



# Clinical Procedures

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## 12 Lead ECG

### Clinical Indications:

#### Any patient > 20 years old with the following:

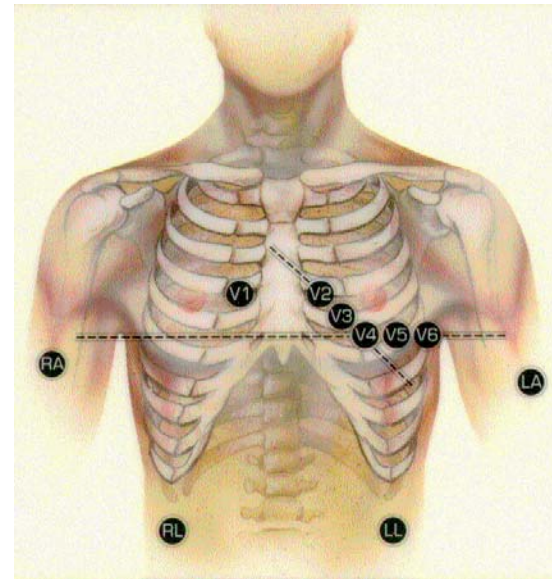
- Suspected cardiac patient
  - Pain between navel and jaw
  - Pressure, discomfort, tightness or heartburn
  - “Heart racing”, “palpitations”, or “heart too slow”
  - CHF signs and symptoms
- Electrical injuries
- Syncope
- Severe Weakness if > 45 years old
- New onset stroke symptoms
- Difficulty breathing (no obvious respiratory cause)
- Suspected overdose
- Patient of any age with any of the above symptoms **AND** history of: (cardiac, diabetes, obese, family history of early CHD, or recent cocaine use)

Legend		
B	<b>EMT - B</b>	B
I	<b>EMT- I</b>	I
P	<b>EMT- P</b>	P

### Procedure:

#### Any provider:

1. Assess patient.
2. Administer oxygen as patient condition warrants.
3. Expose chest and prep as necessary. Modesty of the patient should be respected as best as possible.
4. 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



#### Paramedic:

5. Prepare ECG monitor and connect patient cable with electrodes.
6. Enter the required patient information (patient name, etc.) in to the 12-lead ECG device.
7. Instruct patient to remain still.
8. Press the appropriate button to acquire the 12 Lead ECG.
9. For patients with cardiac complaint, keep all leads connected at all times practical to allow automatic ST-segment monitoring to proceed.
10. Monitor the patient while continuing with the treatment protocol.
11. Document the procedure, time, and results on/with the patient care report (PCR).

### Clinical Indications:

- When seeking consultation on ECG from receiving physician
- When activating cath lab for STEMI Alert

### Procedure:

1. Obtain 12 lead ECG and enter patient name as time allows.
2. Power on the cell phone.
3. Gently insert the serial cable into the cellular phone. (The cable will only insert one way; there is a notch on the pins of the serial cable that corresponds with the pins on the cellular phone).
4. Insert the serial cable into the data port on the LP12. This port is gray and is located above the black power receptacle located at the lower right at the rear of the LP12.
5. Press the “transmit” soft key on the LP12. This will display the transmit overlay screen. Select “data” by pushing the selector knob.
6. The “transmit/data” overlay will appear with several options:
  - **Send:** Press the selector knob to transmit data when this option is highlighted
  - **Report:** This option should default to 12 lead. If it is not, press the selector knob and select 12 lead. Note: If multiple 12 lead ECG’s are stored for the current patient, you must select a 12 lead ECG to transmit, i.e, 12 lead 1, 12 lead 2, etc
  - **Site:** This is the destination for the 12 lead ECG. Press the selector knob and select a destination by pressing the selector knob when the destination is highlighted. Destinations are denoted by hospital name, followed by “STEMI.” i.e., “Brack STEMI.”
  - **Prefix:** None required
  - **Cancel:** Select this option at any point to cancel the transmission process
7. After the destination is selected, highlight the send option and press the selector knob. This will begin the transmission process. During transmission, the LP12 will display a series of messages that indicates the progress of the transmission. Upon completion of the transmission, the LP12 will display “transmission complete” and print a summary of the transmission.
  - *Note:* The cellular phone will display “data call setup” and “call connected” during the transmission process
  - *Note:* In the event of a transmission failure that is due to loss of cellular signal, the LP 12 will attempt to re-transmit (up to 4 times)
8. Notify receiving hospital that 12 lead ECG was transmitted.

## AED

### Clinical Indications:

- Patients in cardiac arrest (pulseless, non-breathing)

### Contraindications:

- None

### Notes/Precautions:

- Age < 8 years, use Pediatric Pads, if available, or if device has “energy attenuating” key, be sure to activate key
- If AED Pads touch due to patient size, use an Anterior-Posterior pad placement

### 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. Use alternate placement when implanted devices (pacemakers, AICDs) occupy preferred pad positions.
3. Remove any medication patches on the chest and wipe off any residue.
4. Turn on AED and follow prompts.
5. Keep interruption in CPR as brief as possible.
6. If shock advised, **Assertively state “CLEAR” and visualize that no one, including yourself, is in contact with the patient then press the shock button**
7. Immediately return to chest compressions.
8. If no shock advised, immediately return to chest compressions.
9. Allow AED to analyze when prompted (approximately 2 minutes). Perform pulse check at this time.
10. Repeat steps 6 through 8.
11. **Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation**

If pulse returns:

See post resuscitation protocol

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

## Foreign Body Airway Obstruction

### Clinical Indications:

- Sudden onset of respiratory distress often with coughing, wheezing, gagging, or stridor due to a foreign-body obstruction of the upper airway
- Respiratory arrest where ventilation cannot be accomplished after repositioning of airway

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

### 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 five (5) back blows followed by five (5) chest thrusts repeatedly until the object is expelled or the victim becomes unresponsive.
3. **For a child**, perform a sub diaphragmatic 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, sub diaphragmatic abdominal thrusts (Heimlich Maneuver) should be used in rapid sequence until the obstruction is relieved or the victim becomes unresponsive
  - If abdominal thrusts are ineffective, chest thrusts should be used. Chest thrusts should be used primarily in morbidly obese patients and in 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, Paramedic and Intermediate level providers should visualize the posterior pharynx with a laryngoscope to potentially identify and remove the foreign-body using Magill forceps.
8. Document the methods used and result of these procedures in the Patient Care Report (PCR).

## Clinical Indications:

- Venous access when traditional means are unsuccessful
- Only in those patients with life-threatening situations such as cardiac arrest, lethal arrhythmias, or in-extremis from a readily treatable cause (i.e., CHF)

## Contraindications:

- Patients where traditional IV access is available

## Notes/Precautions:

- Venous access devices can be complicated. Consider contact with OLMC for guidance
- Alternate access devices provide a direct line into patient circulation; therefore, the introduction of air can be extremely hazardous
- Do not remove injection cap from catheter or allow IV fluids to run dry

## Procedure:

### Broviac / Hickman / Groshong and other double and triple lumen catheters

1. Silicone tube inserted into the distal superior vena cava or right atrium, usually via the cephalic vein. The catheter enters the skin through an incision in the chest. Most lines are kept heparinized and protected via an injectable cap.
2. Select appropriate port for access. If two are available, access the blue or brown port.
3. Thoroughly cleanse injectable port cap with chlorohexadine.
  - Insert an 18-gauge needle attached to a 12 cc syringe into injectable port cap and aspirate 10 mL of blood from catheter (this prevents an inadvertent anticoagulant bolus from occurring). Dispose of aspirated blood
  - If ports are needleless, use appropriate needleless adapter
4. If at any time you are unable to aspirate blood or infuse fluids, do not use line as clotting may have occurred.
5. Attach IV line (attached to an 18-20 gauge needle) into injection port. Begin IV fluid flow and adjust appropriately.
6. Medications are injected through the IV lifeline.

### PICC Line (Peripherally Inserted Central Catheter)




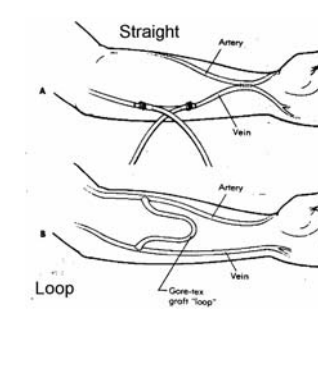
1. Usually inserted into the right atrium via the antecubital vein.
2. Select a port on one of the catheters. When two sizes are available, select the larger. Cleanse port with chlorohexadine.
3. Attach a needle to a 10 cc syringe and draw up 5 cc of normal saline (NS). Insert needle into port and attempt to inject NS. If resistance is met, withdraw needle and attempt same procedure on different port. Do this until you find catheter that does not present with resistance to administration of NS. If resistance continues, do not use either port.
4. When no resistance is met, inject contents of syringe into catheter and then draw back to achieve blood flash, indicating successful access.
5. Remove syringe, attach IV tubing, and proceed as normal, opening line and insuring patency.

## Internal Subcutaneous Infusion Ports (portacath)

1. Unless patient is in cardiac arrest, access should not be attempted without specialized Huber needle.
2. Patients with a pulse: Inquire if patient has Huber needles available. If so, proceed as outlined. If no Huber angle needles are available, DO NOT ACCESS PORT WITH REGULAR NEEDLES.
3. Patients in cardiac arrest: Access may be obtained using a regular 18 gauge needle when Huber needles are not available. Do not use unless absolutely necessary as a regular needle may destroy the self-sealing core, rendering the port useless.
4. Locate the site by visualization and palpation. These ports are generally found in the upper chest and present as a dome shaped protrusion.
5. Prepare site as if starting an IV.
6. Using a non-coring Huber angle needle attached to a syringe, insert into the site at a 90-degree angle until resistance is met.
7. Inject saline into port and aspirate blood (withdraw 10 ml of blood and waste). If resistance is met or blood cannot be aspirated, withdraw needle and do not attempt further access at this site.
8. With successful attempt, remove syringe, attach IV tubing, and proceed as normal, opening line and insuring patency.

## Hemodialysis AV-FISTULAS / AV-GRAFTS

1. A tube that diverts blood flow from an artery to a vein. Typically seen in renal failure patients.
2. Prior to access, check site for bruit and thrills, if none are present do not use.
3. Access fistula on venous side (side with weaker thrill in patient with a pulse) using 18 to 16 gauge angiocath in the same manner as intravenous access.
4. Remove catheter, and use only the needle if accessing an AV-Graft to avoid tearing synthetic material.
5. If patient does not have a pulse, either side may be accessed.
6. Inflate BP cuff around IV bag to maintain flow of IV fluids.
7. If unsuccessful in accessing site (no obvious blood return or flow of fluids), hold direct pressure over site for 5-8 minutes for a fistula and 8-15 minutes for a graft to prevent hemorrhaging. Do not continue attempting to access.

Multi-lumen Catheter	Internal Subcutaneous Port	PICC Line	Hemodialysis Fistula/Graft
			

## Adult Assessment

### Clinical Indications:

- Any patient requesting a medical evaluation that is too large to be measured with a Broselow-Luten Resuscitation Tape or >37 Kg

### Procedure:

- Scene size-up, including appropriate PPE, scene safety, environmental hazards assessment, need for additional resources, bystander safety, and patient/caregiver interaction.
- Initial assessment includes a general impression as well as rapid evaluation of the status of a patient's airway, breathing, and circulation, mental status (e.g., AVPU, GCS) and disability (e.g. motor/neuro deficits, pupil response).
- Assess the need for and complete any critical interventions. Manage additional system resources as appropriate. (request additional units or where appropriate downgrade or cancel responding units).
- Perform a focused history and physical based on patient's chief complaint making efforts to protect patient privacy and modesty. Complete secondary exam to include a baseline set of vital signs as directed by patient complaint or protocol.
- Maintain an on-going assessment throughout transport; to include patient response to/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.

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

## Clinical Indications:

- Any child that can be measured with the Broselow-Luten Resuscitation Tape or < 37 Kg

## Procedure:

- Scene size-up, including appropriate PPE, scene safety, environmental hazards assessment, need for additional resources, bystander safety, and patient/caregiver interaction. Take reasonable steps to protect patient privacy and modesty.
- 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
- Assess disability (motor function, sensory function, pupils).
- Determine responsiveness appropriate for age (AVPU, GCS, etc.).
- Perform spinal motion restriction, if suspicion of spinal injury.
- Color code using Broselow-Luten tape.
- Perform a focused history and physical exam. Pediatric patients unable to verbalize their own complaint should be fully exposed for assessment. 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:
  - Ideally the use of infant or child/pediatric BP cuff sizes when appropriate and available
    - 50<sup>th</sup> percentile BP estimate = (age in years x 2) + 90 mm Hg
    - Hypotension when BP ≤ (age in years x 2) + 70 mm Hg
  - To assess perfusion when obtaining a BP is not possible:
    - Age appropriate heart rate
      - Tachycardia is usually the most common sign of compensated shock in children,
      - BP doesn't drop until about 30% of circulating blood volume is lost
    - Mottled extremities
    - Decreased peripheral pulses compared to central, cool extremities
- 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.

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

## Auto-injector Delivered Medication

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

### Clinical Indications:

- When protocol indicates medication delivery via auto-injector
- When other administration routes are unsuccessful or unavailable

### Contraindications:

- None

### Notes/Precautions:

- Appropriate equipment
- Chlorohexadine wipe and Band-aids
- Appropriate injection sites
- Do NOT place thumb over either end of the auto-injector at any time.

### Procedure:

1. Prepare equipment.
2. Check label, date, and appearance of medication.
3. Locate appropriate injection site.
  - Vastus lateralis located on the lateral aspect of the thigh
  - Injection is given into the mid thigh
4. When time permits expose target site and prep with chlorohexadine/alcohol wipe. (not required as injectors are designed to work through clothing.)
5. Remove the auto-injector from its storage container.
6. Form a fist around the auto-injector with black tip facing down. Do NOT place thumb over either end of the auto-injector.
7. Remove the Gray or Blue safety cap with your other hand.
8. Position at a 90 degree angle the Black or Orange “needle end” cap against the desired injection site press very firmly listening for an audible “click.”
9. Hold auto-injector in place for 10 seconds to allow complete delivery of medication.
10. Remove auto-injector and dispose of the sharp in an appropriate container.
11. Massage the injection site for 10 seconds to speed delivery of the medication.
12. Observe patient for response to medication.
13. All patients receiving auto-injector medications should be transported to the hospital for further evaluation and observation.

## Clinical Indications

- As an adjunct to blind nasotracheal intubation in the patient with spontaneous respirations
- As an aid to re-confirming airway placement or re-assessing respiratory effort in the intubated patient with respiratory effort

## Contraindications

- Apnea, or inability to hear device during endotracheal tube insertion due to ambient noise
- Not to be used as the primary method for assessing airway placement in the intubated patient

## Notes/Precautions

- An unobstructed endotracheal tube with its tip located in the pharynx can also produce the whistle sound. Always confirm proper tube placement
- Due to the narrow aperture of the BAAM® device, it is never to be left attached to the endotracheal tube for greater than 15 seconds at any one time for assessment of the previously intubated patient. Partial airway obstruction, hypoxia and increased airway pressure can occur if left in place for prolonged periods

## Procedure

1. Pre-oxygenate and/or ventilate while preparing the patient for nasotracheal intubation;
2. Attach BAAM® device to the 15 mm adapter of the appropriate sized endotracheal tube. The device will attach to the tube only one way.
3. Proceed with nasotracheal intubation. As the ET tube nears the larynx an audible increase in whistling will be heard from the device, indicating that the tip of the endotracheal tube is near the entrance to the trachea.
4. Carefully advance the endotracheal tube through larynx, into the trachea when device and airway sounds are at their peak.
5. Quickly remove the BAAM® device and begin ventilating the patient.
6. Confirm tube placement by ETCO<sub>2</sub> and auscultation.

**Clinical Indications:**

- Any patient with an altered mental status
- Patients with metabolic or endocrine disorders, and presenting with non-specific complaints
- Bradycardia or hypothermia in infants

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT- I	I
P	EMT- P	P

**Procedure:**

1. Gather and prepare equipment.
2. Blood samples for performing glucose analysis should be obtained through a finger-stick. Venous blood samples may produce artificially high blood glucose values and should be avoided.
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 as recommended by the manufacturer and document. If any clinically suspicious readings are noted perform quality assurance test immediately after the call and notify a supervisor as appropriate.

## Clinical Indications:

- Adult patient with unstable bradycardia (HR <60 and signs of hypoperfusion such as SBP <90 mm Hg, change in mental status, chest pain, CHF)
- Pediatric patients with unstable bradycardia unresponsive to treatable causes (PEDI, SBP < 70 + (age in years x 2) mmHg). Unresponsive to aggressive Oxygenation and Ventilation attempts

## Contraindications:

- Hypothermia with a temperature <86 degrees F

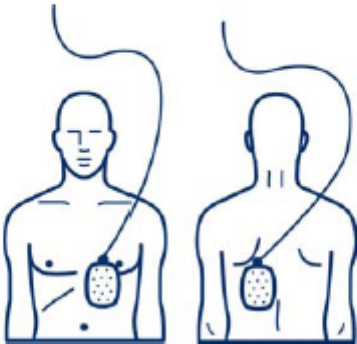
## Procedure:

1. Attach standard four lead monitor.
2. Apply defibrillation/pacing pads assuring clean dry contact surface (shave/dry):
  - One pad to anterior left mid chest next to sternum. (medial/inferior to pectoral muscle)
  - One pad to posterior left mid chest next to spine. (medial/inferior to scapula)
3. For pediatric patients use correct size and type pads for pacing and patient weight.
4. Select pacing mode on the monitor.
5. Adjust heart rate to 80 BPM (adult) or 100 BPM (child).
6. Note presence of pacer spikes.
7. Increase output until electrical capture of the rhythm on the monitor.
8. If unable to capture at maximum output discontinue pacing immediately.
9. If capture observed, check for corresponding pulse and assess vital signs.
10. Consider the use of sedation or analgesia.
11. Document the procedure, time of intervention and response in the patient care report.

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### Anterior-Posterior Placement for Pacing (Standard)

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## Clinical Indications:

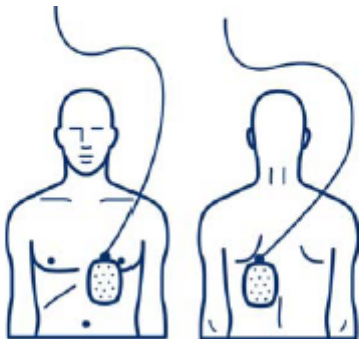
- Unstable tachydysrhythmia with a pulse (ventricular tachycardia, torsade de pointe, SVT, A-fib/Flutter with RVR, etc.) in accordance with the appropriate tachydysrhythmia protocol

## Contraindications;

- Repetitive, self-terminating, short-lived tachycardias (i.e., runs of non-sustained VT)

## Procedure:

1. Confirm that the rhythm on the monitor coincides with a patient in an unstable condition
2. Set to synchronized cardioversion mode watching for R wave markers on each QRS complex.
3. If the R wave markers do not appear, or appear elsewhere on the ECG, adjust the ECG size or gain up or down until they appear on each R-wave.
  - If markers still do not appear, select another lead or reposition the ECG electrodes
  - If these methods are ineffective unsynchronized cardioversion may be required
4. Apply self-adhesive pads in the anterior/posterior position, ensuring firm contact with patient's skin.
5. Consider the use of pain/sedating medications.
6. Charge device to appropriate energy level and clear all personnel from direct patient contact.
7. Depress and hold discharge buttons until electrical charge is delivered. (There may be substantial delay between pressing the button and the actual discharge of energy).
8. Reassess the patient. If rhythm deteriorates into VF/pulseless VT, switch to asynchronous mode and immediately defibrillate per Patient Care protocols.
9. Repeat steps 2 to 7 above using escalating energy settings until maximum setting or until efforts succeed. Consider discussion with medical control if cardioversion is unsuccessful after 2 attempts.
10. Document the procedure, time performed and patient response in the patient care report.



## Childbirth

### Clinical Indications:

- Imminent delivery with crowning

### 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. Consider additional resources as there will be two potential patients.
3. Support the infant's head as it delivers.
4. If the umbilical cord is around the neck, slip it over the head. If unable to free cord from the neck, double clamp the cord and cut between the clamps.
5. Suction the airway with a bulb syringe.
6. While continuing to support the head, gently lower the head to encourage delivery of the anterior shoulder.
7. Once the anterior shoulder delivers gently lift the head and anterior shoulder to allow delivery of the posterior shoulder.
8. Be prepared to support the infant while delivering the remainder of the body.
9. Clamp the cord 6 inches and place second clamp 9 inches from the abdomen and cut the cord between the clamps.
10. Record APGAR scores at 1 and 5 minutes.
11. Follow the **Newly Born Protocol** for further treatment.
12. The placenta will deliver spontaneously, usually within 5-25 minutes of the infant. Do not force the placenta to deliver or pull on the umbilical cord.
13. Massage the uterus and/or initiate breast feeding (as infant and/or maternal condition allows) to stimulate uterine contractions, decrease bleeding and initiate delivery of the placenta. If the placenta delivers it should be retained for inspection. For post-partum hemorrhage refer to the OB Emergencies protocol.

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

## Cincinnati Pre-hospital Stroke Screen

### Clinical Indications:

- Assessment of patient exhibiting signs and symptoms associated with stroke

### Contraindications:

- Unconscious patients unable to participate in the stroke scale

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

### Procedure:

1. Initiate assessment and treatment of the suspected stroke patients in accordance with the Stroke protocol. Utilize STROKE CHECKLIST whenever possible.
2. Ascertain the last time the patient was seen normal to establish the time of onset.
3. Obtain a blood glucose level according to the blood glucose procedure.
4. Perform the Cincinnati Prehospital Stroke Screen (CPPS).
  - Have the patient smile or show their teeth. Look for asymmetry
  - Assess for arm drift by asking the patient (while sitting upright or standing) to close their eyes and extend their arms, palms up and hold it for 10 seconds. Look for asymmetric pronation (palm turning towards the ground) or drift (one arm drops compared to the other)
  - Ask the patient to say a simple sentence such as “You can’t teach an old dog new tricks,” looking for incorrect words, slurring or inability to speak
  - All portions of CPPS must be completed. Any abnormality in the screening is positive for stroke
5. If onset of symptoms (as defined above) is < 8 hrs, the blood glucose reading is > 50 and < 300 and the CPSS is positive declare a STROKE ALERT and initiate transport to a designated Stroke Center.
6. Whenever possible identify a family member or historian to accompany the patient to the hospital.

### Cincinnati Prehospital Stroke Screen (CPPS)

Test	Finding
<b>Facial Droop:</b> Have the patient smile or show teeth	<input type="checkbox"/> <b>Normal</b> – both sides of face move equally <input type="checkbox"/> <b>Abnormal</b> – one side of the face does not move as well as the other side
<b>Arm Drift:</b> Patient closes eyes and extends both arms straight out, palms up, for 10 seconds	<input type="checkbox"/> <b>Normal</b> – both arms move the same or both arms are held steady <input type="checkbox"/> <b>Abnormal</b> – one arm drifts downward or the palm turns towards the ground (pronator drift*) when compared with the other
<b>Abnormal Speech:</b> Have the patient say “You can’t teach an old dog new tricks.”	<input type="checkbox"/> <b>Normal</b> – patient uses correct words with no slurring <input type="checkbox"/> <b>Abnormal</b> – patient slurs words, uses the wrong words, or is unable to speak

**\*Pronator drift: the forearm will pronate and the arm will drift downwards.**

## Clinical Indication:

The primary objective of a standardized clinical event review process is to identify individual and system improvement to clinical care. This procedure defines the mechanisms for reporting clinical events and triggering the clinical event review process.

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

## Procedure

1. Each System Transport Provider and First Responder Organization will establish a process by which their staff will report clinical events and concerns to the Organization's Performance Improvement staff.
2. Credentialed providers will use their Organization's process to report clinical concerns and events.
  - When reporting to the Performance Improvement staff is not possible, the Organization's first level supervisor should receive the report and forward it to the Performance Improvement staff as soon as possible
  - Providers who wish to do so may report the concern or event directly to the on-call Medical Director
3. Reports of clinical concerns or events should include, at a minimum, the following information related to the event/concern:
  - Date and approximate time
  - Incident number
  - Brief description of the clinical event/concern
  - Name of reporting person (optional)
4. Examples of potential events and concerns that must be reported include but are not limited to:
  - Unrecognized esophageal intubation
  - Medication error with or without apparent patient harm
  - ED physician complaint or conflict
  - High profile emergency medical events
  - Device failure causing inability to provide a critical intervention
  - Surgical Airway
  - Absolute deviation from a MPD protocol with a clinical impact
  - Transport to an inappropriate receiving facility
  - Any potential dec credentialing issue
5. To maintain confidentiality, reports should not include details related to the substantiation, cause or outcome of the reported concern/event.
6. Credentialed providers are expected to fully participate in the clinical event reporting and review processes.

## Contact Precautions

### Clinical Indications:

- Used when the organism is transmitted by direct contact with patient or environmental surfaces
- Patients with large infected ulcers and drainage that is not contained by dressing
- Any drug resistant organism, *Clostridium difficile*, *Scabies*, *E. coli O157:H7*

### Contraindications:

Not Applicable

### Notes/Precautions:

Not Applicable

### Procedure:

1. Explain the need for Contact Precautions to the patient.
2. Everyone involved in direct patient care should wear clean gloves and gowns.
3. Gloves and gowns should be removed and hands washed with soap and water prior to leaving the treatment area or upon completion of patient transfer.
4. Additional protection (e.g. masks, face protection, goggles) should be added per Standard Precautions depending on the procedures done. (e.g. wear masks and eye protection for suctioning, intubation, or nebulized medication).

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

## Cook-Melker Emergency Cricothyrotomy Catheter Set



### Clinical Indications:

- Patients in whom surgical airway is indicated in accordance with the failed airway protocol

### Contraindications:

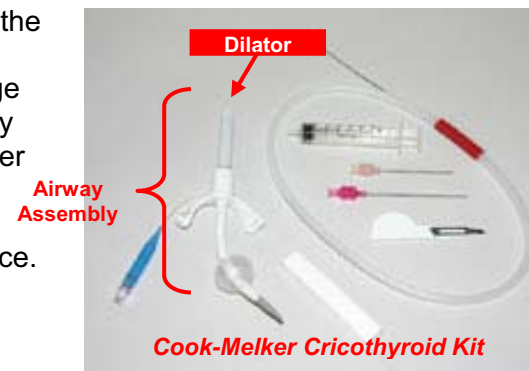
- Anytime a less invasive maneuver would allow ventilation of the patient
- Tracheal transection
- Fractured larynx or significant damage to the cricoid cartilage or larynx

### Notes/Precautions:

- Cricothyroid membrane is located by:
  - Palpating the protuberant midline portion of the thyroid cartilage (“Adams apple”)
  - Move the fingertip inferiorly until it rests in the soft, flat depression between the thyroid cartilage and the cricoid cartilage
- In order to minimize the risk of dislodgement:
  - The individual completing the procedure should direct any/all patient movement
  - BVM is to be disconnected from the airway during any patient movement
- The airway is to be reassessed following any patient movement

### Procedure:

1. Ensure all necessary equipment is available.
2. Prepare anterior surface of the neck with Chlorohexadine.
3. Locate the cricothyroid membrane.
4. Place thumb and index finger of non-dominant hand on either side of the tracheal cartilage to stabilize the trachea, anchor and stretch the skin slightly.
5. Utilizing the supplied syringe with either of the introducer needles attached, advance the needle through the cricothyroid membrane into the airway:
  - Advance needle at a 45 degree angle to the frontal plane, in the midline, in a caudal direction (towards the feet)
  - When advancing the needle forward, aspiration on the syringe resulting in free air return will confirm entrance into the airway
  - Drawing 2-3 ml of sterile IV solution into the syringe will further assist the confirmation of needle into the trachea due to presence of bubbles during aspiration
6. With placement confirmed, remove syringe leaving needle in place.
7. Advance wire guide through the needle and into the airway assembly several centimeters.
8. Remove the needle, leaving the wire guide in place.
9. The dilator of the Cook-Melker device is inserted into the BVM connector end of the airway catheter until it stops against the connector.
10. Advance the airway assembly over the wire guide until the proximal end of the wire guide is completely through and visible at the end of the dilator.
11. While maintaining the wire guide position, make a vertical incision with the scalpel, sufficient to allow passage of the airway assembly (dilator and airway).
12. Continue to advance the airway assembly over the wire guide and completely into the trachea.
13. Remove wire guide and dilator simultaneously.
14. Inflate the cuff using a syringe with 8-10 cc of air (if a cuffed tube is used).
15. Fix the emergency airway in place with the cloth tracheostomy tape in a standard fashion.
16. Attach ETCO2 monitoring device.
17. Using the standard adapter, connect emergency airway to an appropriate ventilatory device.



## CPAP

### Continuous Positive Airway Pressure Ventilation

#### Clinical Indications:

- Congestive Heart Failure/Pulmonary Edema
- Submersion / Drowning
- Chronic Obstructive Pulmonary Disease
- Acute Respiratory Distress

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

#### Contraindications:

- Respiratory arrest
- Agonal respirations
- Unconsciousness
- Shock associated with cardiac insufficiency
- Pneumothorax
- Facial trauma, burns

#### Notes/Precautions:

*Possible complications include*

- Gastric distention
- Reduced cardiac output
- Hypoventilation
- Pulmonary barotrauma

#### Procedure:

1. Ensure all necessary equipment is available and assembled.
2. Select initial appropriate PEEP for condition (5 cm H<sub>2</sub>O or 10 cm H<sub>2</sub>O).
3. Fully explain procedure to patient.
4. Have patient hold mask to face and instruct him/her to breathe slowly and deeply.
5. Once patient is comfortable with mask, securely attach headpiece and tighten to fit.
6. The adjunctive delivery of an albuterol Neb with the CPAP device is an approved procedure and treatment modality. Patient presentation and distress level should dictate the timing or use of this procedure. The addition of Albuterol in this fashion should not create delays in the use of CPAP and, only providers who are trained and appropriately equipped should use this.

## CPR – Pit Crew

### Clinical Indications:

- Patient in cardiac arrest

### Contraindications:

- < 1 year or patient size prohibits access

### Notes/Precautions:

- Focus is on:
  - Minimally interrupted compressions
  - Appropriate depth and quality of compressions
  - Consider compressor fatigue and change compressors as needed
  - Team approach
- Infants and small children may require modification of the procedure due to size
- This procedure is based on a 3-person crew of providers (if a 4<sup>th</sup> person is available, they should assist with setting up King Airway and rotate into a Compressor position)
- If LUCAS device is available, Position 1 becomes the operator of LUCAS
- If there is only a 2-person crew, go to CPR Procedure

### Procedure:

1. First arriving providers:
2. Establish prior to arriving at patient's side, the following responsibilities:
  - **Position 1** (patient's right side)
    - assesses responsiveness/pulses
    - initiates chest compressions immediately if needed
    - checks & pre-assembles BIAD (ventilates BVM when not performing compressions)
    - alternates chest compressions
    - ventilates BVM when not performing chest compressions
    - assembles, applies & operates LUCAS
  - **Position 2** (patient's left side)
    - applies AED pads immediately
    - operates AED after each 2 minute cycle of compressions
    - alternates chest compressions with Position 1
    - ventilates BVM when not performing chest compressions
    - may assist with BIAD
  - **Position 3** (patient's head)
    - assembles and appropriately applies all equipment for airway and ventilations (OPA, BVM, ITD, Suction, O2, BIAD, BIAD securing device, ET/CO2)
    - opens/clears airway
    - inserts OPA
    - assembles and applies BVM & ITD
    - turns on timing light on ITD
    - maintains two-hand BVM mask seal
    - inserts & secures BIAD at appropriate time (after 400 chest compressions during 2<sup>nd</sup> AED rhythm analysis or when able)
  - **Position 4** (if available)
    - rotates and assists wherever needed
    - may function as a "team leader"

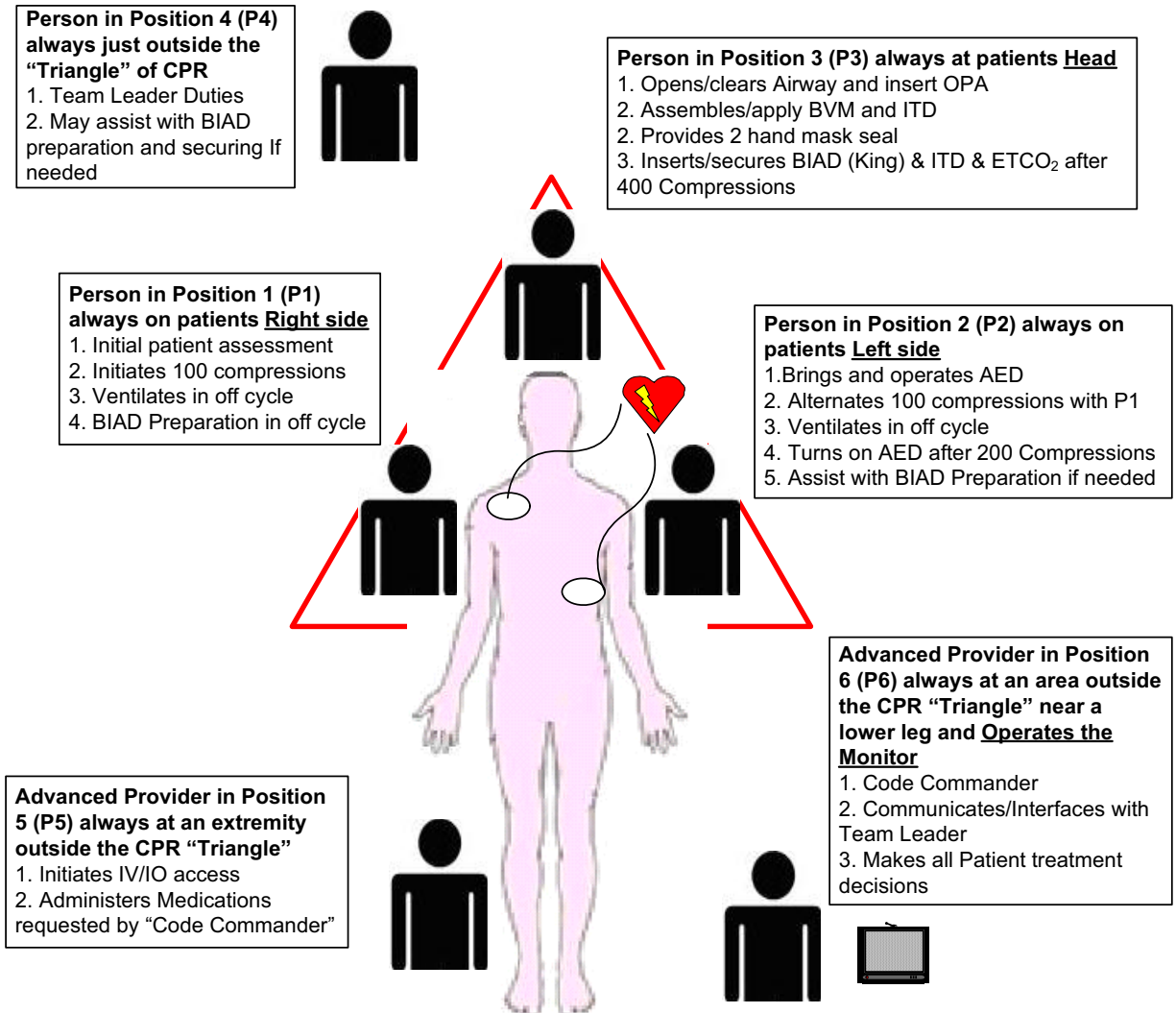
Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

## CPR – Pit Crew

3. ALS Integration:
4. Establish prior to arriving at patient's side, the following responsibilities:
  - **Code Commander** (Paramedic in control of monitor)
    - communicates/interfaces with providers performing CPR
    - sets up & operates monitor/defibrillator
    - makes all patient treatment decisions
  - **Intervention Paramedic** (positioned at feet when possible)
    - initiates IV/IO access
    - administers medications at the direction of the code commander
    - anticipates needs of code commander

Below is graphical representation of the Pit Crew CPR Procedure:

# CPR Procedure



## CPR (BLS)

### Clinical Indications:

- Basic Life Support for the patient in cardiac arrest

### Contraindications:

- None

### Notes/Precautions:

- Focus is on:
  - Minimally interrupted compressions
  - Appropriate depth and quality of compressions
  - Consider compressor fatigue and change often
- Witnessed Arrest: Go Immediately to AED Procedure

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

### Procedure:

1. Assess the patient's level of responsiveness (shake and shout).
2. If no response, open the patient's airway with the head-tilt, chin-lift 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.
3. Go to AED Procedure.
4. Check for pulse (carotid for adults and older children, brachial for infants) for at least 10 seconds. If no pulse begins chest compressions as directed below:

Age	Location	Depth	Rate
Infant	Over sternum, between nipples (inter-mammary line), 2-3 fingers	0.5 to 1 inch (1/3 the anterior-posterior chest dimension) Allow Full Chest Recoil.	At least 100/minute
Child	Over sternum, just above the xyphoid process, heel of one hand	1 to 1.5 inches (1/3 the anterior-posterior chest dimension) Allow Full Chest Recoil.	100/minute (3 compressions every 2 seconds)
Adult	Over sternum, just above the xyphoid process, hands with interlocked fingers	1.5 to 2 inches (1/3 the anterior-posterior chest dimension). Allow Full Chest Recoil.	100 minute (3 compressions every 2 seconds)

5. Go to Cardiac Arrest Protocol. Begin ventilations.
6. Provide no more than 12 breaths per minute with the BVM. Use the blinking light on the Res Q Pod as your guide for ventilatory rate.
7. **Chest compressions should be provided in an uninterrupted manner. Only interrupt at 2 minute intervals for rhythm analysis, defibrillation, and performance of procedures.**
8. Document the time and procedure in the Patient Care Report (PCR).

## Cricoid Pressure

### Clinical Indications:

- All patients in need of airway protection due to gastric insufflation and/or vomitus entering airway
- As needed during advanced airway procedures to enhance Intubation attempts

### Contraindications:

- Cricoid pressure should not be applied to children less than 1 year of age

### Notes/Precautions:

- Caution should be exercised when utilizing this technique on children of any age. The cricoid cartilage is not as firm in children as it is in adults. As a result, less pressure is needed to achieve the same effect

### Procedure:

1. Locate the cricoid cartilage by:
  - Palpating the protuberant midline portion of the thyroid cartilage (“Adams apple”)
  - Move the fingertip inferiorly until it rests in the soft, flat depression between the thyroid cartilage and the cricoid cartilage
2. Using the thumb and forefinger of one hand, apply downward pressure (approximately 5-6 lbs. of pressure) on the cricoid cartilage.
3. When using to assist intubation the provider performing the intubation may place their fingers over those of the provider giving cricoid pressure to direct the movement of the larynx backward, upward, rightward pressure (BURP) to allow visualization.
4. Once visualized the intubating provider may remove their hand and introduce the endotracheal tube.



Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

## Decontamination

### Clinical Indications:

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

### Procedure:

1. HazMat Command will establish hot, warm and cold zones of operation.
2. Ensure that personnel assigned to operate within each zone have proper personal protective equipment and training.
3. In coordination with other public safety personnel, assure that each patient from the hot zone undergoes appropriate initial decontamination. This is specific to each incident; such decontamination may include:
  - Removal of patients from Hot Zone
  - Simple removal of clothing
  - Irrigation of eyes
  - Passage through high-volume water bath (e.g., between two fire apparatus) for patients contaminated with liquids or certain solids. Patients exposed to gases, vapors, and powders often will not require this step as it may unnecessarily delay treatment and/or increase dermal absorption of the agent(s)
4. Initial triage of patients should occur after step #3. Immediate life threats should be addressed prior to technical decontamination.
5. Assist 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.
6. 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.
7. Monitor all patients for environmental illness.
8. Transport patients per protocol.

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

# Determination of Capacity

## Clinical Indication:

- To determine if a patient has present mental capacity to make an informed decision to accept or refuse care. All refusals should be conducted in accordance with the Refusal of Treatment/Transport Standard and the Definition of a Patient Standard

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

## Procedure:

- Determine scene safety.
- If the patient is suicidal or homicidal contact police immediately.
- In order to have decision making capacity the patient must be 18 years of age or if a minor, be emancipated, must not be suicidal or homicidal or have had their decision making capacity removed by determination of a court of law.
- If the above criteria in #3 have been met the patient must be assessed for their ability to demonstrate the following:
  - Does the patient understand their illness or injury and the benefits of treatment and/or evaluation **AND**
  - Does patient understand consequences (including death) of not seeking treatment and/or evaluation for their illness or injury **AND**
  - Does the patient understand the alternatives to immediate care by EMS **AND**
  - Can the patient describe, in his own words, the above components and provide and defend a reason for their decision not to submit to treatment or transportation?
- Utilize the Determination of Capacity checklist. If there is any uncertainty about the patient's present mental capacity contact On-Line Medical Control.
- Every individual who has demonstrated present mental capacity has a legal right to refuse medical treatment, even if that refusal is contrary to the beliefs of the provider or may result in potential harm to the patient. It is a healthcare provider's responsibility to provide the patient with information about the risks of refusal and the benefits of treatment and/or evaluation so that their decision is informed.
- If it is determined that a patient who wishes to refuse care lacks the present mental capacity to do so contact medical control and a supervisor to assist with the process.
- Document any allowed history and exam, the absence of suicidal or homicidal ideation, the components of the capacity assessment and contact with medical control.

**Clinical Indication:**

- Intubated patients requiring any of the identified medications when intravenous or intraosseous access is not obtainable

**Contraindications:**

- Administration of medications not identified
- Instilling into or through ITD
- Instilling into or through King LTS-D Airway

**Notes/Precautions:**

- The following medications (LANE) may be administered via the endotracheal route:
  - Lidocaine
  - Atropine
  - Narcan
  - Epinephrine
- Medications administered via this route should be double the age/weight appropriate dose

**Procedure:**

1. Oxygenate the patient with 100% oxygen.
2. If CPR is in progress, do not stop chest compressions during administration of medications.
3. Disconnect BVM from the endotracheal tube and instill medication via the endotracheal tube:
  - Adults—No more than 10 milliliters at one time.
  - Pediatric—Flush dose with 5 milliliters normal saline
4. Reconnect Bag-Valve device and ventilate patient with 5 full breaths prior to administering any remaining amount of medication.

## End – Tidal CO<sub>2</sub> Monitoring EZ Cap

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

### Clinical Indications:

- As an adjunct for initial confirmation of proper advanced airway placement
- On intubated patients until quantitative capnography becomes available or in the event of End Tidal CO<sub>2</sub> device failure

### Contraindications:

- Not used to detect main-stem bronchial intubation
- Not for use during mouth-to-tube ventilation

### Notes/Precautions:

- Due to potential increased airway resistance, do not use Pedi-Cap on patients weighing  $\geq 15$  kg
- Reflux of gastric contents, mucous, edema fluid, endotracheal medication administration, or nebulization can discolor detector. Contamination of this type may increase resistance, alter color changes, and affect ventilation. If this occurs, discard the device
- If used with ITD in Cardiac Arrest, the ITD must be attached to advanced airway

### Procedure:

1. Select appropriate detector according to patient size and weight. Remove detector from packaging.
2. Patient  $\geq 15$  kg - Easy-Cap.
3. Patients  $< 15$  kg - Pedi –Cap.
4. Match initial color of indicator to the PURPLE color labeled CHECK around the detector window.
  - If the purple color of the indicator is not the same color, or darker, than the area marked CHECK, do not use the detector
  - If the indicator color appears pink, the separate color chart for fluorescent light must be used for accurate color matching
5. Insert advanced airway according to the appropriate procedure.
6. Deliver six ventilations of moderate tidal volume.
7. Interpreting results before confirming 6 breath cycles can yield false results.
8. After six breaths, attach detector to advanced airway; then attach BVM to the detector.
9. Compare indicator color in the window on full-end expiration. If CO<sub>2</sub> is detected, the PURPLE CHECK color will change to TAN (Range C).
10. If the results are not conclusive, and correct anatomic location cannot be confirmed with certainty by other means, the advanced airway should be immediately removed and BVM ventilations resumed.

## End – Tidal CO<sub>2</sub> Monitoring Wave Form

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

### Clinical Indications:

- All patients with a potential, or actual, change in metabolism, circulation, and/or respiratory function
- Hypoventilation states
- Shock states
- Shortness of breath/Bronchospastic disease
- Chest pain with respiratory distress
- Congestive Heart Failure
- All patients with advanced airways or receiving CPR
- Patients experiencing altered mental status
- Any patient receiving/having received sedating medications or magnesium

### Contraindications:

- None

### Notes/Precautions:

- A patient with normal cardiac and pulmonary function will have an ETCO<sub>2</sub> level between 35-45 mmHg
- When no CO<sub>2</sub> is detected, 3 factors must be quickly evaluated for the cause:
  - Loss of airway function- Improper tube placement, apnea
  - Loss of circulatory function- Massive PE, cardiac arrest, exsanguination
  - Equipment malfunction- Tube dislodgement or obstruction
- All advanced airway patients will have capnography (when available) applied and a printed copy of the post intubation readings attached to the Patient Care Record (PCR). A copy of the waveform will also be left with hospital staff
- If used with ITD in Cardiac Arrest, the ITD must be attached to advanced airway

### Procedure:

1. Turn on monitor and adjust contrast as needed.
2. Verify ETCO<sub>2</sub> display is on and functioning in Channel 3.
3. Open tubing connector door and connect ETCO<sub>2</sub> Filterline tubing by turning clockwise. Tubing should be connected to monitor before being connected to patient's airway.
4. Connect tubing to patient airway.
5. To record waveform:
  - Press "PRINT"- This will print real time capture
  - Press "EVENT" then highlight and press "GENERIC"- This will capture 3 seconds prior to and 5 seconds after event selection
6. For patients meeting the indications for capnography the capnometer shall remain in place and be monitored throughout prehospital care and transport.
7. Continuous capnometry should be monitored as airway procedures are performed to aid in verification or correction of an airway problem.
8. Any loss of CO<sub>2</sub> detection or waveform should be immediately evaluated for loss of airway or circulatory compromise and should be documented.
9. In all patients with a pulse an ETCO<sub>2</sub> reading > 20 is expected. In the post resuscitation patient no effort should be made to lower ETCO<sub>2</sub> by modification of the ventilatory rate.
10. In the pulseless patient an ETCO<sub>2</sub> waveform with an ETCO<sub>2</sub> value > 10 may be utilized to confirm the adequacy of an airway to include BVM and advanced devices when SpO<sub>2</sub> will not register.

### Clinical Indications:

- External jugular vein cannulation is indicated in a critically ill patient  $\geq 8$  years of age who require intravenous access for fluid or medication administration and in whom an extremity vein or intraosseous access is not obtainable
- External jugular cannulation can be attempted initially in life threatening events where no obvious peripheral site is noted and intraosseous access is contraindicated or undesirable

### Procedure:

1. Place the patient in a supine head down position where possible to distend the neck veins.
2. Turn the patient's head toward the 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. "Tourniqueting" 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. Avoid using cervical collars with external jugular venous access. If needed, other methods of cervical motion restriction should be used.
8. Document the procedure, time, and result (success) on/with the Patient Care Report (PCR).

## Extremity IV Intravenous Fluid Therapy

I	EMT- I	I
P	EMT- P	P

### Clinical Indications:

- Any patient where intravenous access is indicated (significant trauma or mechanism, emergent or potentially emergent medical condition)
- Patients requiring intravenous fluids or medications
- Patients in which a potential for hemodynamic compromise or vascular system instability exists

### Contraindications:

- None

### 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 provider.*

*EMT-I and Paramedics can use intraosseous access where threat to life exists as provided for in the Venous Access- Intraosseous Procedure.*

1. Locate suitable venipuncture site and place a venous constricting band above the chosen site.
2. Select a vein and an appropriate gauge catheter for the vein and the patient's condition. Suitable venipuncture sites include:
  - Back of the hand
  - Forearm
  - Antecubital fossa
  - Leg
  - Scalp vein (infants only)
3. Inspect the IV solution for expiration date, cloudiness, discoloration, leaks, or the presence of particles.
4. Connect the 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.
5. Prep the skin with Chlorohexadine.
6. Insert the needle with the bevel up into the skin in a steady, deliberate motion until a "pop" is felt and a blood flashback is visualized in the catheter.
7. Advance the catheter into the vein. **Never** reinsert the needle through the catheter. Dispose of the needle into the proper container without recapping.
8. Remove the venous constricting band and connect the IV tubing or saline lock.
9. Open the IV to assure patent access and free flow of the fluid and then adjust to a keep vein open (KVO) rate or as clinically indicated.
10. Cover the site with a sterile dressing and secure IV line.
11. Label the IV with date, time, catheter gauge, and name/ID of the person starting the IV.
12. Document the procedure, time and result on the patient care report (PCR).

### Saline Lock:

1. Prepare equipment.
2. Flush air from "saline lock" with 1 to 3 mL of fluid.
3. Follow steps 1 through 8 as above for venipuncture.
4. Remove protective cap on the Luer lock device and carefully twist it onto the IV hub. Confirm that firm contact has been established and no fluid leaks exist.
5. Flush saline lock with 3 mL of normal saline looking for infiltration.
6. Tape or secure as previously noted.

## Eye Irrigation BLS Only

### Clinical Indications:

- Irrigation of eye after chemical exposure/burn
- Assist with removal of foreign material from eye

### Contraindications:

- Impaled object in eye
- Trauma to globe of eye

### Notes/Precautions:

- None

### Procedure:

1. Remove contact lenses (if present).
2. Initiate irrigation and direct the tip of the IV tubing at the medial canthus (corner of the eye nearest the nose) and allow to flow laterally. Do not allow irrigation fluid to come in contact with unaffected eye.
3. Continue irrigation throughout transport. All patients should receive transport to the ED to evaluate for corneal injury.

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

## Eye Irrigation Morgan Lens

### Clinical Indications:

- Irrigation of eye after chemical exposure/burn
- Assist with removal of foreign material from eye
- Morgan Lens for > 8 years of age ONLY

### Contraindications:

- Impaled object in eye
- Trauma to globe of eye

### Notes/Precautions:

- Care should be taken that the patient does not rub eyes after administration of Proparacaine as damage can occur

### Procedure:

1. Instill topical ophthalmic anesthetic in affected eye(s) per protocol if available.
2. Mix 100 mg Lidocaine (5 mL of a 2% solution) in 1 L normal saline.
3. If Morgan Lens available:
  - Attach Morgan Lens to delivery set equipped with a macro drip and start flow
  - Instruct the patient to look down and insert the upper portion of the lens under the upper lid
  - Instruct the patient to look up and retract the lower lid allowing placement of the lower portion of the Morgan Lens under the lower lid
  - Continue irrigation of the affected eye(s) using caution to ensure run off does not enter the unaffected eye. Do not allow the irrigation solution to run dry
  - Tape the tubing to the patients face to avoid inadvertent removal. Consider additional pain management as needed
4. To remove the Morgan Lens continue the flow of irrigation solution while instructing the patient to look up. Retract the lower lid and slide Morgan Lens from under the upper lid.
5. If no Morgan Lens available initiate irrigation and direct the tip of the IV tubing at the medial canthus (corner of the eye nearest the nose) and allow to flow laterally. Do not allow irrigation fluid to come in contact with unaffected eye.
6. Continue irrigation throughout transport. All patients should receive transport to the ED to evaluate for corneal injury.

## Flex Guide ETT Introducer (Gum-elastic Bougie)

P

EMT-P

P

### Clinical Indications:

- Any patient who meets clinical indication for orotracheal intubation
- Initial attempt unsuccessful
- Predicted difficult intubation
- Digital intubation

### Contraindications:

### Notes/Precautions:

- Soft tissue damage or bronchial rupture may occur:
  - During blind intubation
  - Positioning past the carina
  - If undue pressure is applied
  - If ET tube is passed over introducer without the use of a laryngoscope
- This is a single-use device. Do not attempt to clean or sterilize
- For optimal use, store flat in the same shape as packaged. Do not fold or roll up to save space

### Procedure:

1. Prepare and perform an optimal direct laryngoscopy in accordance with the orotracheal intubation procedure.
2. Begin insertion of introducer.
  - Tactile confirmation of tracheal clicking will be felt as the distal tip of the introducer bumps against the tracheal rings
  - If tracheal clicking cannot be felt, continue to gently advance the introducer until “hold up” is felt
  - Tracheal “clicking” and “hold up” are positive signs that the introducer has entered the trachea
3. Lack of tracheal clicking or hold-up is indicative of esophageal placement.
4. While holding the introducer securely, and without removing laryngoscope, advance endotracheal tube over the proximal tip of the introducer.
5. As the tip of the endotracheal tube passes beyond the teeth, rotate the tube 90 degrees counter clockwise (1/4 turn to the left) so tube bevel does not catch on the arytenoid cartilage.
6. Advance endotracheal tube to the proper depth.
7. Holding endotracheal tube securely, remove introducer.
8. Verify correct placement of ET tube in accordance with the orotracheal intubation procedure.

I	EMT- I	I
P	EMT- P	P

## Clinical Indications:

- Adult and pediatric cardiac arrest following placement of advanced airway
- When requested by On-Line Medical Control

## Contraindications:

- Actual or suspected laceration or perforation of the esophagus
- Suspected fractures of the cribriform plate as evidenced by severe maxillofacial trauma (Nasal gastric tube placement only)
- Ingestion of a caustic substance
- Anticoagulant use (e.g., coumadin, warfarin) or disorders of coagulopathy (hemophilia) is a relative contraindication

## Procedure:

1. Select appropriate sized tube according to patient size and measure the correct length for insertion.
  - To measure length: While holding the distal end of the tube, measure the distance from the patient's earlobe to the bridge of his/her nose, and from there to a point just below the xiphoid process
  - Mark this length with a piece of tape to serve as a future guide point
2. Have patient sit upright and lean slightly forward with his/her neck slightly flexed unless otherwise contraindicated.
3. In the unconscious or arrested patient with an advanced airway in place the orogastric route of insertion may be preferred. The gastric tube may also be inserted through the gastric lumen of the King-LT airway.
4. Lubricate distal 3 to 6 inches of the tube (preferably with Lidocaine jelly) and select the most widely patent nostril.
5. Support the back of the patient's head and gently advance tube straight back along the floor of the nasal cavity (in an anterior-to-posterior direction, not cephalad). If resistance is felt, rotate tube slightly to help advance it into position.
6. As tube reaches the posterior nasopharynx the patient is likely to gag. At this point, if the patient is able to do so, and it is not contraindicated, have the patient swallow a small amount of water.
7. Continue to insert the tube past the glottic opening into the esophagus. Continue to insert the tube into the nose until the pre-measured mark reaches the front edge of the nostril.
8. After reaching the predetermined mark confirm that the tube has not curled up into the oropharynx or pharynx. While listening over the epigastrium, inject 20-30 mL of air into the tube and listen for "gurgling" to indicate proper placement. Aspirate and observe for gastric contents (may not always be present).
9. If no sounds are heard over the epigastrium, and you notice fogging or misting in the tube, or patient cannot cough or speak, immediately withdraw the tube and oxygenate the patient.
10. If tube placement has been confirmed, securely tape the proximal end where it enters the nostril to the bridge of the nose.
11. After tube is firmly secured, connect the proximal end to suction device and suction as needed.

## Hemostatic Agent

SO	Spcl. Ops.	SO
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### 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.

## Intramuscular Injections Patient Care Setting

I	EMT- I	I
P	EMT- P	P

### Clinical Indications:

- When the rate of absorption needs to be slower and/or prolonged in action
- When other administration routes are unsuccessful, unavailable or indicated by protocol

### Contraindications:

- None

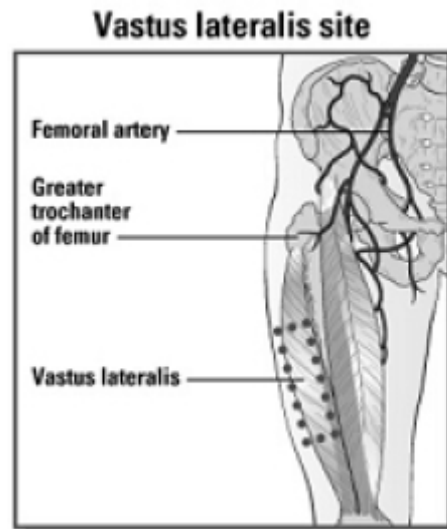
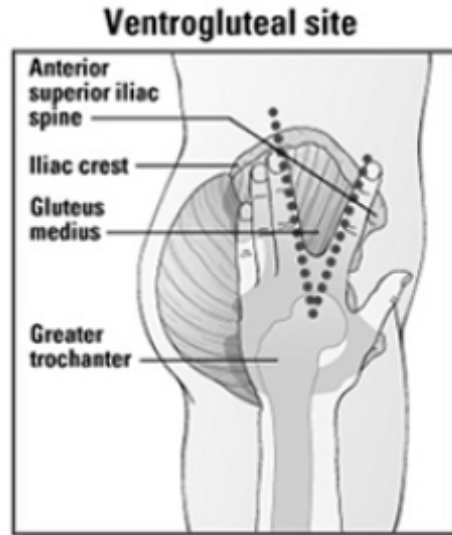
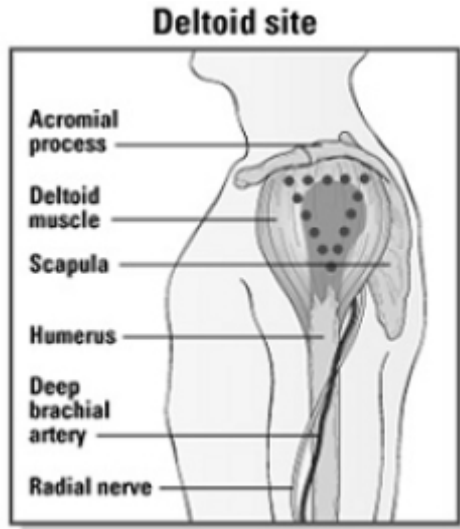
### Notes/Precautions:

- Appropriate equipment
- Needles size and length
  - 5/8 to 1 inch for deltoid, 1 to 1.5 inch for larger muscles
  - 25 gauge for aqueous medications, 21 gauge for oily or thicker medications
- 3 or 5 ml syringe
- Chlorohexadine wipe and Band-aids
- Appropriate injection sites
  - Posterior deltoid for injections of up to 2 mL in adults contingent upon muscle mass development
  - Vastus Lateralis for injections of 2 mL or less in children and adults
  - Ventrogluteal site for injections of 2 to 5 mL in adults or 2 mL or less in children

### Procedure:

1. Prepare equipment.
  2. Check label, date, and appearance of medication.
  3. Five "R's" : Right patient / Right drug / Right dose / Right route / Right time.
  4. Locate appropriate injection site.
  5. Deltoid:
    - Identify the bony portion of the shoulder where the clavicle and scapula meet [the acromioclavicular joint (AC)]
    - Measure 3 to 4 fingers-width down the arm from AC joint
    - Slide one to two fingers-width posteriorly on the arm
  6. Vastus lateralis sites:
    - Located on the anterior and lateral aspects of the thigh
    - Divide the area into thirds between the greater trochanter of the femur and the lateral femoral condyle
    - Injection is given into the middle third
  7. Ventrogluteal site:
    - Place heel of palm on patient's greater trochanter of the femur
    - Place index finger on the anterior superior iliac spine and spread other fingers posteriorly
    - Injection is given in the V formed between the index finger and the second finger
- A diagram of approved injection sites can be found on the following page---**
8. Using a circular motion from selected site outward, cleanse site with Chlorohexadine.
  9. With one hand, stretch or flatten the skin overlying the selected site. This will allow for smoother entry of the needle.
  10. In the other hand, hold syringe like a dart and quickly thrust the needle into the tissue and muscle at a 90-degree angle.
  11. Slowly inject medication.
  12. After all medication is injected, quickly withdraw syringe and dispose of in an approved container.
  13. Gently massage over the injection site to increase absorption and medication distribution.
  14. Apply firm pressure and place band-aid over site.

## Injection Sites



## Impedance Threshold Device Res-Q-Pod

### Clinical Indications:

- Patients > 1 year of age in Cardiopulmonary Arrest

### Contraindications:

- Breathing patients and/or with a pulse

### Procedure (IF BLS Airway):

1. Place ITD between face mask and BVM.
2. Maintain a continuous seal on face mask via 2nd provider.
3. Turn on timing assist lights and ventilate only when light flashes.
4. Use of the ITD should not interfere with continuous compressions.

### Procedure (IF Advanced Airway):

1. Confirm tube placement; secure with commercial tube restraint.
2. Connect ITD directly to ET tube or BIAD.
3. Connect adaptor to ventilation port of the ITD. (included in the ITD package).
4. Connect ETCO<sub>2</sub> device (capnometry or capnography) to adaptor.
5. Connect ventilation source directly to ETCO<sub>2</sub> device.
6. Turn on timing assist lights and ventilate only when light flashes.
7. Use of the ITD should not interfere with continuous compressions.

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P



# Insulin Pump

## Clinical Indications

- Patient that is hypoglycemic with altered mentation and an insulin pump in place

## Contraindications

- None

## Notes/Precautions:

- Care is directed at treating hypoglycemia first, then stopping administration of insulin

## Procedure

1. Refer to appropriate PPE procedure.
2. Turn off insulin pump, if possible.
3. If no one familiar with the device is available to assist, disconnect pump from patient by:
  - Using quick-release where tubing enters dressing on patient's skin **-or-**
  - Completely removing the dressing, thereby removing the subcutaneous needle and catheter from under patient's skin
4. Transport patient to hospital.
5. If patient is refusing transport against medical advice (AMA):
  - Encourage the patient to eat,
  - Ensure the patient is with a competent person to observe the patient and assure they eat,
  - Instruct them to follow-up with their physician
  - Instruct them to call back if symptoms return.

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

# Intraosseous Infusion Manual

I	EMT- I	I
P	EMT- P	P

## Clinical Indications:

- Alternate to Intraosseous Infusion – EZ-IO, when unavailable
- As the initial means of circulatory access in cardiac arrest
- Patient where rapid vascular access is unavailable by other means in the following conditions:
  - Multisystem trauma with severe hypovolemia
  - Severe dehydration with vascular collapse and/or loss of consciousness
  - Respiratory failure or respiratory arrest
  - After 3 unsuccessful venous access attempts & patient is unstable (**Paramedic Only**)

## Contraindications:

- Fracture proximal to proposed intraosseous site
- History of Osteogenesis Imperfecta
- Current or recent infection at proposed Intraosseous site
- Previous Intraosseous insertion within 24 hours or joint replacement at or above the selected site

## Procedure:

1. Landmark for insertion as follows:
  - Proximal Tibia: Identify anteromedial aspect of the proximal tibia palpated just below the inferior border of the patella. Insertion site is 1-2 cm (2 finger breadths) below this on the flat surface of the tibia
  - Distal Tibia: (reserved for > 12 years of age) Identify the anteriomedial aspect of the distal tibia (2 cm proximal to the medial malleolus)
2. Prep the selected insertion site with Chlorohexadine.
3. Hold the Intraosseous needle at 90 degree angle aimed away from the nearest joint. Using firm pressure and a rotating or twisting motion, penetrate the cortex until a “pop” or “give” is felt indicating a loss of resistance. Do not advance the needle further.
4. Remove the stylette and place in approved sharps container.
5. Attach a syringe filled with at least 5 mL of NS and aspirate to confirm placement. Inject 5 mL of NS to clear the needle while observing for infiltration.
6. Attach IV tubing and adjust flow rate as desired. A pressure bag may be used to enhance flow where appropriate.
7. Stabilize and secure the needle.
8. If the patient experiences pain with infusion or medication administration, lidocaine may be instilled in the IO catheter line. Discontinue fluid/medication administration prior to administering lidocaine and wait 15 seconds prior to restarting. Lidocaine dosing as follows may be repeated once if pain persists:
  - Adult: 40 mg (2 mL of 2% solution)
  - Pediatric: 0.5mg/kg (0.025mL/Kg of 2% solution)
9. When administering medications via the IO route delivery should be followed with a 10mL flush of NS.
10. Document the procedure, time and result on the patient care report and apply wrist band.

## Intraosseous Infusion EZ - IO

I	EMT- I	I
P	EMT- P	P

### Clinical Indications:

- As the initial means of circulatory access in cardiac arrest
  - Patient where rapid vascular access is unavailable by other means in the following conditions:
    - Multisystem trauma with severe hypovolemia
    - Severe dehydration with vascular collapse and/or loss of consciousness
    - Respiratory failure or respiratory arrest
    - After 3 unsuccessful attempts & patient is unstable
- (Paramedic Only)**

### Contraindications:

- Fracture proximal to proposed intraosseous site
- History of Osteogenesis Imperfecta
- Current or recent infection at proposed Intraosseous site
- Previous Intraosseous insertion within 24 hours or joint replacement at or above the selected site

### Procedure:

1. Prepare EZ-IO assuring that complete needle set with trochar and needle is present.
  - Examine needle set to insure that seal is intact and needle is sterile, unused
2. Landmark for insertion as follows:
  - Humeral head: Place the patient palm on the umbilicus with the elbow on the ground or stretcher. Use your thumb to identify the humeral shaft. Slide thumb towards humeral head with firm pressure. Locate the tubercle by the prominent bulge. Use the opposite hand to pinch anterior and posterior humerus to assure midline position on the humerus
  - Proximal Tibia: Identify anteromedial aspect of the proximal tibia palpated just below the inferior border of the patella. Insertion site is 1-2 cm (2 finger breadths) below this on the flat surface of the tibia
  - Distal Tibia: (reserved for > 12 years of age) Identify the anteriomedial aspect of the distal tibia (2 cm proximal to the medial malleolus)
3. Prep the selected insertion site with Chlorohexadine.
4. Hold the Intraosseous needle at 60-90 degree angle aimed away from the nearest joint. Power the driver until a “pop” or “give” is felt indicating a loss of resistance. Do not advance the needle further.
5. Remove the stylette and place in approved sharps container.
6. Attach a syringe filled with at least 5 mL of NS and aspirate to confirm placement. Inject 5 mL of NS to clear the needle while observing for infiltration.
7. Attach IV tubing and adjust flow rate as desired. A pressure bag may be used to enhance flow where appropriate.
8. Stabilize and secure the needle.
9. If the patient experiences pain with infusion or medication administration lidocaine may be instilled in the IO catheter line. Discontinue fluid/medication administration prior to administering lidocaine and wait 15 seconds prior to restarting. Lidocaine dosing as follows may be repeated once if pain persists:
  - Adult: 40 mg (2 mL of 2% solution)
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10. When administering medications via the IO route delivery should be followed with a 10mL flush of NS.
11. Document the procedure, time and result on the patient care report and apply wrist band.

**Clinical Indications:**

- Open or closed mid-shaft femur fracture

**Contraindications:**

- Injuries immediately proximal, or involving the knee joint
- Injury to the pelvis
- Partial amputation
- Lower leg or ankle injuries
- If use would delay transport of a patient with a life-threatening condition

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

**Notes/Precautions:**

- Isolated proximal femur fractures in the elderly are usually best managed with anatomical splinting utilizing a scoop stretcher. Traction splints are not appropriate for proximal femur fractures

**Procedure:**

1. Patient should be supine.
2. Check distal circulation, sensation, and motion.
3. Apply the ankle hitch tightly, slightly above the ankle bone.
4. Tighten stirrup by pulling the GREEN tabbed strap until the hitch fits snugly under the heel.
5. Apply upper thigh system by sliding male buckle under the leg at the patella, and using a “see-saw” motion, slide the strap upward until positioned in the groin.
6. Engage the buckle and cinch the strap until the traction pole receptacle is positioned at the belt-line or pelvic crest. Assure that genitalia is clear of strap.
7. Snap out traction pole making sure that each joint of the pole is securely seated.
8. Place traction pole alongside the leg so that one section (8”) extends beyond the bottom of the foot.
9. Adjust pole length as required (i.e., pediatric vs. adult). Insert pole end, or ends, into the traction pole receptacle.
10. Secure elastic strap around knee.
11. Place YELLOW tab over pointed (dart) end of traction pole and apply traction by pulling RED tab.
12. Patient comfort will be the primary objective. Traction should be applied smoothly by grasping the strap on each side of the buckle and simultaneously feeding and pulling with equal pressure.
13. Finish packaging by applying upper (thigh) and lower (ankle) elastic straps.
14. Reassess distal circulation, sensation, and motion.
15. Secure to long spine board, scoop, etc.

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

## Clinical Indications:

- Cardiac arrest after assuring continuous compressions, defibrillation and BLS airway management has been completed
- Non-cardiac arrest patient without a gag reflex. **(PARAMEDIC and Intermediate ONLY)**
- Intubation is difficult/impossible due to patient access or airway anatomy **(PARAMEDIC ONLY)**

## Contraindications:

- Patients who are conscious or who have an intact gag reflex
- Patients under/over height for tube size used
- Patients with known esophageal disease (varicies, alcoholism, cirrhosis etc.) or ingestion of caustic substances
- Deforming facial trauma that prevents proper seating of the airway

## Warnings/Precautions:

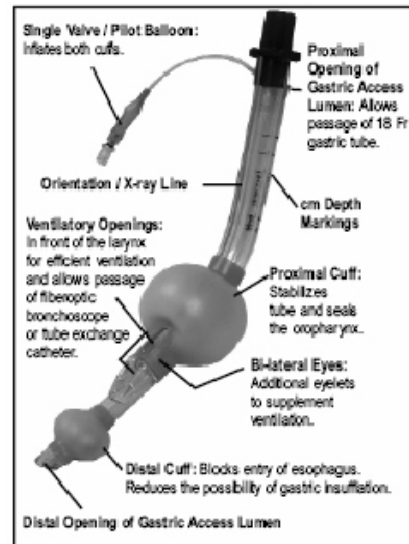
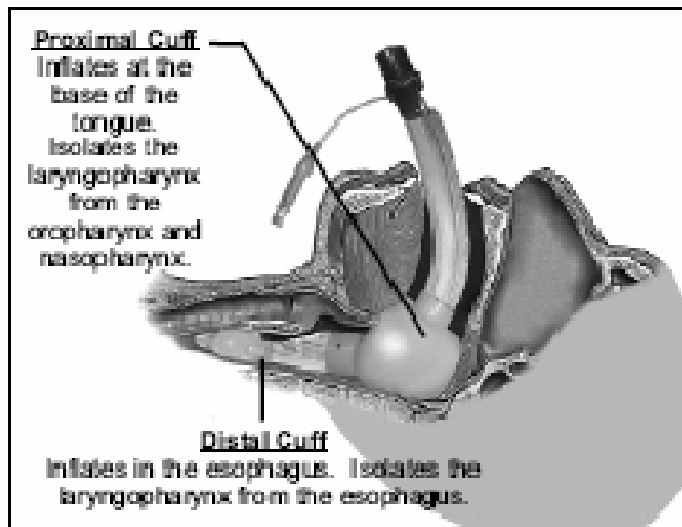
- The KING LTS-D may not prevent aspiration of stomach contents.
- High airway pressures may divert gas either to the stomach or to the atmosphere.
- During transition to spontaneous ventilation, airway manipulations, sedation, other adjuncts or methods may be needed to maintain airway patency

## Procedure:

1. Use appropriate PPE.
2. Prepare, position and oxygenate the patient.
3. Choose the appropriate King LTS-D airway based on the patients height and the package insert.
4. Test cuff inflation system by injecting the maximum volume of air into the cuffs. Remove all air from cuffs prior to insertion.
5. Apply a water-based lubricant to the beveled distal tip and posterior aspect of the tube.
6. Position the patient in the "sniffing position" unless otherwise contraindicated. Hold the KING LTS-D at the connector with dominant hand. With non-dominant hand, hold mouth open and apply chin lift.
7. With the KING LTS-D rotated laterally 90° such that the blue orientation line is touching the corner of the mouth, introduce tip into corner of mouth and advance behind base of tongue rotating the tube back to midline (blue orientation line faces chin) as the tube passes under the tongue.
8. Without exerting excessive force, advance the King until the base of the connector aligns with the teeth or gums. Never force the tube into position.
9. Inflate the cuffs with the recommended volume necessary to seal the airway.
10. Attach the BVM to the 15 mm connector of the KING LTS-D. While gently bagging the patient to assess ventilation, simultaneously withdraw the airway until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).
11. Depth markings are provided at the proximal end of the KING LTS-D which refer to the distance from the distal ventilatory openings. When properly placed with the distal tip and cuff in the upper esophagus and the ventilatory openings aligned with the opening to the larynx, the depth markings give an indication of the distance, in cm, from the vocal cords to the upper teeth.
12. Apply CO2 detection device(or capnography if available) and when appropriate apply the ITD in accordance with the appropriate procedures.

## KING LTS-D Airway Device

13. Confirm proper position by auscultation, chest movement and verification of CO<sub>2</sub> by capnography/ capnometry.
14. Do not let go of the King Airway until secured.
15. Secure KING LTS-D to patient using tape or an approved commercial device. **DO NOT COVER THE PROXIMAL OPENING OF THE GASTRIC ACCESS LUMEN.** The gastric access lumen allows the insertion of up to a 18 Fr diameter gastric tube into the esophagus and stomach.
16. Immediately following successful placement of the King Airway apply an appropriately sized cervical collar. In the event a C-collar will not fit, manual inline stabilization should be utilized and if transported; blankets, towels and tape should be used appropriately to restrict cervical spinal motion. No exceptions.
17. If an Adult or pediatric patient is to be transported, they may be secured to a backboard.



**Clinical Indications:**

- Adult patient in cardiac arrest

**Contraindications:**

- Device does not fit patients
- Patient < 18 years

**Notes/Precautions:**

- Minimize interruptions in chest compressions to place device.
- Must be appropriately trained

**Procedure:**

1. Remove from bag.
2. Ensure that operation knob is in the ADJUST position.
3. Attach air hose connector to regulator of compressed air cylinder or wall outlet.
4. Open air valve on compressed air cylinder.
5. Pause chest compressions at 2 minute pause (Pit-crew model).
6. Place patient on backboard.
7. Place back plate under patient on backboard below armpits.
8. Resume chest compressions.
9. Attach LUCAS device to back plate.
10. Position suction cup.
  - Lower edge immediately above end of sternum
  - Pressure pad centered over middle of sternum
  - Lower suction cup & pressure pad to the point where it just comes into contact with the patient's chest
11. If pad does not fit, return to manual chest compressions.
12. Turn operation knob to ACTIVE.
13. Check device for proper position.
14. Attach stabilization straps.
15. LUCAS device should never be left unattended or with an untrained provider.
16. To stop LUCAS, turn operation knob to LOCK.
  - Should only be done:
    - if device improperly placed
    - damage to the patient is occurring
    - to assess the patient

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

## Clinical Indications:

- Cardiac arrest with ventricular fibrillation or pulseless ventricular tachycardia

## Contraindications:

- None

## Procedure:

1. Ensure that chest compressions are adequate and interrupted only at two minute pause (Pit-crew model).
2. Apply hands-free defibrillation pads on the patient's chest per the manufacturers instructions.
3. Clinically confirm the patient's condition is consistent with the rhythm and the need for defibrillation exists. This is a SHOCK/NO SHOCK interpretation ONLY.
4. Select energy level to be delivered per protocol and charge defibrillator to the desired energy level. (this may be performed 15 seconds in advance of an anticipated break in CPR). Assure chest compressions continue while the device is charging.
5. Discontinue compressions, assertively state, "CLEAR" and visualize from the patient's head to toe to assure no one is touching the patient.
6. Deliver shock by depressing shock button.
7. Immediately resume chest compressions. After 2 minutes of continuous CPR, pause briefly (< 10 sec) to perform pulse check and analyze rhythm.
8. Repeat the procedure every two minutes as indicated by the patient's response and rhythm.

## Nasal Drug Delivery Device

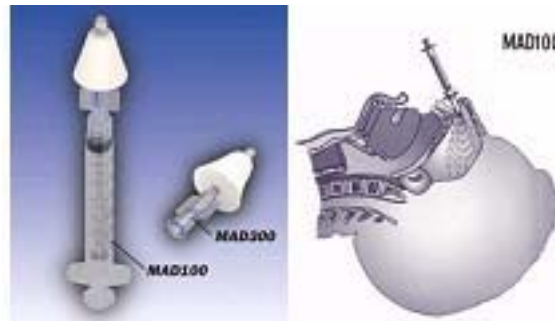
I	EMT- I	I
P	EMT- P	P

### Clinical Indications:

- Patients requiring rapid medication administration in accordance with protocol and other route(s) of administration are not immediately available
- Medications currently System approved for this route:
  - Midazolam (Versed) various, see individual Protocol for application (Adult and Pedi)
  - Fentanyl (Sublimaze) for Pain/Anxiety management (Adult and Pedi)
  - Naloxone (Narcan) for opiate overdoses (Adult and Pedi)

### Procedure:

1. Airborne PPE (N95 and eye protection) should be worn when administering medication via this route.
2. Dose appropriate medications should be drawn up into syringe.
3. Attach MAD 300 device to syringe.
4. Administer medications by aerosolizing medication in patient nostril (limit of 1.0 mL per nostril).
5. Due to fluid contamination dispose of in an approved sharps container.



## Clinical Indications:

- 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

## Contraindications:

- Non-breathing or near apneic patient
- Patient age less than 12 years
- Use with caution in
  - ▶ Acutely hypertensive patients
  - ▶ Patients suspected of experiencing elevated ICP
- Known or likely fracture/instability of mid-face secondary to trauma

## Relative Contraindications:

- Blood clotting abnormalities
- Nasal polyps
- Upper neck hematomas or infections

## Procedure:

1. Prepare, position and oxygenate the patient with 100% oxygen.
2. Choose proper ET tube about 1mm less than for oral intubation.
3. Two sprays of Afrin should be applied to the appropriate nostril. If needed Hurricane topical anesthetic, ½ second spray may be instilled in the posterior pharynx and repeated x 1.
4. Lubricate ET tube generously with water-soluble lubricant such as Lidocaine Jelly.
5. Pass the tube in the largest nostril, perpendicular to the facial plate following the curvature of the airway.
6. Use forward, lateral back and forth rotating motion to advance the tube. **Never force the tube.**
7. Continue to advance the tube noting air movement through it; use the BAAM whistle to assist.
8. Apply firm cricoid pressure, advance the tube quickly past the vocal cords during inspiration.
9. Inflate the cuff with 5 to 10 cc of air.
10. Auscultate for absence of sounds over epigastrium and presence of equal bilateral breath sounds. If present unilaterally/unequal, adjust tube position and consider whether this may be patient's baseline. If unsure of placement, remove tube and ventilate with bag-valve mask.
11. Apply end tidal carbon dioxide monitor. After 3 ventilations, ETCO<sub>2</sub> must be >10. If less than 10 check for adequate circulation and check equipment. Remove the ET tube if pCO<sub>2</sub> remains <10 in the absence of a physiologic explanation. Record initial, ongoing, and final ETCO<sub>2</sub> values on the Airway Audit Form.
12. If ETCO<sub>2</sub> equipment failure occurs, use other means for confirmation.
13. Secure the tube to the patient's face.
14. Reassess airway, breath sounds, and ETCO<sub>2</sub> after transfer to the stretcher and during transport. These tubes are easily dislodged and require close monitoring and frequent reassessment.
15. Apply an appropriately sized cervical collar immediately following successful placement and securing of the tube. In the event a C-collar will not fit, manual inline stabilization should be utilized and if transported; blankets, towels and tape should be used appropriately to restrict cervical spinal motion < **No Exceptions** >
16. If patient is to be transported, they may be placed on a backboard and secured
  - Adult and Pediatric patients
17. Complete the airway verification form on arrival at destination.

## Nebulized Medication

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

### Clinical Indications:

- Patients requiring medication administration via nebulized route in accordance with the appropriate protocol

### Contraindications:

- Hypersensitivity to medication
- Medications not approved for nebulized delivery

### Procedure:

1. Ensure all required pieces are available.
  - T-piece
  - 6" tubes X 1
  - Mouthpiece and/or face mask
  - Medication chamber
  - Oxygen tubing
2. Assemble nebulizer.
3. Attach larger female port of T-piece firmly to male adapter on medication chamber.
4. If face mask is being used, the female fitting on the bottom of the mask is connected directly to the male adapter on the medication chamber.
5. Attach 6" tube to the male ports on the T-piece.
6. Firmly attach threaded portion of mouthpiece to 6" tube.
7. If patient is intubated, attach 90-degree endotracheal tube adapter to endotracheal tube and other end to the 6" tube.
8. Attach oxygen supply tubing to oxygen port located on bottom of medication chamber.
9. Unscrew top of medication chamber, add total amount of medication to be nebulized, and replace top.
10. Set oxygen flow rate based on equipment specifications.
11. Ensure that medication is flowing prior to giving mouthpiece to patient or placing face mask on patient.
12. Place mouthpiece in patient's mouth or position face mask on patient, instructing him/her to inhale as deeply as possible and hold as long as possible prior to exhaling.
13. If patient is intubated.
  - Attach non-rebreathing patient valve of bag-valve-mask to free 6" tube
  - Ensure suctioning port on 90-degree adapter is closed
  - Begin ventilating patient
14. Nebulized medications may be used with CPAP device. Refer to CPAP device instructions for appropriate assembly and administration.
15. Treatment should be provided until medication is depleted.
16. Monitor patient for medication effects including reassessment of vital signs and breath sounds.
17. Document the medication administration including dose and time as well as any observed patient response in the patient care record.

## Indications:

- Patients <10 years of age
- With obstructed airway or in whom all conventional methods of oxygenation have failed

## Contraindications:

- Anytime a less invasive maneuver would allow oxygenation of the patient
- Tracheal transection

## Notes/Precautions:

- Cricothyroid membrane is located by:
  - Palpating the protuberant midline portion of the thyroid cartilage (“Adams apple”)
  - Move the fingertip inferiorly until it rests in the soft, flat depression between the thyroid cartilage and the cricoid cartilage
- In order to minimize the risk of dislodgement:
  - The individual completing the procedure should direct any/all patient movement
  - BVM is to be disconnected from the ET tube adapter any patient movement
  - The catheter is to be reassessed following any patient movement
- Appropriate size angiocath is generally 14-18 gauge, depending on size of the child

## Procedure:

1. Position patient supine with head slightly extended unless contraindicated due to suspected cervical spine injury.
2. Prepare anterior surface of the neck with Chlorohexadine.
3. Locate the cricothyroid membrane.
4. Place thumb and index finger of non-dominant hand on either side of the tracheal cartilage to stabilize the trachea and anchor and stretch the skin slightly.
5. Connect appropriate sized angiocath to a 12 cc syringe.
6. Pierce the skin and cricothyroid membrane at a 45-degree angle, directing the catheter tip inferiorly while pulling suction on the syringe until air is aspirated freely.
7. Advance the catheter to the skin and withdraw needle.
8. Connect catheter to 3.0 mm pediatric ET tube adapter.
9. With a BVM attached to 100% oxygen begin ventilating and confirm proper placement.
10. With hub of catheter snug against the neck, tape catheter firmly in place.
  - Catheter and ET tube adapter are to be secured at all times by hand
  - Catheter should be secured with tape and benzoin to prevent slipping
11. Apply an appropriately sized cervical collar immediately following successful placement and securing of the catheter. If a C-collar will not fit, manual inline stabilization should be utilized and blankets, towels and tape should be used appropriately to restrict cervical spinal motion.
12. Transported patients should be secured to a backboard unless the patient is awake and will not tolerate a supine position.

## Clinical Indications:

- Inability to adequately ventilate a patient with a Bag Valve Mask or prolonged EMS transport requires a more advanced airway
- An unconscious patient without a gag reflex who is apneic or is demonstrating inadequate respiratory effort
- Risk to benefit ratio of oral tracheal intubation to BIAD insertion favors oral tracheal intubation
- Inability to adequately oxygenate/ventilate a patient after attempted BIAD insertion
- Patient suspected having suffered inhalation injuries with impending airway compromise

## Contraindications:

- None in the presence of the need for definitive airway management

## Procedure:

1. Prepare, position and oxygenate the patient using appropriate BLS maneuvers and 100% oxygen.
2. Select proper ET tube size and have all equipment ready (including suction).
3. Using laryngoscope visualize vocal cords using cricoid pressure/BURP maneuver as needed.
4. Limit each intubation attempt to less than 30 seconds. Utilize BVM between attempts.
5. If unable to visualize the cords change patient position, or blade size/type. If able to visualize the vocal cords but unable to advance tube consider using smaller tube or using additional lubricant.
6. Visualize tube passing through vocal cords. Remove stylet where used and inflate ETT cuff with 3-10 mL of air.
7. Auscultate for absence of breath sounds over epigastrium and presence of bilateral breath sounds. If unilateral or unequal breath sounds adjust tube position and/or consider causes for this finding. If unsure of placement at any time remove the ETT and resume ventilations with BVM.
8. Apply ETCO<sub>2</sub> monitor. After 3 ventilations ETCO<sub>2</sub> should be > 10 or comparable to pre-intubation values. If < 10 check for adequate circulation, equipment failure and ventilatory rate. If no cause can be found remove the ETT and resume BVM ventilation.
9. Record initial, ongoing and final ETCO<sub>2</sub> values in the PCR.
10. Secure the ETT using commercial device whenever possible.
11. Document ETT size, depth of insertion, time of successful intubation and number of attempts. Document confirmation of the ETT by presence of breath sounds, absence of sounds over the epigastrium, end tidal CO<sub>2</sub> and/or capnography and any/all additional methods of confirmation. Reconfirm correct placement after each patient movement.
12. Consider gastric distention and place an NG/OG tube after airway is secured with ETT.
13. Apply an appropriately sized cervical collar immediately following successful placement and securing of the tube. In the event a C-collar will not fit, manual inline stabilization should be utilized and if transported; blankets, towels and tape should be used appropriately to restrict cervical spinal motion < **No Exceptions** >
14. If patient is to be transported, they may be placed on a backboard and secured
  - Adult and Pediatric patients
15. Complete the airway verification form on arrival at destination.

# Orthostatic Blood Pressure Measurement

**Clinical Indications:**

- Patient situations with suspected blood, fluid loss, or dehydration with no indication for spinal immobilization
- Patients ≥ 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. Have the patient sit upright.
4. After 30 seconds, obtain blood pressure and pulse.
5. If the systolic blood pressure falls more than 20 mmHg or pulse increases more than 20 beats per minute or the patient develops symptoms such as lightheadedness, weakness or presyncopal symptoms the patient is considered to be orthostatic.
6. If no symptoms or significant change in vital signs have the patient stand. Repeat steps #4 and #5 above.
7. If a patient is symptomatic while sitting, lying or is obviously dehydrated based on history or physical exam, formal orthostatic examination should be omitted and fluid resuscitation initiated.

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

**Clinical Indications:**

- Potential unstable pelvic fracture

**Contraindications:**

- Provided the patient is of appropriate size for the size of SAM Sling® available, there are no contraindications for it's use in the presence of appropriate assessment findings

**Notes/Precautions:**

- Anytime application of the SAM Sling® is a consideration, application of the A/TCEMS Spinal Restriction Algorithm should be considered as well
- The SAM Sling® is a force-controlled device that won't allow the belt to be over tightened
- "Autostop" buckle has spring-loaded prongs that lock the buckle in place when the right amount of force is applied
- Except for two small metal springs in the buckle, the SAM Sling® is transparent to X-rays
- Once properly applied, the Sling is to be removed only under the supervision of a physician
- If necessary to remove the Sling
- Do not cut to remove
- Release orange pull handle in order to remove

**Procedure:**

1. Unfold Sling with white surface facing up.
2. Place white side of Sling beneath patient at level of buttocks along a line drawn between greater trochanters and the symphysis pubis.
3. Firmly close Sling by placing black Velcro side of flap down on blue surface of Sling.
4. Fold back material as needed.
5. Try to place buckle close to midline.
6. Grab orange handle on outer surface of flap and release from flap by pulling upward.
7. With or without assistance pull both orange handles in opposite directions to tighten Sling.
8. Keep pulling until the buckle "clicks" and the free handle stops.
9. Maintain tension and firmly press orange handle against the blue surface of the Sling.

## Restraints

### Clinical Indications:

- Any patient who may harm himself, or others may be gently restrained to prevent injury to the patient or crew. Physical or chemical restraint must be humane 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

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

### 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 placed on top of the patient. The patient will never be restrained in the prone position.
- The restrained patient must be under constant observation by a credentialed provider 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 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, chemical restraint should be utilized in accordance with the Behavioral 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 or be immediately available.

## Clinical Indications:

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

## Contraindications:

- Bilateral decompression should not be performed without positive pressure ventilations

## Procedure:

1. Administer high flow oxygen.
2. Prepare equipment and don appropriate PPE.
3. Identify and prep the site:
  - Locate the second intercostal space in the midclavicular line (preferred)
  - As a last resort lateral placement at the fourth intercostal space in the mid-axillary line may be used.
4. Prepare the site with Chlorohexadine.
5. Insert the appropriate catheter perpendicular to the chest wall over the top of the inferior rib.
6. Advance the needle-catheter assembly through the parietal pleura until a “pop” is felt and air or blood exits the catheter. Advance only the catheter until the hub is in contact with the chest wall.
7. Remove the needle leaving the plastic catheter in place.
8. Secure the catheter hub to the chest wall.
9. Consider placing one-way valve or creating a flutter valve from the finger of an exam glove. This should not delay the pleural decompression procedure.

# Pain Assessment and Documentation

## Clinical Indications:

- Any patient

## Definitions:

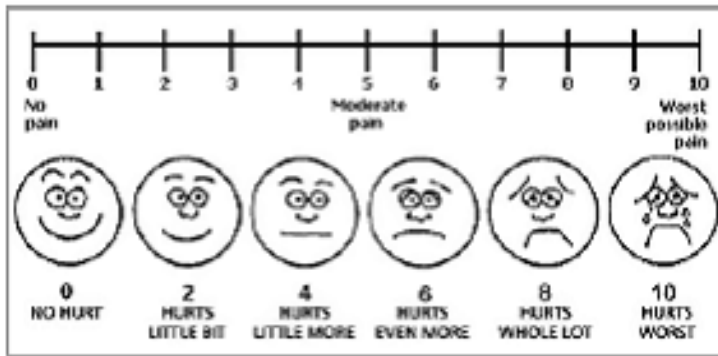
- Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage.
- Pain is subjective (whatever the patient says it is)

Legend		
S	System Responders	S
B	EMT - B	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, with each set of vitals after a pharmaceutical pain management intervention, and with vital signs until transfer of care.
- Three pain scales are available: the 0 – 10 Scale, 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.
  - 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).

Wong-Baker Faces



Face 0	Very happy. Doesn't hurt at all
Face 1	Hurts just a little bit.
Face 2	Hurts a little more
Face 3	Hurts even more
Face 4	Hurts a whole lot
Face 5	Hurts as much as you can imagine. Don't have to be crying to feel this bad

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 and relaxed	Reassured by occasional touching hugging or being talked to, distractible	Difficulty to console comfort

## Clinical Indications:

- Treatment of circulatory collapse secondary to hypovolemia / hemorrhage
- Septic shock
- Neurogenic shock
- Anaphylactic shock
- Extremity fractures or amputations
- Stabilization of femoral or pelvic fracture

## Contraindications:

- Absolute contraindications
  - Compromise of breathing
  - Pulmonary edema
- Relative contraindications
  - Internal bleeding of the chest
  - Impaled objects in the abdomen
  - Third trimester of pregnancy
  - Evisceration

## Notes/Precautions:

- Once inflated, the pants should never be deflated in the Prehospital environment

## Procedure:

1. Ensure all necessary equipment is available.
2. Place patient in garment.
3. Trouser Method:
  - Not to be used if spinal injury is suspected
  - Rescuer places his or her arms up through the PASG legs to grab the patient's ankle
  - Second, and or other rescuers, assist to slide the PASG up over the patient
4. Log Roll Method:
  - Place PASG on long spine board with legs and abdomen compartment open
  - Log Roll patient onto long spine board
  - Center patient over the alignment markings on the PASG
  - Wrap the legs and the abdomen with the appropriate compartments
5. Diaper Method:
  - Preferred method for patient with hip injury
  - Roll inner edges and the anterior abdominal section of the PASG toward the center of the garment
  - Slide pants underneath the patient from legs to the abdomen (similar to sliding a sheet)
6. Inflate pants.
7. Begin with leg compartment, then abdominal compartment.
8. Inflate until systolic blood pressure is 90 mmHg or Velcro begins to pull apart.

## Pressure Infusion Bag

I	EMT- I	I
P	EMT- P	P

### Clinical Indications:

- Inadequate gravity flow of IV fluid

### Contraindications:

- Controlled drip rates required for fluid or medication administration
- IV/IO where patency of line is in question

### Procedure:

1. Purge the air from the IV bag.
2. Spike the bag as usual.
3. Invert the bag and squeeze to expel all of the air from the IV bag, drip chamber, and tubing.
4. Establish IO/IV and assure patency.
5. Place IV bag into the net pocket of the pressure infusion bag and inflate infusion bag until the desired amount of pressure has been applied.
6. Once patient has been delivered to receiving facility, deflate infusion bag and remove the IV fluid bag.
7. If the bag is grossly contaminated, dispose of it.
8. If the bag is not grossly contaminated, decontaminate it in the same fashion as a blood pressure cuff.



## Pulse Oximetry

### Clinical Indications:

- As an adjunct to patient assessment
- Any patient who receives a narcotic, sedative, or paralytic medication
- Before, during, and after advanced airway, CPAP or other airway intervention

### Contraindications:

- None

### Notes/Precautions:

Specific circumstances that may result in inaccurate pulse oximetry readings:

- States of decreased peripheral perfusion (hypotension, hypothermia)
- Carbon monoxide poisoning, methemoglobinemia, cyanide poisoning
- Excessive ambient light (sunlight, florescent lights) on the pulse oximeter probe

### Procedure:

1. Apply probe to finger or other site as recommended by the device manufacturer.
2. Allow device to register initial saturation level and record the time and result on the patient care report. Initial readings should be on room air when possible and patient condition allows.
3. Correlate patient pulse with oximeter pulse and waveform.
4. Monitor critical patients continuously throughout pre-hospital care.
5. In general a "normal" pulse oximetry reading is 97-100%.
6. Remember to treat the patient not the pulse oximeter reading. The pulse oximeter reading should never be used to withhold oxygen from a patient in respiratory distress.

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

## Respiratory Precautions

### Clinical Indications:

In cases where infectious agents transmitted by an airborne route are prevalent in the community or have reached pandemic status a provider pre-alert system may be implemented in the communications center. In these cases providers will be advised of the potential need for increased precautions at the time of dispatch.

In the absence of pre-arrival notification respiratory protection should be considered when confronted by any patient presenting with an acute febrile respiratory illness, which may include fever plus one or more of the following:

- nasal congestion/ rhinorrhea,
- sore throat
- or cough

### Contraindications:

Not Applicable

### Notes/Precautions:

- EMS providers should be aware of the signs and symptoms of infectious respiratory diseases and the procedures necessary for protecting themselves. Not all respiratory infections are transmitted in the same way. Transmission can occur from direct or indirect contact, large droplets, or small droplet nuclei. The mode of transmission will depend on the etiological agent. Providers must be familiar with PPE application (donning) and removal (doffing) procedures.
- Certain procedures can also impact transmission of infectious agents by producing aerosols. These are deemed "high risk respiratory procedures" and include intubation, extubation, deep tracheal suctioning, and nebulized respiratory treatments. Fitted N95 mask is recommended for any "high risk respiratory procedures" in the setting of suspected acute febrile respiratory illness.
- More often in the field of emergency medicine, the etiologic agents of infections are unknown.

### Procedure:

#### Droplet Precautions:

Droplet precautions should be employed for patients with febrile respiratory illness as defined above. (Examples include influenza, meningitis and pertussis as well as common respiratory viruses such as adenovirus and rhinovirus).

1. Utilize the incident information provided by Communications that alerts providers to a possibly symptomatic patient (when applicable).
2. Provide surgical masks to all patients with symptoms of a respiratory illness who can tolerate its placement.
3. For patients who cannot wear a surgical mask in addition to any medical treatment being provided, consider application of oxygen via non-rebreather face mask to limit dissemination of airborne particles.
4. Providers should wear a surgical mask and adhere to the Standard Precautions Procedure - the use of gown, gloves and eye protection if contact with bodily secretions or a contaminated environment is anticipated.
5. High risk respiratory procedures which include intubation, extubation, deep tracheal suctioning, and nebulized respiratory treatments, require the highest level of respiratory

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
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## Respiratory Precautions

- protection which is a fitted N95 respirator mask. Perform a "fit check" by molding the mask to the face and checking for air leaks after donning N95 respirators.
6. Continue to use droplet precautions to manage patients with respiratory symptoms until it is determined that the cause of symptoms is not an infectious agent that requires precautions beyond standard precautions.
  7. Be attentive to minimizing the transfer of any potentially infectious materials acquired during patient contact to medical equipment, stretchers, and other ancillary tools so as to lessen the chances of cross contamination and infection.
  8. Exercise caution in the removal of PPE to prevent inadvertent self-inoculation in the event the PPE has been contaminated with potentially infectious materials.
  9. Initiate hand hygiene as soon as feasible after doffing your PPE.

### Airborne Precautions (All Hazard):

Airborne precautions include Standard Precautions, Contact Precautions and the Droplet Precautions outlined above. Airborne precautions should be employed in cases where the infectious agent is spread via an airborne vector which forms small particles that may remain airborne for an extended period of time. (Examples include tuberculosis, measles, chicken pox, small pox and some pandemic illness). In addition Airborne Precautions may be called for in the early phases of pandemic illness when the exact mechanism of transmission is unknown. Tuberculosis should be considered when the patient exhibits the following symptoms:

- A protracted cough lasting 3 weeks or longer
  - Cough productive of bloody sputum
  - Cough in conjunction with the following:
    - Fever/chills and
    - Night sweats and/or
    - Weight loss
1. Utilize the incident information provided by Communications that alerts providers to a possibly symptomatic patient requiring this level of protection.
  2. Providers should limit the number of personnel who have initial contact with the patient by conducting the "View from the Door."
  3. Such a view can provide the necessary impression that will assist to determine the need for extensive medical intervention requiring multiple providers.
  4. Should such an impression not be clearly evident, only 1 first responder, in the appropriate PPE(described above), should make patient contact and conduct the initial patient assessment.
  5. Providers should don a fitted N95 mask for all patient contact and perform a "fit check" by molding the mask to the face and checking for air leaks after donning.
  6. Provide surgical masks to all patients with symptoms of a respiratory illness who can tolerate its placement.
  7. For patients who cannot wear a surgical mask in addition to any medical treatment being provided, consider application of oxygen via non-rebreather face mask to limit dissemination of airborne particles.
  8. Continue to use airborne precautions to manage patients with respiratory symptoms until it is determined that the cause of symptoms is not an infectious agent that requires precautions beyond standard precautions.

## Safe Injection Practices

### Clinical Indications:

To ensure adherence to basic principles of infection control and aseptic technique to prevent or diminish the risk of disease transmission during:

- Initiation of IV access
- Intramuscular/subcutaneous injections
- Drawing of medications
- Preparation and delivery of parenteral medications

### Contraindications:

Not Applicable

### Notes/Precautions:

- The primary breaches in infection control practice that contribute to potential disease transmission include, but not limited to: reinsertion of used needles into a multiple-dose vial or solution container (e.g., saline bag) and use of a single needle/syringe to administer intravenous medication to multiple patients
- Adherence to basic principles of aseptic technique includes the use of a sterile, single-use, disposable needle and syringe for each injection given and prevention of contamination of injection equipment and medication
- Whenever possible, use of single-dose vials is preferred over multiple-dose vials, especially when medications will be administered to multiple patients

### Procedure:

1. Initiate the use of chlorhexidine skin preparation prior to the application of a sharp appliance including, but not limited to venous catheters, intraosseous infusion needles, lancets, and the delivery of medications or immunizations through syringes either intramuscular, dermal, or subcutaneous.
2. Use aseptic technique to avoid contamination of sterile injection equipment.
3. Needles, cannulae and syringes are sterile, single-use items; they should not be reused for another patient nor to access a medication or solution that might be used for a subsequent patient.
4. Consider a syringe or needle/cannula contaminated once it has been used to enter or connect to a patient's intravenous infusion bag or administration set.
5. Use single-dose vials for parenteral medications whenever possible.
6. Do not administer medications from single-dose vials or ampules to multiple patients or combine leftover contents for later use.
7. If multidose vials must be used, both the needle or cannula and syringe used to access the multidose vial must be sterile.
8. Multidose vials should be stored in accordance with the manufacturer's recommendations; discard if sterility is compromised or questionable.
9. All sharps should be properly disposed into a puncture resistant container as soon as possible.

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

## Spinal Motion Restriction

### Clinical Indications:

- Need for spinal immobilization as determined by protocol

### Procedure:

1. Gather a backboard, straps, C-collar appropriate for patient's size, tape, and head rolls or similar device to secure the head.
2. Explain the procedure to the patient.
3. Second rescuer should maintain the head in a neutral position using in line stabilization (not traction). Place the patient in an appropriately sized C-collar while maintaining in-line stabilization of the C-spine.
4. Assess peripheral motor/sensory function and distal pulses (PMS).
5. Once the collar is secure, the second rescuer should continue to maintain stabilization.
6. Move patient to a long board using a technique appropriate for the patient position which maximizes maintenances of in-line spinal stability. (log roll, four man lift, rapid extrication, etc).
7. Secure the body to the long board followed by the head using 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.
8. Place padding in void spaces under and around patient, if time permits.
9. Assess peripheral motor/sensory function and distal pulses (PMS).
10. 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 position to immobilize them. Such situations may require a second rescuer to maintain manual stabilization throughout the transport to the hospital and continual assessment of distal PMS.
11. Document the time of the procedure in the Patient Care Report (PCR).

Legend		
<b>S</b>	<b>System Responders</b>	<b>S</b>
<b>B</b>	<b>EMT - B</b>	<b>B</b>
<b>I</b>	<b>EMT - I</b>	<b>I</b>
<b>P</b>	<b>EMT - P</b>	<b>P</b>

## Splinting

### Clinical Indications:

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

Legend		
<b>S</b>	<b>System Responders</b>	<b>S</b>
<b>B</b>	<b>EMT - B</b>	<b>B</b>
<b>I</b>	<b>EMT - I</b>	<b>I</b>
<b>P</b>	<b>EMT - P</b>	<b>P</b>

### Procedure:

1. Assess and document pulses, sensation, and motor function prior to placement of the splint. If no pulses are present and a fracture is suspected, consider single attempt at re-alignment of the fracture prior to placement of the splint.
2. Remove all clothing and jewelry 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. In the case of suspected fracture the splint should immobilize the joint above and the joint below the injury whenever possible.
4. Do not secure the splint directly over the injury or device.
5. Place the splint and secure with 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. Document the time, type of splint, and the pre and post assessment of pulse, sensation, and motor function in the patient care report (PCR).

# Standard Precautions

## Clinical Indications:

- Standard Precautions are intended to be applied to the care of all patients in all healthcare settings, regardless of the suspected or confirmed presence of an infectious agent. **Implementation of *Standard Precautions* constitutes the primary strategy for the prevention of healthcare-associated transmission of infectious agents among patients and healthcare personnel.**

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

## Contraindications:

- Not Applicable

## Notes/Precautions:

- Standard Precautions are based on the principle that all blood, body fluids, secretions, excretions except sweat, non-intact skin, and mucous membranes may contain transmissible infectious agents
- The application of Standard Precautions during patient care is determined by the nature of the provider-patient interaction and the extent of anticipated blood, body fluid, or pathogen exposure. For some interactions (e.g., performing venipuncture), only gloves may be needed; during other interactions (e.g., intubation), use of gloves, gown, and face shield or mask and goggles is necessary

## Procedure:

Wear the appropriate level of PPE based on the mode of transmission of the suspected infectious agent when the nature of the anticipated patient interaction indicates contact with blood or body fluids may occur. Where respiratory vectors are considered employ PPE in accordance with the Respiratory Precautions Procedure.

### Gloves

- Wear gloves when it can be reasonably anticipated that contact with blood or other potentially infectious materials, mucous membranes, non-intact skin, or potentially contaminated intact skin (e.g., of a patient incontinent of stool or urine) could occur.
- Remove gloves after contact with a patient and/or the surrounding environment (including medical equipment) using proper technique to prevent hand contamination.
- Do not wear the same pair of gloves for the care of more than one patient.

### Gowns

- Wear a gown, that is appropriate to the task, to protect skin and prevent soiling or contamination of clothing during procedures and patient-care activities when contact with blood, body fluids, secretions, or excretions is anticipated.
- Wear a gown for direct patient contact if the patient has uncontained secretions or excretions.
- Remove gown and perform hand hygiene before leaving the patient's environment.
- Do not reuse gowns.

### Mouth, nose, eye protection

- Use PPE to protect the mucous membranes of the eyes, nose and mouth during procedures and patient care activities that are likely to generate splashes or sprays of blood, body fluids, secretions and excretions. Select masks, goggles, face shields, and combinations of each according to the need anticipated by the task performed.

## Standard Precautions

9. During aerosol-generating procedures (e.g., suctioning of the respiratory tract, advanced airway maneuvers) in patients who are not suspected of being infected with an agent for which respiratory protection is otherwise recommended (e.g. M. tuberculosis, SARS or hemorrhagic fever viruses), wear one of the following: a face shield that fully covers the front and sides of the face, a mask with attached shield, or a mask and goggles (in addition to gloves and gown).

## Clinical Indications:

- Patient  $\geq 10$  years of age as indicated by the failed airway protocol **and**
- Cook-Melker device is unsuccessful or there is failure of the device

## Contraindications:

- Anytime a less invasive maneuver would allow oxygenation of the patient
- Tracheal transection
- Fractured larynx, significant damage to the cricoid cartilage or larynx or inability to identify appropriate landmarks

## Notes/Precautions:

- In order to minimize the risk of dislodgement:
  - The individual completing the procedure should direct any/all patient movement
  - BVM is to be disconnected from the ET tube during any patient movement
  - The ET tube is to be reassessed following any patient movement

## Procedure:

1. Position patient supine with head slightly extended unless contraindicated due to suspected cervical spine injury.
2. Prepare anterior surface of the neck with chlorohexadine as time allows.
3. Locate the cricothyroid membrane.
4. Place thumb and index finger of non-dominant hand on either side of the tracheal cartilage to stabilize the trachea and anchor and stretch the skin slightly.
5. Using a needle connected to a 12 cc syringe pierce the skin and cricothyroid membrane at a 45-degree angle, directing the catheter tip inferiorly while pulling suction on the syringe until air is aspirated freely.
6. Maintain the needle/syringe assembly in place as landmark, perform a vertical incision in the midline beginning  $\frac{1}{2}$  - 1 inch superior to the needle and extending  $\frac{1}{2}$  - 1 inch inferior to the needle.
7. Visualize the cricoid membrane with needle assembly as a landmark; perform a horizontal punch incision through the cricoid membrane.
8. With the needle assembly remaining in place as a landmark insert the handle of the scalpel in a horizontal plane and rotate 90 degrees to dilate the incision.
9. With the scalpel handle remaining in place as a landmark remove the needle/syringe assembly advance an eschmann introducer (Bougie) through the incision. The bougie should advance easily until "hold-up." Remove the scalpel and secure the sharp.
10. Advance an appropriate sized cuffed endotracheal tube(ETT) over the bougie and remove the bougie.
11. Maintaining control of the proximal end of the ETT, inflate the cuff and confirm placement of the ETT.
12. Secure the ETT with tape maintaining continuous stabilization by hand. ETT is to be secured by hand at all times.
13. Apply an appropriately sized cervical collar immediately following successful placement and securing of the catheter. If a C-collar will not fit, manual inline stabilization should be utilized and blankets, towels and tape should be used appropriately to restrict cervical spinal motion.
14. Transported patients should be secured to a backboard unless the patient is awake and will not tolerate a supine position.

## 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, tracheotomy tube, or a cricothyrotomy tube

### Procedure:

1. Ensure suction device is in proper working order.
2. Preoxygenate the patient.
3. Attach suction catheter to suction device, keeping sterile plastic covering over catheter.
4. Using the proximal opening of the airway and the suprasternal notch and the endpoints, 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 (suction off), 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.
  - If **Newly Born**, do not exceed 100 mmHg vacuum setting.
8. Small volume (< 10 ml) of normal saline lavage may used as needed.
9. Reattach ventilation device (e.g., bag-valve mask) and ventilate the patient
10. Document time and result in the patient care report (PCR).

# Taser® Probe Removal

## Clinical Indications:

- Patient with uncomplicated conducted electrical weapon (Taser®) probes embedded subcutaneously in non-sensitive areas of 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, genitalia or female breasts
  - Suspicion that probe might be embedded in bone, blood vessel, or other sensitive structure

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT- I	I
P	EMT- P	P

## Procedure:

1. Ensure wires are disconnected from weapon.
2. Stabilize skin around probe using non-dominant hand.
3. Grasp probe by metal body using dominate hand.
4. Remove probe in single quick motion.
5. Wipe wound with chlorohexadine wipe and apply dressing.
6. Treat probes as exposed sharps hazard and dispose of accordingly.
  - Law Enforcement may need to keep as evidence

# Tourniquet

## Clinical Indications:

- Life threatening extremity hemorrhage that can not be controlled by other means
- Serious or life threatening extremity hemorrhage where conditions (patient location, tactical or hazmat environment, etc) prevent the use of standard hemorrhage control techniques
- Life threatening condition(s) that require immediate attention and significant extremity hemorrhage where the use of a tourniquet is more expedient than standard hemorrhage control

Legend		
S	System Responders	S
B	EMT - B	B
I	EMT - I	I
P	EMT - P	P

## Contraindications:

- Non-extremity hemorrhage
- Proximal extremity location where tourniquet application is not practical

## Procedure:

1. Place tourniquet proximal to wound according to manufacturer instructions.
2. Tighten until loss of distal pulses. Failure to adequately tighten the tourniquet to the loss of pulses may cause restriction of venous return and result in a compartment syndrome.
3. Secure tourniquet. Tourniquet should be easily visible on the affected limb.
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 (> 30 minutes) and in the absence of amputation or continued hypotension/shock the tourniquet may be **LOOSENED** to assess for bleeding. Do NOT remove the tourniquet. If bleeding continues re-tighten the tourniquet to loss of distal pulses and notify the receiving facility. If there is no ongoing bleeding leave the tourniquet in place but assure it is loosened to prevent venous occlusion.

## Vagus Nerve Stimulator (VNS)

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

### Clinical Indications:

- Patients with an implanted Vagus Nerve Stimulation device used in the management of seizures and a magnet for increasing stimulation or temporarily disabling the device

### Contraindications:

- Use of magnet for any other condition other than activating the VNS device

### Notes/Precautions:

- The patient and/or family will be familiar with the device and are usually able to manage the patient

### Procedure:

1. Assist the patient and/or family in using the device as they have been instructed.
2. In the absence of a known procedure the stimulation may be increased in the presence of seizure:
  - Pass the magnet over the vagal nerve stimulator generator for 1-2 seconds;
  - Repeat process in 60 seconds;
  - May repeat up to total of 3 times.
3. Transport patient to hospital.

## Wound Care

### Clinical Indications:

- Protection and care for open wounds prior to and during transport

### Procedure:

1. Use appropriate 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.
3. Once bleeding is controlled, irrigate contaminated wounds with saline as appropriate:
  - Avoid if bleeding is 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).

Legend		
<b>S</b>	<b>System Responders</b>	<b>S</b>
<b>B</b>	<b>EMT - B</b>	<b>B</b>
<b>I</b>	<b>EMT - I</b>	<b>I</b>
<b>P</b>	<b>EMT - P</b>	<b>P</b>