



Denver Fire Department

Patient Care Protocols

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Denver Fire Department Protocols

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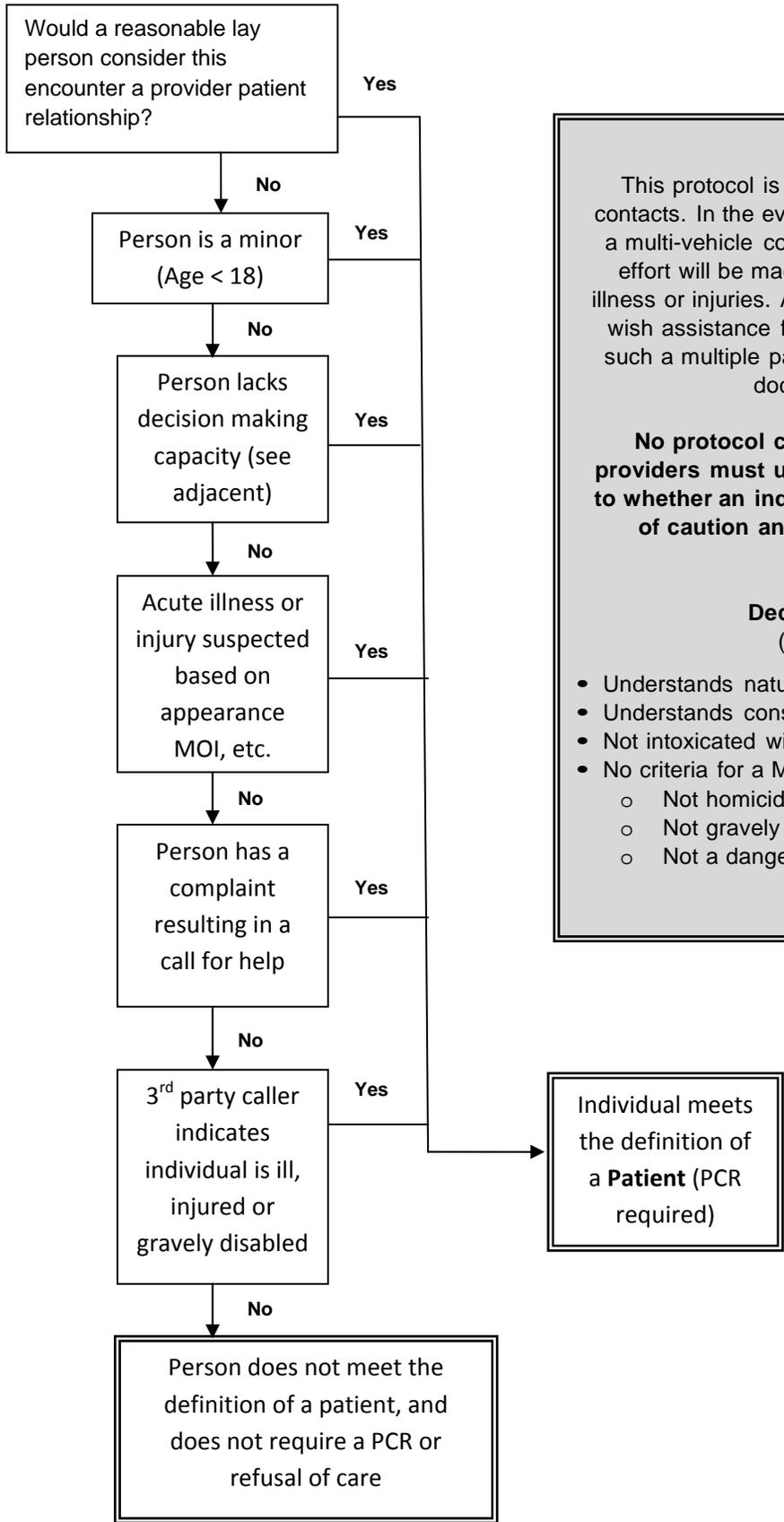
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GENERAL GUIDELINES: PATIENT DETERMINATION: "PATIENT OR NO PATIENT"



General Guidelines

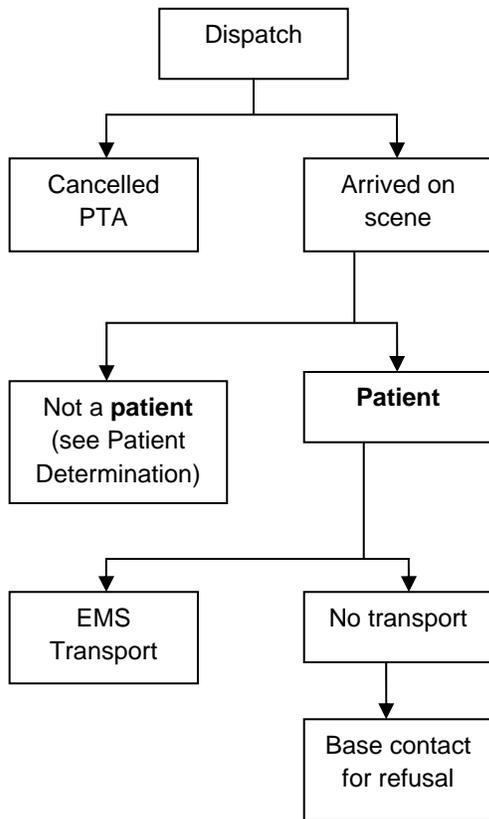
This protocol is intended to refer to individual patient contacts. In the event of a multiple party incident, such as a multi-vehicle collision, it is expected that a reasonable effort will be made to identify those parties with acute illness or injuries. Adult patients indicating that they do not wish assistance for themselves or dependent minors in such a multiple party incident do not necessarily require documentation as patients.

No protocol can anticipate every scenario and providers must use best judgment. When in doubt as to whether an individual is a "patient", err on the side of caution and perform a full assessment and documentation

Decision-Making Capacity
(Must meet all criteria)

- Understands nature of illness or injury
- Understands consequences of refusal of care
- Not intoxicated with drugs or alcohol
- No criteria for a Mental Health Hold:
 - Not homicidal or suicidal
 - Not gravely disabled or psychotic
 - Not a danger to self or others

GENERAL GUIDELINES: PATIENT NON-TRANSPORT OR REFUSAL



A person who has decision-making capacity may refuse examination, treatment and transport

A person has decision making capacity sufficient to refuse treatment and transport if he or she:

- Understands nature of illness or injury; and
- Understands the risks of refusing treatment or transport; and
- Given the risks and options, voluntarily refuses treatment or transport

Documentation Requirements for Refusal

- Confirm decision-making capacity
- EMS assistance offered and declined
- Risks of refusal explained to patient
- Patient understands risks of refusal
- Name of Base Station physician authorizing refusal of care unless standing order refusal

Base contact refusal

Required for

- Any patient 5 years or younger who is not being transported via ambulance regardless of the complaint
- Any patient under 18 years of age who does not have a parent/legal guardian present
- Any patient considered to be high risk

***You do **NOT** have to contact base for minor(s) 6-18 that have a parent or guardian present and are not deemed high risk.

***Any minor with **ANY** complaint or injury should be considered a patient

Field Pronouncement Guidelines

Purpose

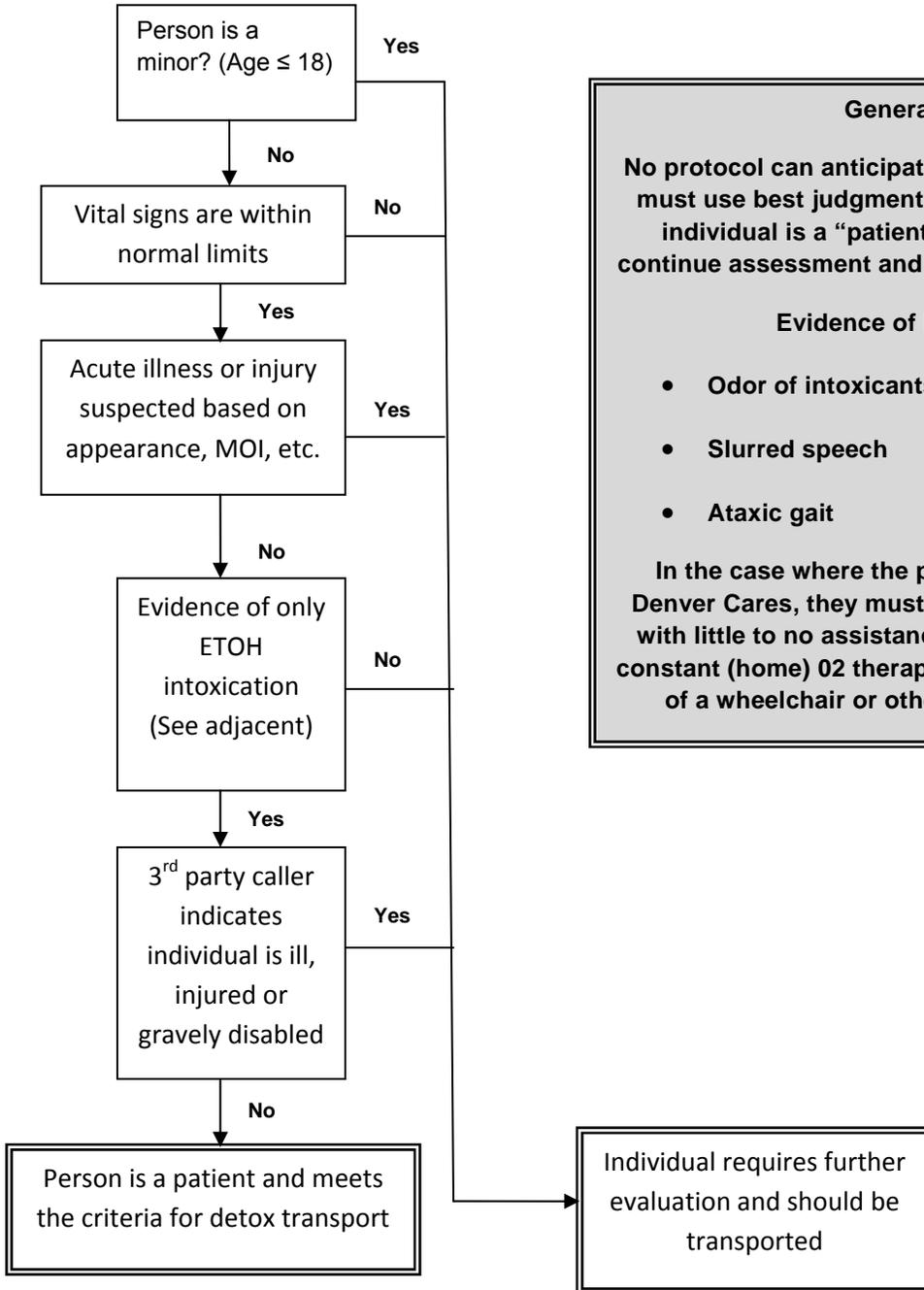
- A. To provide guidelines for resuscitation and field pronouncement of patients in cardiac arrest in the prehospital setting

General Principles

- A. Base contact must be made for all patients who fall within this guideline
- B. Attempt resuscitation for all patients found pulseless and apneic, unless any of the following are present:
 - 1. Physician orders as specified on the Colorado Medical Orders for Scope of Treatment (MOST) form: "No CPR. Do Not Resuscitate/DNR/Allow Natural Death", present with the patient
 - 2. A valid CPR directive present with the patient
 - 3. Dependent lividity or rigor mortis
 - 4. Decomposition
 - 5. Decapitation
 - 6. Evidence of massive blunt head, chest, or abdominal trauma
 - 7. Third degree burns over more than 90% of the total body surface area

After pronouncement, do not alter condition in any way or remove equipment as the patient is now a potential coroner's case.

GENERAL GUIDELINES: CARES Detox van transport



General Guidelines

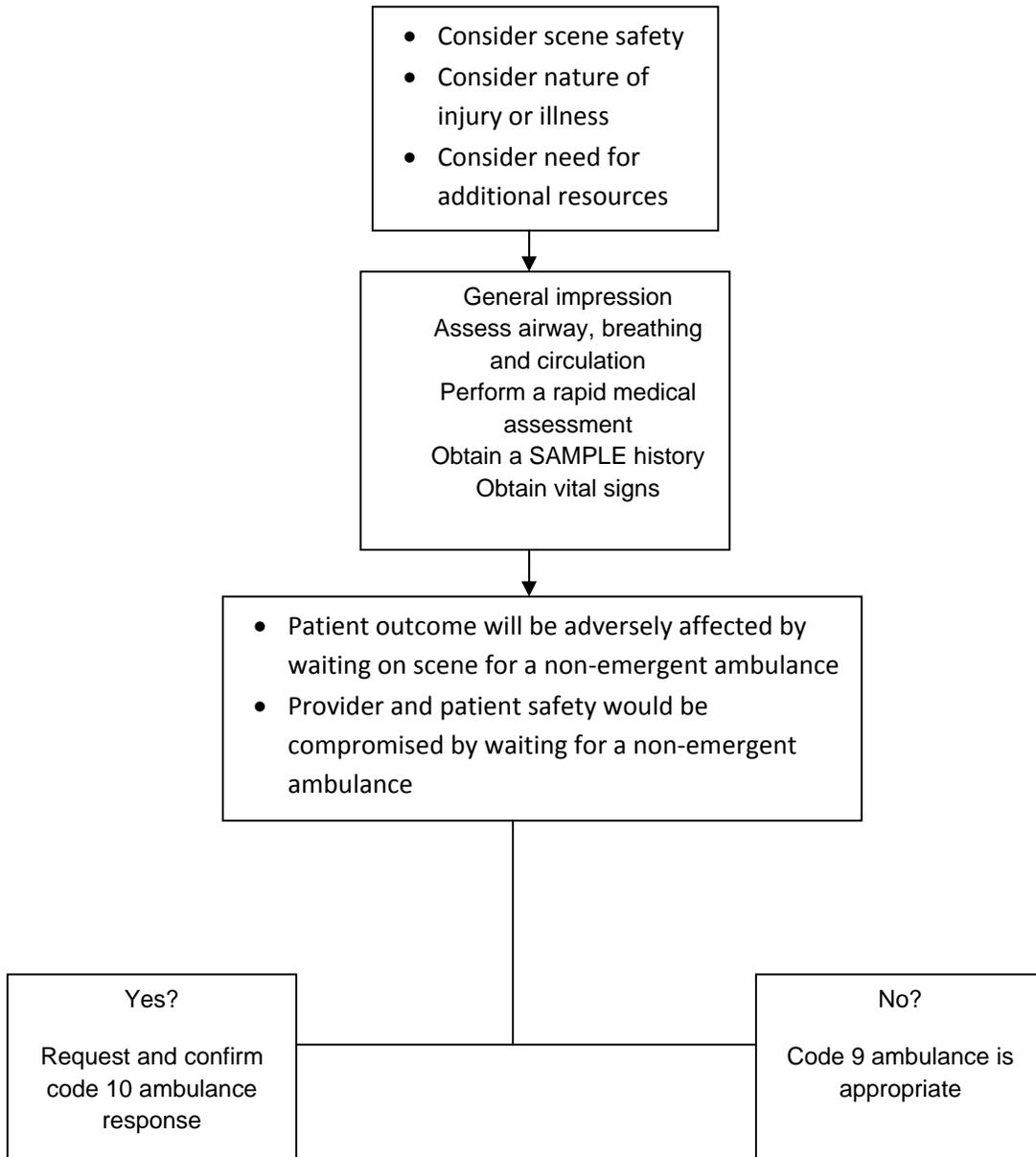
No protocol can anticipate every scenario and providers must use best judgment. When in doubt as to whether individual is a “patient”, err on the side of caution continue assessment and transport for further evaluation

Evidence of ETOH intoxication

- Odor of intoxicants
- Slurred speech
- Ataxic gait

In the case where the party is being transported by Denver Cares, they must be able to enter the detox van with little to no assistance. The party must not require constant (home) O₂ therapy, and must not require the use of a wheelchair or other powered mobility device.

CODE 10 AMBULANCE RESPONSE



DOCUMENTATION REQUIREMENTS

All patient encounters require documentation of the following

- Patient name
- Date of Birth

Description of:

- Assessment and Treatment
- Vital Signs

Description of base contact if applicable

Description of Disposition

MASS CASUALTY INCIDENT OPERATIONS

Purpose:

To utilize a frame work for consistent management of mass casualty incidents. This protocol will be used on all incidents with multiple patients to provide for efficient and consistent management.

Definition:

An MCI is an incident which generates more patients than available resources can handle using routine procedures.

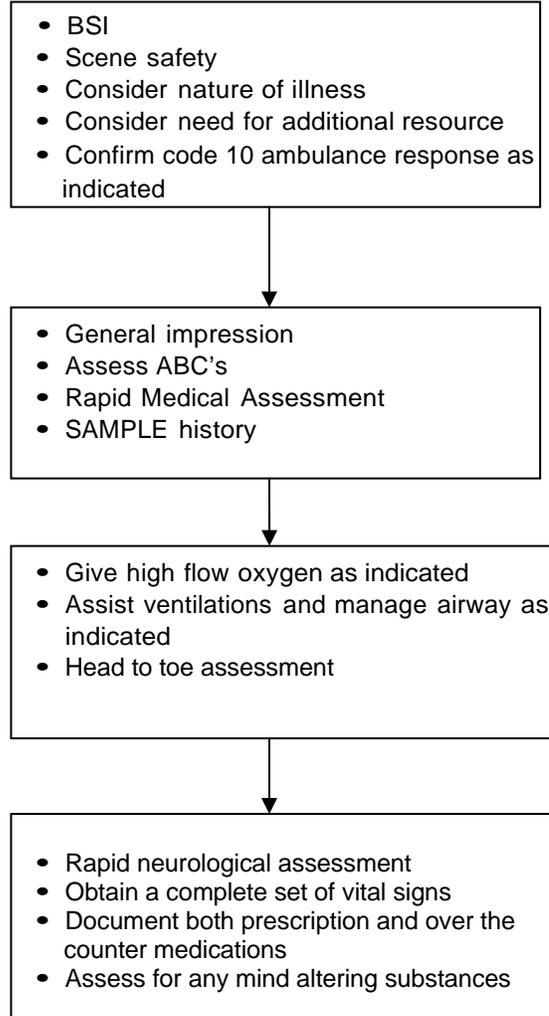
Policy:

- A. Triage: Responsible for implementing START triage and routing patients to appropriate treatment area.
- B. Once EMS Operations establishes section leaders for Triage, Transport and Staging assist them with patient movement , etc.
- C. **Do not load patients into ambulances without specific direction from EMS**

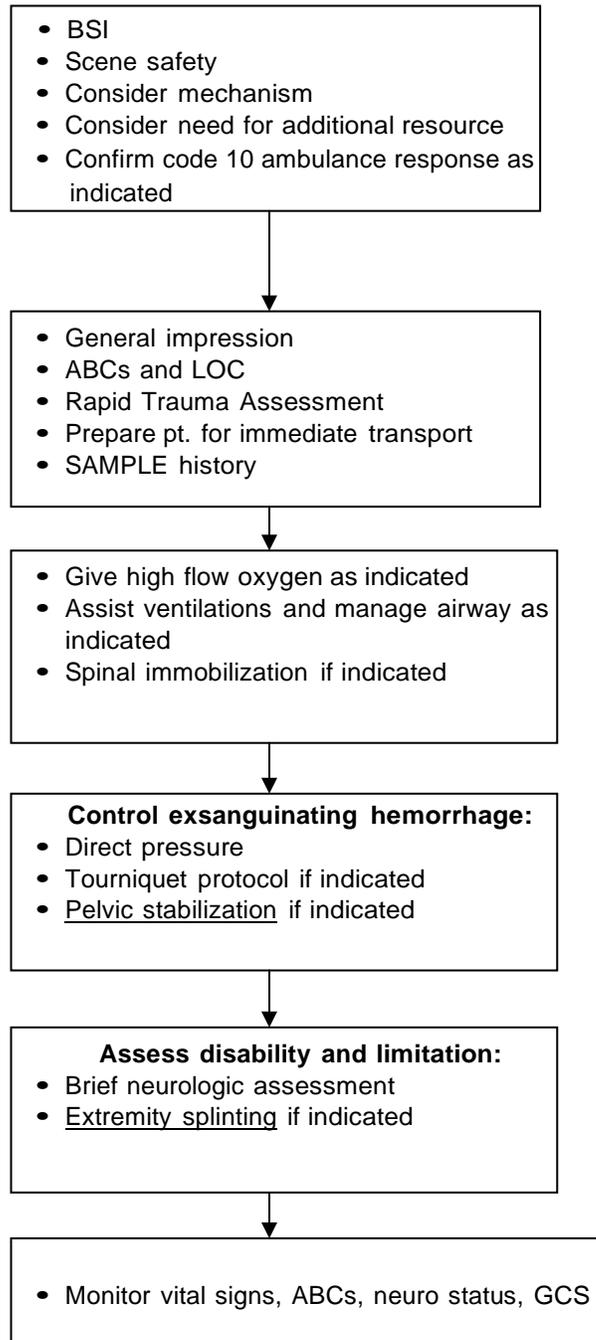
Triage Designations

- A. First priority (**Red**): Immediate
- B. Second priority (**Yellow**): Delayed
- C. Third priority (**Green**): Minor
- D. Fourth priority (**Black**): Deceased

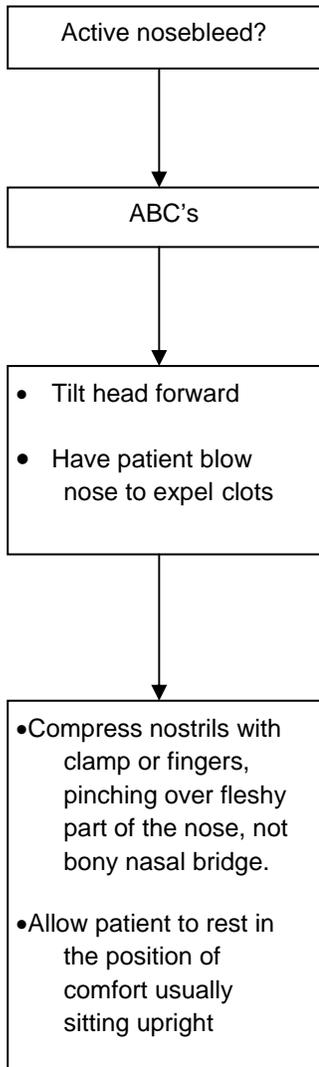
GENERAL MEDICAL CARE



GENERAL TRAUMA CARE



Procedure Protocol: Epistaxis Management



General Guidelines

- Most nose bleeding is from an anterior source and may be easily controlled
- Anticoagulation with aspirin, clopidogrel (Plavix), warfarin (Coumadin) will make epistaxis much harder to control. Note if the patient is taking these or other anticoagulant medications.
- Posterior epistaxis is an emergency and may require advanced emergency department techniques such as balloon tamponade or interventional radiology. These patients should be transported. Be prepared for potential airway issues.
- Patients using nasal cannula oxygen may have cannula placed in mouth while nares are clamped or compressed for nosebleed.

Airway Management: Opening the Airway

Indications

- A. Inadequate air exchange in the lungs, due to jaw or facial fracture, causing narrowing of air passage
- B. Lax jaw or tongue muscles causing airway narrowing in the unconscious patient
- C. Noisy breathing or excessive respiratory effort that could be due to partial obstruction

Precautions

- A. For trauma victims, keep neck midline and avoid flexion, extension, traction or rotation.
- B. For medical patients, neck extension may be difficult in elderly persons with extensive arthritis and little neck motion. Do not use force – jaw thrust or chin lift without head tilt will be more successful.
- C. All airway maneuvers should be followed by an evaluation of their success; if breathing is still labored, a different method or more time for recovery may be needed.
- D. Children's airways have less supporting cartilage

Technique

- A. Use BSI. To open the airway initially, chose method best suitable for patient.
- B. Assess ventilation
- C. Begin BVM ventilation if patient is not breathing
- D. Relieve partial or complete airway obstruction if present
- E. Assess oxygenation; use supplemental O₂ as needed.
- F. Consider positioning the patient on side (if medical problem)
- G. Choose method to maintain airway patency until ALS arrives

OROPHARYNGEAL AIRWAY: Preferred adjunct if patient is obtunded

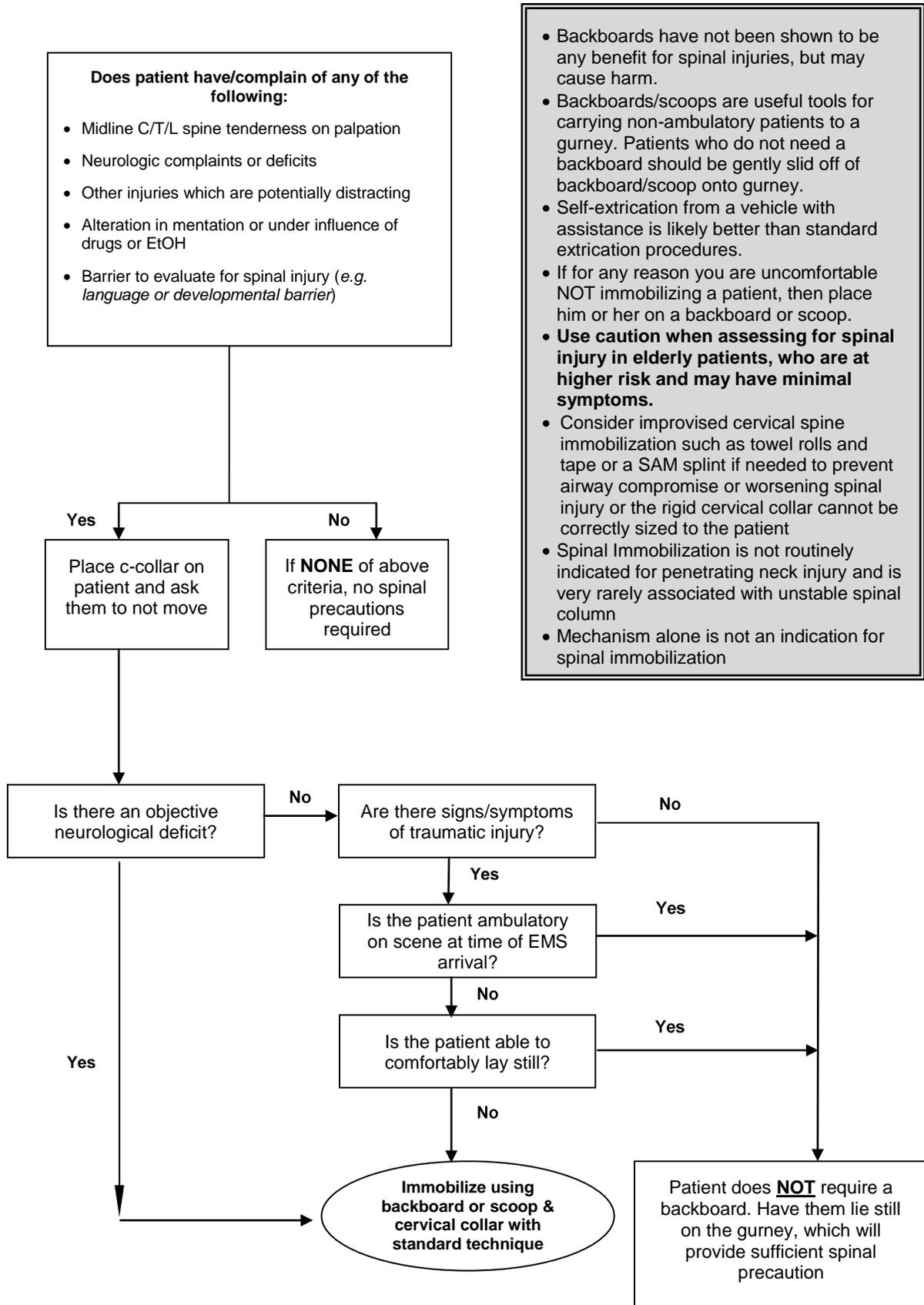
1. Choose size by measuring from mouth to ear margin.
2. Depress tongue with tongue blade, or insert gently with curving point UPWARD. Avoid snagging posterior tongue or palate.
3. Insert to back of tongue, then turn to follow curve of airway.
4. Move gently to be sure the tip is free in the back of the pharynx. In pediatric patients, depress tongue and insert airway with curve down to avoid injury to palate and pushing tongue posterior.
5. Remove airway adjunct if patient begins to vomit.

NASOPHARYNGEAL AIRWAY:

1. Choose a size by measuring from the nostril to the earlobe.
2. Lubricate tube (K-Y Jelly)
3. Insert in largest nostril, along floor of nose until flange is seated at nostril. Keep curve in line with normal airway curve. If you meet resistance try the other side.

- H. Listen to breathing to be sure maneuver has resolved the problem.
- I. Resume ventilatory assistance or oxygenation as appropriate.

ADULT (AGE ≥ 12 YEARS) SPINAL PRECAUTIONS PROTOCOL



OXYGEN

Description

Oxygen added to inspired air increases the amount of oxygen in the blood, and thereby increases the amount delivered to the tissue. Tissue hypoxia causes cell damage and death. Breathing, in most people, is regulated by small changes in the acid-base balance and CO₂ levels. It takes relatively large decreases in oxygen concentration to stimulate respiration.

Indications

- Suspected hypoxemia or respiratory distress from any cause
 - Acute chest or abdominal pain
 - Hypotension/shock states from any cause
 - Trauma
 - Suspected carbon monoxide poisoning
 - Obstetrical complications, childbirth
-

Precautions

- If the patient is not breathing adequately, the treatment of choice is assisted ventilation, not just oxygen.
- When pulse oximetry is available, titrate SpO₂ to ≥ 90%. This may take some time.
- Do not withhold oxygen from a COPD patient out of concerns for loss of hypoxic respiratory drive.

This is never a concern in the prehospital setting with short transport times

Administration

<u>Flow</u>	<u>LPM Dosage</u>	<u>Indications</u>
Low Flow	1-2 LPM	Minor medical / trauma
Moderate Flow	3-9 LPM	Moderate medical / trauma
High Flow	10-15 LPM	Severe medical / trauma

Special Notes

- Do not use permanently mounted humidifiers. If the patient warrants humidified oxygen, use a single patient use device.
- Adequate oxygenation is assessed clinically and with the SpO₂ while adequate ventilation is assessed clinically and with ETCO₂.

ORAL GLUCOSE ADMINISTRATION

Pharmacology and Actions

Glucose is the body's basic fuel and is required of cellular metabolism. A sudden drop in blood sugar level will result in disturbances of normal metabolism, manifested clinically as decrease in mental status, diaphoresis and tachycardia. Further decreases in blood sugar may result in coma, seizures and cardiac arrhythmia. Serum glucose is regulated by insulin, which stimulates the storage of excess glucose from the body's blood stream, and glucagon, which mobilizes stored glucose into the blood stream. The oral glucose paste is rapidly absorbed from oral mucosa, thus elevating the body's blood glucose level.

Indications

- A. Altered mental status and/ or
- B. History of diabetes, and
- C. Ability to swallow the medication

Precautions

Any patient who is unable to swallow may experience an airway obstruction or aspiration due to the gel.

Administration

- A. The dosage of oral glucose is one full tube.
- B. Squeeze a small portion of the tube into the patient's mouth between the cheek and gum. Repeat procedure until one full tube of glucose has been administered.
- C. Reassess vital signs and the patient's condition.

Side Effects and Special Notes

- A. There are no specific side effects if administered properly.
- B. Due to the gel thickness, this is a potential for airway obstruction or aspiration if the patient has no gag reflex.
- C. It is best to have suction available for administering oral glucose.

EXTREMITY SPLINTING

Indications

- A. Pain, tenderness, swelling, or deformity in extremity which may be due to fracture or dislocation
- B. In an unstable extremity injury, to reduce pain, limit bleeding at the site of injury, and prevent further injury to soft tissues, blood vessels or nerves

Precautions

- A. Critically injured trauma patients should be packaged on a backboard and prepared for transport
- B. Make sure the obvious injury is the only one. It is particularly easy to miss fractures proximal to the most visible one
- C. In a stable patient where no environmental hazard exists, splinting should be done prior to moving the patient

Technique

Extremity Splinting

- A. Check pulse and sensation distally prior to moving or splinting
- B. Remove bracelets, watches and other constricting bands prior to splint application
- C. Identify and dress open wounds
- D. Choose splint to immobilize joint above and below injury
- E. Apply gentle continuous traction to extremity and support fracture during splinting
- F. Reduce angulated fractures (if no pulses), including open fractures, with gentle axial traction as needed to immobilize properly
- G. Check distal pulses and sensation after splinting. Realign gently if adequate circulation and sensation is lost

Traction Splinting (for suspected femur fracture)

- A. Remove sock and shoe and check for distal pulse and sensation
- B. Identify and dress open wounds
- C. Measure splint length prior to application
- D. Apply gentle axial traction with support to calf and fracture site
- E. Position ischial pad under buttocks, up against bony prominence (ischial tuberosity), empty patient pockets if necessary
- F. Secure groin strap carefully
- G. Maintain continuous traction and support fracture site throughout procedure

EXTREMITY SPLINTING

- H. Adjust support straps to appropriate positions under leg
- I. Apply ankle hitch and tighten traction until patient experiences improved comfort. (Movement at the fracture site will cause some pain, but if traction continues to cause increased pain, do not proceed. Splint and support leg in position of comfort.)
- J. Secure support straps after traction is properly adjusted
- K. Re-check distal pulses and sensation

Complications

- A. Circulatory compromise from excessive constriction of limb
- B. Continued bleeding non visible under splint
- C. Pressure damage to skin and nerves from inadequate padding
- D. Delayed treatment of life-threatening injuries due to prolonged splinting procedures

Side Effects and Special Notes

- A. Traction splints should only be used if the leg can be straightened easily and the patient is comfortable with the traction device on. Particularly with injuries about the hip and knee, forced application for traction can cause increased pain and damage. If this occurs, do not use traction device, but support in position of most comfort and best neurovascular status.
- B. When in doubt and the patient is stable splint. Do not be deceived by absence of deformity or disability.
- C. Splinting body parts together can be a very effective way of immobilizing. Padding will increase comfort.

Automatic External Defibrillator

Indications

- A. For unconscious, pulseless and apneic patients

Precautions

- A. Do not use on trauma patients
- B. Dry the chest wall if wet
- C. Remove any transdermal patches
- D. If an airway obstruction exists, clear the airway before using an AED
- E. Remove/Extricate the patient from any wet environment prior to application.

Technique

- A. Follow manufacturer directions for AED operation.
 - 1. Determine unresponsiveness
 - 2. Open airway, check for breathing and ventilate once with BVM if no respirations
 - 3. Determine pulselessness. If patient pulseless, begin CPR while AED is being set up.
 - 4. Turn on AED
 - 5. Place patches in appropriate location based on manufacturer's guidelines and connect to machine
 - 6. Clear the area around the patient making sure no one is touching the patient
 - 7. Press the shock button if advised, check breathing, pulse and if necessary, begin CPR. If there is a pulse, check breathing and assist as needed.

Complications

- A. Rescuer defibrillation may occur if you forget to clear the area
- B. Skin burns from inadequate contact between patches and skin may occur
- C. Expired AED patches can cause arching from electricity or inadequate shock and interfere with analysis.
- D. Children over age 8 can be treated with a standard AED. For children ages 1-8, AHA recommends the pediatric attenuated pads. Or anterior posterior adult pad placement.

PROCEDURE PROTOCOL: TOURNIQUET PROTOCOL

Indications:

- A. A tourniquet may be used to control potentially fatal hemorrhage only after other means of hemorrhage control have failed.

Precautions:

- A. A tourniquet applied incorrectly can increase blood loss.
- B. Applying a tourniquet can cause nerve and tissue damage whether applied correctly or not. Proper patient selection is of utmost importance.
- C. Injury due to tourniquet is unlikely if the tourniquet is removed within 1 hour. In cases of life-threatening bleeding benefit outweighs theoretical risk.
- D. A commercially made tourniquet is the preferred tourniquet. If none is available, a blood pressure cuff inflated to a pressure sufficient to stop bleeding is an acceptable alternative. Other improvised tourniquets are not allowed.

Technique:

- A. First attempt to control hemorrhage by using direct pressure over bleeding area.
- B. If a discrete bleeding vessel can be identified, point pressure over bleeding vessel is more effective than a large bandage and diffuse pressure.
- C. If unable to control hemorrhage using direct pressure, apply tourniquet according to manufacturer specifications and using the steps below:
 - 1. Cut away any clothing so that the tourniquet will be clearly visible. NEVER obscure a tourniquet with clothing or bandages.
 - 2. Apply tourniquet proximal to the wound and not across any joints.
 - 3. Tighten tourniquet until bleeding stops. Applying tourniquet too loosely will only increase blood loss by inhibiting venous return.
 - 4. Mark the time and date of application on the patient's skin next to the tourniquet.
 - 5. Keep tourniquet on throughout hospital transport – a correctly applied tourniquet should only be removed by the receiving hospital.

NALOXONE (NARCAN) ADMINISTRATION

Pharmacology and Actions

Naloxone is a competitive opioid receptor antagonist

Onset: Within 5 minutes

Duration: 1-4 hours

Indications

- A. For reversal of suspected opioid-induced respiratory depression
- B. Coma of unknown origin

Adverse Reactions

- A. Tachycardia
- B. Nausea and vomiting
- C. Pulmonary Edema

Side Effects and Special Notes

- A. Patients receiving naloxone must be transported to a hospital
- B. Narcotic-dependent patients may experience violent withdrawal symptoms. Before administering naloxone to a suspected opioid overdose, consider if supportive care alone may be adequate.
- C. For use in ≥ 12 years of age. <12 years of age supportive care only.

Dosage and Administration

Unconscious/Unresponsive Adult:

2 mg IN via Mucosal Atomization Device in cases of severe respiratory compromise or respiratory arrest

CHEST PAIN, POSSIBLY CARDIAC

Before treating cardiac chest pain, consider non-cardiac causes.

- While assessing ABCs give supplemental oxygen and monitor vital signs
- Administer aspirin if history suggests possible cardiac chest pain
- Confirm ALS is responding

Non-cardiac causes of chest pain:

- Can include: trauma, pulmonary, anxiety
- If etiology is unclear, **Contact Base** for guidance

ALS on scene

No

Yes

Assist with patient prescribed nitroglycerin if suspected cardiac chest pain and no contraindication, **Contact Base** for verbal order

Assist with 12 lead EKG placement, at direction of ALS provider

Reassess vital signs between nitroglycerin administrations. For hypotension following nitroglycerin, do not give additional doses.

Contraindications:

- Hypotension SBP < 100
- Use of erectile dysfunction (ED) medication (e.g. Viagra, Cialis)

Causes of Chest Pain in Children:

- Costochondritis
- Pulmonary Causes
- Ischemia Is rare but can be seen with a history of Kawasaki's disease with coronary aneurysms
- Cyanotic or Congenital Heart Disease
- Myocarditis
- Pericarditis
- Arrhythmia
- Anxiety
- Abdominal Causes

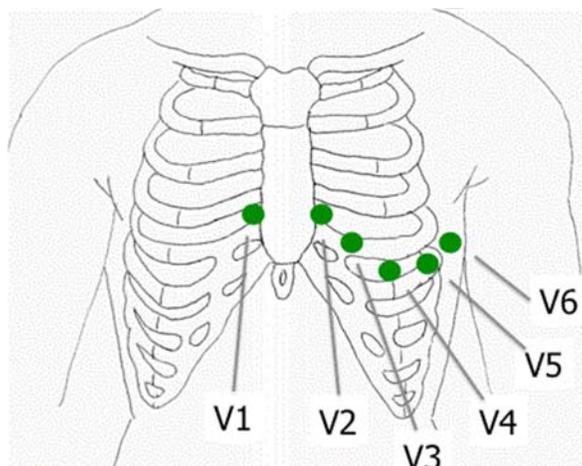
PROCEDURE: ASSIST 12 LEAD EKG

Indication:

- Patient requires a 12 lead EKG, at the discretion of the ALS provider
- EKGs deliver a picture of the heart's electrical activity. This information allows for interpretation of cardiac rhythms, myocardial ischemia/infarction, conduction delays, electrolyte imbalances, and other cardiac abnormalities.

Technique:

- Connect leads with electrodes
- Expose chest
- Place 4 limb leads (RU, LU, RL, LL); do not place on bone
- Place 6 precordial leads (V1-V6)
 - V1: 4th intercostal space, right of sternum
 - V2: 4th intercostal space, left of sternum
 - V3: Between V2 and V4
 - V4: 5th intercostal space, left midclavicular line
 - V5: 5th intercostal space, left anterior axillary line
 - V6: 5th intercostal space, left midaxillary line
- Connect precordial lead cable to limb lead cable
- Press "12-LEAD" on LifePak Monitor
- Select patient's gender and age using black turn dial, when prompted



Precautions:

- A 12 lead EKG can feel invasive to a patient. When possible, inform patient of procedural steps and procure an appropriate work-up site (with consideration for patient modesty and at the direction of the ALS provider).
- Patient movement can inhibit 12 lead interpretation. Instruct the patient to remain still. If excessive artifact exists (at discretion of ALS provider), consider adjusting limb lead placement to a more proximal position.

Special Considerations:

- If patient heart rate is tachycardic, bradycardic, or irregular:
- Obtain a detailed history: patient or family history of cardiac disease, presence of cardiac medications, compliance with cardiac medications
- Search for possible contributing factors: "5 Hs and 5 Ts"
- ALS assessment is indicated

Common Cardiac Medications:

- Antiplatelet agent (eg. ASA, Plavix)
- Anticoagulant (eg. Coumadin, Heparin, Eliquis, Xarelto, Pradaxa)
- Beta blocker ("-olol")
- Calcium channel blocker ("-pine")
- ACE inhibitor ("-pril")
- Angiotensin-Receptor Blocker ("-artan")
- Diuretic (eg. Lasix, HCTZ)
- Vasodilator (eg. Nitrates)

MEDICATIONS

ASPIRIN (ASA)

Description

Aspirin inhibits platelet aggregation and blood clotting and is indicated for treatment of acute coronary syndrome in which platelet aggregation is a major component of the pathophysiology. It is also an analgesic and antipyretic.

Indications

- Suspected acute coronary syndrome
-

Contraindications

- **Active** gastrointestinal bleeding
 - Aspirin allergy
-

How Supplied

Chewable tablets 81mg

Dosage and Administration

- 324mg PO
-

Protocol

- Chest Pain
-

Special Considerations

- Patients with suspected acute coronary syndrome taking warfarin (Coumadin), clopidogrel (Plavix) or novel oral anticoagulants may still be given aspirin.

MEDICATIONS

NITROGLYCERIN (NITROSTAT, NITROQUICK, etc)

Description

Short-acting peripheral venodilator decreasing cardiac preload and afterload

Onset & Duration

Onset: 1-3 min.

Duration: 20-30 min.

Indications

- Chest pain or discomfort due to suspected Acute Coronary Syndrome
 - Patient is prescribed Nitroglycerin, and the Nitroglycerin is available on scene
-

Contraindications

- Hypotension SBP < 100
 - Use of erectile dysfunction (ED) medication (e.g. Viagra, Cialis)
-

Adverse Reactions

- Hypotension
 - Headache
 - Syncope
-

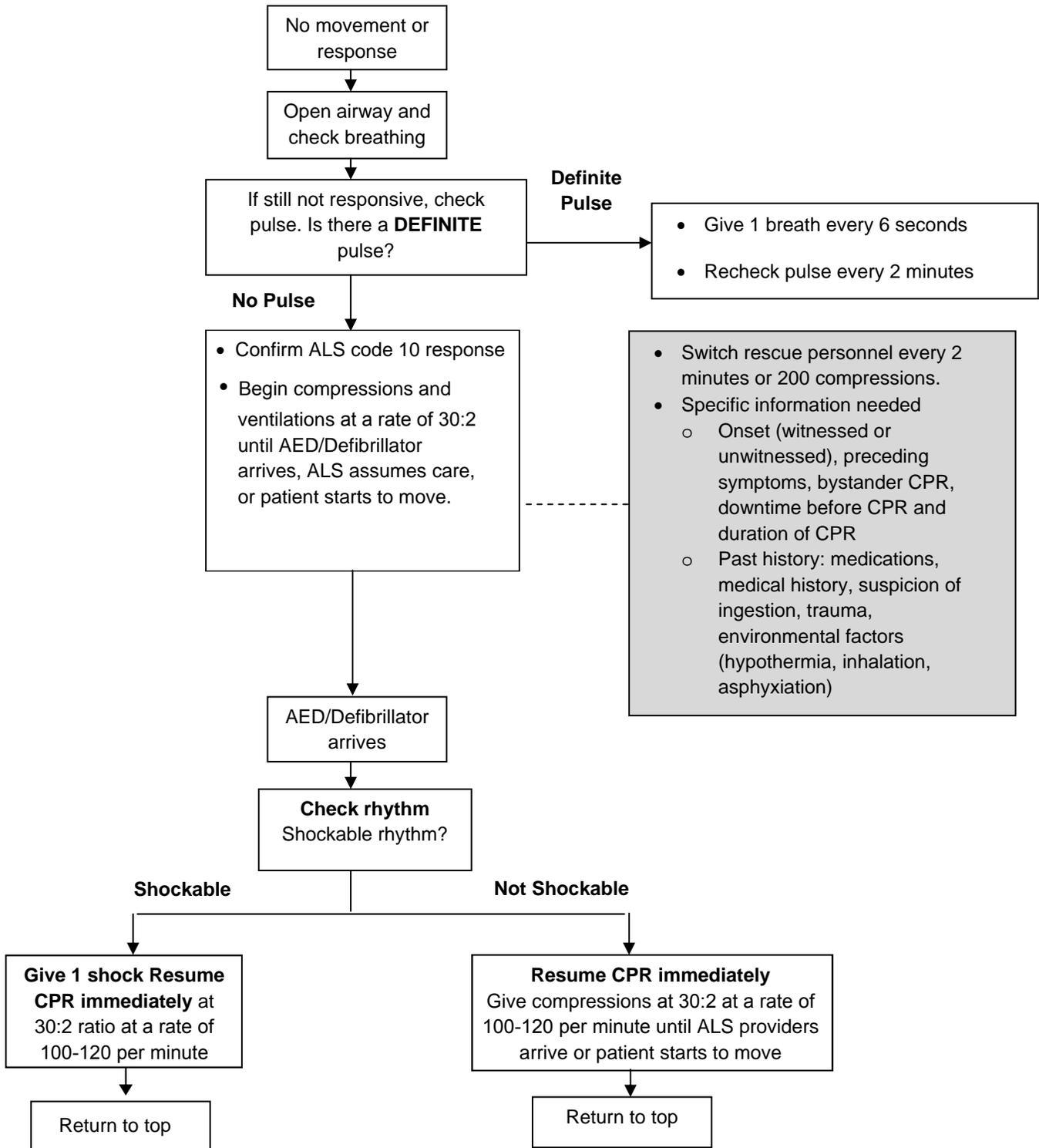
Dosage and Administration

- **Base Contact Required** to assist the patient in self-administration of the patient's prescribed Nitroglycerin
 - 0.4 mg sublingually, every 5 minutes PRN up to a total of 3 doses for persistent CP
-

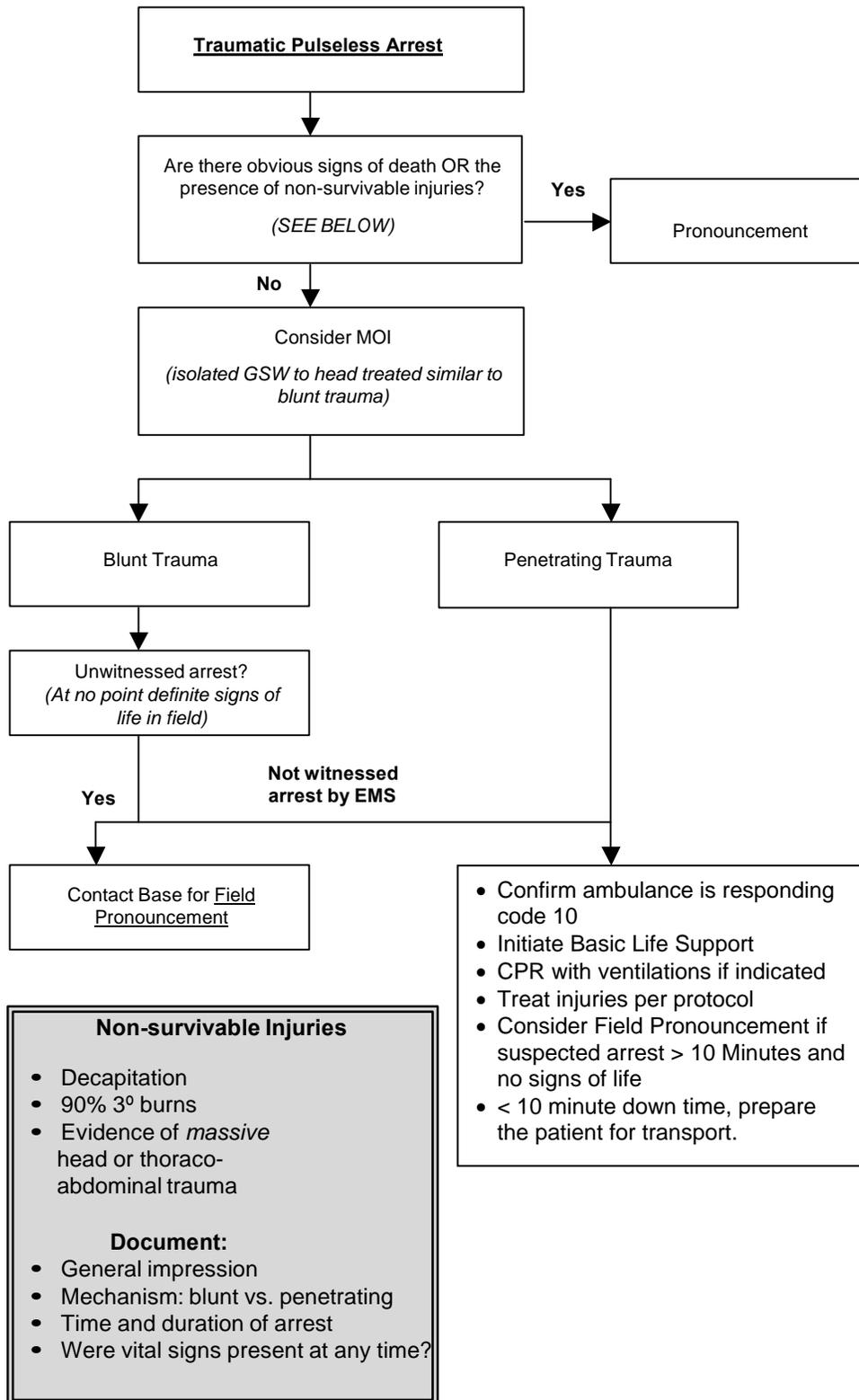
Special Considerations

- Erectile dysfunction medications are prescribed to men and women for multiple conditions (eg. pulmonary HTN)

ADULT (AGE ≥ 12 YEARS) BLS PULSELESS ARREST ALGORITHM



ADULT (AGE ≥ 12 YEARS) TRAUMATIC PULSELESS ARREST



General Guidelines: Pediatric Patients

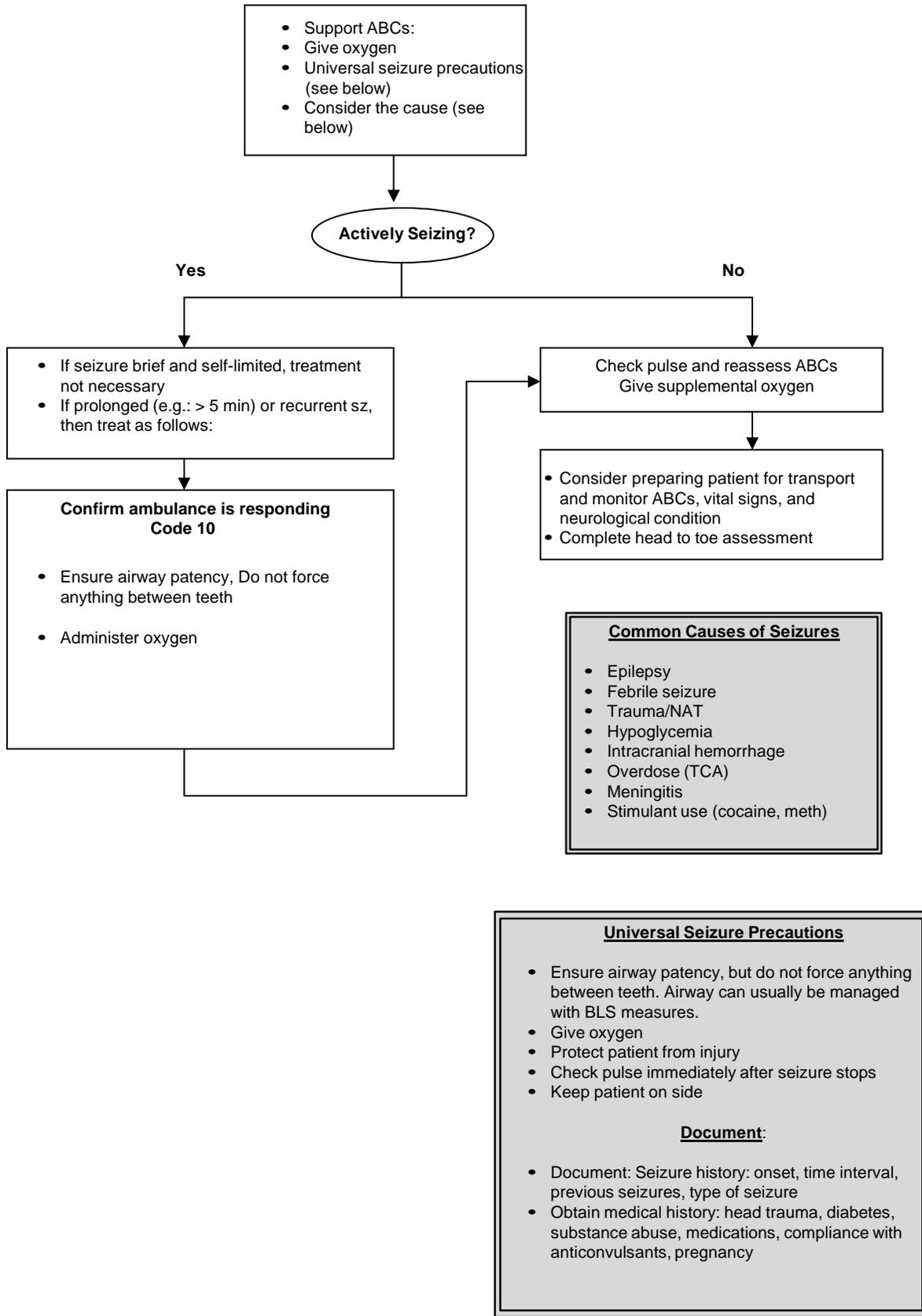
General Guideline:

- A. Pediatric patients, defined as age < 12 years for the purpose of these protocols, have unique anatomy, physiology, and developmental needs that affect prehospital care. Because children make up a small percentage of total calls and few pediatric calls are critically ill or injured, it is important to stay attuned to these differences to provide good care. Therefore, **CONTACT BASE** early for guidance when treating pediatric patients with significant complaints, including abnormalities of vital signs. Pediatric emergencies are usually not preceded by chronic disease. If recognition of compromise occurs early, and intervention is swift and effective, the child will often be restored to full health.

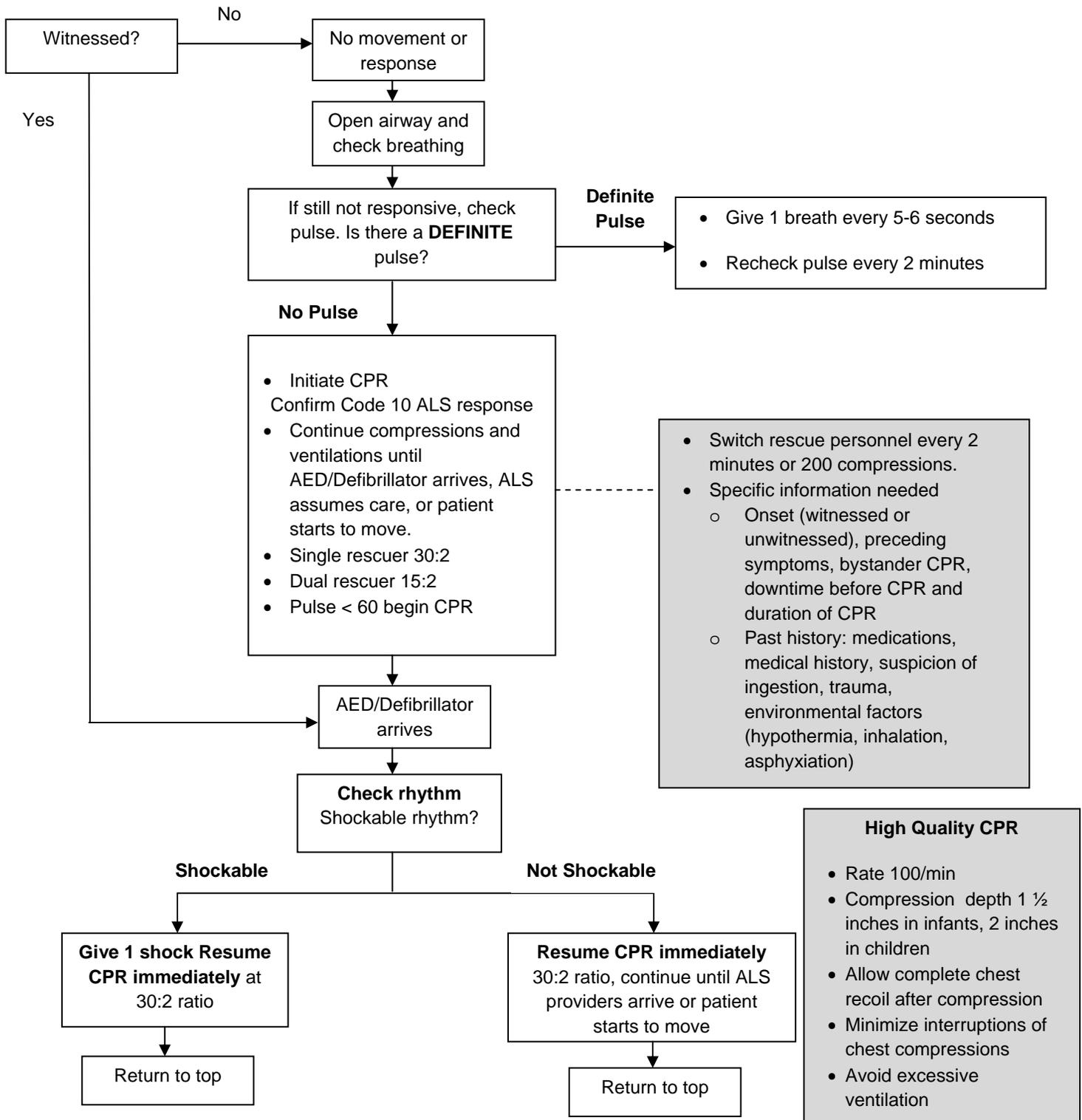
Specific Considerations:

- A. The following should be kept in mind during the care of children in the prehospital setting:
 1. Airways are smaller, softer, and easier to obstruct or collapse.
 2. Respiratory reserves are small. A minor insult like improper position, vomiting, or airway narrowing can result in major deficits in ventilation and oxygenation.
 3. Circulatory reserves are also small. The loss of as little as one unit of blood can produce severe shock in an infant.
 4. Assessment of the pediatric patient can be done using your knowledge of the anatomy and physiology specific to infants and children.
 5. Listen to the parents' assessment of the patient's problem. They often can detect small changes in their child's condition. This is particularly true if the patient has chronic disease.
 6. The proper equipment is very important when dealing with the pediatric patient. A complete selection of pediatric airway management equipment, cervical collars is mandated by the state. This equipment should be stored separately to minimize confusion.

PEDIATRIC SEIZURE (< 12 YEARS)



PEDIATRIC (AGE ≤ 12 YEARS) BLS PULSELESS ARREST ALGORITHM



NEONATAL CONSIDERATIONS

General Considerations:

- A. A neonate refers to a newly born child under the age of 30 days. While most neonates transition to post-natal life without difficulty, 10% will require medical assistance. Respiratory insufficiency is the most common complication observed in the newly born.
- B. Neonates born precipitously may exhibit signs of stress such as apnea, grunting respirations, lethargy or poor tone.
 - 1. Provide warmth, bulb suction mouth and then nose, and dry the infant.
 - 2. If breathing spontaneously, HR >100 and infant is vigorous, continue to monitor.
 - 3. If apneic, cyanotic, lethargic, or HR <100, provide 100% oxygen via BVM ventilations at a rate of 40-60 bpm.
 - 4. If HR <60, begin CPR at 3:1 compression/ventilation ratio.
- C. Neonates with congenital heart disease may not be detected prior to hospital discharge after delivery. Consider a cardiac cause of shock in the neonate who remains or has persistent cyanosis despite 100% oxygen.
- D. Newborns are at high risk for hypothermia. Provide early warming measures, keep covered as much as possible (especially the head)
- E. Acrocyanosis (cyanosis of only the hands and feet) is normal in newborns and does not require attention.
- F. Obtain pregnancy history, gestational age of the neonate, pregnancy complications, and any illicit drug use during pregnancy.

CARE OF THE CHILD WITH SPECIAL NEEDS

General Guideline:

- A. Children with special health care needs include those with chronic physical, developmental, behavioral or emotional health issues. These children often have complex medical needs and may be technology-dependent. Parents or caregivers for such children can be a wealth of knowledge about their child's care and may carry a reference care sheet. Contact Base Station for any concerns.

Feeding Tubes:

- A. Feeding tubes are used for administration of medications in children with an impaired ability to take PO medications. They are also utilized for nutritional needs. Consult the caretaker as to the medical use of the feeding tube (does the tube end in the stomach or jejunum?) and when it was placed.
- B. Tubes may be placed through the nose, mouth or abdomen and end in the stomach or jejunum (upper intestine)
- C. A dislodged feeding tube is not an emergency.

Tracheostomy:

- A. A tracheostomy is a surgical opening between the trachea and the anterior surface of the neck. Its purpose is to bypass the upper airway for chronically ventilated patients, upper airway obstructions, or to facilitate secretion removal in those with ineffective gag or swallow reflexes.
- B. Use bag-valve attached to the tracheostomy to assist ventilations if needed. May also attempt BVM with gloved finger over the tracheostomy
- C. Inability to ventilate and/or signs of respiratory distress (nasal flaring, retractions, hypoxia, etc.) may indicate tracheostomy obstruction.

PEDIATRIC RESPIRATORY DISTRESS

Call for ALS

Specific Information needed

- A. History: sudden or gradual onset of symptoms, cough, fever, sore throat, hoarseness
- B. History of potential foreign body aspiration or trauma
- C. Past medical history
- D. Current medication use

Specific objective findings

- A. Airway: look for respiratory distress during inspiration, listen for abnormal breathing sounds such as stridor, cough (croupy?), and wheezing, feel for airway movement, crepitation, and tracheal deviation
- B. Breathing: respiratory rate and effort, chest wall movement/adequacy of tidal volume, skin color, use of accessory muscles, retractions, nasal flaring or grunting
- C. Respiratory sounds by auscultation of chest: wheezing, rales, decreased (unilateral?), prolonged inspiratory (croup) or expiratory (wheezing) phases
- D. Mental status: AVPU
- E. General appearance: leaning forward or drooling (suggests upper airway obstruction), skin color and temperature, muscle tone

Treatment

- A. Administer high flow O₂ by blow-by or non-rebreather mask.
- B. As long as the child is adequately ventilating and has adequate mentation, avoid agitation the patient. Keep the patient in his/her position of comfort.
- C. If the child is not ventilating adequately, assist with a bag-valve-mask.
- D. In the rare case that the child cannot be ventilated with a BVM device:
 - 1. Reposition airway. Consider oral airway if patient is unconscious.
 - 2. If still unable to ventilate, contact base.

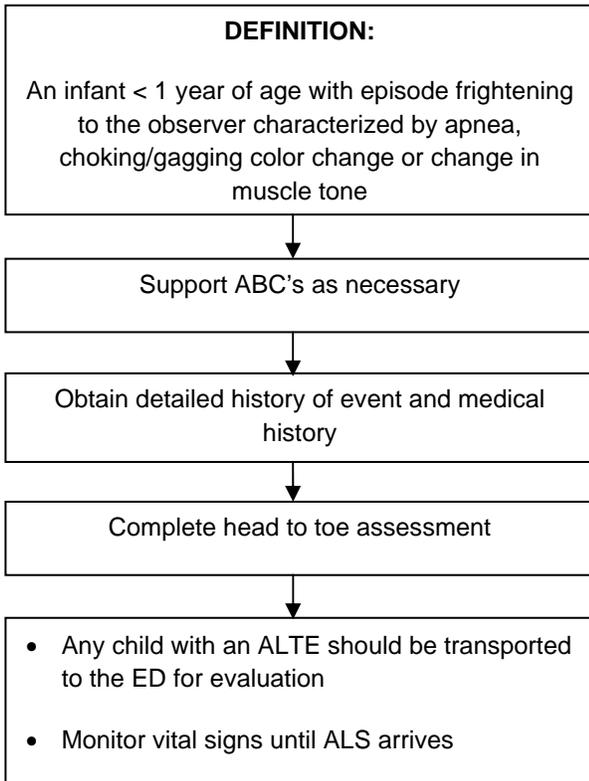
Specific precautions

- A. Children with croup, epiglottitis, or laryngeal edema usually have respiratory arrest due to exhaustion. Most children can still be ventilated with a BVM.
- B. Children with severe asthma may not exhibit wheezing. The patients will have prolonged expiratory phase and appear listless, agitated, or unresponsive.
- C. Any child with a witnessed or suspected apneic episode should be transported.
- D. Cyanosis is a late sign in pediatric hypoxia. Provide high flow O₂ of any child in distress.

PEDIATRIC RESPIRATORY DISTRESS

- E. Consider the differential assessment of each of the following:
1. Stridor: foreign body, croup, epiglottitis or other bacterial upper airway infection, laryngeal trauma, etc...
 2. Wheezing: foreign body, asthma, bronchiolitis, hydrocarbon exposure, etc...
 3. Respiratory distress: pneumothorax, foreign body, pneumonia, shock, CHF, etc...

PEDIATRIC APPARENT LIFE-THREATENING EVENT (ALTE)



Clinical history to obtain from observer of event:

- Document **observer's** impression of the infants color, respirations and muscle tone
- For example, was the child apneic, or cyanotic during the event?
- Was there seizure like activity noted
- Was any resuscitation attempted or required, or did event resolve spontaneously?
- How long did the event last?

Past Medical History:

- Recent trauma, infection (e.g. fever, cough)
- History of GERD
- History of congenital Heart Disease
- History of Seizures
- Medication History

Examination/Assessment

- Head to toe exam for trauma, bruising or skin lesions
- Check anterior fontanelle: is it bulging, flat or sunken?
- Pupillary exam
- Respiratory exam for rate, pattern, work of breathing and lung sounds
- Cardiovascular exam for level of consciousness, responsiveness and any focal weakness.
- Neuro exam for level of consciousness, responsiveness and any focal weakness.

PEDIATRIC TRAUMA CONSIDERATIONS (AGE < 12 YEARS)

Spinal Immobilization

- A. Context/Special Considerations:
- B. 60-80% of spine injuries in children occur at the cervical level
- C. Children < 12 years of age are more likely to sustain high C1-C3 injuries
- D. Less force is required to injure the cervical spine in children than adults
- E. Children with Down Syndrome are at risk for cervical spine injury
- F. Avoid strapping abdomen- children are abdominal breathers
- G. Use age/size appropriate immobilization devices
- H. Proper immobilization of pediatric patients should **prevent**:
 - 1. Flexion/extension, rotation, lateral bending or axial loading of the neck (car seats do not prevent axial loading and are not considered proper immobilization technique)
 - 2. Non-neutral alignment or alteration in normal curves of the spine for age (consider the large occiput)
 - 3. Twisting, sliding or bending of the body during transport or care

Spinal Immobilization criteria:

- A. Be conservative. Children are difficult to assess and “clinical clearance” criteria are not well established, as in adults
- B. Immobilize the following patients as well as any child you suspect clinically may have a spine injury:
 - 1. Altered Mental Status (GCS < 15, AVPU < A, or intoxication)
 - 2. Focal neurologic findings (paresthesias, loss of sensation, weakness)
 - 3. Non-ambulatory patient
 - 4. Any complaint of neck pain
 - 5. Torticollis (limited range of motion, difficulty moving neck in history or physical)
 - 6. Substantial torso Injury (thorax, abdomen, pelvis)
 - 7. High Risk MVC (head on collision, rollover, ejected from the vehicle, death in the same crash, or speed > 55 m/h)
 - 8. Diving accident

Glasgow Coma Score

(Minimum 3, Max 15)

Eyes:

- 4 Opens eye spontaneously
- 3 Opens eyes to voice
- 2 Opens eyes to pain
- 1 Does not open eyes

Verbal:

- 5 Oriented
- 4 Confused, disoriented
- 3 Inappropriate words
- 2 Incomprehensible sounds
- 1 No sounds

Motor:

- 6 Obeys commands
- 5 Localizes pain
- 4 Withdrawal to painful stimuli
- 3 Flexion to painful stimuli
- 2 Extension to painful stimuli
- 1 No movement