Lexington County Emergency Medical Services

Standing Orders

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Medical Control Office

LEXINGTON COUNTY EMERGENCY MEDICAL SERVICES
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GENERAL GUIDELINES FOR PROTOCOL USAGE

AUTHORIZATION

The following Standing Orders are written for the guidance of Lexington County Emergency Medical Service personnel to facilitate the rapid administration of care to stabilize the ill or injured and insure their safe treatment.

These Lexington County EMS Standing Orders are to be used by personnel designated by the Lexington County EMS Medical Control Physicians and EMS Director. These protocols are to direct the provision of routine advanced life support care by EMS personnel.

APPLICATION OF THESE PROTOCOLS

Clinical presentations may require more than one set of Standing Orders to maximize prehospital care. In general, any combination of the following Standing Orders may be utilized, as deemed necessary by Lexington County EMS personnel, to effectively stabilize a patient.

PURPOSE

The primary purpose of these protocols is to serve as guidelines for prehospital care. Quality prehospital care is the direct result of comprehensive education, accurate patient assessment, good judgment, and continuous quality improvement. All EMS personnel are expected to know the protocols and understand the reason for their use.

MEDICAL DIRECTION

Providing high quality prehospital emergency medical care is the responsibility of all EMS personnel employed by Lexington County Emergency Medical Service. SC State law requires all EMTs and paramedics function under the direction of an approved EMS Medical Control Physician. The Medical Control Physician functions autonomously as administrator of clinical care and medical ethics for the EMS personnel who work under his or her medical license.

STANDARD OF CARE

Lexington County EMS believes in maintaining the highest standard of care as defined by current medical science, protocols, federal, state and local laws. It is impossible to produce a set of standing orders that addresses every situation or that is perpetually up to date. Amendments, updates or changes may be provided as necessary. It is the responsibility of the employee to maintain a current copy of the Standing Orders. EMS personnel shall not perform any step or steps in a standing order or protocol if they have not been trained to perform the procedure or treatment in question.

PROTOCOLS AND STANDING ORDERS

Only authorized EMS personnel may use these standing orders. All EMS personnel must adhere to the standards defined in these protocols, or face revocation of medical control if these standards are violated or not followed.

PROTOCOL GENERAL STATEMENTS

1. Trauma patients not categorized below can be transported to the closest available level III trauma center. Patients that have sustained any of the following will be transported directly to the Level I Trauma Center at Palmetto Health Richland.:
    a. Multiple trauma with trauma scores of ≤ 10
    b. Traumatic head injuries with a Glasgow Coma Score (GCS) ≤ 12
    c. Amputation proximal to the wrist or ankle
    d. More than 2 extremity fractures proximal to the elbow or knee
    e. Flail chest or 1^{st} /2^{nd} rib fractures
    f. Crushed, de-gloved, or mangled extremity
    g. Spinal trauma with signs of spinal cord injury/paralysis
    h. Clinically apparent pelvic fracture
    i. Signs of hemodynamic instability (Tachycardia > 120, Tachypnea >25, or hypotension with Systolic BP <90) AND any of the following modifiers:
        i. MVA with ejection of the patient from the vehicle
        ii. Death of an occupant in patient's vehicle with associated injury to the patient
        iii. Fall > 20 feet
        iv. Fall > 10 feet or two to three times the height of a child
        v. Auto versus pedestrian or bicycle
        vi. Motorcycle accident with rider ejection
        vii. Extrication > 20 minutes or rollover with obvious signs of injury
        viii. Intrusion >12 inches on occupant side or intrusion >18 inches on any side

    Mechanism alone does not qualify the patient for Level I trauma center. In fact, a patient who is stable, regardless of the MOI with no distracting injuries can be transported to a Level III Trauma Center.

    Any patient with significant trauma and any of the following conditions should be transported to a Level 1 Trauma Center at Palmetto Health Richland:
        1. Patients ≤12 or ≥ 65 years of age.
        2. Patients with bleeding disorders.
        3. Pregnant patients > 20 weeks gestation.

    Any patient with isolated severe burns as outlined below should be transported directly to the burn center via helicopter if available. In the instance that helicopter transport is unavailable the patient should be transported to the Lexington Medical Center or hospital of patient choice.

        a. Third degree burns greater than 5% BSA (body surface area) in any age group;
        b. Second and third degree burns greater than 10% BSA of patients under 10 or over 50;
        c. Second and third degree burns greater than 20% in other age groups;
        d. Second and third degree burns involving the face, hands, feet, genitalia, perineum, and major joints with signs of compartment syndrome.

Any patient with airway compromise / obstruction in which personnel are unable to secure an adequate airway should be diverted to the nearest hospital for airway management. An adequate airway is defined as any method that provides airway patency (i.e. jaw-thrust, OPA, NPA, LMA, and ETT)

2. All patients with the following complaints should receive a 12-lead ECG, which shall be transmitted to the receiving facility :
    - Suspected ACS
    - Any patient exhibiting Altered Mental Status or Stroke signs or symptoms
    - Any patient with unexplained hypotension, bradycardia, or syncope
    - Any medical patient that the ALS provider feels will benefit from a 12-Lead ECG

3. No patients with trauma scores < 12 or with any degree of burns will be transported to Dorn Veterans Administration Medical Center.

4. IV/IO
    - Attempts should ideally be initiated in route except in cases of cardiac arrest, entrapment, combativeness from seizures or hypoglycemia, or if urgency of the patient's condition dictates a more immediate need for access. Personnel may elect to attempt an external jugular access as a first attempt if no suitable site is felt to be present peripherally. Scalp veins may only be used after contacting Medical Control. Pt must be older than 12 to attempt an external jugular.

    - Intraosseous lines may be used in both adults and children for vascular access in patients with cardiac arrest or major trauma. In all other cases, Online Medical Control must be contacted.

5. Verbally repeat all orders received prior to their initiation.

6. EMS personnel functioning under the Lexington County EMS Medical Control System may accept orders from an on-scene physician when a patient is being transported from the physician's office and the ordering physician accepts responsibility for the patient. **The on-line medical control physician must approve any care, which differs significantly from the standard of care, prior to initiation of that care.** If a controversy arises with an on-scene physician, place the on-scene physician in contact with the on-line medical control physician via telephone or radio. The prehospital provider's responsibility reverts to off-line medical direction (i.e., existing EMS protocols) or on-line medical direction at any time when the private physician is no longer in attendance.

    Paramedics may accept orders from a licensed physician at the scene or from a transferring medical facility provided the following conditions are met:
    - The physician at the scene properly identifies himself or herself as such
    - Has established a physician-patient relationship
    - Agrees to accept responsibility for the patient's care
    - Agrees to accompany the patient to the hospital

- Agrees to sign the patient care report

A. In the event the on-scene physicians DOES NOT accept the above conditions, personnel should follow established protocols and standing orders and contact medical control for direction.
B. Personnel may contact medical control and have the physician speak with the on-line medical control physician if necessary.

7. Pediatric Protocols apply to patients twelve years (12) of age or less.

8. All patients that use home oxygen will be transported at the patient's prescribed rate. If the patient is maintaining an oxygen saturation <90%, the flow rate will be slowly titrated upward to maintain an oxygen saturation ≥90%.

9. In all protocols, the statement "manage ABC's" defers decision-making authority for the method of airway management (i.e.: BVM vs. intubation) to the clinical discretion of the paramedic. It should be emphasized, however, that the primary goal of airway management is to provide adequate oxygenation. Recent medical literature has brought into question the practice of pre-hospital intubation, especially in pediatric patients, due to low success rates and poor recognition of esophageal intubation. Intubation **is an appropriate** pre-hospital intervention, but demand that the focus remain on **airway management** to avoid becoming preoccupied with intubation.

10. Airway management assumes recognition of the potential for c-spine injury in appropriate clinical settings and the proper precautions to prevent neurological injury during airway maneuvers.

11. Where appropriate, the paramedic should follow current AHA ACLS/PALS guidelines in all situations where there is not a specific protocol addressing the patient condition.

12. Patients that have suspected Tension Pneumothorax are to be decompressed on the affected side either midaxullary or midclavicular, using an appropriate length and gauge needle.

13. All patients MUST be questioned as to use of phosphodiesterase inhibitors prior to administration of nitroglycerine. Do not administer nitroglycerine if the patient has taken sildenafil or vardenafil in the past 24 hours or tadalafil in the past 48 hours. The following is a list of generic and trade names:

Sildenafil--	Viagra, Revatio
Vardenafil--	Levitra, Staxyn
Tadalafil--	Cialis, Adcirca

If there exists any doubt as to the best course of treatment for a patient, contact Online

Medical Control.

Protocol 1 General Medical/ Trauma

This protocol addresses treatment of patients who present with conditions that do not fall under a more specific protocol, but in whom the paramedic determines a need for oxygen therapy, cardiac monitoring, vascular access, and/or pain management.

Adult

1. **Oxygen to maintain minimum saturation of 95%**
   - **Patients with history of COPD or on home O2 maintain saturation of 90%**
2. **Cardiac monitor**
3. **Check blood glucose level**
4. **IV/INT Normal Saline**
   - **All patients with the exception of those with renal insufficiency or CHF may receive up to 1000cc NS Bolus if necessary**
5. **For patients experiencing nausea or vomiting**
   - **Zofran 4mg IV/IM over 2-5 minutes**
6. **For Pain Management**

****Fentanyl 25-100mcg IV/IM/IO/Intranasal**

or

****Morphine 1-10 mg IV/ IM/IO**

****Online Med-control Required****

Pediatric

1. **Oxygen to maintain minimum saturation of 95%**
2. **Cardiac monitor**
3. **Check blood glucose level**
4. **IV/INT Normal Saline**
   - **Fluid bolus may be given in 20cc/kg (max of 40 cc /kg)**
5. **For patients experiencing nausea or vomiting**
   - **Zofran 0.15mg/kg IV over 2-5 minutes (max 4mg)**
6. **For Pain Management**

**** Fentanyl 1-2mcg/kg IV/IM/IO/Intranasal**

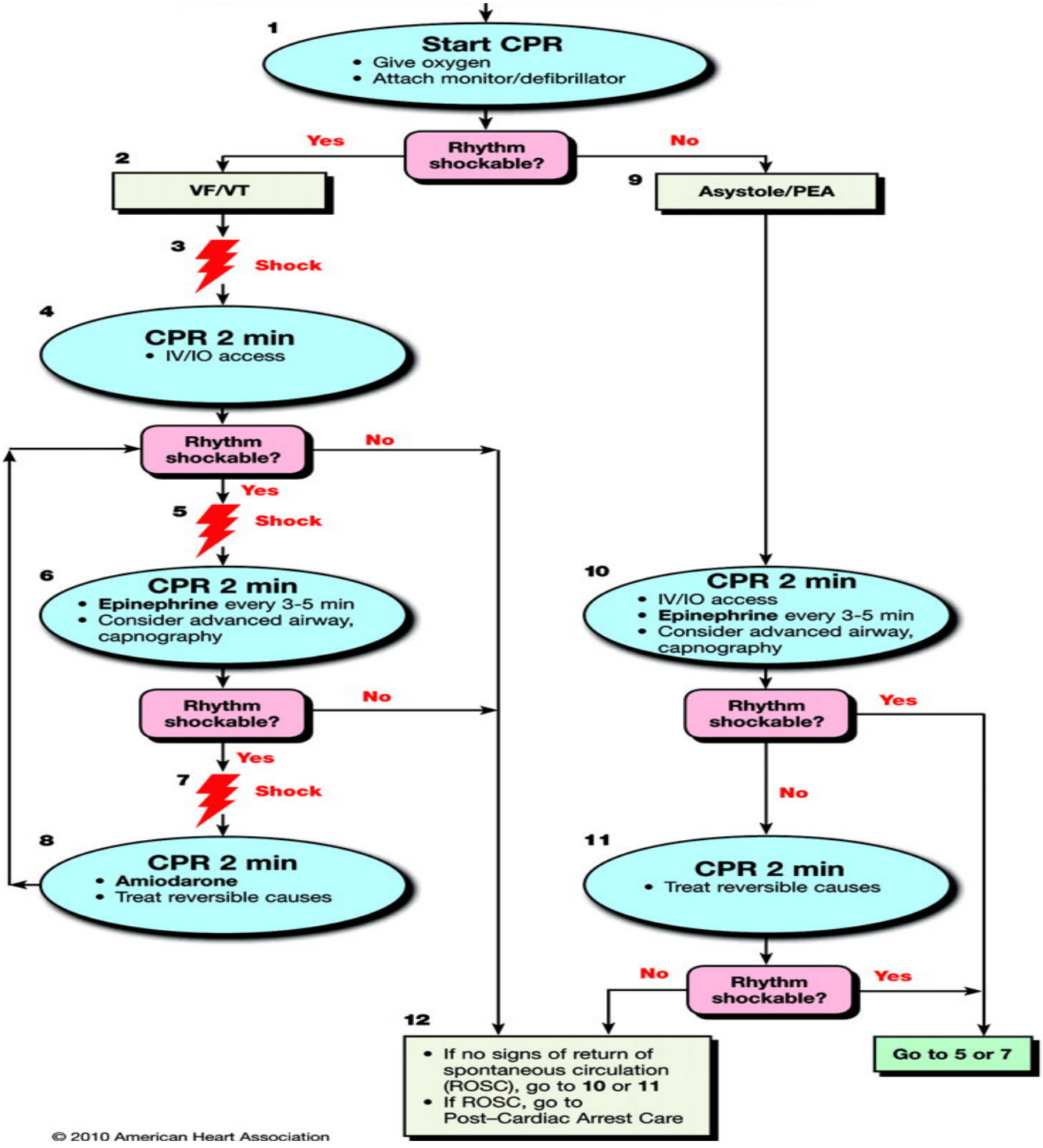
or

****Morphine 1-10mg IV/IM/IO**

****Online Med-control Required****

Protocol 2 CARDIAC ARREST

Adult/ Pediatric



Drug Doses for Cardiac Arrest

Adult

1. Epinephrine 1:10,000 : 1mg every 3-5minutes
2. Amiodarone 300mg in 20cc initial dose. Repeat at 150mg in 20 cc after 3-5 minutes for refractory Vfib or Vtach
3. Sodium Bicarbonate 1meq/kg

Pediatric

1. Epinephrine 1:10,000 @ 0.01mg/kg (0.1 ml/kg) IV/IO. Repeat every 3-5 minutes
2. Amiodarone 5mg/kg. Max single dose of 300 mg to a max of 15mg/kg
3. Sodium Bicarbonate 1meq/kg

Protocol 3 Unstable Bradycardia

This protocol addresses treatment of patients who display signs and symptoms of physiologic instability due to bradycardia. Patients MUST display any one of the following signs and symptoms to be considered unstable.

Severe respiratory distress, AMS, hypotension (systolic BP < 90 for adults and for pediatrics less than 70 + 2 times the age in years.)

Adult

1. **Atropine 0.5 mg IVP/IO. Repeat every 3-5 minutes to a total dose of 3 mg**
   - **12 lead should be done prior to atropine if possible**
   - **Use with caution in ACS**
   - **Move immediately to pacing if unable to obtain IV access**
2. **External pacing (Demand mode)**
   - **70bpm /increasing to achieve hemodynamic stability**
   - **Increase milliamps until electronic and physical capture**
3. ****Epinephrine infusion @ 2-10 mcg/min.** ***(1mg epi 1:1000 into 250ml NS = 4mcg/ml) 2mcg/min = infuse 1gtts/2 seconds with 60gtts set. Titrate to effect.***

****With Online Medical Control****

Pediatric

1. **Insure adequate Oxygenation**
2. **Epinephrine 1:10,000 @ 0.01mg/kg (0.1 cc/kg) IV/IO. Repeat every 3-5 minutes**
3. **Atropine 0.02mg/kg. May repeat once.**
   - **Min dose 0.1mg**
   - **Max single dose 0.5 mg <8 years of age**
   - **Max single dose 1 mg >8 years of age**
4. **Normal Saline bolus 20ml/kg (max 40cc/kg)**
5. **External pacing (Demand mode)**
   - **70bpm /increasing to achieve hemodynamic stability**
   - **increase milliamps until electronic and physical capture**
6. ****Epinephrine infusion [redacted]**

****With Online Medical Control****

Protocol 4 Narrow Complex Tachycardia

Narrow-complex tachycardic rhythm (PSVT, Junctional Tachycardia, and Atrial Tachycardia) that is regular and that has a QRS < 0.12 mm and has a rate > 150 in adults, >180 in children 1 yr to 12 yrs, >220 in infants < 1 year. **Sinus tachycardia and atrial fibrillation are not covered under this protocol.**

Patients MUST display any one of the following signs and symptoms to be considered unstable: **Severe respiratory distress, AMS, hypotension (systolic BP < 90 for adults and for pediatrics less than 70 + 2 times the age in years.)**

Adult

Unstable

1. **Adenosine 12 mg**
2. **Synchronized cardioversion at 100j**

Stable

1. **Vagal maneuvers**
2. **Adenosine 12mg repeat to (max 36mg)**

Pediatric

Unstable

1. **Adenosine 0.2mg/kg (max single dose of 12mg)**
2. **Synchronized cardioversion 0.5-1 j/kg**

Stable

1. **Vagal maneuvers**
2. **Adenosine 0.2 mg/kg (max single dose of 12mg) Max total dose of 24mg**

Protocol 5 Wide Complex Tachycardia

This protocol addresses treatment of patients that present with a **wide-complex** tachycardic rhythm that has a QRS >0.12 mm and has a rate > 120.

Patients MUST display any one of the following signs and symptoms to be considered unstable:
Severe respiratory distress, AMS, hypotension (systolic BP < 90 for adults and for pediatrics less than 70 + 2 times the age in years.)

Adult

Unstable

1. **Synchronized cardioversion at 100j**

Stable

1. **Vagal maneuvers**
2. **Adenosine 12mg**
3. **Amiodarone 150 mg over 10 minutes.**
   (150 mg of Amiodarone in 100 ml NS/D5= 1.5mg/ml)
   With a 10-gtts/ml set infuse at 1.5qtts/second.

Pediatric

Unstable

1. **Adenosine 0.2mg/kg (max 12mg)**
2. **Synchronized cardioversion 0.5-1j/kg, Repeat at 1-2j/kg**
3. **Amiodarone 5mg/kg over 20 minutes. Max single dose of 150 mg *(150 mg of Amiodarone in 100 ml NS/D5= 1.5mg/ml)***

Stable

1. **Vagal maneuvers**
2. **Amiodarone 5mg/kg over 20 minutes. Max single dose of 150 mg**
   (150 mg of Amiodarone in 100ml NS/D5= 1.5mg/ml)

Respiratory Distress

Protocol 6 Reactive Airway Disease

Adult

1. Albuterol 2.5 mg + Atrovent 500mcg via nebulizer at 6L
2. For severe SOB, CPAP 0-10cmm of PEEP titrated to effect
   - Nebulized medications may be given in line with CPAP
   - End tidal CO2 readings should be documented with CPAP
3. Albuterol 2.5mg (max 5mg)

Pediatric

1. Albuterol 1.25 mg + Atrovent 500mcg via nebulizer at 6L
2. Albuterol 1.25 mg

Protocol 7 Congestive Heart Failure

Adult

1. Ask about use of PDE inhibitors (see pg 6 for specific information)
2. NTG 0.4mg SL (BP >90 systolic) may repeat up to 3 doses
3. NTG Paste 1" to anterior chest wall
4. CPAP 0-10cmm of PEEP titrated to effect
5. Lasix 20-120mg IV
   - 20mg for patient not currently taking Lasix
   - Double prescribed dose to max of 120mg for patient currently taking Lasix
6. **Morphine 2-10mg IV/IM

Online Med-control Required

Protocol 8 Anaphylaxis

This protocol addresses patients in true anaphylaxis, **NOT** to be confused with an allergic reaction. Patient MUST display any one of the following signs/ symptoms to be considered in anaphylaxis. **Severe respiratory distress, airway edema, AMS, hypotension (systolic BP < 90 or less than 70 + 2 times the age in years for pediatrics.)**

Adult

1. **Epinephrine IM 1:1,000 0.01mg/kg (max 0.3mg)**
2. **Normal Saline bolus (max 1000ml) for hypotension**
3. **Benadryl 25-50 mg**
    - **Benadryl may be given IM if IV is unobtainable**

Pediatric

1. **Epinephrine IM 1:1,000 0.01mg/kg (max 0.3mg)**
2. **Normal Saline bolus 20cc/kg (max of 40 cc /kg) for hypotension**
3. **Benadryl 1mg/kg IVP (max 50mg)**
    - **Benadryl may be given IM if IV is unobtainable**

Protocol 9 Suspected Acute Coronary Syndrome

This protocol addresses treatment of patients with signs and symptoms of Acute Coronary Syndrome. Patients should be over the age of 30 or have a history of coronary artery disease.

Adult

1. **Ask about use of PDE inhibitors (see pg 6 for specific information)**
2. **Aspirin 324 mg PO**
3. **Nitroglycerin 0.4mg sublingual. Repeat every 5minutes (max 3 doses)**
   - **Hold for systolic < 90 or use of PDE inhibitors**
   - **Inferior MI may require Normal Saline bolus prior to NTG**
4. ****Fentanyl 25mcg-100mcg IV/IM/Intranasal *or* Morphine 2mg-10mg IV/IM**
   ****On-line Medical Control Required****
5. **Nitoglycerin paste 1" Anterior chest wall**
   - **Paste may be used after 1st sublingual dose if improvement with SL and pain persists *(May continue with the other 2 doses of SL NTG after paste applied)***
6. **STEMI patients must be transported to a PCI capable facility. (Lexington, Richland, or Providence.)**

I Lateral	aVR	V1 Septal	V4 Anterior
II Inferior	aVL Lateral	V2 Septal	V5 Lateral
III Inferior	aVF Inferior	V3 Anterior	V6 Lateral

Altered Mental Status

Protocol 10 Hypoglycemic Shock

BGL < 60

Adult

1. **Oral Glucose (for patients with minimal risk of aspiration)**
2. **Dextrose 50% 25g IV**
3. **Glucagon 1mg IM/Intranasal (if IV access is unobtainable)**

Pediatric

1. **Oral Glucose (for patients with minimal risk of aspiration)**
2. **Dextrose 25% 2-4ml/kg**
3. **Glucagon 1mg IM/Intranasal (if IV access is unobtainable)**

Protocol 11 Hypotension

This protocol addresses treatment of patients with signs and symptoms of hypotension.
Hypotension equals **(systolic BP < 90 or less than 70 + 2 times the age in years for pediatrics.)**

Adult

1. **Trendelenburg and cover**
2. **Normal Saline bolus (max 1000ml)**
   - **Caution in patients with renal insufficiency/dialysis and CHF**

Pediatric

1. **Trendelenburg and cover**
2. **Normal Saline bolus 20ml/kg (max 40cc/kg)**

Hypotension = systolic < 70 + 2 times the age in years for pediatrics

Altered Mental Status (Continued)

Protocol 12 Overdose

Adult

1. Narcan 0.4 mg IV/Intranasal may repeat to a max 2mg
   - Do not use for intubated patients
2. Sodium Bicarb 1meq/kg
   - For suspected tricyclic antidepressant overdose

Pediatric

1. Narcan 0.1 mg/kg IV/Intranasal (max 1mg single dose) repeat once(max total 2mg)
   - Do not use for intubated patients
2. Sodium Bicarb 1meq/Kg
   - For suspected tricyclic antidepressant overdose

Protocol 13 Seizures

Adult

1. Midazolam 2.5 mg IV/IO/IM/Intranasal (max 5mg without Online Med-control)

OR

2. Diazepam 5mg IV/IO/IM may repeat once (max 10 mg without Online Med-control)

Pediatric

1. Midazolam 0.05-0.1 mg/kg IV/IO/IM/Intranasal (max 2.5mg single dose) (max 5mg without Online Med-control)

OR

2. Diazepam 0.5mg/kg IV/IO/IM may repeat once (max 0.75mg/kg without Online Med-control)

Protocol 14 Stroke

Adult

This protocol addresses treatment of patients who present with signs and symptoms of a stroke. Patient with onset of stroke symptoms from 0-8 hours will be transported emergently to a primary stroke center, Lexington or Palmetto Richland.

1. **Cincinnati Stroke Scale**
2. **Oxygen**
   - **maintain an O_2 saturation $\geq$ 95%**
3. **12 lead EKG**
4. **IV (20g or larger/AC is preferred)**
5. **Blood glucose level**
6. **Whenever possible a detailed history to include recent major surgery, past CVA, head trauma, GI bleed, and MI should be obtained. Preferred IV access is a 20g in the AC or higher. Use caution treating hypoglycemia in patients presenting with signs of intracranial hemorrhage. Additionally patients with suspected intracranial hemorrhage should be transported with their head elevated at least 30 degrees.**

Protocol 15 Allergic Reaction

This protocol addresses patients who are experiencing itching, hives and rashes that are not in anaphylaxis.

Adult

1. Benadryl 50mg IM/PO (PO is preferred)

Pediatric

1. Benadryl 12.5-50mg IM/PO (PO is preferred)

- **10kg or less = 12.5mg**
- **11kg - 20kg = 25mg**
- **21kg – 30kg =37.5mg**
- **31kg and up = 50mg**

Protocol 16 Burns

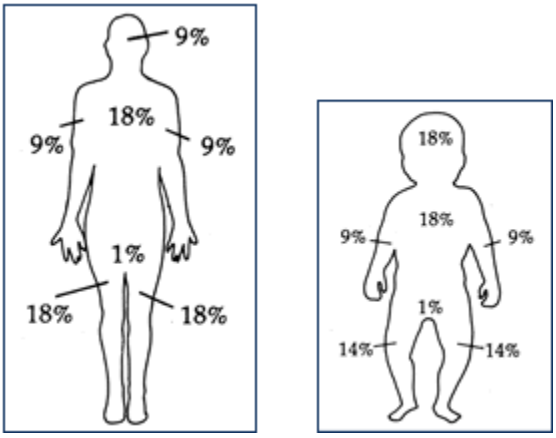
This protocol addresses patients with 2nd and 3rd degree burns. Consider treating patient for carbon monoxide poisoning if burns were from a fire located in an enclosed area.

Adult

1. **Determine burn severity (Rule of Nines)**
2. **Apply dry/sterile dressings**
3. **IV Normal Saline bolus per Parkland Formula**
   - **Kg x BSA / 24= gtts/min with 10gtts set**
4. **Consider Pain Management**
5. **Consider Burn Center**

Pediatric

1. **Determine burn severity (Rule of Nines)**
2. **Apply dry/sterile dressings**
3. **IV normal saline bolus per Parkland Formula**
   - **Kg x BSA / 24= gtts/min with 10gtts set**
4. **Consider Pain Management**
5. **Consider Burn Center**

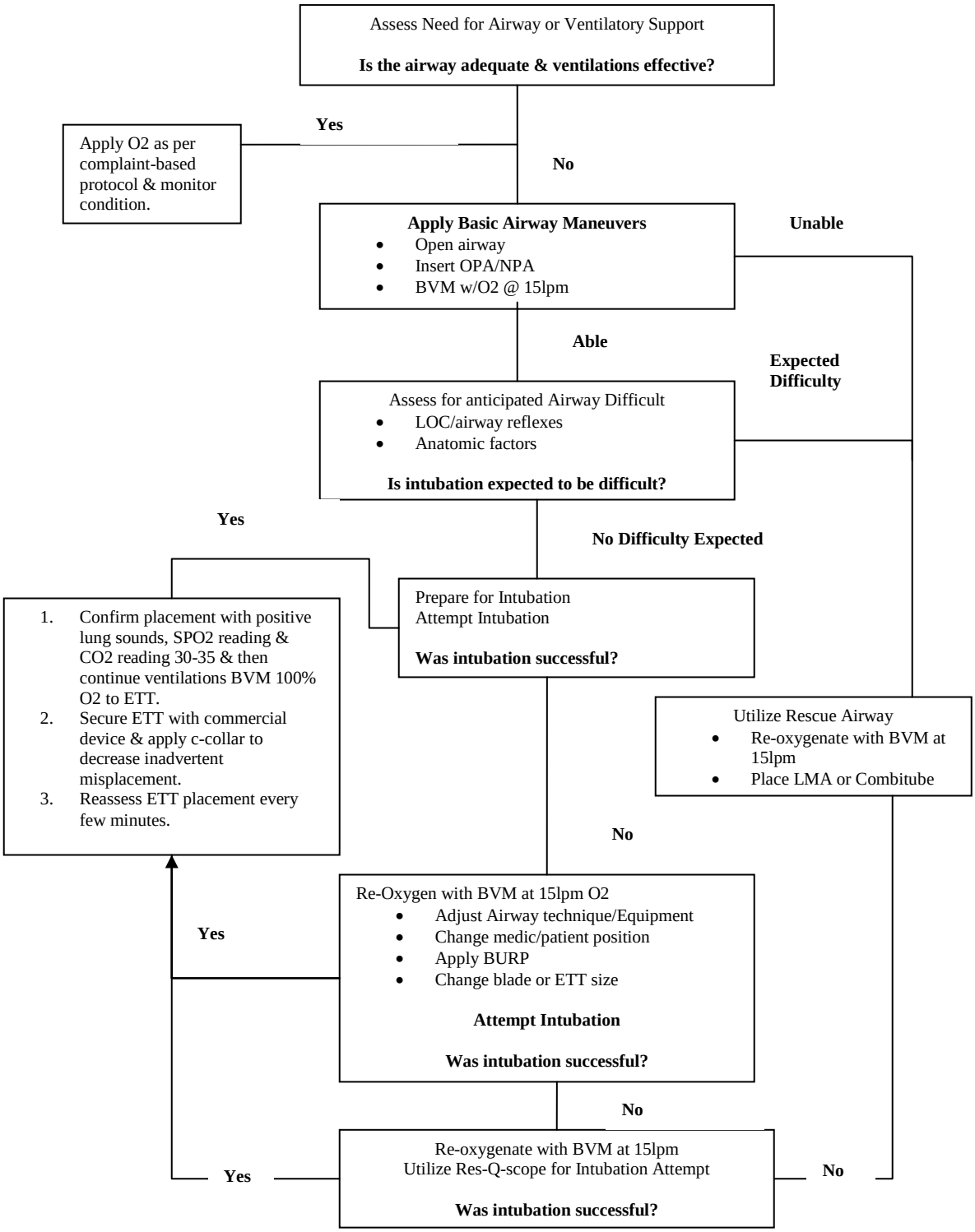


Protocol 17 AIRWAY MANAGEMENT

The following considerations should be made for the treatment of patients who present with airway or ventilatory comprise or potential airway or ventilatory insufficiency.

- Assessment of difficult airway traits should include the following:
  -Level of Consciousness and protective airway reflexes
    -Patient awake or combative
    -Intact gag reflex
    -Presence of trismus or teeth clenching
  -Anatomic factors
    -Obesity
    -Short neck
    -Facial or airway trauma
    -Overbite/underbite
    -Anterior vocal cords
    -Large epiglottis
    -Poor neck flexibility
    -Small mouth or limited mouth opening
  -Environmental/other factors
    -Confined or restricted space
    -Cervical spine immobilization
    -Vomitus/blood in airway
    -Entrapment
    -Epistaxis
    -Foreign body in airway
- The following subsets of patients should be considered to have a need for airway management or ventilatory support:
  -Any adult patient who is apneic or who has agonal respirations (<8 breaths/min).
  -Any patient with compromised airway reflexes in spite of adequate ventilatory effort (eg.: unresponsive pt without gag reflex).
  -Any patient with compromised ventilatory effort in spite of intact airway reflexes (eg.: pulmonary edema)
  -Any patient with adequate ventilatory effort and intact airway reflexes, but potential for compromise due to disease course (eg.: closed head injury, burns with airway involvement, anaphylaxis).
- The goal of definitive airway management (intubation) is rapid correct placement of endotrachael tube in an effort to avoid the risk of hypoxia while concurrently minimizing the chance for aspiration. During intubation attempts, the patient's SPO2 reading should be monitored and if SPO2 reading begins to fall or attempt is greater than 30 seconds, then the attempt should be stopped and the patient re-oxygenated with BVM & 100% O2.
- If at any time a provider feels that intubation will be unsuccessful due to anatomical difficulties or patient conditions then they should immediately utilize an alternative airway as a primary means for airway management.
- Any patient who needs ventilatory support with BVM should receive a definitive airway (i.e. ETT, Combitube or LMA). OPA & BVM should only to be utilized as a temporary airway & ventilator management unless all other definitive airway management has failed.
- It is imperative that the provider assess and document the effectiveness of airway and ventilatory management. The provider will assess and document the following signs of effective airway and ventilator support:
  - Presence or absence of lung sounds and epigastric sounds.
  - CO2 reading.
  - SPO2 reading.
  - Presence or absence of chest rise & fall with ventilations.
  - Direct Visualization

Protocol 17.1 AIRWAY MANAGEMENT (Continued)



Protocol 18 Documentation

This protocol provides EMS personnel with guidance in the documentation of the patient care report. The Patient Care Report (PCR) is a medical and legal document used by personnel to record a variety of data concerning the patient's current illness or injury, treatment rendered by the EMS provider, subsequent improvement or worsening of the patient's condition, past medical history and patient billing information.

The PCR and the Patient Transfer Form (LCF 529) must be completed for each patient treated or transported by Lexington County EMS. The completed Patient Transfer Form (LCF 529) white copy should be left with the receiving facility at the time of patient delivery. This ensures continuity of patient care by making available to the ED a detailed, accurate record of the patient's prehospital condition, treatment and response to the treatment provided.

The following guidelines should be used:

- Correct spelling is essential
- Use only standard abbreviations
- Describe the patient's condition, treatment rendered, and improvement or worsening of the patient's condition relative to the treatment given in as much detail as possible
- Statements contained in the narrative must be objective or state only known facts or observations

All PCR Narratives must include the following:

1. Chief Complaint (CC) – This is the reason the patient called EMS
2. History of Present Illness (HPI) – Includes all pertinent information related to the patient’s chief complaint. This includes OPQRSTI.
3. Past Medical History (PMH)(Hx) – Relative medical history
4. Medications (Meds) – Note any prescription medications or OTC medications related to their condition
5. Allergies (ALL) – List all known allergies
6. Physical Exam (PE) – Document the patient’s level of consciousness, general appearance, signs and symptoms, pertinent negatives and any other physical findings (HEENT, Neck, Chest, Lungs, Lung Sounds, Abdomen, Extremities and Neurological Exam)
7. Treatment (Rx) – Anything and everything that you do to the patient and the patient’s response. This should be a linear recounting of what you did in the order you did it and anything that occurred that caused you to deviate from the standard of care and why.

Protocol 19 Refusal of Treatment or Transport

This protocol provides EMS personnel with guidance in the management of situations in which patient's do not provide consent to treat or transport. More detailed information is outlined in the No Transport Situations Standard Operating Procedure.

EMS personnel must approach every call for assistance with the attitude that they are there to transport the patient. Personnel must approach all patients with the attitude of "To which hospital do you want to be transported?" Personnel must not indicate in any way that the patient should not be transported.

When a patient declines any treatments or transport, every effort should be made to advise the patient of the need for the treatments and transport. Under no circumstances should a patient be advised that not receiving treatments or being transported is a wise decision.

A. Assess Mental Capacity

   Mental capacity addresses whether the patient has any condition, such as intoxication, dementia, Alzheimer's, or even a traumatically or medically induced condition, such as hypoxia, head injury, or hypoglycemia, which can affect their mental status. To be mentally competent, a person should generally be alert and oriented to person, place, time and the event (CAOx4).

B. Advise Patient/Family

   Advise the patient of their condition. Your patient's decision to refuse care must be a conscious one made with all of the information that a reasonable person would find important to the decision-making process. You should inform the patient of the potential consequences of their refusal, including, if appropriate, the possibility of death or long-term disability. You should also advise them of alternatives available, to include recalling 911 if they reconsider. Whenever possible, involve family in the decision-making process.

C. Ensure Understanding

   Ensure that the patient understands your advice. Ask them to repeat the information back to you. Their refusal must be knowing and voluntary. Make several attempts at getting them to consent.

D. Document

   As a minimum, your documentation should include:

   1. A history of the event
   2. A description of the patient and the scene as you found them
   3. Chief Complaint, signs and symptoms, vital signs
   4. Specific words used by the patient to indicate understanding
   5. Specific consequences of which you informed the patient
   6. Instructions given to the patient in the event of persistent or worsening symptoms
   7. The patient's or guardian's signature
   8. Name of any family or friends involved in the decision-making process.

Protocol 20 Treatment of Impaired / Suicidal / Homicidal Patients

This protocol provides EMS personnel with guidance in the management of situations in which the patient's judgment is impaired to the extent that they are incapable of making medical decisions on their own.

Any person who has demonstrated any suspicious or obvious suicidal ideation (e.g., talks of suicide, or indirectly talks of suicide "the world would be a better place without me," etc.), has made a suicidal threat, or has demonstrated self-destructive behavior. Any patient that demonstrates suicidal or homicidal intentions or gestures is not capable of making medical decisions for themselves. Patients, who have voiced threats of harm to themselves or others, no matter how minor, are not competent to make decisions regarding their care and must be transported regardless of their refusal of care. These threats or gestures do not have to be witnessed by the crew.

Any patient, who exhibits signs of alcohol or drug intoxication, or altered mental status to the degree that their ability to make medical decisions for themselves is impaired, must be transported regardless of their refusal of care.

If there is any concern about the situation, you must contact the Shift Supervisor or On-line Medical Control.

Protocol 21 Tourniquet Application

This protocol provides EMS personnel with guidance in the management of situations in which the application of a tourniquet is indicated.

If bleeding is not controlled with direct pressure, apply tourniquet to affected extremity. Tourniquet and pulses distal to the tourniquet should be assessed every 5 minutes.

Patients that present with significant extremity hemorrhage and a concurrent need for airway management or other emergent interventions, a tourniquet may be immediately applied without the need for a trial of direct pressure. After the emergent procedures are completed, direct pressure may be applied and the tourniquet released to assess for adequacy of hemorrhage control via direct pressure. Reapply the tourniquet if bleeding is not adequately controlled.

Similarly, in mass casualty situations, a tourniquet may be applied immediately to patients with significant extremity hemorrhage without the need for a trial of direct pressure in order to facilitate a more expedient control of hemorrhage with better utilization of resources.

Protocol 22 Spinal Immobilization

This protocol provides EMS personnel with guidance in the management of situations in which spinal immobilization may be a necessary treatment.

The evaluation of a suspected spine injured patient begins with the scene size-up and mechanism of injury. In the event that a survey of the scene indicates that the forces involved are significant enough to cause potential spinal injuries, the patient must be placed in spinal precautions. These mechanisms include, but are not limited to:

- High speed vehicle crashes
- Falls greater than 10 feet
- Cranial facial injuries
- Selected penetrating wounds with possible spinal involvement

The next most important factor in the assessment of spinal injury is the patient history. An injured patient must be calm, cooperative, sober, and alert before spinal injury clearance can take place. If the patient is deemed reliable, medical providers should proceed to the physical examination and assessment for distracting injuries. Factors, which make an exam of a patient unreliable, include:

- Acute stress reaction
- Head injury
- Intoxication
- Abnormal mental status
- Communication barrier
- Distracting injuries

Distracting injury has been recognized as a critical component in the spinal injury assessment. Distraction injuries may include any injury that produces clinically apparent pain that might distract the patient from the pain of a spine injury. Distracting injuries may include, but not be limited to, head injury; upper or lower back pain, chest pain, abdominal or pelvic pain, and extremity trauma. If any significantly distracting injury is believed to be present, the patient must be immobilized.

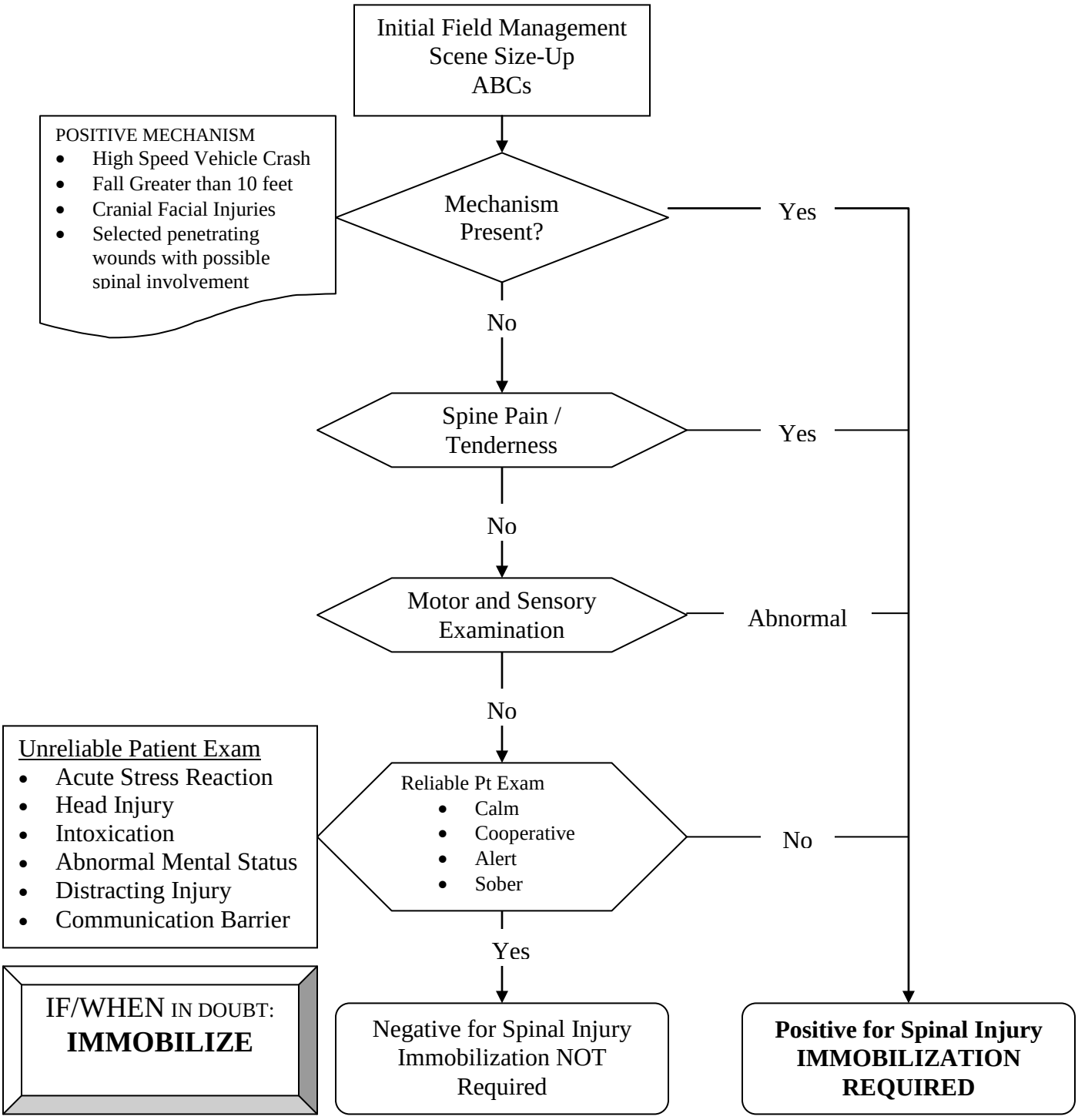
The prehospital assessment of tenderness should include, but not be limited to, the palpation of the posterior midline spine. Any abnormal physical examination finding(s) indicate a need for spinal immobilization.

The next part of the examination should include assessment of motor and sensory deficits from spine injury.
Any abnormal neurological examination finding(s) indicate a need for spinal immobilization.

If none of the Clinical Criteria for spinal immobilization are present, immobilization is not required.
In the event that personnel are in doubt as to whether a patient needs spinal immobilization, the patient must be immobilized.

Protocol 22 Spinal Immobilization (Continued)

Clinical Criteria for Initial Assessment of Spinal Injury



Protocol 23 Restraint

This protocol addresses treatment of patients who present a danger to themselves or others. Under normal circumstances, EMS personnel should not attempt to restrain a violent patient without assistance from Law Enforcement. However, EMS personnel may physically restrain any patient who presents a significant danger to themselves or others. An attempt at verbal de-escalation must be attempted first and documented.

When patient restraint becomes necessary, the following procedures will be used:

1. Get assistance from law enforcement as soon as possible. If available, get the law enforcement officer to accompany the patient in the back of the ambulance.
2. Soft wrist and ankle restraints along with cravats or folded sheets are the only materials authorized for use by EMS personnel. Reeves Sleeves will not be used to restrain personnel unless extremity restraints are also used. Hard restraints, such as handcuffs, should be avoided unless law enforcement personnel are immediately available and they are applied in such a way that ALS procedures may be performed.
3. Use techniques that will cause no injury to the patient (i.e. the minimum amount of force possible and 5 personnel should be used to secure the restraints).
4. Caution should be used to not restrict the respiratory efforts of the patient. Patients will not be transported in the prone position.
5. Pulse, movement, sensation, capillary refill and pulse oximetry will be checked frequently following the application of restraints to assure distal circulation and proper oxygenation.
6. Contact the receiving medical facility as soon as possible and advise them of the specifics of the situation and the reason for the restraints.
7. Prehospital personnel must consider that aggressive or violent behavior may be a symptom of a medical condition, such as head injury, alcohol or drug intoxication, metabolic disorders, and psychiatric disorders. Standing Orders shall be implemented as needed.
8. Document all pertinent details including:
    a. Assessment
    b. Reason for restraint
    c. Specific restraint procedures, including attempts to de-escalate the situation
    d. Frequency of reassessment
    e. Care during transport
    f. Signatures of witnesses if possible.

All patients should be continuously monitored for changes in/but not limited to: Level of Consciousness, airway (compromise), respiration (pattern and rate) and circulation (central and distal) before and after application. If changes in the patient's condition occur the need for the restraints will be reevaluated and removed immediately if they are no longer considered essential or negatively impacting patient care (condition).

Protocol 24 Death in the Field

This protocol addresses the issue of determining the need for resuscitation in patients with no signs of life. The goal is to provide EMS personnel with definitive criteria for field death pronunciation. In the absence of spontaneous respirations and circulation a patient may be pronounced according to the following:

WITHHOLDING RESUSCITATION----Resuscitation need NOT be attempted in patients in whom any of the following are met:
--Massive traumatic injury, such as decapitation, incineration, severe skull crushing injury, etc.
--Rigor mortis, profound lividity, or bodily decomposition.
--Patient already pronounced by medical examiner, coroner, or physician licensed to practice in SC.
--A valid DNR order is present.

DISCONTINUING RESUSCITATION----Once resuscitation has been initiated, it will continue until one of the following is met:
--Effective spontaneous circulation and respirations are restored.
--Resuscitation efforts are transferred to providers of at least equal skill level.
--Staff is physically unable to continue resuscitation efforts.
--On-line medical control or on-scene physician issues an order to discontinue efforts.
--A valid DNR order is presented to crew after efforts initiated.

> ***Resuscitation efforts may be terminated ONLY via on-line medical control once efforts are initiated. An exception to this is cases where CPR is in progress but determined to be ineffective by the paramedic AND patient shows no signs of life or potential for resuscitation.**

> ***The above protocols apply ONLY to patients who present with asystole. All other arrest rhythms should receive ACLS intervention unless a valid DNR order is present or by on-line medical control.**

Attach monitor and establish the presence of asystole in 2 leads. Discontinue resuscitative efforts for **only** patients > than 25 years of age. Document with rhythm strip.

If termination of efforts occurs BEFORE patient is placed in the unit, this is considered the same as if the patient were found dead at the scene. If termination of efforts occurs AFTER the patient is placed in the unit, then patient will be transported to the facility from which the termination order originated.

After on-scene pronouncement, EMS may leave the scene upon arrival of the appropriate law enforcement, coroner, or as advised by the shift supervisor.
Always secure a copy of the valid DNR order, especially in cases where resuscitation efforts are withheld or withdrawn on the basis of this order.

Protocol 25 Alternate Transport

This protocol delineates a population of patients that may be transported to Lexington Medical Center Urgent Care Facilities instead of a hospital in situations where the Urgent Care transport will significantly expedite the return of that unit to service.

1. The Crew Chief must evaluate the patient and determine that evaluation and treatment can be done at the LMC Urgent Care Facilities
2. The crew discusses the option of transport and obtains consent from the patient to be transported to a LMC Urgent Care Facility
3. The transport is handled as though it were a transport to Lexington Medical Center, which includes a detailed report either by radio or phone to the receiving Lexington Medical Center Urgent Care facility
4. Proper documentation is completed
5. Proper documentation of a refusal by either the patient or the facility

Protocol 25.1 Alternate Transport (Continued)

CRITERIA:

1. Extremity injury without neurovascular compromise or deformity.
2. MVC with low risk of injury and stable vital signs.
3. Superficial lacerations with hemostasis.
4. Respiratory infection without tachypnea or respiratory compromise.
5. Dermatologic symptoms/signs without co-morbid condition.
6. Febrile illness 3 months of age or greater who appears in no acute distress with other noted symptoms i.e. earache, sore throat, cold symptoms, etc ….
7. Minor dental complaints.
8. Headache with history of same without neurologic signs or symptoms.
9. Asthma with no other signs of respiratory distress and a room air saturation greater than 94 %.

Exclusions:

1. Patients less than 3 months or greater than 80 years of age.
2. Cardiac related chest pain.
3. Chief complaint of abdominal pain.
4. Altered mental status such as CVA symptoms, seizures or head injuries.
5. Patients requiring medications other than inhalation therapy.
6. Mental health
7. Intoxication / drug overdose
8. Any trauma patient with RTS less than 12 or significant mechanism for injury.
9. Pregnant patients with abdominal pain or vaginal bleeding.
10. Pregnant patients of 16 weeks or greater gestation.
11. Suspected hip/femur fractures as evidenced by shortening or rotation of the extremity
12. Extremity injuries with obvious deformity or dislocation
13. Patients with multiple complaints and /or a chief complaint related to a known medical history such as CHF, COPD, Diabetes, CAD etc …
14. 9 :00 pm

DIVERSION:

1. Wait times such that it could cause unnecessary delays in patient care.
2. Equipment / services not available (CT, lab etc …)
3. Staffing concerns.

Diversion will be a decision made between the lead (zone 1) physician and the coordinator / charge nurse. The Urgent Care director will be notified and then the Lexington Co. EMS supervisor will be notified (600-0509). The EMS supervisor will be updated every 2 hours with the status of the diversion.

Adult Drip Calculations

Epinephrine infusion at 2-10 mcg/kg/min. Add 1 mg Epi 1:1,000 to 250 ml NS (4 mcg/ml). Using a 10-gtt/ml set, infuse at 5 gtts/min and increase to effect.

Drug Calculations

Medication Administration

$$\frac{\text{Volume on hand} \times \text{Desired Dose}}{\text{Dosage on hand}} = \text{Volume to be administered}$$

Example

Physician orders 90 mg of drug. It comes 500-mg/8 ml.

$$\frac{\text{Volume (8ml)} \times \text{Desired Dose (90 mg)}}{\text{Dosage on hand (500)}} = \text{Volume to administer (1.44 ml)}$$

IV infusion Calculations

$$\frac{\text{Volume} \times \text{IV Set} \times \text{Desired Dose}}{\text{Dosage on hand}} = \text{drops per minute}$$

Example

Physician orders 2 mg/min of drug. You have a 4 mg/ml mix

$$\frac{250 \text{ ml} \times 60 \text{ gtts/ml} \times 2 \text{ mg}}{1000 \text{ mg (1 gram)}} = 30 \text{ drops per minute}$$

Pediatric measurements

Age Adjusted Vital Signs and Equipment Sizes

Age	Length (cm)	Weight (Kg)	Avg. SBP	Normal Pulse	Normal Resp.	ET Tube Size	Blade Size
Pre-Term	0-53 cm	< 2.5	-	120-170	40-60	2.5-3.0 Uncuffed	0
Term NB	54-58 cm	2.5-4.0	60-70	100-170	40-60	3.0-3.5 Uncuffed	1
3 Months	59-65 cm	6	70-80	100-170	30-50	3.5 Uncuffed	1
6 Months	66-74 cm	8	80-100	100-170	30-50	3.5-4.0 Uncuffed	1
1 Year	75-86 cm	10	80-100	100-170	30-40	4.0-4.5 Uncuffed	1-2
2 Years	75-86 cm	12	94	100-160	20-30	4.5 Uncuffed	2
4 Years	87-99 cm	16	98	80-130	20-28	5.0 Either	2
6 Years	100-113 cm	20	102	70-115	20-28	5.5 Either	2
8 Years	114-132 cm	25	106	70-110	16-24	6.0 Cuffed	2-3
10 Years	133-158 cm	34	110	60-105	16-24	6.5 Cuffed	2-3
12 Years	159-189 cm	41	114	60-100	16-24	7.0 Cuffed	3

Normal SBP = 90 + (2 x age in years)
Minimum SBP = 70 + (2 x age in years)

Apgar Scale (evaluate @ 1 and 5 minutes postpartum)

	Sign	2	1	0
A	Activity (muscle tone)	Active	Arms and legs flexed	Absent
P	Pulse	>100 bpm	<100 bpm	Absent
G	Grimace (reflex irritability)	Sneezes, coughs, pulls away	Grimaces	No response
A	Appearance (skin color)	Normal over entire body	Normal except extremities	Cyanotic or pale all over
R	Respirations	Good, crying	Slow, irregular	Absent

PEDIATRIC ASSESSMENT AIDS (CONTINUED)

Glasgow Coma Scale		
CHILD		**INFANT**
Eye opening	**E**	**Eye opening**
Spontaneous	4	Spontaneous
To speech	3	To speech
To pain	2	To pain
No response	1	No response
Best motor response	**M**	**Best motor response**
Obeys verbal command	6	Normal movements
Localizes pain	5	Localizes pain
Flexion - withdraws from pain	4	Withdraws from pain
Flexion - abnormal	3	Flexion - abnormal
Extension	2	Extension
No response	1	No response
Best verbal response	**V**	**Best verbal response**
Oriented and converses	5	Coos, babbles
Disoriented and converses	4	Cries but consolable
Inappropriate words	3	Persistently irritable
Incomprehensible sounds	2	Grunts to pain/restless
No response	1	No response

E + M + V = 3 to 15
90% less than or equal to 8 are in coma
Greater than or equal to 9 not in coma
8 is the critical score
Less than or equal to 8 at 6 hours - 50% die
9-11 = moderate severity
Greater than or equal to 12 = minor injury
Coma is defined as not opening eyes, not obeying commands, and not uttering understandable words.

Common Abbreviation List

Patient information

CC	chief complaint	HPI	history of present illness
PMH	past medical history	Med	medications
Allg	allergies	PE	physical exam
Rx	treatment	Hx	history
Pt.	Patient	v/s	vital signs
AOS	arrived on scene	RTS	revised trauma score
GCS	Glasgow coma score	BP	blood pressure
NKDA	no known allergies to drugs	TX	transport

Body systems

Abd	abdomen	GI	gastrointestinal
GU	genitourinary	Ob	obstetrical
Gyn	gynecological	Resp	respiratory

HEENT head, eyes, ears, nose, throat

Common complaints

CP	chest pain	GSW	gunshot wound
n/v	nausea/vomiting	Pn	pain
SOB	short of breath	AMS	altered mental status
Ca	cancer	Fx	fracture

Diagnoses

AAA	abdominal aortic aneurism	MI	myocardial infarction
CRF	chronic renal failure	ETOH	alcohol
CHF	congestive heart failure	HTN	hypertension
CAD	coronary artery disease	OD	overdose
DVT	deep vein thrombosis	MVA	motor vehicle accident
IDDM	insulin-dependent diabetes mellitus		

NIDDM	non-insulin-dependent diabetes mellitus		
TIA	Transient ischemic attack	TB	tuberculosis
UTI	Urinary tract infection	CVA	stroke

Medications

ASA	aspirin	NTG	nitroglycerin
NS	normal saline	PCN	penicillin
CDN	codeine		

Anatomy

Abd	abdomen	AC	antecubital
LLQ	left lower quadrant	LUQ	left upper quadrant
RLQ	right lower quadrant	RUQ	right upper quadrant

Physical exam

BBS	bilateral breath sounds	BGL	blood glucose level
CSF	cerebrospinal fluid	COA	conscious alert oriented
EKG, ECG	electrocardiogram	JVD	jugular vein distention
Lac	laceration	LOC	loss of consciousness
RA	room air	MAE	movement all extremities
H → T	head to toe physical exam		
PERRL	pupils equal round and reactive to light		
PMS X ___	pulse motor sensory X _____		

Miscellaneous

BSA	body surface area
R	right
L	left
-	negative
+	positive
c	with
s	without
q	every
O2	oxygen
N/A	not applicable
=	equal

ALS	advanced life support
BLS	basic life support
CPR	cardiopulmonary resuscitation
ETT	endotracheal tube
LSB	long spine board
NG	nasogastric
IM	intramuscular
NRB	nonrebreather
IV	intravenous
KVO	keep vein open
BVM	bag valve mask
ETA	estimated time arrival
NC	nasal cannula
NPA	nasopharyngeal airway
OPA	oropharyngeal airway
po	orally
SQ	subcutaneous
IO	intraosseous
SL	sublingual
TKO	to keep open

Cardiac

NSR (normal sinus rhythm), A-fib, PSVT, SVT, PAC, PJC, PVC, PEA, Vfib, Vtach

Intermediate Protocol 1General Medical/ Trauma

This protocol addresses treatment of patients who present with conditions that do not fall under a more specific protocol, but in whom the Intermediate determines a need for oxygen therapy, cardiac monitoring, and/or vascular access.

Adult

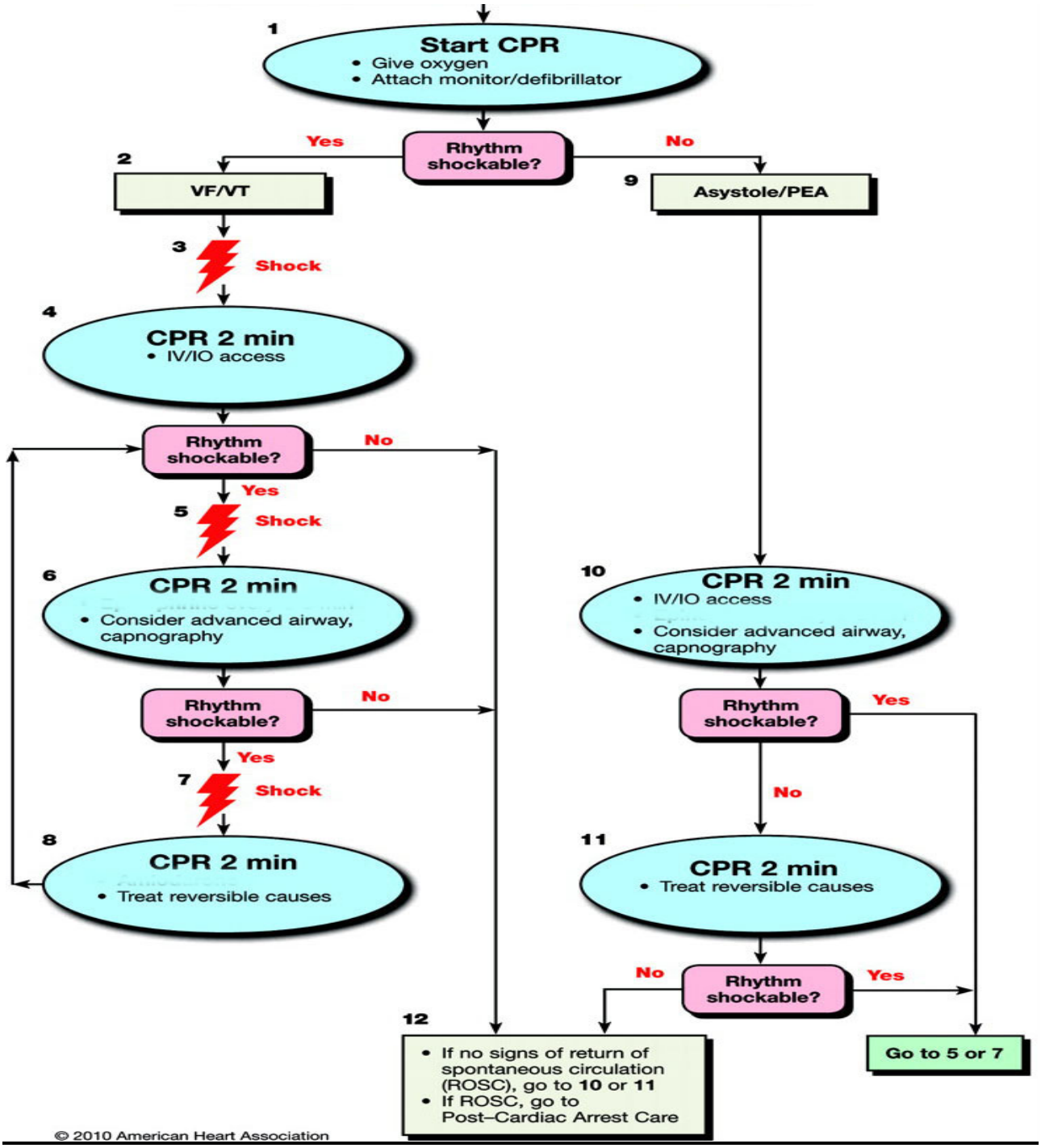
1. **Oxygen to maintain minimum saturation of 95%**
    - **Patients with history of COPD or on home O2 maintain Spo2 of 90%**
2. **Cardiac monitor (To include non-diagnostic 12 leads)**
3. **Check blood glucose level**
4. **IV/INT Normal Saline.**
    - **All patients with the exception of those with renal insufficiency or CHF may receive up to 1000cc Bolus if necessary**
5. **For patients with BGL <60**
    - **Oral Glucose**
    - **Dextrose 50% 25g IV**
6. **For patients with Chest Pain**
    - **Ask about use of PDE inhibitors (see pg 6 for specific information)**
    - **Assist with administration of patient's ASA at 324mg**
    - **Assist with administration of patient's NTG at 0.4mg. Total of 3 doses.**

Pediatric

1. **Oxygen to maintain minimum saturation of 95%**
2. **Cardiac monitor**
3. **Check blood glucose level**
4. **IV/INT Normal Saline.**
    - **Fluid bolus may be given in 20cc/kg increments up to 40 cc /kg**
5. **For patients with BGL < 60**
    - **Oral Glucose**
    - **Dextrose 25% 2-4ml/kg**

Intermediate Protocol 2 Cardiac Arrest

Adult/ Pediatric



Intermediate Protocol 3 Burns

This protocol addresses patients with 2nd and 3rd degree burns. Consider treating pt for Carbon Monoxide poisoning if burns were from a fire located in an enclosed area.

Adult

1. **Determine burn severity (Rule of Nines)**
2. **Apply dry/sterile dressings**
3. **IV Normal Saline bolus per Parkland Formula**
   - **Kg x BSA / 24= gtts/min with 10gtts set**
4. **Consider Pain Management**
5. **Consider Burn Center or Closest Facility**

Pediatric

1. **Determine burn severity (Rule of Nines)**
2. **Apply dry/sterile dressings**
3. **IV normal saline bolus per Parkland Formula**
   - **Kg x BSA / 24= gtts/min with 10gtts set**
4. **Consider Pain Management**
5. **Consider Burn Center or Closest Facility**