuff and a stethoscope to auscultate a blood pressure in the brachial artery. Apply the cuff above the elbow with the center of the bladder over the artery. Hold the stethoscope head over the artery just below the cuff. Inflate the cuff to 20mm Hg above the pressure at which you stop hearing beats. Slowly deflate the cuff, noting the pressure at which you first hear beats (systolic) and the pressure at which the beats disappear (diastolic). In an urgent situation, a blood pressure may be palpated or estimated based on the presence of palpable pulses.
5. **Pulse Oximetry:** (see [procedure 44](#))
6. **GCS:** Mandatory for all patients
7. **Capnography:** (see [procedure 22](#))
8. **Temperature:** (see [procedure 51](#))
9. **Broselow Color:** In pediatric patients, measure the length of the patient from the indicated end of the Broselow pediatric tape. Place the arrow end at one end of the patient, and read the color code at the other end of the patient.

## Certification Requirements:

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



# Wound Care-General

## Clinical Indications:

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

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Procedure:

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

## Certification Requirements:

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



# Wound Care-Hemostatic Agent

**Clinical Indications:**

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

**Contraindications:**

- Wounds involving open thoracic or abdominal cavities.

**Procedure:**

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

**Certification Requirements:**

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

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P



# Wound Care-Taser® Probe Removal

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

## Clinical Indications:

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

## Contraindications:

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

## Procedure:

- Ensure wires are disconnected from weapon.
- Stabilize skin around probe using non-dominant hand.
- Grasp probe by metal body with pliers or hemostats to prevent puncture wounds to EMS personnel.
- Remove probe in single quick motion.
- Wipe wound with antiseptic wipe and apply dressing.

## Certification Requirements:

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



# Wound Care-Tourniquet

	MR	
B	EMT	B
I	EMT- I	I
P	EMT- P	P

**Clinical Indications:**

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

**Contraindications:**

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

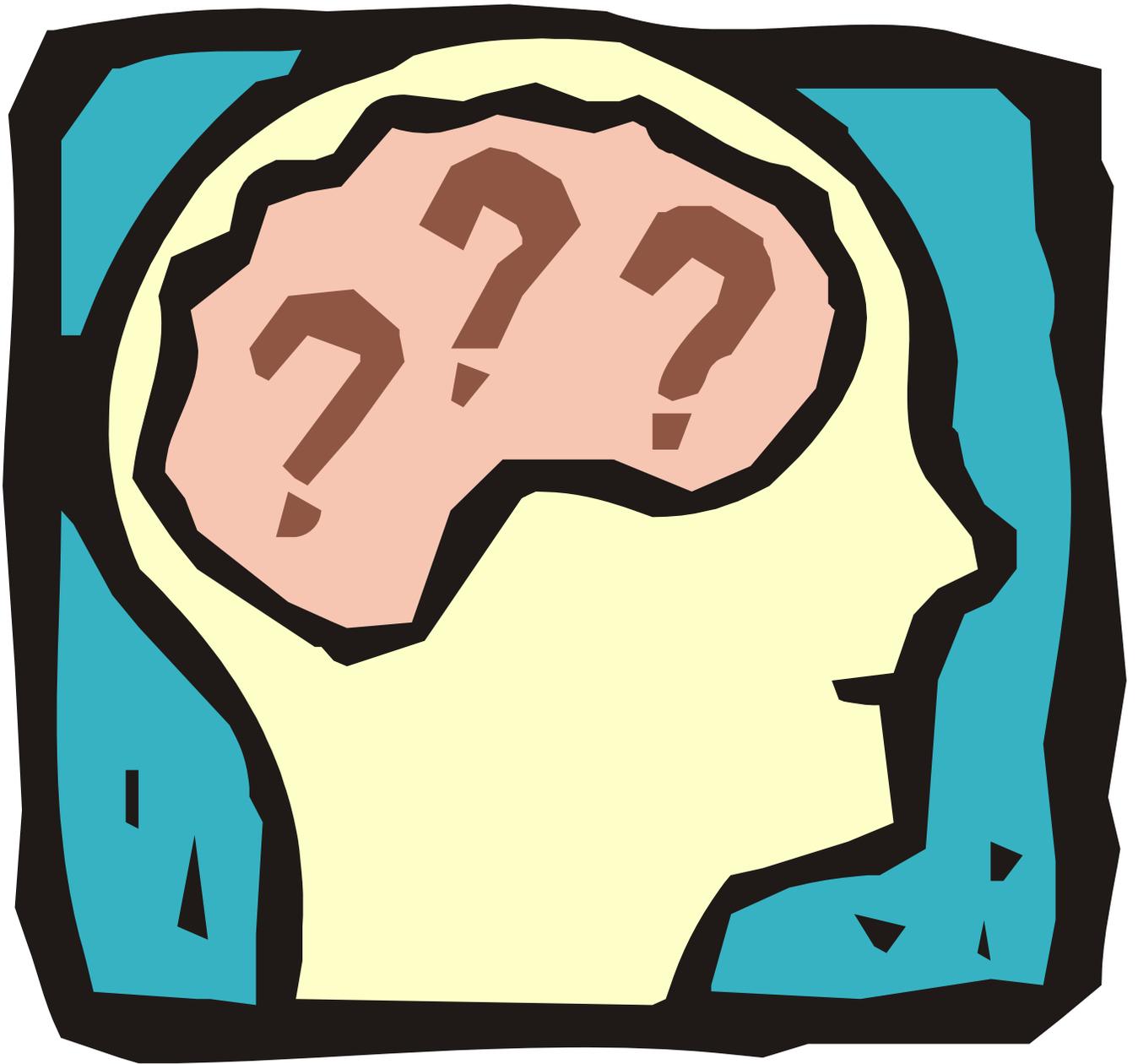
**Procedure:**

1. Place tourniquet proximal to wound
2. Tighten per manufacturer instructions until hemorrhage stops and/or distal pulses in affected extremity disappear.
3. Secure tourniquet per manufacturer instructions
4. Note time of tourniquet application and communicate this to receiving care providers
5. Dress wounds per standard wound care protocol
6. If delayed or prolonged transport and tourniquet application time > 45 minutes: consider reattempting standard hemorrhage control techniques and removing tourniquet

**Certification Requirements:**

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

# Policies





# 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. 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 blood transfusion.
- Provide more timely access to interventional care in acute Stroke and ST-elevation myocardial infarction (STEMI) patients

## Procedure:

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.

Air transport should be considered if any of the following criteria apply:

- High priority patient with > 20 minute transport time
- Entrapped patients with > 10 minute estimated extrication time
- Multiple casualty incident with red/yellow tag patients
- Multi-trauma or medical patient requiring life-saving treatment not available in prehospital environment (i.e., blood transfusion, invasive procedure, operative intervention)
- Time dependent medical conditions such as acute ST-elevation myocardial infarctions (STEMI) or acute Stroke that could benefit from the resources at a specialty center as per the EMS System's Stroke and STEMI Plans.

If a potential need for air transport is anticipated, but not yet confirmed, an air medical transport service can be placed on standby.

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, paramedic or administrative personnel may cancel the request for air transport.

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 or complaint (MVC, fall, etc)



# 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 who is responsible for the child's welfare. The recognition of abuse and the proper reporting is a critical step to improving the safety of children and preventing child abuse.

## Purpose:

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

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

## Procedure:

1. With all children, assess for and document psychological characteristics of abuse, including excessively passivity, compliant or fearful behavior, excessive aggression, violent tendencies, excessive crying, fussy behavior, hyperactivity, or other behavioral disorders
2. With all children, assess for and document physical signs of abuse, including especially any injuries that are inconsistent with the reported mechanism of injury.
3. With all children, assess for and document signs and symptoms of neglect, including inappropriate level of clothing for weather, inadequate hygiene, absence of attentive caregiver(s), or physical signs of malnutrition.
4. Immediately report any suspicious findings to both the receiving hospital (if transported) and to agency responsible for Social Services in the county. After office hours, the child protective services worker on call can be contacted by the EMS System's 911 communications center. While law enforcement may also be notified, North Carolina law requires the EMS provider to report the suspicion of abuse to DSS. EMS should not accuse or challenge the suspected abuser. This is a legal requirement to report, not an accusation. In the event of a child fatality, law enforcement must also be notified.



## Child with Special Health Care Needs (NC Kidbase)

### Policy:

Medical technology, changes in the healthcare industry, and increased home health capabilities have created a special population of patients that interface with the EMS system. It is important for EMS to understand and provide quality care to children with special health care needs.

### Purpose:

The purpose of this policy is to:

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

### Procedure:

1. Caregivers who call 911 to report an emergency involving a child with special health care needs may report that the emergency involves a “Kidbase child” (if they are familiar with the NC Kidbase program) or may state that the situation involves a special needs child.
2. Responding EMS personnel should ask the caregiver of a special needs child for a copy of the “Kidbase Form”, which is the North Carolina terminology for the Emergency Information Form (EIF).
3. EMS personnel may choose to contact the child’s primary care physician for assistance with specific conditions or devices or for advice regarding appropriate treatment and/or transport of the child in the specific situation.
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.



# North Carolina College of Emergency Physicians Standards Policy Criteria for Death / Withholding Resuscitation



## Policy:

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

## Purpose:

The purpose of this policy is to:

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

## Procedure:

1. If a patient is in complete cardiopulmonary arrest (clinically dead) and meets one or more of the criteria below, CPR and ALS therapy need not be initiated:
  - Body decomposition
  - Rigor mortis
  - Dependent lividity
  - Blunt force trauma
  - Injury not compatible with life (i.e., decapitation, burned beyond recognition, massive open or penetrating trauma to the head or chest with obvious organ destruction)
  - Extended downtime with Asystole on the ECG
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 personnel levels must communicate with medical control prior to discontinuation of the resuscitative efforts.
3. If doubt exists, start resuscitation immediately. Once resuscitation is initiated, continue resuscitation efforts until either:
  - a) Resuscitation efforts meet the criteria for implementing the **Discontinuation of Prehospital Resuscitation Policy** (see separate policy)
  - b) Patient care responsibilities are transferred to the destination hospital staff.



# Deceased Subjects

## Policy:

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

## Purpose:

The purpose of this policy is to:

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

## Procedure:

1. Do not remove lines or tubes placed by EMS from the patient unless directed below.
2. Notify the law enforcement agency within jurisdiction.
3. If subject was found deceased by EMS or if resuscitation in the field is unsuccessful, the scene and the decedent are turned over to law enforcement.
4. EMS will not initiate contact with the medical examiner or family physician, but will talk with either at the request of law enforcement on the scene to provide medical details about resuscitative efforts or physical findings.
5. Transport arrangements should be made by law enforcement in concert with family wishes. Normally, transport will be by contracted Medical Examiners Office contract transporter.
6. If the deceased subject's destination is other than the county morgue, any line(s) or tube(s) placed by EMS should be removed prior to transport.
7. Document the situation, investigating law enforcement agency, law enforcement officer's name, and anticipated destination of the decedent on the patient care report form (PCR).
8. If requested by Law Enforcement, include a toe tag with the deceased subject for morgue transport.
9. Responsibility for determining the identification of a deceased subject falls to the law enforcement agency. EMS will not initiate a search for identification or attempt to identify a decedent except to assist a law enforcement officer at the officer's request.
10. On the direction of Law Enforcement, EMS will move the deceased subject to a nearby appropriate location to await transport to the Medical Examiner's Office.
11. If the decedent is in the ambulance, the remains will be transferred directly to the transport agency's vehicle unless specifically directed otherwise by law enforcement.
12. In unusual circumstance, and with Watch Officer approval, EMS may transport the decedent to the County's facility.



## Difficult Airway Evaluation

**Purpose:** Between 1 – 3% of patients who require endotracheal intubation have airways that make intubation difficult. Recognizing those patients who may have a difficult airway allows the paramedic to proceed with caution and to keep as many options open as possible. It also allows the paramedic to prepare additional equipment (such as a cricothyrotomy kit) that may not ordinarily be part of a standard airway kit.

### Procedure:

1. The mnemonic LEMON is useful in evaluating patients for signs that may be consistent with a difficult airway and should raise the paramedic's index of suspicion.
  - Look externally  
External indicators of either difficult intubation or difficult ventilation include: presence of a beard or moustache, abnormal facial shape, extreme cachexia, edentulous mouth, facial trauma, obesity, large front teeth or "buck teeth", high arching palate, receding mandible, short bull neck.
  - Evaluate 3-3-2 Rule  
3 fingers between the patient's teeth (patient's mouth should open adequately to permit three fingers to be placed between the upper and lower teeth) 3 fingers between the tip of the jaw and the beginning of the neck (under the chin) 2 fingers between the thyroid notch and the floor of the mandible (top of the neck)
  - Mallampati  
This scoring system is based on the work of Mallampati et al published in the Canadian Anaesthesia Society Journal in 1985. The system takes into account the anatomy of the mouth and the view of various anatomical structures when the patient opens his mouth as wide as possible. This test is performed with the patient in the sitting position, the head held in a neutral position, the mouth wide open, and the tongue protruding to the maximum. Inappropriate scoring may occur if the patient is in the supine position (instead of sitting), if the patient phonates or if the patient arches his or her tongue.

Class I (easy) = visualization of the soft palate, fauces, uvula, anterior and posterior pillars.

Class II = visualization of the soft palate, fauces and uvula.

Class III = visualization of the soft palate and the base of the uvula.

Class IV (difficult) = soft palate is not visible at all.



Class I



Class II



Class III



Class IV

## Difficult Airway Evaluation

- Obstruction?

Besides the obvious difficulty if the airway is obstructed with a foreign body, the paramedic should also consider other obstrucers such as tumor, abscess, epiglottitis, or expanding hematoma.

- Neck Mobility

Ask the patient to place their chin on their chest and to tilt their head backward as far as possible. Obviously, this will not be possible in the immobilized trauma patient.



## Discontinuation of Prehospital Resuscitation

### Policy:

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

### Purpose:

The purpose of this policy is to:

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

### Procedure:

1. Discontinuation of CPR and ALS intervention may be implemented **prior to contact with Medical Control** if **ALL** of the following criteria have been met:
  - Patient must be 18 years of age or older
  - Adequate CPR has been administered
  - Airway has been successfully managed with verification of device placement. Acceptable management techniques include orotracheal intubation, nasotracheal intubation, Blind Insertion Airway Device (BIAD) placement, or cricothyrotomy
  - IV or IO access has been achieved
  - 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 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
2. If all of the above criteria are not met and discontinuation of prehospital resuscitation is desired, **contact Medical Control**.
3. The **Deceased Subjects Policy** should be followed.

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



## Disposition (Patient Instructions)

### Policy:

All patient encounters responded to by EMS will result in the accurate and timely completion of:

- The Patient Care Report (PCR) for all patients transported by EMS
- The Patient Disposition Form for all patients not transported by EMS

### Purpose:

To provide for the documentation of:

- The evaluation and care of the patient
- The patient's refusal of the evaluation, treatment, and/or transportation
- The patient's disposition instructions
- The patient's EMS 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 Form completed.
3. All patients who are NOT transported by EMS must have a Disposition (patient instruction) Form completed including the Patient Instruction Section.
4. A copy of the Patient Disposition Form should be maintained with the official Patient Care Report (PCR)



## North Carolina Do Not Resuscitate and MOST Form

### Policy:

Any patient presenting to any component of the EMS system with a completed **North Carolina Do Not Resuscitate (DNR)** form (yellow form) and/or **MOST (Medical Orders for Scope of Treatment)** form (bright pink form) shall have the form honored. Treatment will be limited as documented on the DNR or MOST form.

### 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 the NC DNR and/or MOST form(s), the following form content must be verified before honoring the form(s) request.
  - The form(s) must be an original North Carolina DNR form (yellow form - not a copy) and/or North Carolina MOST form (bright pink – not a copy)
  - The effective date and expiration date must be completed and current
  - The DNR and/or MOST Form must be signed by a physician, physician's assistant, or nurse practitioner.
2. A valid DNR or MOST form may be overridden by the request of:
  - The patient
  - The guardian of the patient
  - An on-scene physician

If the patient or anyone associated with the patient requests that a NC DNR and/or MOST form not be honored, EMS personnel should contact **Medical Control** to obtain assistance and direction

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



## EMS Documentation and Data Quality

### Policy:

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

### Definition:

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

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

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

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

### Purpose:

The purpose of this policy is to:

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



## EMS Documentation and Data Quality

### Procedure:

The following procedures shall be implemented to assure policy compliance:

1. The EMS Patient Care Report (PCR) shall be completed as soon as possible after the time of the patient encounter. **Documentation should 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.**
2. **A copy of the patient care report form SHOULD be provided to the receiving medical facility. If the final PCR is not available at the time the patient is left with the emergency department or other healthcare facility, an interim report such as the PreMIS Preliminary Report Form MUST be provided.**
3. The PCR must be completed in the PreMIS System or electronically submitted to the PreMIS System within 24 hours of the EMS event or patient encounter's completion. The EMS data quality feedback provided at the time of the electronic submission into PreMIS should be reviewed and when possible any identified errors will be corrected within each PCR. Each PCR may be electronically resubmitted to PreMIS as many times as needed.
4. The EMS Data Quality Scores for the EMS System, EMS Agency, and individual EMS personnel will be reviewed regularly within the EMS System Peer Review Committee.



# 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 receives some assessment component.

## Purpose:

To insure:

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

## Procedure:

1. An **initial** complete set of vital signs includes:
  - Pulse rate
  - Systolic **AND** diastolic blood pressure
  - Respiratory rate
  - Pain / severity (when appropriate to patient complaint)
  - GCS for Injured Patients
2. When no ALS treatment is provided, palpated blood pressures are acceptable for **REPEAT** vital signs.
3. Based on patient condition and complaint, vital signs may also include:
  - Pulse Oximetry
  - Temperature
  - End Tidal CO<sub>2</sub> (If Invasive Airway Procedure)
  - Breath Sounds
  - Level of Response
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 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 be repeated and monitored closely.

# North Carolina College of Emergency Physicians Standards Policy Domestic Violence (Partner and/or Elder Abuse) Recognition and Reporting



## Policy:

Domestic violence is physical, sexual, or psychological abuse and/or intimidation, which attempts to control another person in a current or former family, dating, or household relationship. The recognition, appropriate reporting, and referral of abuse is a critical step to improving patient safety, providing quality health care, and preventing further abuse.

Elder abuse is the physical and/or mental injury, sexual abuse, negligent treatment, or maltreatment of a senior citizen by another person. Abuse may be at the hand of a caregiver, spouse, neighbor, or adult child of the patient. The recognition of abuse and the proper reporting is a critical step to improve the health and wellbeing of senior citizens.

## Purpose:

Assessment of an abuse case based upon the following principles:

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

## Procedure:

1. Assess the/all patient(s) for any psychological characteristics of abuse, including excessive passivity, compliant or fearful behavior, excessive aggression, violent tendencies, excessive crying, behavioral disorders, substance abuse, medical non-compliance, or repeated EMS requests. This is typically best done in private with the patient.
2. Assess the patient for any physical signs of abuse, especially any injuries that are inconsistent with the reported mechanism of injury. Defensive injuries (e.g. to forearms), and injuries during pregnancy are also suggestive of abuse. Injuries in different stages of healing may indicate repeated episodes of violence.
3. Assess all patients for signs and symptoms of neglect, including inappropriate level of clothing for weather, inadequate hygiene, absence of attentive caregiver(s), or physical signs of malnutrition.
4. Immediately report any suspicious findings to both the receiving hospital (if transported). If an elder or disabled adult is involved, also contact the Department of Social Services (DSS) or equivalent in the county. After office hours, the adult social services worker on call can be contacted by the 911 communications center.
5. EMS personnel should attempt in private to provide the patient with the phone number of the local domestic violence program, or the **National Hotline, 1-800-799-SAFE**.
6. Immediately report any suspicious findings to both the receiving hospital (if transported) and to the Department of Social Services at 919-968-2000. After office hours, the adult service social worker on call can be contacted by the 9-1-1 communications center.



# EMS Back in Service Time

## Policy:

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

## Definition:

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

## Purpose:

The purpose of this policy is to:

- Assure that the care of each EMS patient transported to a medical facility is transferred to the medical facility staff in a timely manner.
- Assure that the EMS unit is cleaned, disinfected, restocked, and available for the next EMS event in a timely manner.
- Assure that an interim or complete EMS patient care report (PCR) is completed and left with the receiving medical facility documenting, at a minimum, the evaluation and care provided by EMS for that patient (It is acceptable to leave the PreMIS Preliminary Report or equivalent if the final PCR cannot be completed before leaving the facility).
- Provide quality EMS service and patient care to the county's citizens.
- Provide a means for continuous evaluation to assure policy compliance.

## Procedure:

The following procedures shall be implemented to assure policy compliance:

1. The EMS Unit's priority upon arrival at the medical facility will be to transfer the care of the patient to medical facility staff as soon as possible.
2. EMS personnel will provide a verbal patient report on to the receiving medical facility staff.
3. EMS personnel will provide an interim (PreMIS Preliminary Report or equivalent) or final Patient Care Report (PCR) to the receiving medical facility staff, prior to leaving the facility, that documents at a minimum the patient's evaluation and care provided by EMS prior to arrival at the medical facility. A complete PCR should be completed as soon as possible but should not cause a delay in the EMS Back in Service Time.
4. The EMS Unit will be cleaned, disinfected, and restocked (if necessary) during the EMS Back in Service Time interval.
5. Any EMS Back in Service Time delay resulting in a prolonged EMS Back in Service Time will be documented in Patient Care Report (PCR) as an "EMS Turn-Around Delay" as required and defined in the North Carolina College of Emergency Physicians (NCCEP) EMS Dataset Standards Document.
6. All EMS Turn-Around Delays will be reviewed regularly within the EMS System Peer Review Committee.



# EMS Dispatch Center Time

## Policy:

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

## Definition:

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

## Purpose:

The purpose of this policy is to:

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

## Procedure:

The following procedures shall be implemented to assure policy compliance:

1. A public calls into the 911 Communications Center requesting emergency medical assistance will never be required to speak with more than two persons before a formal EMS Unit is dispatched.
2. In EMS Dispatch Centers where Emergency Medical Dispatch (EMD) has been implemented, EMS Units will be dispatched by EMD certified personnel in accordance with the standards developed by the Medical Director and the Emergency Medical Dispatch Protocols.
3. EMS Units will be dispatched hot (with lights and sirens) or cold (no lights and sirens) by the 911 Call Center based on predetermined criteria. If First Responders are dispatched as a component of the EMS response, they should typically be dispatched hot (with lights and sirens).
4. Without question, exception, or hesitation, EMS Units will respond as dispatched (hot or cold). This includes both requests to respond on active calls and requests to "move-up" to cover areas of the System that have limited EMS resources available.
5. EMS Units may, at their discretion, request for a First Responder on Non-First Responder calls in situations where additional resources are required such as manpower, extreme response time of the EMS Unit, need for forcible entry, etc.



# EMS Dispatch Center Time

6. EMS Units dispatched with a cold (no lights and sirens) response, will not upgrade to a hot (with lights and sirens) response **UNLESS**:
  - Public Safety personnel on-scene requests a hot (with lights and sirens) response.
  - Communications Center determines that the patient's condition has changed, and requests you to upgrade to a hot (with lights and sirens) response.
7. An EMS Unit may divert from a current cold (no lights and sirens) call to a higher priority hot (with lights and sirens) call **ONLY IF**:
  - The EMS Unit can get to the higher priority call before it can reach the lower priority call. Examples of High Priority Calls: Chest Pain, Respiratory Distress, CVA, etc.
  - The diverting EMS Unit must notify the EMS Dispatch Center that they are diverting to the higher priority call.
  - The diverting EMS Unit ensures that the EMS Dispatch Center dispatches an EMS Unit to their original call.
  - Once a call has been diverted, the next EMS Unit dispatched must respond to the original call. A call cannot be diverted more than one (1) time.
8. Any EMS Dispatch Center Time delays resulting in a prolonged EMS Dispatch Center Time for emergent hot (with lights and sirens) events will be documented in Patient Care Report (PCR) as an "EMS Dispatch Delay" as required and defined in the North Carolina College of Emergency Physicians (NCCEP) EMS Dataset Standards Document.
9. All EMS Dispatch Delays will be reviewed regularly within the EMS System Peer Review Committee.



# EMS Wheels Rolling (Turn-Out) Time

## Policy:

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

## Definition:

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

## Purpose:

The purpose of this policy is to:

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

## Procedure:

The following procedures shall be implemented to assure policy compliance:

1. In EMS Dispatch Centers where Emergency Medical Dispatch (EMD) has been implemented, EMS Units will be dispatched by EMD certified personnel in accordance with the standards developed by the Medical Director and the Emergency Medical Dispatch Protocols.
2. The EMS Unit Wheels Rolling (Turn-out) time will be less than 90 seconds from time of dispatch, 90% of the time. If a unit fails to check en route within 2:59 (mm:ss), the next available EMS unit will be dispatched.
3. Without question, exception, or hesitation, EMS Units will respond as dispatched (hot or cold). This includes both requests to respond on active calls and requests to "move-up" to cover areas of the System that have limited EMS resources available.
4. An EMS Unit may divert from a current cold (no lights and sirens) call to a higher priority hot (with lights and sirens) call **ONLY IF**:
  - The EMS Unit can get to the higher priority call before it can reach the lower priority call. Examples of High Priority Calls: Chest Pain, Respiratory Distress, CVA, etc.
  - The diverting EMS Unit must notify the EMS Dispatch Center that they are diverting to the higher priority call.
  - The diverting EMS Unit ensures that the EMS Dispatch Center dispatches an EMS Unit to their original call.
  - Once a call has been diverted, the next EMS Unit dispatched must respond to the original call. A call cannot be diverted more than one (1) time.
5. Any EMS Wheels Rolling (Turn-out) Time delay resulting in a prolonged EMS Response Time for emergent hot (with lights and sirens) events will be documented in Patient Care Report (PCR) as an "EMS Response Delay" as required and defined in the North Carolina College of Emergency Physicians (NCCEP) EMS Dataset Standards Document.
6. All EMS Response Delays will be reviewed regularly within the EMS System Peer Review Committee.



# Equipment Failure

## Policy:

All equipment failures which could or are impacting patient care should be reported immediately to the communications center so that appropriate remedial actions can be taken. All other equipment failures should be reported as soon as possible to the on-duty EMS Supervisor.

## Purpose:

To minimize the impact of equipment failure on patient care.

## Procedure:

1. Each crew shall complete a daily equipment and vehicle check sheet to document the readiness of all equipment and to minimize the risk of such failures. Electronic equipment such as monitors, glucose machines, and thermometers must be checked at the start of every shift.
2. When a critical failure is recognized, contact the appropriate emergency communications center, advise them of the failure, and have the nearest, appropriate EMS resource dispatched. This may be a supervisor, an ambulance, or some other resource, depending upon patient need.
3. Based on the condition of the patient, advise the communications center to send the resource either emergency traffic or non-emergency traffic.
4. Closely monitor and treat the patient to the best of your ability with the remaining functional equipment.
5. Except in unusual circumstances, the original attending provider should continue to provide for the patient until arrival at the hospital, regardless of which unit is actually transporting the patient.
6. While it is appropriate to notify supervisory personnel of the failure at the conclusion of patient care activities, care and transport should not be delayed while awaiting the arrival of a supervisor.



# Failure to Locate

## Policy:

Medical care delays caused by difficulties in finding a dispatch location must be minimized. Personnel who are having trouble finding a dispatch location should immediately ask for assistance. Safeguards are in place to reduce the chances that an unrecognized location failure would have a negative impact on patient care.

## Purpose:

To minimize the impact of geographic response difficulties on patient care.

## Procedure:

1. Each response vehicle is equipped with an up-to-date countywide map book or GPS unit. Each crew shall be familiar with the use of this equipment to accurately plan and execute a response.
2. All field units will acknowledge all radio traffic with their current physical location, and will include the specific location at which they are checking "on scene."
3. When a responder is having trouble finding a dispatch location, they should immediately ask for assistance via radio from the communications center. If other responders are aware of the correct location, they should provide this information via radio.
4. Communications will check on responding units when the response time seems out of proportion to the known response distance.
5. A field unit that is having problems finding a dispatch location should safely pull over to the side of the road and consult their map book. They should not continue to drive, particularly with lights and siren still activated.
6. In extreme circumstances, a field unit should ask for help from other response agencies in finding a dispatch location.
7. If a unit or units have been dispatched to an approximate location for a suspected patient (i.e. a reported crash near mile marker 168 on I-85 Southbound), and they are unable to find an incident or patient, at least two passes by two separate response units should be conducted to make sure the incident or patient has not been missed. These will be documented by verbal report to the communications center.



# Fire Rescue Rehab

## **Purpose:**

To aid in the recognition of the significant exertion of responders operating in environmental extremes and to establish a guide for the rest and recuperation of responders during periods of physical exertion when working at emergency scenes or during training evolutions.

## **Procedure:**

### **Establishment of the Rehab function**

1. For multi-company incidents, the incident commander (IC) is responsible for ensuring a rehab area is established.
2. The IC should be aware of additional rehab resources and should make the request for the resource as early into the incident as possible.
3. If the EMS unit leaves the scene to transport a patient to the hospital, another unit is to be called to the scene.

### **Rehab location**

4. For warm weather, the rehab area should be set up in a shady area, under a tent, or in an air-conditioned environment.
5. For cold weather, the rehab area should be selected that is out of the wind and provides personnel an opportunity to be dry and warm.
6. A seating area should be provided.
7. The rehab area should be located far enough from scene operations to allow personnel to physically and mentally relax. It should also be free of products of combustion and engine exhaust.
8. The use of tobacco products is prohibited in the rehab area.
9. Consider the use of multiple rehab areas if a geographic feature prevents access to the rehab area by all personnel.
10. The rehab function should be staffed with a minimum of BLS personnel equipped with AED capability. ALS personnel are preferred. An EMS transport unit should be on scene.

**Rehab Guidelines –See Protocol 7**



# 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 7 days of birth. Emergency Medical Services will accept and protect infants who are presented to EMS in this manner, until custody of the child can be released to the Department of Social Services.

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

## Purpose:

To provide:

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

## Procedure:

1. Initiate the Pediatric Assessment Procedure.
2. Initiate Newly Born Protocol as appropriate.
3. Initiate other treatment protocols as appropriate.
4. Keep infant warm.
5. As soon as the infant is stabilized call local Department of Social Services at 919-968-2000. After office hours, the adult service social worker on call can be contacted by the 9-1-1 communications center.
6. Transport infant to medical facility as per local protocol.
7. Assure infant is secured in appropriate child restraint device for transport.
8. Document protocols, procedures, and agency notifications in the PCR.



# North Carolina College of Emergency Physicians Standards Policy Patient Medication Self Administration



## Policy:

A patient who wishes to take his or her own medication or prescription should do so only in conjunction with the care provided by EMS personnel. If the patient medication is not an approved EMS medication and the patient is being transported by EMS, then the specific situation should be approved by Medical Control.

## Purpose:

To protect patients health and wellbeing and the safety of the EMS System.

## Procedure:

1. If a patient wishes to take a personal medication that is related to the reason for which EMS was called, and that medication is indicated for the situation, then the paramedic may approve of the patient taking the medication. For example, a diabetic patient who has high blood sugar and has not taken their own insulin may take it as prescribed in consultation with the paramedic.
2. If a patient wishes to take a personal medication that is not known to the EMS personnel, then **Medical Control** should be contacted to discuss the situation and medication.
3. EMS should restrict medication advice offered to patients to basic over-the-counter medications for common maladies, such as ibuprofen or acetaminophen.



# Patient Without a Protocol

## Policy:

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

## Purpose:

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

## Procedure:

1. Treatment and medical direction for all patient encounters, which can be triaged into an EMS patient care protocol, is to be initiated by protocol.
2. When confronted with an emergency or situation that does not fit into an existing EMS patient care protocol, the patient should be treated by the **Universal Patient Care Protocol** and a **Medical Control Physician** should be contacted for further instructions.



# Physician on Scene

## Policy:

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

## Purpose:

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

## Procedure:

1. When a non medical-control physician offers assistance to EMS or the patient is being attended by a physician with whom they do not have an ongoing patient relationship, EMS personnel must review the On-Scene Physician Form with the physician. All requisite documentation must be verified and the physician must be approved by on-line medical control.
2. When the patient is being attended by a physician with whom they have an ongoing patient relationship, EMS personnel may follow orders given by the physician if the orders conform to current EMS guidelines, and if the physician signs the PCR. Notify medical control 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 control. The paramedic should obtain the specific order and the physician's phone number for relay to medical control so that medical control can discuss any concerns with the physician directly.



# Protocol Adherence

## Policy:

Protocols are treatment guidelines that provide a framework for patient care. Personnel are expected to apply their training to provide excellent care for patients. No written guideline can address every possible situation or patient condition, and Orange County EMS personnel are expected to put the patient's interest first. Deviation from established protocol should be documented and discussed with the Medical Director at the earliest convenience.

Protocols are designed to enable provision of the most appropriate EMS care based on the each patient's needs. The advanced differential and disposition components of each protocol are based on a defined program of initial training, continuing education, and ongoing quality management. Use of these protocols in any system outside of Orange County Emergency Medical Services is unproved and may result in an undue risk to the patient and to the EMS system as well as personnel involved.

## Purpose:

The purpose of this policy is to:

- Improve patient care in the prehospital setting
- Improve quality management
- Ensure compliance to protocols

## Procedure:

1. Assessment and Treatment for all patient encounters should be initiated based on the Orange County EMS Protocols.
2. All treatment should include the Universal Patient Care Protocol ([protocol 01](#)).
3. When possible, there should be discussion with **Medical Control** prior to any deviation from established protocols. If not immediately possible, the technician(s) should thoroughly document the situation, notify their supervisor, and discuss the incident with the Medical Director at the earliest possible time.
4. Unless otherwise authorized by the Medical Director, the Orange County NC EMS Protocols are for the use of personnel practicing as part of the Orange County NC EMS System. The use of these protocols outside of the scope of the Orange County EMS System is illegal and potentially dangerous.
5. Failure to comply with this policy may result in disciplinary action as described in the Orange County NC EMS Medical Disciplinary procedure.



# Referral

## Policy:

All patients who are evaluated and not transported by Orange County EMS must be provided with an appropriate referral. A disposition (patient discharge instruction form) form including the patient instruction section will be completed for these patients.

## Purpose:

The purpose of this policy is to:

- Provide for appropriate referral of patients
- Protect against liability for the EMS system

## Procedure:

1. After completing a thorough medical evaluation of the patient, appropriate referrals are made with compliance to the corresponding protocol.
2. Appropriate documentation of the referral form includes the following:
  - a. Time frame in which the patient should see a physician.
  - b. To whom the patient is being released.
  - c. Patient Discharge instructions.
  - d. Any other pertinent instructions relating to referral decision.
3. Decision to refer a patient to alternative destinations should be medically directed and follow established Orange County protocols. The decision not to transport a patient to the emergency department should never be financially motivated or system-driven.
4. Any suggestion or discussion of alternatives that results in a destination other than the emergency department is a referral.
5. When a referral is indicated, EMS will offer to the patient all available options for the disposition according to protocols. Patients electing EMS transport will be transported.
6. Patients who are not transported via EMS will be given written instructions.



# Refusal

**Policy:** Refusal of Care, Transportation, or Recommended Destination

**Purpose:** To establish guidelines for the management and documentation of situations where patients refuse treatment or transportation, or insist on transportation to a destination other than that recommended by the ambulance personnel.

**Procedure:**

I. Patient Assessment

- A. Providers should attempt to obtain a history and physical, in as much detail as is permitted by the patient.
- B. Conduct Three Assessments: Providers should attempt to assess three major areas prior to permitting a patient to refuse care and/or transportation:
  - 1. Legal competence
    - a. Ensure that patients is at least 18 years of age in order to refuse care
    - b. Or, if a minor, patient may refuse care if he or she is an emancipated minor, has a military ID, or is pregnant
    - c. Patients subject to a court decree of incapacity are not legally competent to refuse care
  - 2. Mental competence
    - a. Start with the presumption that all patients are mentally competent unless your assessment clearly indicates otherwise
    - b. Ensure that patient is oriented to person, place, time and purpose
    - c. Establish that patient is not a danger to himself or others
    - d. Ensure that patient is capable of understanding the risks of refusing care or transportation and any proposed alternatives
    - e. Check to be sure that patient is exhibiting no other signs or symptoms of potential mental incapacity as defined in the altered mental status protocol (19).
  - 3. Medical or situational competence
    - a. Ensure that patient is suffering from no acute medical conditions that might impair his or her ability to make an informed decision to refuse care or transportation
    - b. If possible, rule out conditions described in the altered mental status protocol (19).
    - c. Attempt to determine if patient lost consciousness for any period of time.
    - d. If any conditions in (a) – (c) impair patient's decision making ability, patient may not be competent to refuse care and your documentation should clearly establish that the patient understood the risks, benefits and advice given to him.



# Refusal

## II. Medical Control

A. Contact medical control if you believe patient is in need of further medical attention yet refuses care; medical control may be able to help persuade patient

## III. Who May Refuse Care

### A. The patient

1. If patient is legally, mentally and situationally competent, the patient has a right to refuse care. Obtain refusal signature.
2. Implied consent -- if patient is unconscious or otherwise unable to refuse care due to conditions listed in section I and they are in need of further medical attention, treat and transport patient

### B. Parent

1. A custodial parent (i.e. A parent with a legal right to custody of a minor child) may refuse care on behalf of a minor child. Obtain refusal signature from parent.
2. A parent of a patient who is 18 years of age or older may not refuse care on behalf of his or her child (unless the parent also happens to be a legal guardian – see below)
3. A minor (i.e., under 18 years of age) may refuse care for his or her child. Obtain refusal signature from the minor parent.
4. If a person indicates they are the parent of the patient, an attempt should be made to obtain identification or proof of kinship. If no such documentation is available, you may obtain refusal signature from the guardian as long as you do so in good faith and do not have any evidence or knowledge that the person is misrepresenting himself as a legal guardian of the patient.

### C. Guardian

1. A legal guardian is one who is appointed by a court to act as “guardian of the person” of an individual who has been found by a court to be incapacitated
2. Legal guardian may also be appointed in lieu of parents for a minor
3. If a person indicates they are a legal guardian to the patient, attempt to obtain documentation of this fact (court order, etc.) to be attached to the ePCR. If no such documentation is available, you may obtain refusal signature from the guardian as long as you do so in good faith and do not have any evidence or knowledge that the person is misrepresenting himself as a legal guardian of the patient.

### D. Health Care Agent

1. A person appointed by the patient in a durable power of attorney document may refuse care on behalf of the patient if the power of attorney contains such authorization.
2. Attempt to obtain a copy of the durable power of attorney document to be attached to the ePCR. If no such documentation is available, you may obtain refusal signature from a health care agent as long as you do so in good faith and do not have any evidence or knowledge that the person is misrepresenting himself as the health care agent of the patient.



# Refusal

## E. Incompetent Patient

1. If patient is incompetent, and no other authorized individual is available to provide a refusal signature, patient may be treated and transported as long as you act in good faith and without knowledge that the patient or authorized individual would refuse care.
2. Take all reasonable steps to secure treatment or transportation for a patient who is legally or mentally incompetent to refuse care, but do not put yourself or your crew in jeopardy.



## Safe Transport of Pediatric Patients

### Policy:

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

### Purpose:

To provide:

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

### Procedure:

1. Drive cautiously at safe speeds observing traffic laws.
2. Tightly secure all monitoring devices and other equipment.
3. Insure that all pediatric patient less than 40 lbs are restrained with an approved child restraint device secured appropriately to the stretcher or captains chair.
3. Insure that all EMS personnel use the available restraint systems during the transport.
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. NEVER attempt to hold or allow the parents or caregivers to hold the patient during transport.



# State Poison Center

## Policy:

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

## Purpose:

The purpose of this policy is to:

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

## Procedure:

1. The 911 call center will identify and if EMD capable, complete key questions for the Overdose/ Poisoning, Animal Bites/Attacks, or Carbon Monoxide/Inhalation/HazMat emergency medical dispatch complaints and dispatch the appropriate EMS services and/or directly contact the State Poison Center for consultation.
2. If no immediate life threat or need for transport is identified, EMS personnel may conference the patient/caller with the Poison Center Specialist at the **State Poison Center at 800-222-1222**. If possible, dispatch personnel should remain on the line during conference evaluation.
3. The Poison Center Specialist at the State Poison Center will evaluate the exposure and make recommendations regarding the need for on-site treatment and/or hospital transport in a timely manner. If dispatch personnel are not on-line, the Specialist will recontact the 911 center and communicate these recommendations.
4. If the patient is determined to need EMS transport, the poison center Specialist will contact the receiving hospital and provide information regarding the poisoning, including treatment recommendations. EMS may contact medical control for further instructions or to discuss transport options.
5. If the patient is determined not to require EMS transport, personnel will give the phone number of the patient/caller to the Poison Center Specialist. The Specialist will initiate a minimum of one follow-up call to the patient/caller to determine the status of patient.
6. Minimal information that should be obtained from the patient for the state poison center includes:
  - Name and age of patient
  - 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:
  - Substance(s) involved
  - Signs and symptoms
  - Time of exposure
  - Any treatment given



# Terrorism Response

## Policy:

EMS providers will respond to every call for assistance with eyes open and heightened awareness of the possibility of terrorist threats.

## Purpose:

The purpose of this policy is to increase awareness of possible terrorist incidents as EMS responds to calls for assistance.

## Procedure:

1. Terrorism is defined in the *Code of Federal Regulations* as "...the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives." (28 C.F.R. Section 0.85)
2. Domestic terrorism refers to activities that involve acts dangerous to human life that are a violation of the criminal laws of the United States or of any state; appear to be intended to intimidate or coerce a civilian population; to influence the policy of a government by mass destruction, assassination, or kidnapping; and occur primarily within the territorial jurisdiction of the United States. [18 U.S.C. § 2331(5)]
3. A terrorist *incident* is a violent act or an act dangerous to human life, in violation of the criminal laws of the United States, or of any state, to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.
4. The recognition of a terrorist incident depends on alert field providers.
5. There are several types of terrorist incidents:
  - a. Biological: Several types of biological agents exist but these can be grouped into bacteria, viruses, and toxins.
    1. Indicators:
      - i. Unusual number of sick or dying people or animals
      - ii. Dissemination of unscheduled and unusual sprays, especially outdoors or at night
      - iii. Abandoned spray devices with no distinct odors
  - b. Nuclear: There major types of radiation particles are of concern – alpha, beta, and gamma. Time, distance, and shielding are most important in determining cumulative dose.
    1. Indicators:
      - i. Recognition of DOT placards and labels
      - ii. Obvious accident or actual detonation
      - iii. Use of monitoring devices



# Terrorism Response

- c. Incendiary: Fire-starting devices of a mechanical, electrical, or chemical nature
    - 1. Indicators:
      - i. Multiple fires
      - ii. Remains of incendiary device components
      - iii. Odors of accelerants
      - iv. Heavy burning or high fire volume
  - d. Chemical: Five basic categories exist – nerve agents, blister agents, blood agents, choking agents, and irritant agents.
    - 1. Indicators:
      - i. Rapid onset of similar symptoms in large groups of people
      - ii. Clammy skin and pinpoint pupils
      - iii. Mass fatalities without other signs of trauma
      - iv. Hazardous materials or lab equipment not relevant to occupancy
      - v. Unscheduled dissemination of unusual sprays
      - vi. Abandoned spray devices
      - vii. Numerous dead animals, fish, and birds, absence of insect life
      - viii. Distinct pattern of casualties and common symptoms
  - e. Explosive
    - 1. Indicators
      - i. Usually obvious large scale damage to structure
      - ii. Blown-out windows and widely scattered debris
      - iii. Usually many civilian casualties and fatalities
2. It is critical that EMS personnel be alert to the potential for terrorist incidents and be prepared to respond appropriately.

**\*\*Note:** this policy was derived from and closely follows the Iowa Department of Public Health Bureau of EMS Guidelines for EMS Response to Terrorist



# Transport

## Policy:

All individuals served by the EMS system will be evaluated, treated, and 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 significant mechanism or history for multiple system trauma will be transported as soon as possible. The scene time should be 10 minutes or less.
2. All acute Stroke and acute ST-Elevation Myocardial Infarction patients will be transported as soon as possible. The scene time should be 10 minutes or less for acute Stroke patients and 15 minutes or less (with 12 Lead ECG) for STEMI patients
2. Other 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.
4. In unusual circumstances, transport in other vehicles may be appropriate when directed by EMS administration.



# Women's Birthing Center

## Policy:

The Women's Birth and Wellness Center of Chapel Hill has certified nurse midwives on staff. Orange County is routinely called to the Women's Birth Center.

### The Role of the Midwife

- A) Carrying out examinations necessary to establish and monitor normal pregnancies.
- B) Advising mothers-to-be on securing the examinations necessary for the earliest possible diagnosis of pregnancies at risk.
- C) Providing education and preparation of clients for childbirth, including advice on exercise and nutrition.
- D) Caring for and assisting the mother during labor and monitoring the condition of the fetus by the appropriate clinical and technical means.
- E) Supervising and assisting with spontaneous vaginal deliveries.
- F) Recognizing the warning signs of abnormality in the mother or infant that necessitates referral to a physician.
- G) Taking necessary emergency measures in the event of a crisis.
- H) Examining and caring for the newborn infant.
- I) Caring for the mother in the postpartum period and advising her on infant care and family planning.

## 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 pre-hospital care
- To provide a mechanism for which the certified nurse midwife may continue treatment of the patient(s)
- To minimize the liability of the EMS system as well as the Women's Birth and Wellness Center.

## Procedure:

1. Upon being dispatched on a request for ambulance service to an out-of-hospital birth scene, paramedics will obtain from dispatch all pertinent information related to the call and specific instructions.
2. Upon arrival at the scene of an out-of-hospital birth where a person is assisting the mother, the paramedic will determine the following:
  - a) Confirm the nature of the request for ambulance service and who requested the service.
  - b) The condition of the patient(s) and the progression of the labor and/or delivery.
  - c) The capacity in which the person assisting with the birth is acting (i.e. trained midwife, nurse, person of non-medical background).
3. When a person assisting with the out-of-hospital birth identifies themselves as a midwife, the paramedic will confirm with the patient that this person has been retained by them to assist with the birth.
4. The paramedic will work cooperatively with the midwife in providing quality care to the patient and/or neonate at the scene and throughout transportation to the hospital. If conflict occurs, the paramedic and midwife should attempt to work together for the mutual benefit of the patient. If agreement is unable to be reached, the paramedic should consult with Medical Control.
5. With the patient's consent for care and transport, the paramedic is ultimately responsible for the welfare of the patient, regardless of whether or not the paramedic utilizes the midwife's expertise and assistance.



# Women's Birthing Center

6. Medical direction of pre-hospital care is the responsibility of those most appropriately trained in providing such care. Only UNC Emergency Department Physicians are eligible to provide on line medical direction when applicable. All care should be provided within the rules and regulations of the state of North Carolina and Orange County EMS Protocols.
7. If birth has occurred, EMS will notify UNC ED with a "code stork" alert. The neonate will be evaluated in the emergency department and EMS should not transfer directly to NICU.
8. EMS shall bring all appropriate neonatal resuscitation equipment when transporting the neonate or the patient in active labor to labor and delivery or NICU.
9. Upon completion of a call to an out-of-hospital birth scene with a midwife present, the paramedic will note in the electronic patient care report, the midwife's presence and involvement, (including the name of the midwife).

# Drug List





# Drug List



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Drug	Adult	Pediatric
<p><b><u>Acetaminophen</u></b> <b>(Tylenol)</b></p> <p><b>NCCEP Protocol:</b></p> <ul style="list-style-type: none"> <li>* Pain Control-Adult</li> <li>* Pain Control-Pediatric</li> <li>* Fever</li> </ul> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Indicated for pain and fever control</li> <li>• Avoid in patients with severe liver disease</li> </ul>	<ul style="list-style-type: none"> <li>• 1000 mg po</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>• 10 mg/kg po</li> <li>• Max dose (1000mg)</li> </ul>
<p><b><u>Adenosine</u></b> <b>(Adenocard)</b></p> <p><b>NCCEP Protocol:</b></p> <ul style="list-style-type: none"> <li>* Adult Tachycardia Narrow Complex</li> <li>* Adult Tachycardia Wide Complex</li> <li>* Pediatric Tachycardia</li> </ul> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Specifically for treatment or diagnosis of Supraventricular Tachycardia</li> </ul>	<ul style="list-style-type: none"> <li>• 6 mg IV push over 1-3 seconds. If no effect after 1-2 minutes,</li> <li>• Repeat with 12 mg IV push over 1- 3 seconds.</li> <li>• Repeat once if necessary</li> <li>• (use stopcock and 20 ml Normal Saline flush with each dose)</li> </ul>	<ul style="list-style-type: none"> <li>• 0.1 mg/kg IV (Max 6 mg) push over 1-3 seconds. If no effect after 1-2 minutes,</li> <li>• Repeat with 0.2 mg/kg IV (Max 12 mg) push over 1-3 seconds.</li> <li>• Repeat once if necessary</li> <li>• (use stopcock and Normal Saline flush with each dose)</li> </ul>
<p><b><u>Albuterol</u></b> <b>Beta-Agonist</b></p> <p><b>NCCEP Protocol:</b></p> <ul style="list-style-type: none"> <li>* Allergic Reaction</li> <li>* COPD Asthma</li> <li>* Pediatric Allergic Reaction</li> <li>* Pediatric Respiratory Distress</li> </ul> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Beta-Agonist nebulized treatment for use in respiratory distress with bronchospasm</li> </ul>	<ul style="list-style-type: none"> <li>• 2.5-5.0 mg (3cc) in nebulizer continuously x 3 doses, if no history of cardiac disease and Heart Rate <math>\leq</math> 150.</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>• &lt; 1 year of age 1.25mg</li> <li>• 1-6 years 1.25-2.5mg</li> <li>• 6-14 years 2.5 mg</li> <li>• <math>\geq</math> 15 years 2.5-5mg</li> </ul>



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Drug	Adult	Pediatric
<p><b><u>Amiodarone</u></b></p> <p><b>NCCEP Protocol:</b></p> <ul style="list-style-type: none"> <li>* Ventricular Fibrillation</li> <li>* Ventricular Tachycardia</li> <li>* Pediatric Pulseless Arrest</li> <li>* Pediatric Tachycardia</li> </ul> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Antiarrhythmic used in ventricular Fibrillation.</li> <li>• Avoid in patients with heart block or profound bradycardia.</li> </ul>	<p><u>V-fib / pulseless V-tach</u></p> <ul style="list-style-type: none"> <li>• 300 mg IV/IO push</li> <li>• Repeat dose of 150 mg IV push for recurrent episodes</li> </ul> <p><u>V-tach with a pulse</u></p> <ul style="list-style-type: none"> <li>• 150 mg in 100cc D5W over 10 min</li> </ul>	<p><u>V-fib / pulseless V-tach</u></p> <ul style="list-style-type: none"> <li>• 5 mg/kg IV/IO</li> </ul> <p><u>V-tach with a pulse</u></p> <ul style="list-style-type: none"> <li>• 5mg/kg IV/IO over 20 minutes</li> <li>• Avoid in Length Tape Color <b>Pink</b></li> </ul> <p>SVT</p> <ul style="list-style-type: none"> <li>• 5mg/kg IV/IO over 20 minutes</li> </ul>
<p><b><u>Aspirin</u></b></p> <p><b>NCCEP Protocol:</b></p> <ul style="list-style-type: none"> <li>* Chest Pain and STEMI</li> </ul> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• An antiplatelet drug for use in cardiac chest pain</li> </ul>	<ul style="list-style-type: none"> <li>• 81 mg chewable (baby) Aspirin Give 4 tablets to equal usual adult dose.</li> </ul>	
<p><b><u>Atropine</u></b></p> <p><b>NCCEP Protocol:</b></p> <ul style="list-style-type: none"> <li>* Bradycardia Pulse Present</li> <li>* Pediatric Bradycardia</li> <li>* WMD-Nerve Agent</li> </ul> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Anticholinergic drug used in bradycardias.</li> <li>• (For Endotracheal Tube use of this drug, double the dose)</li> <li>• In Organophosphate toxicity, large doses may be required (&gt;10 mg)</li> </ul>	<p><u>Bradycardia</u></p> <ul style="list-style-type: none"> <li>• 0.5 mg IV/IO every 3 – 5 minutes up to 3 mg. (If endotracheal -- max 6 mg)</li> </ul> <p><u>Organophosphate</u></p> <ul style="list-style-type: none"> <li>• 1-2 mg IM or IV/IO otherwise as per medical control</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <p><u>Bradycardia</u></p> <ul style="list-style-type: none"> <li>• 0.02 mg/kg IV, IO (Max 1.0 mg per dose)</li> <li>• (Min 0.1 mg) per dose</li> <li>• May repeat in 3 - 5 minutes</li> </ul> <p><u>Organophosphate</u></p> <ul style="list-style-type: none"> <li>• 0.02 mg/kg IV or IO otherwise as per medical control</li> </ul>



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Drug	Adult	Pediatric
<p><b><u>Atropine and Pralidoxime Auto-Injector Nerve Agent Kit</u></b></p> <p>NCCEP Protocol:            * Overdose/Toxic Ingestion            * WMD Nerve Agent</p> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Antidote for Nerve Agents or Organophosphate Overdose</li> </ul>	<ul style="list-style-type: none"> <li>• One auto-injector then per medical control</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>• One pediatric auto-injector then as per medical control</li> </ul>
<p><b><u>Calcium Chloride</u></b></p> <p>NCCEP Protocol:            * Bradycardia            * Pulseless Electrical Activity            * Pediatric Bradycardia            * Dialysis / Renal Failure</p> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Indicated for severe hyperkalemia</li> </ul>	<ul style="list-style-type: none"> <li>• One amp (10 ml) or 1 gm IV or IO</li> <li>• Avoid use if pt is taking digoxin</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>• 20 mg/kg IV or IO slowly</li> <li>• (Max Dose 1 gram)</li> </ul>
<p><b><u>Calcium Gluconate</u></b></p> <p>NCCEP Protocol:            * Bradycardia            * Pulseless Electrical Activity            * Pediatric Bradycardia            * Dialysis / Renal Failure</p> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Indicated for severe hyperkalemia</li> </ul>	<ul style="list-style-type: none"> <li>• 3 grams IV or IO over 2 minutes</li> <li>• Avoid use if pt is taking digoxin</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>• 60 mg/kg IV or IO over 2 minutes</li> <li>• (Max Dose 3 grams)</li> </ul>



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Drug	Adult	Pediatric
<p><b>Dextrose 10%</b> <b>Glucose solutions</b></p> <p><b>NCCEP Protocol:</b> * Diabetic Adult * Diabetic Pediatric</p> <p><b>Indications/Contraindications:</b> • Use in unconscious or hypoglycemic states</p>	<ul style="list-style-type: none"> <li>• One bag (250 ml) IV over 10 min</li> </ul>	<p><u><b>See Color Coded List</b></u></p> <ul style="list-style-type: none"> <li>• 5 ml/kg IV or IO starting at low dose</li> <li>• Repeat based on blood glucose results</li> </ul>
<p><b>Diazepam (Valium)</b> <b>Benzodiazepene</b></p> <p><b>NCCEP Protocol:</b> * Airway Adult * Airway Drug Assisted Intubation * Airway Pediatric * Behavioral * Pulmonary Edema * Seizure * Supraventricular Tachycardia * Ventricular Tachycardia * Obstetrical Emergencies * Pediatric Seizure * Pediatric Supraventricular Tachycardia * WMD Nerve Agent</p> <p><b>Indications/Contraindications:</b> • Seizure control • Mild Sedation</p>	<ul style="list-style-type: none"> <li>• 4 mg IV/IO initially then 2 mg IV/IO at 3 minutes intervals as needed up to 10 mg max unless med control dictates</li> <li>• Do not administer IM. The drug is not absorbed.</li> <li>• 10 mg Rectally if unable to obtain an IV.</li> </ul>	<p><u><b>See Color Coded List</b></u></p> <ul style="list-style-type: none"> <li>• 0.1 - 0.3 mg/kg IV/IO</li> <li>• (Max dose 4 mg IV, IO)</li> <li>• 0.5 mg/kg rectally (Dia-Stat)</li> <li>• (Max dose 18 mg rectally)</li> </ul> <p>Repeat as directed by medical control.</p>



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Drug	Adult	Pediatric
<p><b><u>Diltiazem</u></b> <b>(Cardizem)</b> <b>Calcium Channel Blocker</b></p> <p><b>NCCEP Protocol:</b> * Adult Tachycardia Narrow Complex</p> <p><b>Indications/Contraindications:</b></p> <ul style="list-style-type: none"> <li>• Calcium channel blocker used to treat narrow complex SVT</li> </ul>	<ul style="list-style-type: none"> <li>• 0.25 mg/kg IV/IO over 2 minutes</li> <li>• (Max dose 25 mg)</li> </ul>	
<p><b><u>Diphenhydramine</u></b> <b>(Benadryl)</b></p> <p><b>NCCEP Protocol:</b> * Allergic Reaction * Pediatric Allergic Reaction</p> <p><b>Indications/Contraindications:</b></p> <ul style="list-style-type: none"> <li>• Antihistamine for control of allergic reactions</li> </ul>	<ul style="list-style-type: none"> <li>• 50 mg IV/IO/IM/PO</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>• 1 mg/kg IV/IO/IM/PO</li> <li>• Do not give in infants &lt; 3 mo</li> <li>• (Max dose 25 mg)</li> </ul>
<p><b><u>Dopamine</u></b></p> <p><b>NCCEP Protocol:</b> * Bradycardia Pulse Present * CHF/Pulmonary Edema * Post Resuscitation * Induced Hypothermia * Hypotension/Shock * Overdose/Toxic Ingestion * Pediatric Asystole/PEA * Pediatric Post Resuscitation * Pediatric Overdose/Toxic Ingestion</p> <p><b>Indications/Contraindications:</b></p> <ul style="list-style-type: none"> <li>• A vasopressor used in shock or hypotensive states</li> </ul>	<ul style="list-style-type: none"> <li>• 2 - 20 micrograms/kg/min IV or IO titrate to BP systolic of 90 mmHg</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>• 2 - 20 micrograms/kg/min IV or IO, titrate to BP systolic appropriate for age</li> </ul>



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<p><b><u>Epinephrine 1:1,000</u></b></p> <p><b>NCCEP Protocol:</b></p> <ul style="list-style-type: none"> <li>* Allergic Reaction</li> <li>* Respiratory Distress</li> <li>* Adult COPD/Asthma</li> <li>* Pediatric Bradycardia</li> <li>* Pediatric Allergic Reaction</li> <li>* Pediatric Respiratory Distress</li> </ul> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Vasopressor used in allergic reactions or anaphylaxis</li> </ul>	<p><b>MRs and EMTs</b> <b>(For Allergic Reaction Only)</b></p> <ul style="list-style-type: none"> <li>• 0.3 mg SQ</li> <li>• 0.15 mg SQ (if age ≥ 50 yrs)</li> </ul> <p><b>Paramedics</b></p> <ul style="list-style-type: none"> <li>• 0.3 mg IM (if age &lt; 50 yrs)</li> <li>• 0.15 mg IM (if age ≥ 50 yrs)</li> </ul> <p><b>Nebulized Epinephrine</b></p> <ul style="list-style-type: none"> <li>• 1 mg (2 ml) mixed with 2 ml of Normal Saline</li> </ul>	<p><b>MRs and EMTs</b> <b>(For Pediatric Allergic Reaction Only)</b></p> <ul style="list-style-type: none"> <li>• ≥ 30 kg 0.3mg SQ</li> <li>• &lt; 30 kg 0.15mg SQ</li> </ul> <p><b>Paramedics</b></p> <ul style="list-style-type: none"> <li>• <b><u>See Color Coded List</u></b></li> <li>• 0.01 mg/kg IM</li> <li>• (Max dose 0.3 mg)</li> </ul> <p><b>Nebulized Epinephrine</b></p> <ul style="list-style-type: none"> <li>• 1 mg (2 ml) mixed with 1 ml of Normal Saline</li> </ul>
<p><b><u>Epinephrine 1:10,000</u></b></p> <p><b>NCCEP Protocol:</b></p> <ul style="list-style-type: none"> <li>* Allergic Reaction</li> <li>* Asystole</li> <li>* Pulseless Electrical Activity</li> <li>* Respiratory Distress</li> <li>* Ventricular Fibrillation</li> <li>* Pediatric Bradycardia</li> <li>* Pediatric Pulseless Arrest</li> <li>* Pediatric Respiratory Distress</li> </ul> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Vasopressor used in cardiac arrest.</li> </ul>	<ul style="list-style-type: none"> <li>• 1.0 mg IV/IO</li> <li>• Repeat every 3 - 5 minutes until observe response</li> <li>• (May be given by Endotracheal tube in double the IV dose)</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>• 0.01 mg/kg IV or IO</li> <li>• (Max dose 0.5 mg)</li> <li>• Repeat every 3 - 5 minutes until observe response</li> <li>• (May be given by Endotracheal tube in double the IV dose)</li> </ul>
<p><b><u>Epinephrine Drip (1:100,000)</u></b></p> <p><b>Protocol:</b></p> <ul style="list-style-type: none"> <li>* Allergic Reaction</li> <li>* Bradycardia</li> <li>* Respiratory Distress</li> <li>* Pediatric Allergic Reaction</li> </ul> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Vasopressor used in allergic reaction</li> </ul>	<ul style="list-style-type: none"> <li>• 1.0 mg in 1000 ml Normal Saline IV/IO</li> <li>• Infuse with 60 gtt set wide open</li> <li>• Titrate to appropriate response</li> </ul>	<p><b><u>See Broselow Tape</u></b></p> <ul style="list-style-type: none"> <li>• 1.0 mg in 1000 ml Normal Saline IV/IO</li> <li>• Infuse with 60 gtt set wide open</li> <li>• 10 ml/kg IV or IO (0.01mg/kg)</li> <li>• Titrate to appropriate response</li> </ul>



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<p><b><u>Fentanyl</u></b> (Sublimaze) Narcotic Analgesic</p> <p>NCCEP Protocol: * Pain Control Adult * Pain Control Pediatric * Chest Pain and STEMI</p> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>Narcotic pain relief</li> <li>Avoid if BP &lt;110</li> </ul>	<ul style="list-style-type: none"> <li><u>Initial dose</u> 50-75 micrograms IM/IV/IO</li> <li>May give 25 micrograms every 20 minutes as needed.</li> <li>Do not exceed 200 micrograms as total dosage</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>Initial dose 0.5-1 mcg/kg IM/IN/IV/IO <ul style="list-style-type: none"> <li>May repeat 0.5 mcg/kg every 5 minutes as needed.</li> </ul> </li> <li>Max Dose ( 2 mcg/kg)</li> </ul>
<p><b><u>Glucagon</u></b></p> <p>NCCEP Protocol: * Diabetic * Overdose/Toxic Ingestion * Pediatric Diabetic * Pediatric Overdose/Toxic Ingestion</p> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>Drug acting to release glucose into blood stream by glycogen breakdown</li> <li>Use in patients with no IV access</li> </ul>	<p><u>Diabetic Patient</u></p> <ul style="list-style-type: none"> <li>1-2mg IV/IO</li> <li>Follow blood glucose in 15 minutes, if &lt; 60 repeat.</li> </ul> <p><u>Overdose/Toxic Ingestion</u></p> <ul style="list-style-type: none"> <li>1-2mg IV/IO via Overdose Protocol</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <p><u>Diabetic Patient</u></p> <ul style="list-style-type: none"> <li>0.1 mg/kg IM</li> <li>Follow blood glucose in 15 minutes, if &lt; 60 repeat.</li> </ul> <p><u>Overdose/Toxic Ingestion</u></p> <ul style="list-style-type: none"> <li>0.1mg/kg IV/IO</li> </ul> <p><b>Age &gt; 3 years</b></p>
<p><b><u>Glucose</u></b> (Oral Glucose Solutions)</p> <p>NCCEP Protocol: * Diabetic * Pediatric Diabetic</p> <p><b><u>Indications/Contraindications:</u></b> Use in conscious hypoglycemic states</p>	<ul style="list-style-type: none"> <li>One tube or packet</li> <li>Repeat based on blood glucose results</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>One Tube or packet</li> <li>Repeat based on blood glucose result</li> </ul> <p><b>Age &gt; 3 years</b></p>



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Drug	Adult	Pediatric
<p><b><u>Haloperidol</u></b> (Haldol) <b>Phenothiazine Preparation</b></p> <p>NCCEP Protocol: * Behavioral</p> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>Medication to assist with sedation of agitated patients</li> </ul>	<ul style="list-style-type: none"> <li>5 mg IV/IO/IM</li> <li>May repeat as per Medical Control</li> </ul>	
<p><b><u>Lorazepam</u></b> (Ativan)</p> <p>Benzodiazepine</p> <p>NCCEP Protocol: * Adult Airway * Behavioral * Bradycardia Pulse Present * Adult Tachycardia Narrow Complex * Adult Tachycardia Wide Complex * Post Resuscitation * Induced Hypothermia * Seizure * Obstetrical Emergency * Pediatric Airway * Pediatric Tachycardia * Pediatric Post Resuscitation * Pediatric Seizure</p> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>Benzodiazepine used to control seizures and for mild sedation</li> <li>Use with caution if BP &lt; 110</li> </ul>	<ul style="list-style-type: none"> <li>1 mg IV/IM/IO</li> <li>May repeat at same dose every 5 minutes as needed</li> </ul>	<ul style="list-style-type: none"> <li>0.05 mg/kg IV/IM/IO</li> <li>May repeat at same dose every 5 minutes as needed</li> <li>Max Dose (1mg IV/IM/IO)</li> </ul>



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Drug	Adult	Pediatric
<p><b>Ibuprofen (Motrin) Non-steroidal Anti-inflammatory Drug</b></p> <p><b>NCCEP Protocol:</b></p> <ul style="list-style-type: none"> <li>* Fever</li> <li>* Pain Control Adult</li> <li>* Pain Control Pediatric</li> <li>* Pediatric Seizure</li> </ul> <p><b>Indications/Contraindications:</b></p> <ul style="list-style-type: none"> <li>• A nonsteroidal anti-inflammatory drug (NSAID) used for pain and fever control.</li> <li>• Not to be used in patients with history of GI Bleeding (ulcers) or renal insufficiency.</li> <li>• Not to be used in patients with allergies to aspirin or other NSAID drugs</li> <li>• Avoid in patients currently taking anticoagulants, such as coumadin.</li> </ul>	<ul style="list-style-type: none"> <li>• 400-800 mg po</li> </ul>	<p><u><b>See Color Coded List</b></u></p> <ul style="list-style-type: none"> <li>• 10 mg/kg po</li> <li>• (Max Dose 600 mg)</li> </ul>



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Drug	Adult	Pediatric
<p><b><u>Ketorolac</u></b> <b>(Toradol)</b> <b>Non-steroidal Anti-inflammatory Drug</b></p> <p><b>NCCEP Protocol:</b> * Pain Control Adult</p> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• A nonsteroidal anti-inflammatory drug used for pain control.</li> <li>• Not to be used in patients with history of GI bleeding (ulcers), renal insufficiency, or in patients who may need immediate surgical intervention (i.e. obvious fractures).</li> <li>• Not to be used in patients with allergies to aspirin or other NSAID drugs such as motrin</li> <li>• Avoid in patients currently taking anticoagulants such as coumadin</li> </ul>	<ul style="list-style-type: none"> <li>• 30 mg IV or IM</li> </ul>	
<p><b><u>Lidocaine</u></b></p> <p><b>NCCEP Procedure:</b> * Interosseous</p> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Anesthetic used after IO procedure to control pain</li> </ul>	<ul style="list-style-type: none"> <li>• 10-20 mg (1-2 cc) after IO placement</li> </ul>	



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Drug	Adult	Pediatric
<p><b><u>Magnesium Sulfate</u></b></p> <p><b>NCCEP Protocol:</b></p> <ul style="list-style-type: none"> <li>* Obstetrical Emergencies</li> <li>* Adult COPD/Asthma</li> <li>* Pediatric Tachycardia</li> <li>* Pediatric Ventricular Tachycardia / Ventricular Fibrillation</li> <li>* Pediatric Respiratory Distress / Pediatric Asthma</li> </ul> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Elemental electrolyte used to treat eclampsia during the third trimester of pregnancy.</li> <li>• A smooth muscle relaxor used in refractory respiratory distress resistant to beta-agonists</li> <li>• May be used in the setting of polymorphic v-tach</li> </ul>	<p><u>Adult Tachycardia, VFIB, V-Tach, Seizure, Obstetrical</u></p> <ul style="list-style-type: none"> <li>• 2 g slow IV/IO over 2-3 min</li> </ul> <p><u>Adult COPD/Asthma</u></p> <ul style="list-style-type: none"> <li>• 2 g IV/IO over 10 min</li> </ul>	<p><u>Pediatric Tachycardia</u></p> <ul style="list-style-type: none"> <li>• 2 g IV/IO over 10 min</li> </ul> <p><u>Pediatric V-Tach / VFIB</u></p> <ul style="list-style-type: none"> <li>• 40mg/kg IV/IO over 2 min (Max dose 2 grams)</li> </ul> <p><u>Pediatric Respiratory Distress / Pediatric Asthma</u></p> <ul style="list-style-type: none"> <li>• 40mg/kg IV/IO over 20 min (Max dose 2 grams)</li> </ul>
<p><b><u>Methylprednisolone (Solu-medrol) Steroid Preparation</u></b></p> <p><b>NCCEP Protocol:</b></p> <ul style="list-style-type: none"> <li>* Allergic Reaction</li> <li>* Adult COPD/Asthma</li> <li>* Pediatric Allergic Reaction</li> <li>* Pediatric Respiratory Distress</li> </ul> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Steroid used in respiratory distress to reverse inflammatory and allergic reactions</li> </ul>	<ul style="list-style-type: none"> <li>• 125 mg IV/IO</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>• 2 mg/kg IV/IO</li> <li>• (Max Dose 125 mg)</li> </ul>



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Drug	Adult	Pediatric
<p><b><u>Midazolam</u></b> <b>(Versed)</b> <b>Benzodiazepine</b></p> <p>NCCEP Protocol:</p> <ul style="list-style-type: none"> <li>* Adult Airway</li> <li>* Behavioral</li> <li>* Bradycardia Pulse Present</li> <li>* Adult Tachycardia Narrow Complex</li> <li>* Adult Tachycardia Wide Complex</li> <li>* Post Resuscitation</li> <li>* Induced Hypothermia</li> <li>* Seizure</li> <li>* Obstetrical Emergency</li> <li>* Pediatric Airway</li> <li>* Pediatric Tachycardia</li> <li>* Pediatric Post Resuscitation</li> <li>* Pediatric Seizure</li> </ul> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Benzodiazepine used to control seizures and sedation</li> <li>• Quick acting Benzodiazepine</li> <li>• Preferred over Valium for IM use</li> <li>• Use with caution if BP &lt; 110</li> </ul>	<ul style="list-style-type: none"> <li>• 0.5-2.5 mg IV or IO slowly over 2 minutes. May slowly titrate dose up to 5 mg total if needed.</li> <li>• IM dosage: 5 mg</li> <li>• Intranasal : 5 mg (2.5mg / nare)</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>• 0.1 mg/kg IV or IO slowly over 2 minutes</li> <li>• (Max Dose 2 mg)</li> </ul>
<p><b><u>Morphine Sulfate</u></b> <b>Narcotic Analgesic</b></p> <p>NCCEP Protocol:</p> <ul style="list-style-type: none"> <li>* Pain Control Adult</li> <li>* Pain Control Pediatric</li> <li>* Chest Pain and STEMI</li> </ul> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Narcotic pain relief</li> <li>• Antianxiety</li> <li>• Avoid use if BP &lt; 110</li> </ul>	<ul style="list-style-type: none"> <li>• 4 mg IM/IV/IO bolus then 2 mg IM/IV/IO in 10 minute increments as needed until a maximum of 10 mg or clinical improvement</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>• 0.1 mg/kg IV or IO single bolus only (Max Dose 5 mg)</li> </ul>



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Drug	Adult	Pediatric
<p><b><u>Naloxone</u></b>  <b>(Narcan)</b>  <b>Narcotic Antagonist</b></p> <p>NCCEP Protocol:  * Overdose/Toxic Ingestion  * Pediatric Overdose/Toxic Ingestion</p> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>Narcotic antagonist</li> </ul>	<ul style="list-style-type: none"> <li>0.5 - 2 mg IV or IO bolus titrated to patient's respiratory response</li> <li>May be given IM if unable to establish IV in a known narcotic overdose</li> <li>May be given intranasal, 1mg/nare (max volume per nare is 1ml)</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>0.1 mg/kg IV or IO</li> <li>May repeat in 5 minutes if no effect.</li> <li>(Max Dose 2 mg)</li> </ul>
<p><b><u>Normal Saline</u></b>  <b>Crystalloid Solutions</b></p> <p>NCCEP Protocol:  * Multiple</p> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>The IV fluid of choice for access or volume infusion</li> </ul>	<ul style="list-style-type: none"> <li>KVO for IV/IO access</li> <li>Bolus in 250-500 ml for cardiac</li> <li>Bolus in 500 to 1000 ml amount for volume replacement</li> <li>Bolus in 1000 ml amount for burns or electrical injuries. See Burn Protocol or Reference Materials for IV rates.</li> <li>(Max Dose 2 liters)</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>KVO for IV or IO access</li> <li>Bolus in 20ml/kg for volume replacement (May be repeated x 3)</li> <li>See Burn Protocol or Reference Materials for IV rates.</li> </ul>



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Drug	Adult	Pediatric
<p><b><u>Nitroglycerin</u></b></p> <p><b>NCCEP Protocol:</b></p> <ul style="list-style-type: none"> <li>* Chest Pain and STEMI</li> <li>* Pulmonary Edema</li> </ul> <p><b>Indications/Contraindications:</b></p> <ul style="list-style-type: none"> <li>• Vasodilator used in anginal syndromes, CHF and Hypertension.</li> </ul>	<p style="text-align: center;"><u>Chest Pain</u></p> <ul style="list-style-type: none"> <li>• 1 spray/tablet SL every 5 minutes until pain free</li> <li>• May give up to 3 doses</li> <li>• If SBP &lt; 100, contact medical control</li> <li>• If SBP ≥ 100 may give 1 inch paste after pain free or after 3 doses of SL Nitro</li> </ul> <p style="text-align: center;"><u>Pulmonary Edema</u></p> <ul style="list-style-type: none"> <li>• 1 spray/tablet SL every 2 minutes if BP &gt;100 Systolic</li> <li>• Mean Arterial Blood Pressure should not be decreased more than 30%</li> <li>• Nitro Paste SBP &gt; 100 1 inch SBP &gt; 150 1.5 inches SBP &gt; 200 2 inches</li> </ul>	
<p><b><u>Ondansetron</u></b> <b>(Zofran) Anti-emetic</b></p> <p><b>NCCEP Protocol:</b></p> <ul style="list-style-type: none"> <li>* Abdominal Pain</li> <li>* Chest Pain and STEMI</li> <li>* Vomiting and Diarrhea</li> <li>* Pediatric Vomiting and Diarrhea</li> </ul> <p><b>Indications/Contraindications:</b></p> <ul style="list-style-type: none"> <li>• Anti-Emetic used to control Nausea and/or Vomiting</li> <li>• Ondansetron (Zofrin) is the recommended Anti-emetic for EMS use since it is associated with significantly less side effects and sedation.</li> </ul>	<ul style="list-style-type: none"> <li>• 4 mg IM/IV/IO/PO</li> </ul>	<ul style="list-style-type: none"> <li>• 0.15 mg/kg IV or IO (Max Dose 4 mg)</li> <li>• 0.2 mg/kg PO (Max Dose 4 mg)</li> </ul>



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Drug	Adult	Pediatric
<p><b><u>Oxygen</u></b></p> <p>NCCEP Protocol: * Multiple</p> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>Useful in any condition with cardiac work load, respiratory distress, or illness or injury resulting in altered ventilation and/or perfusion.</li> <li>Required for pre-oxygenation whenever possible prior to intubation.</li> </ul>	<ul style="list-style-type: none"> <li>1-4 liters/min via nasal cannula</li> <li>6-15 liters/min via NRB mask</li> <li>15 liters via BVM</li> </ul>	<ul style="list-style-type: none"> <li>1-4 liters/min via nasal cannula</li> <li>6-15 liters/min via NRB mask</li> <li>15 liters via BVM</li> </ul>
<p><b><u>Oxymetazoline</u></b> <b>(Afrin or Otrivin) Nasal Decongestant Spray</b></p> <p>NCCEP Protocol: * Epistaxis</p> <p>NCCEP Procedure: * Airway-Nasotracheal Intubation</p> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>Vasoconstrictor used with nasal intubation and epistaxis</li> <li>Relative Contraindication is significant hypertension</li> </ul>	<ul style="list-style-type: none"> <li>2 sprays in affected nostril</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>1-2 sprays in affected nostril</li> </ul>



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Drug	Adult	Pediatric
<p><b><u>Pralidoxime (2-PAM)</u></b></p> <p><b>NCCEP Protocol:</b></p> <ul style="list-style-type: none"> <li>* Overdose/Toxic Ingestion</li> <li>* WMD Nerve Agent</li> </ul> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Antidote for Nerve Agents or Organophosphate Overdose</li> <li>• Administered with Atropine</li> </ul>	<ul style="list-style-type: none"> <li>• 600 mg IM or IV/IO</li> </ul>	<ul style="list-style-type: none"> <li>• Per Medical Control only</li> </ul>
<p><b><u>Rocuronium</u></b></p> <p><b>NCCEP Protocol:</b></p> <ul style="list-style-type: none"> <li>* Pulseless Electrical Activity</li> <li>* Overdose/Toxic Ingestion</li> </ul>	<ul style="list-style-type: none"> <li>• 1 mg/kg IV or IO May repeat every 20 minutes as needed</li> </ul>	
<p><b><u>Sodium Bicarbonate</u></b></p> <p><b>NCCEP Protocol:</b></p> <ul style="list-style-type: none"> <li>* Pulseless Electrical Activity</li> <li>* Overdose/Toxic Ingestion</li> <li>* Dialysis/Renal Failure</li> <li>* Crush Syndrome</li> <li>* Pediatric Overdose/Toxic Ingestion</li> </ul> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• A buffer used in acidosis to increase the pH in Cardiac Arrest or Tricyclic Overdose.</li> </ul>	<ul style="list-style-type: none"> <li>• 1 amp (50 mEq) IV or IO initially, then 1/2 amp IV or IO every 10 minutes as needed</li> </ul> <p><u>Tricyclic Overdose</u></p> <ul style="list-style-type: none"> <li>• In TCA (tricyclic), 1 amp (50 mEq) bolus, then 2 amps in 1 liter of NS for infusion at 200 ml/hr.</li> </ul>	<p><b><u>See Color Coded List</u></b></p> <ul style="list-style-type: none"> <li>• 1 meq/kg IV, IO initially, then 1/2 meq/kg IV every 10 minutes as needed.</li> </ul>



# Drug List



**Only Medications included in the 2012 NCCEP Protocols are included in this document.**

For a full list of medications approved for use by EMS professionals, please refer to the North Carolina Medical Board document entitled: **Approved Medications for Credentialed EMS Personnel**. See the **Pediatric Color Coded Drug List** for pediatric dosages.

Drug	Adult	Pediatric
<p><b><u>Vecuronium</u></b>  <b>Paralytic Agent</b></p> <p><b>NCCEP Protocol:</b>  * Induced Hypothermia</p> <p><b><u>Indications/Contraindications:</u></b></p> <ul style="list-style-type: none"> <li>• Paralytic</li> <li>• Avoid in patients with chronic neuromuscular disease (e.g., muscular dystrophy).</li> <li>• May ONLY be administered to patients with a confirmed, secured definitive airway (endotracheal tube) in place</li> </ul>	<ul style="list-style-type: none"> <li>• 0.1 mg/kg IV/IO. If inadequate relaxation after 5 minutes, may repeat dose.</li> </ul>	<ul style="list-style-type: none"> <li>• <u>See Color Coded List</u>  0.25 mg/kg IV, IO  <u>Avoid in Broselow Pink</u></li> </ul>

# Pediatric Color Coded Drug List

Length < 59.5 cm		Weight 3-5 Kg (Avg 4.0 Kg)				Gray (0-3 months)
		Vital Signs		Equipment		
Heart Rate 120-150		Acetaminophen 64 mg		Epinephrine 1:10,000 0.04 mg		
Respirations 24-48		Adenosine 1 <sup>st</sup> Dose- 0.3 mg		Epinephrine 1:1000 Nebulized 2.0 mg		
BP Systolic 70 (+/-25)		Repeat Dose- 0.6 mg		Epinephrine 1:1000 IM 0.05 mg		
		Afrin Nasal Spray HOLD		Fentanyl 8.0 mcg		
		Albuterol 2.5mg		Glucagon 0.5 mg		
		Amiodarone 20 mg		Ibuprofen N/A		
		Atropine 0.10 mg		Ipratropium 500 mcg		
		Calcium Chloride 80 mg		Levalbuterol 0.31 mg		
		Charcoal N/A		Lidocaine 4 mg		
		Dextrose 10% 20 ml		Lorazepam 0.2 mg		
		Diazepam (IV) 0.8 mg		Magnesium Sulfate 200 mg		
		(Rectal) 2.0 mg		Methylprednisolone 6.25 mg		
		Dilaudid HOLD		Midazolam 0.5 mg		
		Diphenhydramine 6.5 mg		Morphine Sulfate 0.4 mg		
		Dopamine (800 mg in 500 cc)		Naloxone 0.4 mg		
		2 mcg/kg/min 0.3 ml/hr		Ondansetron 0.6 mg		
		5 mcg/kg/min 0.9 ml/hr		Prednisone 4.0 mg		
		10 mcg/kg/min 1.7 ml/hr		Sodium Bicarbonate 4 mEq		
		20 mcg/kg/min 3.3 ml/hr				
ET Tube 2.5 - 3.5						
Blade Size 0 - 1						
Defibrillation 8 J, 15 J						
Cardioversion 2 J, 4 J						
Normal Saline 80 ml						

Length 59.5-66.5 cm		Weight 6-7 Kg (Avg 6.5 Kg)				Pink (3-6 Months)
		Vital Signs		Equipment		
Heart Rate 120-125		Acetaminophen 96 mg		Epinephrine 1:10,000 0.06 mg		
Respirations 24-48		Adenosine 1 <sup>st</sup> Dose- 0.6 mg		Epinephrine 1:1000 Nebulized 2.0 mg		
BP Systolic 85 (+/-25)		Repeat Dose- 1.2 mg		Epinephrine 1:1000 IM 0.06 mg		
		Afrin Nasal Spray HOLD		Fentanyl 13.0 mcg		
		Albuterol 2.5 mg		Glucagon 0.5 mg		
		Atropine 0.13 mg		Ibuprofen N/A		
		Amiodarone 30 mg		Ipratropium 500 mcg		
		Calcium Chloride 130 mg		Levalbuterol 0.31 mg		
		Charcoal HOLD		Lidocaine 6 mg		
		Dextrose 10% 35 ml		Lorazepam 0.33 mg		
		Diazepam (IV) 1.3 mg		Magnesium Sulfate 300 mg		
		(Rectal) 3.2 mg		Methylprednisolone 12.5 mg		
		Dilaudid HOLD		Midazolam 0.5 mg		
		Diphenhydramine 5 mg		Morphine Sulfate 0.6 mg		
		Dopamine (800 mg in 500 cc)		Naloxone 0.6 mg		
		2 mcg/kg/min 0.5 ml/hr		Ondansetron 1.0 mg		
		5 mcg/kg/min 1.3 ml/hr		Prednisone 6.5 mg		
		10 mcg/kg/min 2.5 ml/hr		Sodium Bicarbonate 6 mEq		
		20 mcg/kg/min 5.0 ml/hr				
ET Tube 3.5						
Blade Size 1						
Defibrillation 10 J, 20 J						
Cardioversion 2 J, 5 J						
Normal Saline 130 ml						

Length 66.5-74 cm		Weight 8-9 Kg (Avg 8.5 Kg)				Red (7-10 Months)
		Vital Signs		Equipment		
Heart Rate 120		Acetaminophen 128 mg		Epinephrine 1:10,000 0.08 mg		
Respirations 24-32		Adenosine 1 <sup>st</sup> Dose- 0.9 mg		Epinephrine 1:1000 Nebulized 2.0 mg		
BP Systolic 92 (+/-30)		Repeat Dose- 1.8 mg		Epinephrine 1:1000 IM 0.08 mg		
		Afrin Nasal Spray HOLD		Fentanyl 17.0 mcg		
		Albuterol 2.5 mg		Glucagon 0.5 mg		
		Atropine 0.17 mg		Ibuprofen 4.0 ml		
		Amiodarone 40 mg		Ipratropium 500 mcg		
		Calcium Chloride 170 mg		Levalbuterol 0.31 mg		
		Charcoal HOLD		Lidocaine 8 mg		
		Dextrose 10% 43 ml		Lorazepam 0.43 mg		
		Diazepam (IV) 1.7 mg		Magnesium Sulfate 400 mg		
		(Rectal) 4.25 mg		Methylprednisolone 12.5 mg		
		Dilaudid HOLD		Midazolam 0.85 mg		
		Diphenhydramine 10 mg		Morphine Sulfate 0.8 mg		
		Dopamine (800 mg in 500 cc)		Naloxone 0.8 mg		
		2 mcg/kg/min 0.7 ml/hr		Ondansetron 1.2 mg		
		5 mcg/kg/min 1.6 ml/hr		Prednisone 8.5 mg		
		10 mcg/kg/min 3.2 ml/hr		Sodium Bicarbonate 8 mEq		
		20 mcg/kg/min 6.5 ml/hr				
ET Tube 3.5-4.0						
Blade Size 1						
Defibrillation 20 J, 40 J						
Cardioversion 5 J, 9 J						
Normal Saline 170 ml						

# Pediatric Color Coded Drug List

## Weight 10-11 Kg (Avg 10.5 Kg)

Length 74-84.5 cm

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

Equipment	
ET Tube	4.0
Blade Size	1

Defibrillation	
Defibrillation	20 J, 40 J
Cardioversion	5 J, 10 J

Normal Saline	210 ml
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Acetaminophen		160 mg
Adenosine	1 <sup>st</sup> Dose-	0.9 mg
	Repeat Dose-	1.8 mg
Afrin Nasal Spray		HOLD
Albuterol		2.5 mg
Atropine		0.2 mg
Amiodarone		50 mg
Calcium Chloride		210 mg
Charcoal		HOLD
Dextrose 10%		50 ml
Diazepam	(IV)	1.0 mg
	(Rectal)	5.0 mg
Dilaudid		HOLD
Diphenhydramine		10 mg
Dopamine		(800 mg in 500 ml Normal Saline)
	2 mcg/kg/min	0.8 ml/hr
	5 mcg/kg/min	2.0 ml/hr
	10 mcg/kg/min	4.0 ml/hr
	20 mcg/kg/min	8.0 ml/hr

Epinephrine 1:10,000	0.1 mg
Epinephrine 1:1000 IM	0.1 mg
Epinephrine 1:1000 Nebulized	2.0 mg
Fentanyl	21.0 mcg
Glucagon	1.0 mg
Ibuprofen	5.0 ml
Ipratropium	500 mcg
Levalbuterol	0.63 mg
Lidocaine	10 mg
Lorazepam	0.53 mg
Magnesium Sulfate	500 mg
Methylprednisolone	18.75 mg
Midazolam	1.0 mg
Morphine Sulfate	1.0 mg
Naloxone	1.0 mg
Ondansetron	1.6 mg
Prednisone	10.5 mg
Sodium Bicarbonate	10 mEq

Purple (11-18 Months)

## Weight 12-14 Kg (Avg 13 Kg)

Length 84.5-97.5 cm

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

Equipment	
ET Tube	4.5
Blade Size	2

Defibrillation	
Defibrillation	30 J, 50 J
Cardioversion	6 J, 15 J

Normal Saline	260 ml
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Acetaminophen		192 mg
Adenosine	1 <sup>st</sup> Dose-	1.2 mg
	Repeat Dose-	2.4 mg
Afrin Nasal Spray		1 spray
Albuterol		2.5 mg
Atropine		0.26 mg
Amiodarone		65 mg
Calcium Chloride		260 mg
Charcoal		15 gms
Dextrose 10%		60-80 ml
Diazepam	(IV)	2.6 mg
	(Rectal)	6.5 mg
Dilaudid		HOLD
Diphenhydramine		10 mg
Dopamine		(800 mg in 500 ml Normal Saline)
	2 mcg/kg/min	0.8 ml/hr
	5 mcg/kg/min	2.5 ml/hr
	10 mcg/kg/min	5.0 ml/hr
	20 mcg/kg/min	10 ml/hr

Epinephrine 1:10,000	0.10 mg
Epinephrine 1:1000 IM	0.10 mg
Epinephrine 1:1000 Nebulized	2.0 mg
Fentanyl	26.0 mcg
Glucagon	0.5 mg
Ibuprofen	6.5 ml
Ipratropium	500 mcg
Levalbuterol	0.63 mg
Lidocaine	14 mg
Lorazepam	0.65 mg
Magnesium Sulfate	650 mg
Methylprednisolone	25.0 mg
Midazolam	1 mg
Morphine Sulfate	1.0 mg
Naloxone	1.3 mg
Ondansetron	2.0 mg
Prednisone	13.0 mg
Sodium Bicarbonate	13 mEq

Yellow (19-35 Months)

## Weight 15-18 Kg (Avg 16.5 Kg)

Length 97.5-110 cm

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

Equipment	
ET Tube	5.0
Blade Size	2

Defibrillation	
Defibrillation	30 J, 70 J
Cardioversion	8 J, 15 J

Normal Saline	330 ml
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Acetaminophen		240 mg
Adenosine	1 <sup>st</sup> Dose-	1.8 mg
	Repeat Dose-	3.6 mg
Afrin Nasal Spray		1 spray
Albuterol		2.5 mg
Atropine		0.32 mg
Amiodarone		80 mg
Calcium Chloride		330 mg
Charcoal		15-30 gms
Dextrose 10%		80 ml
Diazepam	(IV)	3.3 mg
	(Rectal)	8.25 mg
Dilaudid		HOLD
Diphenhydramine		15 mg
Dopamine		(800 mg in 500 ml Normal Saline)
	2 mcg/kg/min	1.2 ml/hr
	5 mcg/kg/min	3.0 ml/hr
	10 mcg/kg/min	6.0 ml/hr
	20 mcg/kg/min	12 ml/hr

Epinephrine 1:10,000	0.16 mg
Epinephrine 1:1000 IM	0.20 mg
Epinephrine 1:1000 Nebulized	2.0 mg
Fentanyl	33.0 mcg
Glucagon	0.5 mg
Ibuprofen	8.0 ml
Ipratropium	500 mcg
Levalbuterol	0.63 mg
Lidocaine	15 mg
Lorazepam	0.83 mg
Magnesium Sulfate	800 mg
Methylprednisolone	31.25 mg
Midazolam	1.5 mg
Morphine Sulfate	1.0 mg
Naloxone	1.6 mg
Ondansetron	2.4 mg
Prednisone	16.5 mg
Sodium Bicarbonate	16 mEq

White (3-4 yrs)

# Pediatric Color Coded Drug List

## Weight 19-22 Kg (Avg 20.75 Kg)

Length 110-122 cm

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

Equipment	
ET Tube	5.5
Blade Size	2

Defibrillation	
Defibrillation	40 J, 85 J
Cardioversion	10 J, 20 J

Normal Saline	410 ml
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Acetaminophen	288 mg
Adenosine	1 <sup>st</sup> Dose- 2.1 mg
	Repeat Dose- 4.1 mg
Afrin Nasal Spray	1 spray
Albuterol	2.5 mg
Atropine	0.4 mg
Amiodarone	100 mg
Calcium Chloride	420 mg
Charcoal	20-40 gms
Dextrose 10%	100 ml
Diazepam	(IV) 4.0 mg
	(Rectal) 10.0 mg
Dilaudid	0.31 mg
Diphenhydramine	25.0 mg
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

Epinephrine 1:10,000	0.2 mg
Epinephrine 1:1000 IM	0.2 mg
Epinephrine 1:1000 Nebulized	2.0 mg
Fentanyl	40.0 mcg
Glucagon	1.0 mg
Ibuprofen	10.0 ml
Ipratropium	500 mcg
Levalbuterol	0.63 mg
Lidocaine	20 mg
Lorazepam	1.0 mg
Magnesium Sulfate	1000 mg
Methylprednisolone	37.5 mg
Midazolam	2.0 mg
Morphine Sulfate	2.0 mg
Naloxone	2.0 mg
Ondansetron	3.0 mg
Prednisone	20.0 mg
Sodium Bicarbonate	20 mEq

Blue (5-6 yrs)

## Weight 24-30 Kg (Avg 27 Kg)

Length 122-137 cm

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

Equipment	
ET Tube	6.0
Blade Size	2-3

Defibrillation	
Defibrillation	50 J, 100 J
Cardioversion	15 J, 30 J

Normal Saline	540 ml
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Acetaminophen	384 mg
Adenosine	1 <sup>st</sup> Dose- 2.7 mg
	Repeat Dose- 5.4 mg
Afrin Nasal Spray	1 spray
Albuterol	2.5 mg
Atropine	0.5 mg
Amiodarone	135 mg
Calcium Chloride	540 mg
Charcoal	25-50 gms
Dextrose 10%	135 ml
Diazepam	(IV) 4.0 mg
	(Rectal) 10.0 mg
Dilaudid	0.4 mg
Diphenhydramine	25 mg
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

Epinephrine 1:10,000	0.27 mg
Epinephrine 1:1000 IM	0.3 mg
Epinephrine 1:1000 Nebulized	2.0 mg
Fentanyl	54.0 mcg
Glucagon	1.0 mg
Ibuprofen	13 ml
Ipratropium	500 mcg
Levalbuterol	0.63 mg
Lidocaine	20 mg
Lorazepam	1.35 mg
Magnesium Sulfate	1350 mg
Methylprednisolone	54.0 mg
Midazolam	2.0 mg
Morphine Sulfate	2.0 mg
Naloxone	2.0 mg
Ondansetron	4.0 mg
Prednisone	27.0 mg
Sodium Bicarbonate	27 mEq

Orange (7-9 yrs)

## Weight 32-40 Kg (Avg 36 Kg)

Length 137-150 cm

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

Equipment	
ET Tube	6.5
Blade Size	3

Defibrillation	
Defibrillation	60 J, 150 J
Cardioversion	15 J, 30 J

Normal Saline	720 ml
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Acetaminophen	544 mg
Adenosine	1 <sup>st</sup> Dose- 3.6 mg
	Repeat Dose- 7.2 mg
Afrin Nasal Spray	2 spray
Albuterol	2.5 mg
Atropine	0.5 mg
Amiodarone	180 mg
Calcium Chloride	700 mg
Charcoal	25-50 gms
Dextrose 10%	180 ml
Diazepam	(IV) 4.0 mg
	(Rectal) 10.0 mg
Dilaudid	0.54 mg
Diphenhydramine	35 mg
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

Epinephrine 1:10,000	0.3 mg
Epinephrine 1:1000 IM	0.3 mg
Epinephrine 1:1000 Nebulized	2.0 mg
Fentanyl	62.0 mcg
Glucagon	1.0 mg
Ibuprofen	18 ml
Ipratropium	500 mcg
Levalbuterol	0.63 mg
Lidocaine	36 mg
Lorazepam	1.8 mg
Magnesium Sulfate	1800 mg
Methylprednisolone	62.5 mg
Midazolam	2.0 mg
Morphine Sulfate	3.0 mg
Naloxone	2.0 mg
Ondansetron	4.0 mg
Prednisone	36.0 mg
Sodium Bicarbonate	36 mEq

Green (10-12 yrs)



# Dopamine Drip Chart



Calculations valid for a **1600 mcg/mL** premixed solution of dopamine AND a **60 gtt (Micro Drip)** setup.

Patient Weight (Kilograms)	5	10	15	20
	mcg/kg/min	mcg/kg/min	mcg/kg/min	mcg/kg/min
	Drops per Minute	Drops per Minute	Drops per Minute	Drops per Minute
10	2	4	6	8
15	3	6	8	11
20	4	8	11	15
25	5	9	14	19
30	6	11	17	23
35	7	13	20	26
40	8	15	23	30
45	8	17	25	34
50	9	19	28	38
55	10	21	31	41
60	11	23	34	45
65	12	24	37	49
70	13	26	39	53
75	14	28	42	56
80	15	30	45	60
85	16	32	48	64
90	17	34	51	68
95	18	36	53	71
100	19	38	56	75
105	20	39	59	79
110	21	41	62	83

This drip chart is intended only for use by approved EMT-P providers within Orange County, NC.



# ADULT Epinephrine Drip Chart (1:1,000,000)



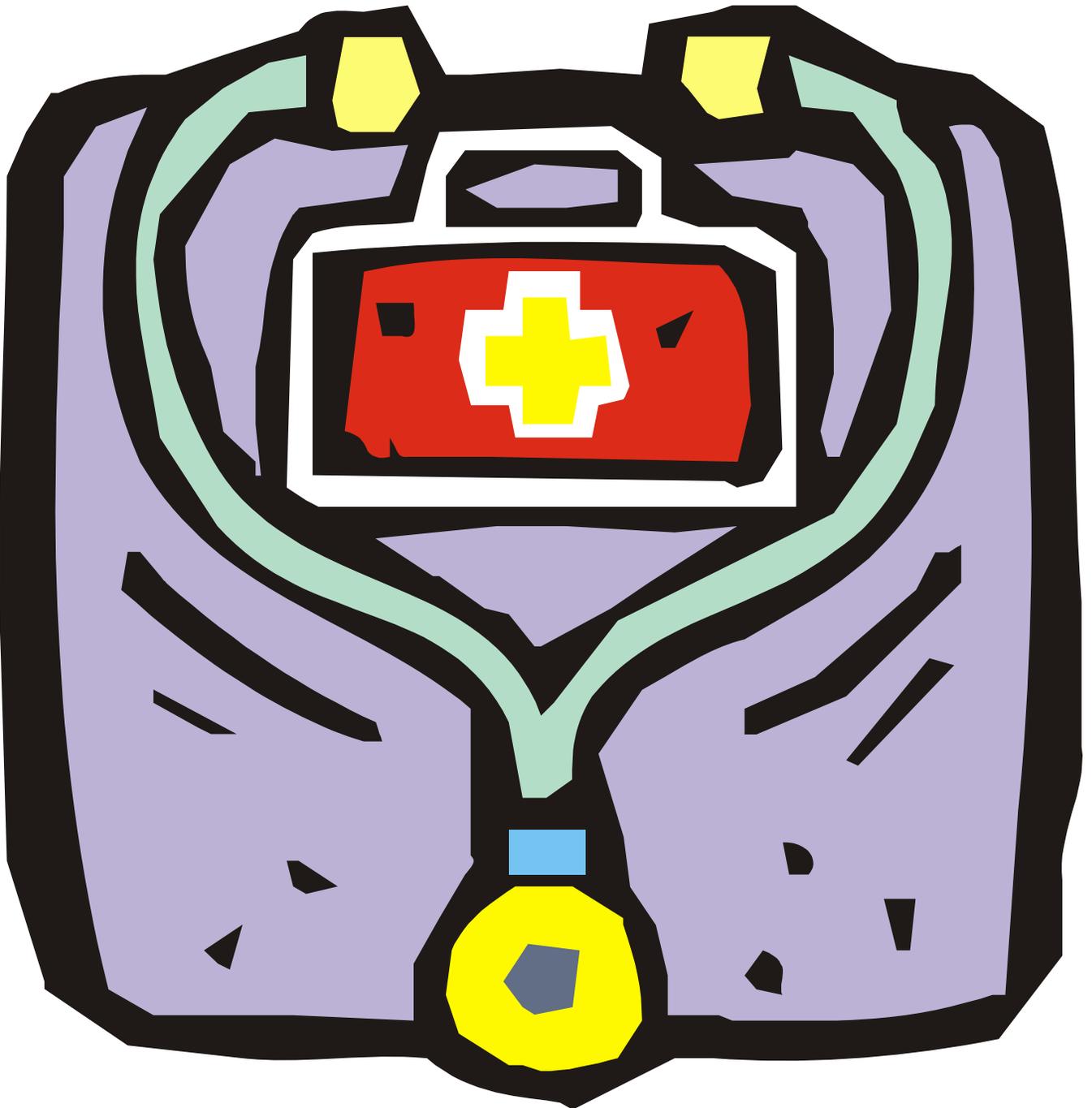
Calculations valid for **1 mg Epinephrine mixed into 1000 ml of Normal Saline.**  
Administer with a **10 gtt (Macro gtt)** setup.

Epinephrine Infusion Rate (mcg/min)	Seconds per 1 Drop	Drops per Minute
1	6	10
2	3	20
3	2	30
4	1.5	40
5	1.2	50
6	1	60
7	0.9	67
8	0.8	75
9	0.7	86
10	0.6	100

Use the 10 gtt (Macro gtt) chamber!

This drip chart is intended only for use by approved EMT-P providers within Orange County, NC.

# Appendix



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# Disposition Instruction Form



## Instructions

The EMS Patient Disposition 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 a variety of specific patient instructions by complaint.

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 "paramedic 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 paramedic 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" and the appropriate blocks in that section should be marked. This section and the specific instructions (on the 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.



# 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.

## ABDOMINAL PAIN:

- Abdominal pain is also called belly pain. Many illnesses can cause abdominal pain and it is very difficult for EMS to identify the cause.
- Take your temperature every 4 hours.

### Call or see a physician, go to the emergency department, or call 911 immediately if:

- Your pain gets worse or is now only in 1 area
- You vomit (throw up) blood or find blood in your bowel movement
- You become dizzy or faint
- Your abdomen becomes distended or swollen
- You have a temperature over 100° F
- You have trouble passing urine
- You have trouble breathing

## BACK PAIN:

- Apply heat to the painful area to help relieve pain. You may use a warm heating pad, whirlpool bath, or warm, moist towels for 10 to 20 minutes every hour.
- Stay in bed as much as possible the first 24 hours.
- Begin normal activities when you can do them without causing pain.
- When picking things up, bend at the hips and knees. Never bend from the waist only.

### Call or see a physician, go to the emergency department, or call 911 immediately if:

- You have shooting pains into your buttocks, groin, legs, or arms or the pain increases.
- You have trouble urinating or lose control of your stools or urine.
- You have numbness or weakness in your legs, feet, arms, or hands.

## FEVER:

- Always take medications as directed. Tylenol and Ibuprofen can be taken at the same time.
- If you are taking antibiotics, take them until they are gone, not until you are feeling better.
- Drink extra liquids (1 glass of water, soft drink or gatorade per hour of fever for an adult)
- If the temperature is above 103° F, it can be brought down by a sponge bath with room temperature water. Do not use cold water, a fan, or an alcohol bath.
- Temperature should be taken every 4 hours.

### Call or see a physician, go to the emergency department, or call 911 immediately if:

- Temperature is greater than 101° F for 24 hours
- A child becomes less active or alert.
- The Temperature does not come down with Acetaminophen (Tylenol) or Ibuprofen with the appropriate dose.

## HEAD INJURY:

- Immediately after a blow to the head, nausea, and vomiting may occur.
- Individuals who have sustained a head injury must be checked, and if necessary awakened, every 2 hours for the first 24 hours.
- Ice may be placed on the injured area to decrease pain and swelling.
- Only drink clear liquids such as juices, soft drinks, or water the first 12 hours after injury..
- Acetaminophen (Tylenol) or Ibuprofen only may be used for pain.

### Call or see a physician, go to the emergency department, or call 911 immediately if:

- The injured person has persistent vomiting, is not able to be awakened, has trouble walking or using an arm or leg, has a seizure, develops unequal pupils, has a clear or bloody fluid coming from the ears or nose, or has strange behavior.

## INSECT BITE/STING:

- A bite or sting typically is a red lump which may have a hole in the center. You may have pain, swelling and a rash. Severe stings may cause a headache and an upset stomach (vomiting).
- Some individuals will have an allergic reaction to a bite or sting. Difficulty breathing or chest pain is an emergency requiring medical care.
- Elevation of the injured area and ice (applied to the area 10 to 20 minutes each hour) will decrease pain and swelling.
- Diphenhydramine (Benadryl) may be used as directed to control itching and hives.

### Call or see a physician, go to the emergency department, or call 911 immediately if:

- You develop any chest pain or difficulty breathing.
- The area becomes red, warm, tender, and swollen beyond the area of the bite or sting.
- You develop a temperature above 101° F.

## RESPIRATORY DISTRESS:

- Respiratory Distress is also known as shortness of breath or difficulty breathing.
- Causes of Respiratory Distress include reactions to pollen, dust, animals, molds, foods, drugs, infections, smoke, and respiratory conditions such as Asthma and COPD. If possible avoid any causes which produce respiratory distress.
- If you have seen a physician for this problem, take all medication's as directed.

### Call or see a physician, go to the emergency department, or call 911 immediately if:

- Temperature is greater than 101° F.
- The cough, wheezing, or breathing difficulty becomes worse or does not improve even when taking medications.
- You have Chest Pain.
- Sputum (spit) changes from clear to yellow, green, grey, or becomes bloody.
- You are not able to perform normal activities.

## EXTREMITY INJURY:

- Extremity Injuries may consist of cuts, scrapes, bruises, sprains, or broken bones (fractures).
- Apply ice on the injury for 15 to 20 minutes each hour for the first 1 to 2 days.
- Elevate the extremity above the heart as possible for the first 48 hours to decrease pain and swelling.
- Use the extremity as pain allows.

### Call or see a physician, go to the emergency department, or call 911 immediately if:

- Temperature is greater than 101° F.
- The bruising, swelling, or pain gets worse despite the treatment listed above.
- Any problems listed on the **Wound Care instructions** are noted.
- You are unable to move the extremity or if numbness or tingling is noted.
- You are not improved in 24 to 48 hours or you are not normal in 7 to 10 days.

## VOMITING/DIARRHEA:

- Vomiting (throwing up) can be caused by many things. It is common in children, but should be watched closely.
- Diarrhea is most often caused by either a food reaction or infection.
- Dehydration is the most serious problem associated with vomiting or diarrhea.
- Drink clear liquids such as water, apple juice, soft drinks, or gatorade for the first 12 hours or until things improve. Adults should drink 8 to 12 glasses of fluids per day with diarrhea. Children should drink 1 cup of fluid for each loose bowel movement.

### Call or see a physician, go to the emergency department, or call 911 immediately if:

- Temperature is greater than 101° F.
- Vomiting or Diarrhea lasts longer than 24 hours, gets worse, or blood is noted.
- You cannot keep fluids down or no urination is noted in 8 hours.

## WOUND CARE:

- Wounds include cuts, scrapes, bites, abrasions, or puncture wounds.
- If the wound begins to bleed, apply pressure over the wound with a clean bandage and elevate the wound above the heart for 5 to 10 minutes.
- Unless instructed otherwise, clean the wound twice daily with soapy water, and keep the wound dry. It is safe to take a shower but do not place the wound in bath or dish water.
- See a physician for a tetanus shot if it has been 10 years or more since your last one.

### Call or see a physician, go to the emergency department, or call 911 immediately if:

- See the **Extremity Injury instructions**.
- Temperature is greater than 101° F.
- Bruising, swelling, or pain gets worse or bleeding is not controlled as directed above.
- Any signs of infection, such as redness, drainage of yellow fluid or pus, red streaks extending from the wound, or a bad smell is noted.



# 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 the EMS Agencies Online Medical Control physician.
2. Show proper identification including current North Carolina Medical Board Registration/ Licensure.
3. Accompany the patient to the hospital.
4. Carry out any interventions that do not conform to the EMS Agencies Protocols. EMS personnel cannot perform any interventions or administer medications that are not included in their protocols.
5. Sign all orders on the EMS Patient Care Report.
6. Assume all medico-legal responsibility for all patient care activities until the patient's care is transferred to another physician at the destination hospital.
7. Complete the "Assumption of Medical Care" section of this form below.

## Assumption of Medical Care

I, \_\_\_\_\_, MD; License #: \_\_\_\_\_,  
**(Please Print your Name Here)**

have assumed authority and responsibility for the medical care and patient management for

\_\_\_\_\_  
**(Insert Patient's Name Here)**

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

\_\_\_\_\_, MD Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ Time: \_\_\_\_AM/PM  
**(Physician Signature Here)**

\_\_\_\_\_, EMS \_\_\_\_\_ Witness  
**(EMS Lead Crew Member Signature Here) (Witness Signature Here)**



# Apgar Score



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

- Each of the 5 parameters should be scored and then totaled.
- The Minimum score is 0
- The Maximum score is 10

<b>Sign</b>	<b>0</b>	<b>1</b>	<b>2</b>
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



# Los Angeles Prehospital Stroke Screen (LAPSS)



1. Patient Name: \_\_\_\_\_  
(last name) (first name)

2. Information/History from:  Patient  Family Member  Other  
\_\_\_\_\_  
(name - if other than patient) (phone)

3. Last known time patient was at baseline or deficit free and awake:  
\_\_\_\_\_  
(military time) (date)

### SCREENING CRITERIA

	Yes	Unknown	No
4. Age > 45	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. History of seizures or epilepsy absent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Symptom duration less than 24 hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. At baseline, patient is not wheelchair bound or bedridden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Blood glucose between 60 and 400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Exam: <b>LOOK FOR OBVIOUS ASYMMETRY</b>			
	<b>Normal</b>	<b>Right</b>	<b>Left</b>
Facial smile/grimace	<input type="checkbox"/>	<input type="checkbox"/> Droop	<input type="checkbox"/> Droop
Hand grip	<input type="checkbox"/>	<input type="checkbox"/> Weak	<input type="checkbox"/> Weak
		<input type="checkbox"/> No grip	<input type="checkbox"/> No grip
Arm strength	<input type="checkbox"/>	<input type="checkbox"/> Drifts dn	<input type="checkbox"/> Drifts dn
		<input type="checkbox"/> Falls fast	<input type="checkbox"/> Falls fast

Based on exam, patient has only unilateral (not bilateral) weakness:  YES  NO

10. Items 4, 5, 6, 7, 8, 9 all YES's (or unknown) --- LAPSS screening criteria met:

YES  NO

11. If LAPSS criteria for stroke are met, alert the receiving hospital of a possible stroke patient. If not, then return to the appropriate treatment protocol.

(Note: the patient may be experiencing a stroke even if the LAPSS criteria are not met.)

12. Time LAPSS Exam Performed: Military Time: \_\_\_\_\_

13. Form Completed by: \_\_\_\_\_





# Restraint Checklist



Patient's Name: \_\_\_\_\_

PCR Number: \_\_\_\_\_ Date: \_\_\_\_\_

**It is recommended that a Restraint Checklist be completed with any restraint use.**

**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?**

- Yes
- No

**3. Attempted environmental modification? (i.e. remove patient from stressful environment)**

- Yes
- No

**4. Received medical control order for restraints?**

- Yes \_\_\_\_\_, MD
- No (Medical Control Physician Name Here)

**5. Time and Type of restraint applied (check all that apply):**

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ Time: \_\_\_\_AM/PM

**Limb restraints:**

- LUE
- RUE
- LLE
- RLE

**Chemical Restraint:**

- Yes
- No

If Yes: Drug Used: \_\_\_\_\_

Total Dose: \_\_\_\_\_

**6. Vital signs and extremity neurovascular exam should be taken every 10 minutes.**

**7. Transport Position (Patient should NOT be in prone position)**

- Supine position for transport
- Lateral recumbent position for transport

Signature: \_\_\_\_\_

**(EMS Lead Crew Member)**



# Approved Medical Abbreviations



The following is a list of approved medical abbreviations. In general, the use of abbreviations should be limited to this 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
AAA	- abdominal aortic aneurysm
ABC	- airway, breathing, circulation
ABD	- abdomen (abdominal)
ACLS	- advanced cardiac life support
AKA	- above the knee amputation
ALS	- advanced life support
AMA	- against medical advice
AMS	- altered mental status
AMT	- amount
APPROX	- approximately
ASA	- aspirin
ASSOC	- associated
BG	- blood glucose
BILAT	- bilateral
BKA	- below the knee amputation
BLS	- basic life support
BM	- bowel movement
BP	- blood pressure
BS	- breath sounds
BVM	- bag-valve-mask
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
CEPH	- cephalic
CHF	- congestive heart failure
CNS	- central nervous system
COPD	- chronic obstructive pulmonary disease
CP	- chest pain
CPR	- cardiopulmonary resuscitation
CSF	- cerebrospinal fluid
CT	- cat scan
CVA	- cerebrovascular accident (stroke)



# Approved Medical Abbreviations



D5W	- 5% dextrose in water
DKA	- diabetic ketoacidosis
DNR	- do not resuscitate
DOA	- dead on arrival
DT	- delirium tremens
Dx	- diagnosis
ECG	- electrocardiogram
EEG	- electroencephelogram
ET	- endotracheal
ETOH	- ethanol (alcohol)
ETT	- endotracheal tube
EXT	- external (extension)
FB	- foreign body
FLEX	- flexion
Fx	- fracture
g	- gram(s)
GI	- gastrointestinal
GSW	- gunshot wound
gtts	- drops
GU	- gastrourinary
GYN	- gynecology (gynecological)
H/A	- headache
HEENT	- head, eyes, ears, nose, throat
HR	- heart rate (hour)
HTN	- hypertension
Hx	- history
ICP	- intracranial pressure
ICU	- intensive care unit
IM	- intramuscular
IV	- intravenous
JVD	- jugular vein distension
kg	- kilogram
KVO	- keep vein open



# Approved Medical Abbreviations



L-SPINE	- lumbar spine
L/S-SPINE	- lumbar sacral spine
L&D	- labor and delivery
LAT	- lateral
lb	- pound
LLQ	- left lower quadrant
LMP	- last menstrual period
LOC	- level of consciousness (loss of consciousness)
LR	- lactated ringers
LUQ	- left upper quadrant
MAST	- military anti-shock trousers
mcg	- microgram(s)
MED	- medicine
mg	- milligram(s)
MI	- myocardial infarction (heart attack)
min	- minimum / minute
MS	- mental status
MS	- mental status change
MSO4	- morphine
MVC	- motor vehicle crash
N/V	- nausea/vomiting
N/V/D	- nausea/vomiting/diarrhea
NAD	- no apparant distress
NC	- nasal cannula
NEB	- nebulizer
NKDA	- no known drug allergies
NRB	- non-rebreather
NS	- normal saline
NSR	- normal sinus rhythm
OB/GYN	- obstetrics/gynecology
PALP	- palpation
PAC	- premature atrial contraction
PE	- pulmonary embolus
PEARL	- pupils equal and reactive to light
PMHx	- past medical history
PO	- orally
PRB	- partial rebreather
PRN	- as needed
PT	- patient
PVC	- premature ventricular contraction



# Approved Medical Abbreviations



RLQ	- right lower quadrant
RUQ	- right upper quadrant
Rx	- medicine
RXN	- reaction
S/P	- status post
SOB	- shortness of breath
SQ	- subcutaneous
ST	- sinus tachycardia
SVT	- supraventricular tachycardia
Sx	- symptom
SZ	- seizure
T-SPINE	- thoracic spine
T	- temperature
TIA	- transient ischemic attack
TKO	- to keep open (refers to IV's - same as KVO)
Tx	- treatment
UOA	- upon our arrival
URI	- upper respiratory infection
UTI	- urinary tract infection
VF	- ventricular fibrillation
VS	- vital signs
VT	- ventricular tachycardia
WAP	- wandering atrial pacemaker
WNL	- within normal limits
YO (YOA)	- years old (years of age)
M or ♂	- male
F or ♀	- female
+	- positive
-	- negative
?	- questionable
Ψ	- psychiatric
~	- approximately
>	- greater than
<	- less than
=	- equal



# Approved Medical Abbreviations



↑	- upper (increased)
ā	- before
p̄	- after
c̄	- with
s	- without
Δ	- change
L	- left
R	- right
↓	- lower (decreased)
1°	- primary
2°	- secondary



# Reperfusion Checklist



The Reperfusion Checklist is an important component in the initial evaluation, treatment, and transport of patients suffering from an acute ST-elevation myocardial infarction (STEMI) or acute Stroke. Both of these conditions can be successfully treated using fibrinolysis (thrombolytics) if the patient arrives at the appropriate hospital within the therapeutic window of time.

This form should be completed for all acute STEMI and acute Stroke patients.

Patient's Name: \_\_\_\_\_

PCR Number: \_\_\_\_\_ Date: \_\_\_\_\_

**1. Has the patient experienced chest discomfort for greater than 15 minutes and less than 12 hours?**

Yes     No

**2. Has the patient developed a sudden neurologic deficit with a positive Los Angeles Prehospital Stroke Screen?**

Yes     No

**3. Are there any contraindications to fibrinolysis?**

If any of the following are checked "Yes", fibrinolysis MAY be contraindicated.

- Yes     No    Systolic Blood Pressure greater than 180 mm Hg
- Yes     No    Diastolic Blood Pressure greater than 110 mm Hg
- Yes     No    Right vs. Left Arm Systolic Blood Pressure difference of greater than 15 mm Hg
- Yes     No    History of structural Central Nervous System disease (tumors, masses, hemorrhage, etc.)
- Yes     No    Significant closed head or facial trauma within the previous 3 months
- Yes     No    Recent (within 6 weeks) major trauma, surgery (including laser eye surgery), gastrointestinal bleeding, or severe genital-urinary bleeding
- Yes     No    Bleeding or clotting problem or on blood thinners
- Yes     No    CPR performed greater than 10 minutes
- Yes     No    Currently Pregnant
- Yes     No    Serious Systemic Disease such as advanced/terminal cancer or severe liver or kidney failure.

**4. (STEMI Patients Only) Does the patient have severe heart failure or cardiogenic shock?**

These patients may benefit more from a percutaneous coronary intervention (PCI) capable hospital.

- Yes     No    Presence of pulmonary edema (rales greater than halfway up lung fields)
- Yes     No    Systemic hypoperfusion (cool and clammy)

**If any contraindication is checked as "Yes" and an acute Stroke is suspected by exam or a STEMI is confirmed by ECG, activate the EMS Stroke Plan or EMS STEMI Plan for fibrinolytic ineligible patients. This may require the EMS Agency, an Air Medical Service, or a Specialty Care Transport Service to transport directly to an specialty center capable of interventional care within the therapeutic window of time.**

## Evaluating for the difficult airway

Between 1 – 3% of patients who require endotracheal intubation have airways that make intubation difficult. Recognizing those patients who may have a difficult airway allows the paramedic to proceed with caution and to keep as many options open as possible. It also allows the paramedic to prepare additional equipment (such as a cricothyrotomy kit) that may not ordinarily be part of a standard airway kit. The mnemonic LEMON is useful in evaluating patients for signs that may be consistent with a difficult airway and should raise the paramedic's index of suspicion.

### Look externally

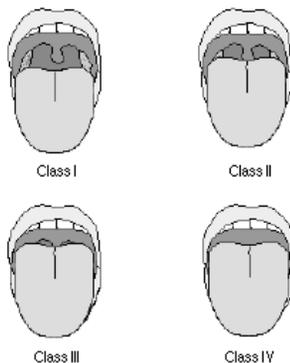
External indicators of either difficult intubation or difficult ventilation include: presence of a beard or moustache, abnormal facial shape, extreme cachexia, edentulous mouth, facial trauma, obesity, large front teeth or "buck teeth", high arching palate, receding mandible, short bull neck.

### Evaluate 3-3-2 Rule

- 3 fingers between the patient's teeth (patient's mouth should open adequately to permit three fingers to be placed between the upper and lower teeth)
- 3 fingers between the tip of the jaw and the beginning of the neck (under the chin)
- 2 fingers between the thyroid notch and the floor of the mandible (top of the neck)

### Mallampati

This scoring system is based on the work of Mallampati et al published in the Canadian Anaesthesia Society Journal in 1985. The system takes into account the anatomy of the mouth and the view of various anatomical structures when the patient opens his mouth as wide as possible. This test is performed with the patient in the sitting position, the head held in a neutral position, the mouth wide open, and the tongue protruding to the maximum. Inappropriate scoring may occur if the patient is in the supine position (instead of sitting), if the patient phonates or if the patient arches his or her tongue.



Class I (easy) = visualization of the soft palate, fauces, uvula, anterior and posterior pillars.

Class II = visualization of the soft palate, fauces and uvula.

Class III = visualization of the soft palate and the base of the uvula.

Class IV (difficult) = soft palate is not visible at all.

### Obstruction?

Besides the obvious difficulty if the airway is obstructed with a foreign body, the paramedic should also consider other obstructers such as tumor, abscess, epiglottitis, or expanding hematoma.

### Neck Mobility

Ask the patient to place their chin on their chest and to tilt their head backward as far as possible. Obviously, this will not be possible in the immobilized trauma patient.

# North Carolina EMS Airway Evaluation Form

## 1. Patient Demographic Information

Date: \_\_\_/\_\_\_/\_\_\_ Dispatch Time: \_\_\_:\_\_\_ am/pm

PCR # \_\_\_\_\_

EMS Agency Name: \_\_\_\_\_

Patient Age (yr): \_\_\_\_\_ Patient Sex:  M  F



The NC EMS Airway Evaluation Form is required to be completed with all Drug Assisted Intubations.

- It is recommended that this form be completed with all invasive airway procedures.

## 2. Indication for invasive airway management

- Apnea or agonal respirations
- Airway reflex compromised
- Ventilatory effort compromised
- Injury/illness involving airway
- Adequate airway reflexes/effort, potential for compromise
- Other \_\_\_\_\_

## 3. Was endotracheal intubation (ETI) attempted?

Yes  No

## 4. If ETI not attempted, alternate method of airway support

- |   |   |
|---|---|
| <input type="checkbox"/> Bag-Valve-Mask (BVM)           | <input type="checkbox"/> Combitube            |
| <input type="checkbox"/> Needle Jet Ventilation         | <input type="checkbox"/> LMA                  |
| <input type="checkbox"/> Open Cricothyrotomy            | <input type="checkbox"/> Other Cricothyrotomy |
| <input type="checkbox"/> CPAP/BiPAP                     | <input type="checkbox"/> King LT-D            |
| <input type="checkbox"/> Not Applicable (ETI Attempted) | <input type="checkbox"/> Other _____          |

## 5. Glasgow Coma Score (GCS) before intubation

**Eye**     (1) none     (2) pain     (3) verbal     (4) spontaneous

**Verbal**    (1) none     (2) incomprehensible    (3) inappropriate words    (4) disoriented    (5) oriented

**Motor**     (1) no response     (2) extends to pain     (3) flexes to pain     (4) withdraws from pain     (5) localizes pain     (6) obeys commands

## 6. Level of training of each rescuer attempting intubation

Rescuer A	Rescuer B	Rescuer C
<b>State ID:</b>	<b>State ID:</b>	<b>State ID:</b>
<input type="checkbox"/> Paramedic <input type="checkbox"/> EMT-I <input type="checkbox"/> Medic Student <input type="checkbox"/> Nurse <input type="checkbox"/> Phys. Assist <input type="checkbox"/> MD/DO <input type="checkbox"/> Other: _____	<input type="checkbox"/> Paramedic <input type="checkbox"/> EMT-I <input type="checkbox"/> Medic Student <input type="checkbox"/> Nurse <input type="checkbox"/> Phys. Assist <input type="checkbox"/> MD/DO <input type="checkbox"/> Other: _____	<input type="checkbox"/> Paramedic <input type="checkbox"/> EMT-I <input type="checkbox"/> Medic Student <input type="checkbox"/> Nurse <input type="checkbox"/> Phys. Assist <input type="checkbox"/> MD/DO <input type="checkbox"/> Other: _____

## 7. Indicate drugs given to facilitate intubation

<input type="checkbox"/> Atropine	_____ mg
<input type="checkbox"/> Diazepam	_____ mg
<input type="checkbox"/> Etomidate	_____ mg
<input type="checkbox"/> Lidocaine	_____ mg
<input type="checkbox"/> Midazolam	_____ mg
<input type="checkbox"/> Morphine	_____ mg
<input type="checkbox"/> Succinylcholine	_____ mg
<input type="checkbox"/> Topical Anesthetic Spray	
<input type="checkbox"/> Other-Specify _____	_____ mg
<input type="checkbox"/> Other-Specify _____	_____ mg

## 8. Times and Vital Signs

	Time	Heart Rate	Resp. Rate	Blood Pressure	Pulse Oximetry	ECTO <sub>2</sub>
Decision to Perform Airway Procedure	⋮					
Pre-Airway Procedure Value	⋮			/		
Lowest Value During Airway Procedure	⋮			/		
Highest Value During Airway Procedure	⋮			/		
Successful Airway Obtained	⋮					
Post-Airway Procedure Value	⋮			/		
Airway Procedure Abandoned Unsuccessfully	⋮					

# North Carolina EMS Airway Evaluation Form

## 9. Provide information for each laryngoscopy attempt.

Attempt	ETI Method	Rescuer	Attempt Successful?
1	<input type="checkbox"/> Oral <input type="checkbox"/> Nasal <input type="checkbox"/> Sedation <input type="checkbox"/> RSI	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	<input type="checkbox"/> Yes <input type="checkbox"/> No
2	<input type="checkbox"/> Oral <input type="checkbox"/> Nasal <input type="checkbox"/> Sedation <input type="checkbox"/> RSI	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	<input type="checkbox"/> Yes <input type="checkbox"/> No
3	<input type="checkbox"/> Oral <input type="checkbox"/> Nasal <input type="checkbox"/> Sedation <input type="checkbox"/> RSI	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	<input type="checkbox"/> Yes <input type="checkbox"/> No
4	<input type="checkbox"/> Oral <input type="checkbox"/> Nasal <input type="checkbox"/> Sedation <input type="checkbox"/> RSI	<input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	<input type="checkbox"/> Yes <input type="checkbox"/> No

**FOR ORAL ROUTE:**  
Each Insertion of Blade (Laryngoscope) is one "Attempt"

**FOR NASAL ROUTE:**  
Each Pass of Tube Past the Nares is One "Attempt"

## 10. Endotracheal tube confirmation

	Tracheal Placement	Esophageal Placement	Indeterminate	Not Assessed	Tube Not Placed
Auscultation	<input type="checkbox"/>				
Bulb/Syringe Aspiration	<input type="checkbox"/>				
Colorimetric ETCO <sub>2</sub>	<input type="checkbox"/>				
Digital ETCO <sub>2</sub>	<input type="checkbox"/>				
Waveform ETCO <sub>2</sub>	<input type="checkbox"/>				
Other _____	<input type="checkbox"/>				

## 11. Who determined the final placement (location) of ET Tube?

- Rescuer performing intubation
- Another rescuer on the same team
- Receiving helicopter/EMS crew
- Receiving hospital team
- Other: \_\_\_\_\_

## 12. Was ETI successful for the overall encounter (on transfer of care to ED or helicopter)?

- Yes  No

## 13. If all intubation attempts FAILED, indicate suspected reasons for failed intubation (Check all that apply)

- Inadequate patient relaxation
- Inability to expose vocal cords
- Difficult patient anatomy
- ETI attempted, but arrived at destination facility before accomplished
- Not Applicable – Successful field ETI
- Other \_\_\_\_\_
- Orofacial Trauma
- Secretions/blood/vomit
- Unable to access patient

## 14. Critical complications encountered during airway management (Check all that apply)

- Failed intubation effort
- Injury or trauma to patient from airway management effort
- Adverse event from facilitating drugs
- Esophageal intubation – delayed detection (after tube secured)
- Esophageal intubation – detected in ED
- Tube dislodged during transport/patient care
- Tube was not in the correct position when assumed care of the patient
- Other: \_\_\_\_\_

## 15. If all intubation attempts FAILED, indicate secondary (rescue) airway technique used (Check all that apply)

- Bag-Valve-Mask (BVM) Ventilation
- Combitube
- Not Applicable – Successful field ETI
- Other \_\_\_\_\_
- Needle/Jet Ventilation
- Open Cricothyroidotomy
- King LT-D

## 16. Did secondary (rescue) airway result in satisfactory ventilation?

- Yes  No  Not Applicable

## 18. Endotracheal tube placement

- 34.  Size (mm) \_\_\_\_\_  Unknown
- 35.  Depth (cm, at lateral corner of mouth) \_\_\_\_\_  Unknown
- 36. Secured with:  Adhesive tape  Umbilical/cloth tape  Tube holder  Other  Unknown
- 37. Placement reassessed after patient movement  Yes  No  Unknown
- 38. Placement reassessed after patient transfer of care  Yes  No  Unknown

## 19. Signature of Receiving Physician/Healthcare Provider (Confirming Destination/Transfer Tube Placement)

## 20. Signature of EMS Medical Director (Confirming Review of Completed Form)

Date and Time: \_\_\_\_\_ : \_\_\_\_\_ am/pm

Date: \_\_\_\_\_

**HIPAA PERMITS DISCLOSURE OF MOST TO OTHER HEALTH CARE PROFESSIONALS AS NECESSARY**



**Medical Orders  
for Scope of Treatment (MOST)**

This is a Physician Order Sheet based on the person's medical condition and wishes. Any section not completed indicates full treatment for that section. **When the need occurs, first follow these orders, then contact physician.**

Patient's Last Name:	Effective Date of Form: <i>Form must be reviewed at least annually.</i>
Patient's First Name, Middle Initial:	Patient's Date of Birth:

<b>Section A</b> Check One Box Only	<b>CARDIOPULMONARY RESUSCITATION (CPR): Person has no pulse and is not breathing.</b> <input type="checkbox"/> Attempt <u>Resuscitation</u> (CPR) <input type="checkbox"/> <u>Do Not Attempt Resuscitation</u> (DNR/no CPR)
	When not in cardiopulmonary arrest, follow orders in <b>B, C, and D.</b>

<b>Section B</b> Check One Box Only	<b>MEDICAL INTERVENTIONS: Person has pulse and/or is breathing.</b> <input type="checkbox"/> <b>Full Scope of Treatment:</b> Use intubation, advanced airway interventions, mechanical ventilation, cardioversion as indicated, medical treatment, IV fluids, etc.; also provide comfort measures. <b>Transfer to hospital if indicated.</b> <input type="checkbox"/> <b>Limited Additional Interventions:</b> Use medical treatment, IV fluids and cardiac monitoring as indicated. Do not use intubation or mechanical ventilation; also provide comfort measures. <b>Transfer to hospital if indicated. Avoid intensive care.</b> <input type="checkbox"/> <b>Comfort Measures:</b> Keep clean, warm and dry. Use medication by any route, positioning, wound care and other measures to relieve pain and suffering. Use oxygen, suction and manual treatment of airway obstruction as needed for comfort. <b>Do not transfer to hospital unless comfort needs cannot be met in current location.</b>
	Other Instructions _____

<b>Section C</b> Check One Box Only	<b>ANTIBIOTICS</b> <input type="checkbox"/> Antibiotics if life can be prolonged. <input type="checkbox"/> Determine use or limitation of antibiotics when infection occurs. <input type="checkbox"/> No Antibiotics (use other measures to relieve symptoms).
	Other Instructions _____

<b>Section D</b> Check One Box Only in Each Column	<b>MEDICALLY ADMINISTERED FLUIDS AND NUTRITION: Offer oral fluids and nutrition if physically feasible.</b> <input type="checkbox"/> IV fluids long-term if indicated <input type="checkbox"/> Feeding tube long-term if indicated <input type="checkbox"/> IV fluids for a defined trial period <input type="checkbox"/> Feeding tube for a defined trial period <input type="checkbox"/> No IV fluids (provide other measures to ensure comfort) <input type="checkbox"/> No feeding tube
	Other Instructions _____

<b>Section E</b> Check The Appropriate Box	<b>DISCUSSED WITH AND AGREED TO BY:</b>	<input type="checkbox"/> Patient <input type="checkbox"/> Parent or guardian if patient is a minor <input type="checkbox"/> Health care agent <input type="checkbox"/> Legal guardian of the person <input type="checkbox"/> Attorney-in-fact with power to make health care decisions <input type="checkbox"/> Spouse	<input type="checkbox"/> Majority of patient's reasonably available parents and adult children <input type="checkbox"/> Majority of patient's reasonably available adult siblings <input type="checkbox"/> An individual with an established relationship with the patient who is acting in good faith and can reliably convey the wishes of the patient
	Basis for order must be documented in medical record.		

MD/DO, PA, or NP Name (Print):	MD/DO, PA, or NP Signature (Required):	Phone #:
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**Signature of Person, Parent of Minor, Guardian, Health Care Agent, Spouse, or Other Personal Representative**  
(Signature is required and must either be on this form or on file)

I agree that adequate information has been provided and significant thought has been given to life-prolonging measures. Treatment preferences have been expressed to the physician (MD/DO), physician assistant, or nurse practitioner. This document reflects those treatment preferences and indicates informed consent.

*If signed by a patient representative, preferences expressed must reflect patient's wishes as best understood by that representative. Contact information for personal representative should be provided on the back of this form.*

**You are not required to sign this form to receive treatment.**

Patient or Representative Name (print)	Patient or Representative Signature	Relationship (write "self" if patient)
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**SEND FORM WITH PATIENT/RESIDENT WHEN TRANSFERRED OR DISCHARGED**

**HIPAA PERMITS DISCLOSURE OF MOST TO OTHER HEALTH CARE PROFESSIONALS AS NECESSARY**

**Contact Information**

Patient Representative:	Relationship:	Phone #:	
		Cell Phone #:	
Health Care Professional Preparing Form:	Preparer Title:	Preferred Phone #:	Date Prepared:

**Directions for Completing Form**

**Completing MOST**

- MOST must be reviewed and prepared by a health care professional in consultation with the patient or patient representative.
- MOST is a medical order and must be reviewed and signed by a licensed physician (MD/DO), physician assistant, or nurse practitioner to be valid. **Be sure to document the basis for the order in the progress notes of the medical record.** Mode of communication (e.g., in person, by telephone, etc.) also should be documented.
- The signature of the patient or their representative is required; however, if the patient’s representative is not reasonably available to sign the original form, a copy of the completed form with the signature of the patient’s representative must be placed in the medical record and “on file” must be written in the appropriate signature field on the front of this form or in the review section below.
- Use of original form is required. **Be sure to send the original form with the patient.**
- MOST is part of advance care planning, which also may include a living will and health care power of attorney (HCPOA). If there is a HCPOA, living will, or other advance directive, a copy should be attached if available. **MOST may suspend any conflicting directions in a patient’s previously executed HCPOA, living will, or other advance directive.**
- **There is no requirement that a patient have a MOST.**
- MOST is recognized under N.C. Gen. Stat. 90-21.17.

**Reviewing MOST**

This MOST must be reviewed at least annually or earlier if:

- The patient is admitted and/or discharged from a health care facility;
- There is a substantial change in the patient’s health status; or
- The patient’s treatment preferences change.

If MOST is revised or becomes invalid, draw a line through Sections A – E and write “VOID” in large letters.

**Revocation of MOST**

This MOST may be revoked by the patient or the patient’s representative.

**Review of MOST**

Review Date	Reviewer and Location of Review	MD/DO, PA, or NP Signature (Required)	Signature of Patient or Representative (Required)	Outcome of Review
				<input type="checkbox"/> No Change <input type="checkbox"/> FORM VOIDED, new form completed <input type="checkbox"/> FORM VOIDED, <b>no</b> new form
				<input type="checkbox"/> No Change <input type="checkbox"/> FORM VOIDED, new form completed <input type="checkbox"/> FORM VOIDED, <b>no</b> new form
				<input type="checkbox"/> No Change <input type="checkbox"/> FORM VOIDED, new form completed <input type="checkbox"/> FORM VOIDED, <b>no</b> new form
				<input type="checkbox"/> No Change <input type="checkbox"/> FORM VOIDED, new form completed <input type="checkbox"/> FORM VOIDED, <b>no</b> new form
				<input type="checkbox"/> No Change <input type="checkbox"/> FORM VOIDED, new form completed <input type="checkbox"/> FORM VOIDED, <b>no</b> new form

**SEND FORM WITH PATIENT/RESIDENT WHEN TRANSFERRED OR DISCHARGED**

**DO NOT ALTER THIS FORM!**





Effective Date: \_\_\_\_\_

Expiration Date, if any \_\_\_\_\_

Check box if no expiration

# DO NOT RESUSCITATE ORDER

Patient's full name \_\_\_\_\_

In the event of cardiac and/or pulmonary arrest of the patient, efforts at cardiopulmonary resuscitation of the patient SHOULD NOT be initiated. This order does not affect other medically indicated and comfort care.

I have documented the basis for this order and the consent required by the NC General Statute 90-21.17(b) in the patient's records.

Signature of Attending Physician/Physician Assistant/Nurse Practitioner \_\_\_\_\_

Printed Name of Attending Physician \_\_\_\_\_

Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Telephone Number (office) \_\_\_\_\_

Telephone Number (emergency) \_\_\_\_\_

**Do Not Copy**

**Do Not Alter**



# Pediatric EMS Triage and Destination Plan



## Pediatric Patient

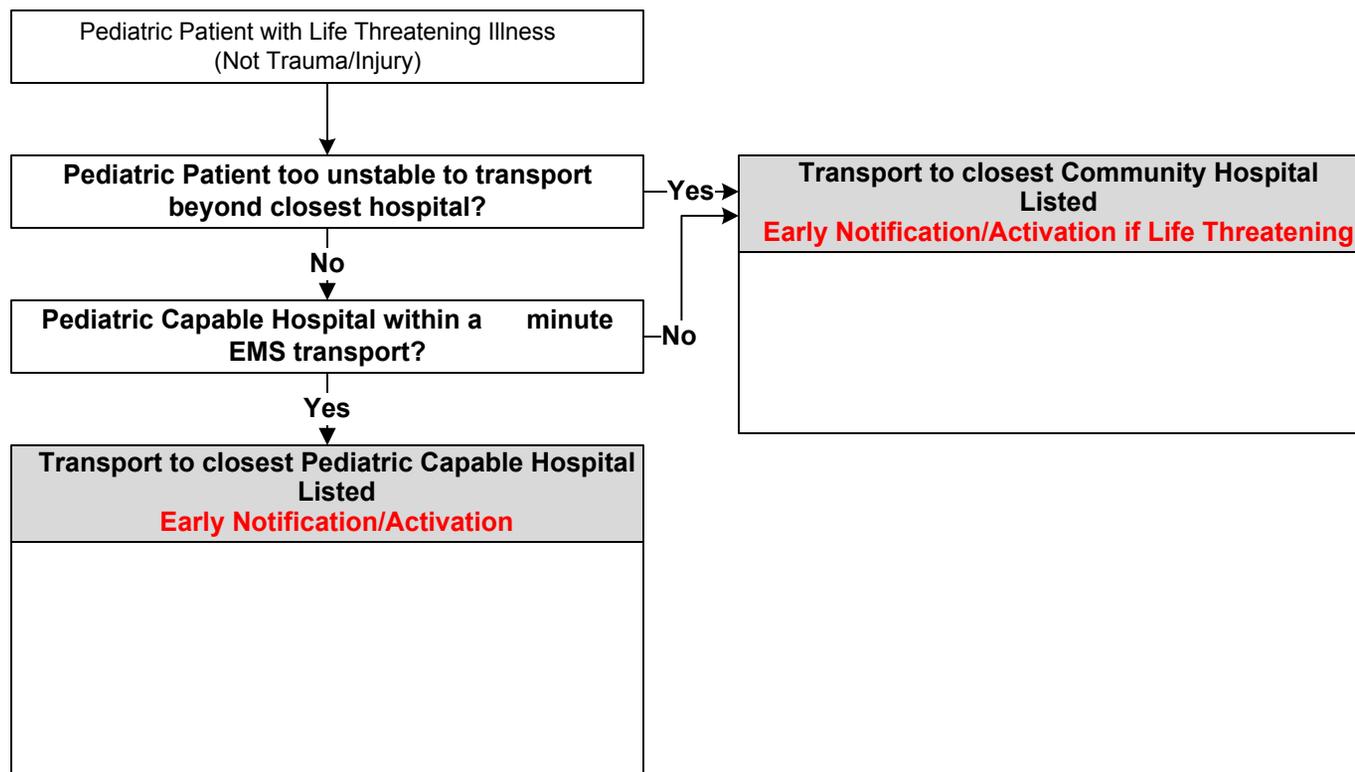
- \* Any patient less than 16 years of age with a life-threatening illness (Not Trauma)

### Life Threatening Illness

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

## The Purpose of this plan is to:

- \* Rapidly identify pediatric patients who call 911 or present to EMS with a life-threatening illness
- \* Minimize the time from EMS contact to definitive care
- \* Quickly diagnose patients with pediatric life-threatening illness for EMS treatment and stabilization
- \* Rapidly identify the best hospital destination based on symptom onset time, vital signs, response to treatment, and predicted transport time
- \* Early activation/notification to the hospital prior to patient arrival
- \* Minimize scene time with a "load and go" approach
- \* Provide quality EMS service and patient care to the EMS community
- \* Continuously evaluate the EMS System based on North Carolina's EMS performance measures



Pediatric EMS Triage and Destination Plan

## Pearls and Definitions

- \* **All Pediatric Patients with a life-threatening illness must be triaged and transported using this plan. This plan is in effect 24/7/365.**
- \* **The Trauma and Burn Triage and Destination Plan should be used for all injured patients regardless of age.**
- \* **All Patient Care is based on the EMS Pediatric Protocol**
- \* **Pediatric Capable Hospital** = a hospital with an emergency and pediatric intensive care capability including but not limited to:
  - \* Emergency Department staffed 24 hours per day with board certified Emergency Physicians
  - \* An inpatient Pediatric Intensive Care Unit (with a physician pediatric intensivist available in-house or on call 24/7/365)
  - \* Accepts all EMS patients regardless of bed availability
  - \* Provides outcome and performance measure feedback to EMS including case review
- \* **Community Hospital** = a local hospital within the EMS System's service area which provides emergency care but does not meet the criteria of a Pediatric Capable Hospital
- \* **Pediatric Specialty Care Transport Program** = an air or ground based specialty care transport program that has specific pediatric training and equipment addressing the needs of a pediatric patient that can assume care of a pediatric patient from EMS or a Community Hospital and transport the patient to a Pediatric Capable Hospital.

2009

# STEMI

## EMS Triage and Destination Plan

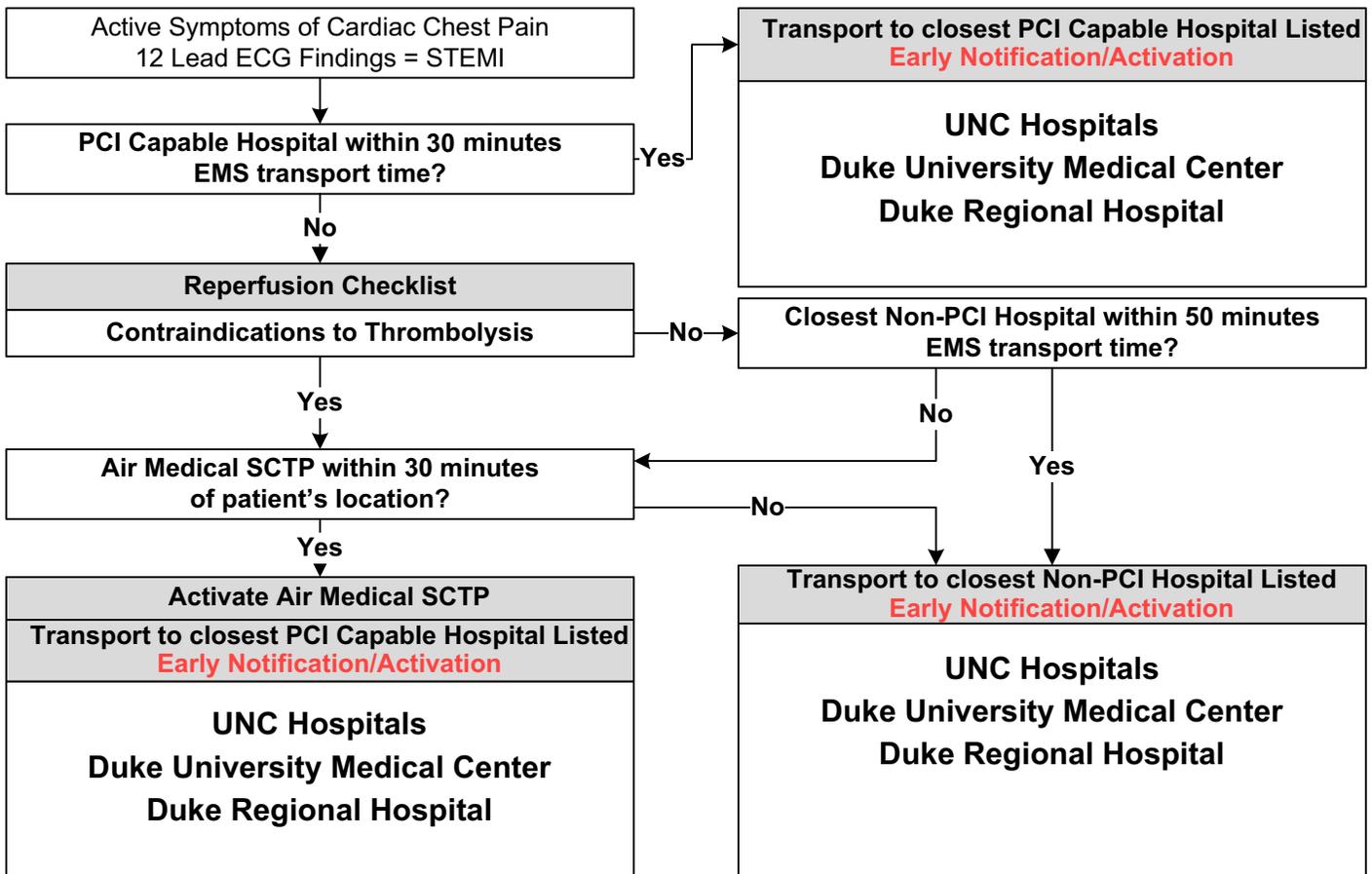


### STEMI Patient (ST Elevation Myocardial Infarction)

- \* Cardiac symptoms greater than 15 minutes and less than 12 hours
- And
- \* 12 lead ECG criteria of 1 mm ST elevation in 2 or more contiguous leads
- or
- \* Left Bundle Branch Block NOT KNOWN to be present in the past

### The Purpose of this plan is to:

- \* Rapidly identify STEMI patients who call 911 or present to EMS
- \* Minimize the time from onset of STEMI symptoms to coronary reperfusion
- \* Quickly diagnose a STEMI by 12 lead ECG
- \* Complete a reperfusion checklist (unless being transported directly to a PCI hospital) to determine thrombolytic eligibility
- \* Rapidly identify the best hospital destination based on symptom onset time, reperfusion checklist, and predicted transport time
- \* Early activation/notification to the hospital prior to patient arrival
- \* Minimize scene time to 15 minutes or less (including a 12 lead ECG)
- \* Provide quality EMS service and patient care to the EMS Systems citizens
- \* Continuously evaluate the EMS System based on North Carolina's STEMI EMS performance measures



STEMI EMS Triage and Destination Plan

### Pearls and Definitions

- \* All STEMI Patients must be triaged and transported using this plan. This plan is in effect 24/7/365
- \* All Patient Care is based on the EMS Chest Pain and STEMI Protocol
- \* Consider implementing a prehospital thrombolytic program if a STEMI patient cannot reach a hospital within 90 minutes using air or ground EMS transport.
- \* PCI (Percutaneous Coronary Intervention) Capable Hospital = a hospital with an emergency interventional cardiac catheterization laboratory capable of providing the following services to acute STEMI patients. Free standing emergency departments and satellite facilities are not considered part of the PCI Capable Hospital.
  - \* 24/7 PCI capability within 30 minutes of notification (interventional cardiologist present at the start of the case)
  - \* Single Call Activation number for use by EMS
  - \* Accepts all patients regardless of bed availability
  - \* Provides outcome and performance measure feedback to EMS including case review
- \* Non-PCI Hospital = a local hospital within the EMS System's service area which provides emergency care, including thrombolytic administration, to an acute STEMI patient but does NOT provide PCI services.
- \* Specialty Care Transport Program = an air or ground based specialty care transport program which can assume care of an acute STEMI patient from EMS or a Non-PCI hospital and transport the patient to a PCI capable hospital.

# Stroke

## EMS Triage and Destination Plan



### Stroke Patient

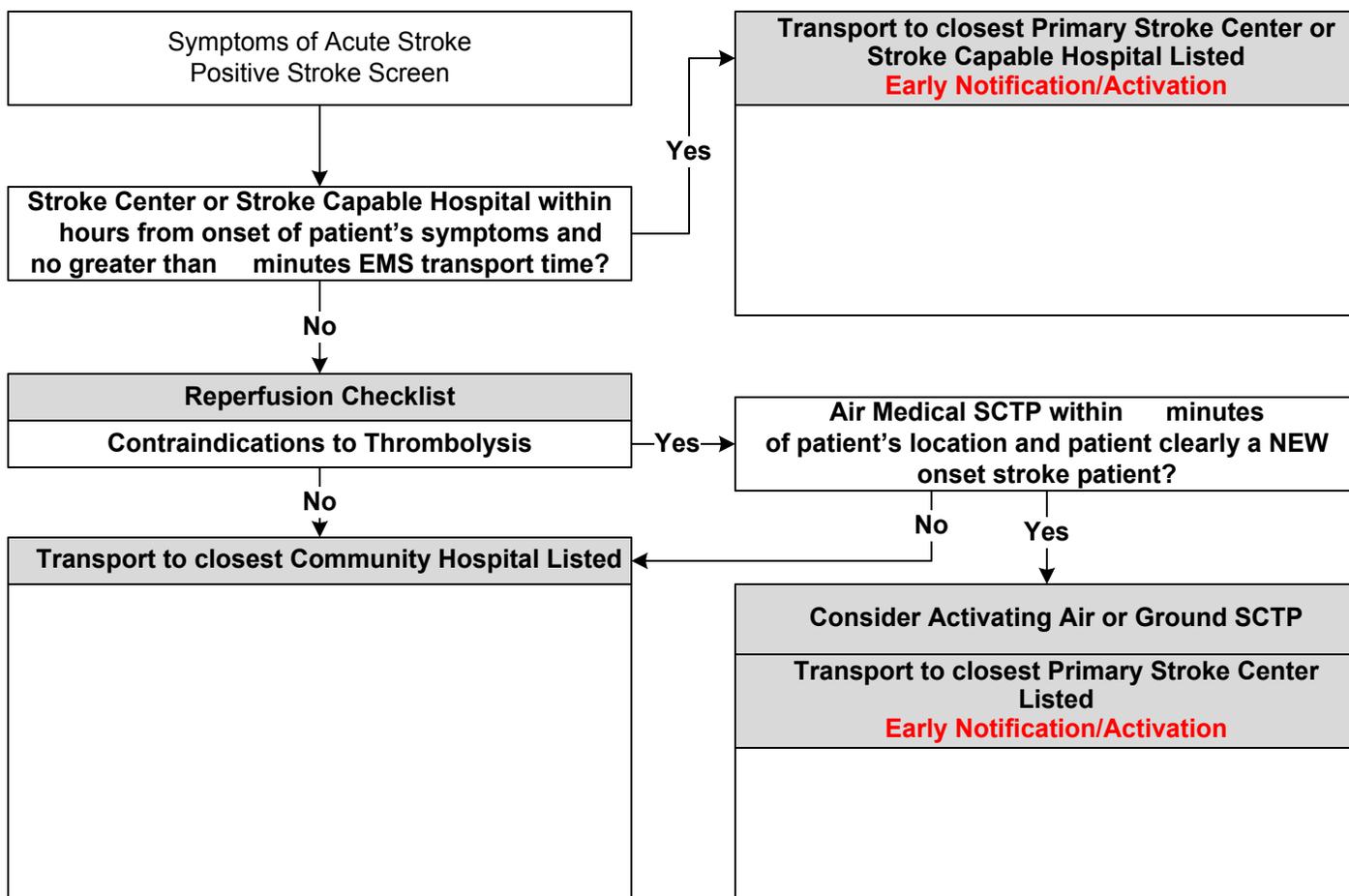
- \* A patient with symptoms of an acute Stroke as identified by the EMS Stroke Screen

### Time of Symptom Onset

- \* Defined as the last witnessed time the patient was symptom free (i.e. the time of onset for a patient awakening with stroke symptoms would be the last time he/she was known to be symptom free before the sleep period)

### The Purpose of this plan is to:

- \* Rapidly identify acute Stroke patients who call 911 or present to EMS
- \* Minimize the time from onset of Stroke symptoms to definitive care
- \* Quickly diagnose a Stroke using validated EMS Stroke Screen
- \* Complete a reperfusion checklist (unless being transported directly to a Stroke Capable Hospital) to determine thrombolytic eligibility
- \* Rapidly identify the best hospital destination based on symptom onset time, reperfusion checklist, and predicted transport time
- \* Early activation/notification to the hospital prior to patient arrival
- \* Minimize scene time to 10 minutes or less
- \* Provide quality EMS service and patient care to the EMS Systems citizens
- \* Continuously evaluate the EMS System based on North Carolina's Stroke EMS performance measures



Stroke EMS Triage and Destination Plan

### Pearls and Definitions

- \* **All Stroke Patients must be triaged and transported using this plan. This plan is in effect 24/7/365**
- \* **All Patient Care is based on the EMS Suspected Stroke Protocol**
- \* **Primary Stroke Center** = a hospital that is currently accredited by the Joint Commission as a Primary Stroke Center. Free standing emergency departments and satellite facilities are not considered part of the Primary Stroke Center.
- \* **Stroke Capable Hospital** = a hospital which provides emergency care with a commitment to Stroke and the following capabilities:
  - \* CT availability with in-house technician availability 24/7/365
  - \* Ability to rapidly evaluate an acute stroke patient to identify patients who would benefit from thrombolytic administration
  - \* Ability and willingness to administer thrombolytic agents to eligible acute Stroke patients
  - \* Accepts all patients regardless of bed availability
  - \* Provides outcome and performance measure feedback to EMS including case review
- \* **Community Hospital** = a local hospital within the EMS System's service area which provides emergency care but does not meet the criteria for a Primary Stroke Center or Stroke Capable Hospital
- \* **Specialty Care Transport Program** = an air or ground based specialty care transport program which can assume care of an acute Stroke patient from EMS or a Hospital and transport the patient to a Primary Stroke Center.

2009

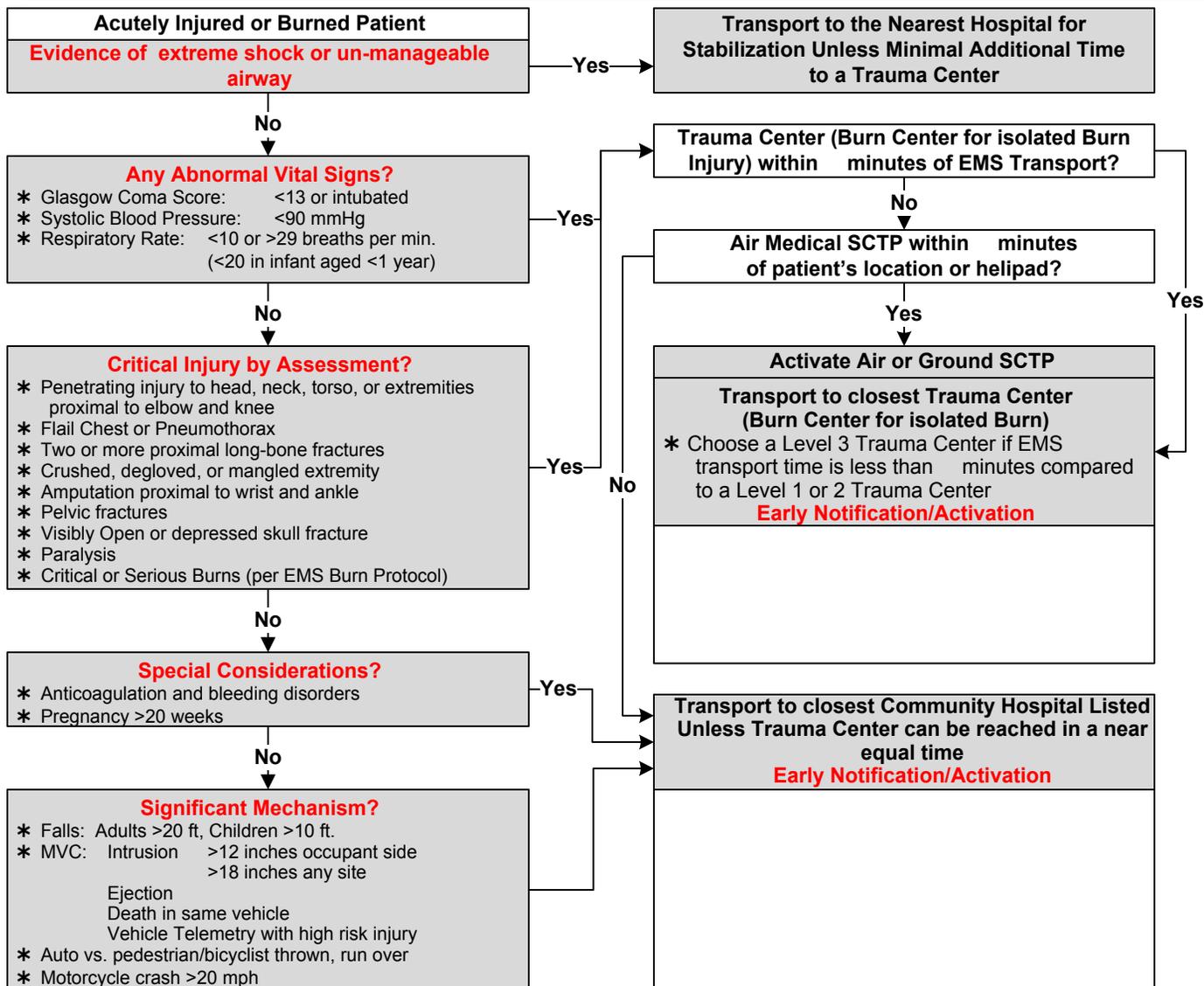
# Trauma and Burn EMS Triage and Destination Plan



**Trauma or Burn Patient** = Any patient less (regardless of age) with a significant injury or burn

## The Purpose of this plan is to:

- \* Rapidly identify injured or burned patients who call 911 or present to EMS
- \* Minimize the time from injury to definitive care for critical injuries or burns
- \* Quickly identify life or limb threatening injuries for EMS treatment and stabilization
- \* Rapidly identify the best hospital destination based on time of injury, severity of injury, and predicted transport time
- \* Early activation/notification to the hospital of a critically injured or burned patient prior to patient arrival
- \* Minimize scene time to 10 minutes or less from patient extrication with a "load and go" approach
- \* Provide quality EMS service and patient care to the EMS Systems citizens
- \* Continuously evaluate the EMS System based on North Carolina's EMS performance measures



Trauma and Burn EMS Triage and Destination Plan

## Pearls and Definitions

- \* **All Injury and Burn Patients must be triaged and transported using this plan. This plan is in effect 24/7/365**
- \* **All Patient Care is based on the EMS Trauma Protocols**
- \* **Designated Trauma Center** = a hospital that is currently designated as a Trauma Center by the North Carolina Office of Emergency Medical Services. Trauma Centers are designated as Level 1, 2, or 3 with Level 1 being the highest possible designation. Free standing emergency departments and satellite facilities are not considered part of the Trauma Center.
- \* **Burn Center** = a ABA verified Burn Center co-located with a designated Trauma Center
- \* **Community Hospital** = a local hospital within the EMS System's service area which provides emergency care but has not been designated as a Trauma Center
- \* **Specialty Care Transport Program** = an air or ground based specialty care transport program which can assume care of an acutely injured patient from EMS or a Community Hospital and transport the patient to a designated Trauma Center.

2009



# Emergency Medical Dispatch (EMD) System Description



Orange County EMS utilizes the Medical Priority Dispatch System™ (MPDS™) version 12.2 from Priority Dispatch Corporation (formerly Medical Priority Consultants, Inc.).

## **Manufacturer Description**

Priority Dispatch Corporation is a unique research company that was recently evolved from Medical Priority Consultants, Incorporated. Medical Priority Consultants was the pioneer in developing medical dispatch systems, having introduced the Medical Priority Dispatch System™ over 25 years ago. Priority Dispatch Corporation is based in Salt Lake City, Utah, at 139 E. South Temple, Suite 500, and can be reached via telephone at (801) 363-9127.

## **Version Information**

Orange County has used the MPDS™ system since 1993, and currently operates under Priority Dispatch Corporation license number 90-10620 using version 12.2 of the MPDS™, with all center telecommunicators certified to NAEMD standards. Telecommunicators access the MPDS via the ProQA computer system, which is integrated with the computer aided dispatch system.