Overview: Patient Assessment Process and Goals of Patient Care.

The goal of the patient assessment process is to measure the status of the patient's perfusion, identify life-threatening conditions, determine the patient's chief complaint or mechanism of injury, and evaluate the complaint (PQRST) and obtaining a history (SAMPLE).

The components of the patient assessment process include the scene survey, initial assessment (ABCs) and rapid trauma assessment or detailed physical exam. A focused physical exam may be conducted if the general impression of the patient's condition appears to be of a specific nature.

The EMS provider must constantly monitor the patient's perfusion status. Perfusion is defined as the adequate flow of blood (with oxygen and glucose) through the body's tissues. For perfusion to be adequate the patient must have an adequate blood volume (with adequate supply of oxygen and glucose), a properly functioning cardiovascular system and an intact neurological system for regulation of vascular dilation. Failure of the body to maintain adequate perfusion will result in signs and symptoms of shock.

Signs and symptoms of shock vary depending on the degree and cause of shock. Level of consciousness is an important assessment of the patient's vital organ perfusion status. A patient with an altered level of consciousness must be considered at risk of shock. Peripheral tissue condition is another important indicator of perfusion status. A patient with cool, clammy, pale or cyanotic skin should be considered at risk of shock.

If the patient is found to be in shock, the assessment process should be directed at finding the cause of shock, immediate interventions to support perfusion and prompt transport. Conversely, if the mechanism of injury or assessment findings suggests the patient may have a condition that could result in shock, EMS personnel should carefully assess the patient's perfusion status and prepare to treat shock.

The goal of patient care is to identify patients in shock or at risk of shock, initiating care that will directly assist maintaining the patient's perfusion and safely transporting the patient to an emergency department or trauma center in a timely manner.

The EMS provider must maintain a constant awareness as to what would be the best course of action for optimum and compassionate patient care. The benefit of remaining on scene to establish specific treatments verses prompt transport to a definitive care facility should be a consideration of each patient contact. Requesting advanced assistance is another important resource BLS and ILS providers should consider.

NOTES ON SHOCK

Mechanism	Medical	Traumatic
Hypovolemia	Blood Loss – Internal Bleeding Fluid Loss – Dehydration	Blood Loss – Trauma Fluid Loss – Burns
Cardiogenic (pump failure)	Dysrhythmia Myocardial Infarction Congestive Heart Failure Pulmonary Embolism	Chest Trauma Pneumothorax Pericardial Tamponade
Vessel Failure	Vasovagal Anaphylaxis Sepsis Endocrine Dysfunction Chemical/Poisoning	Spinal Cord Injury (neurogenic)

PROCEDURE
General Patient Assessment and Initial Care

1. Scene Size-Up:

- Initiate body substance isolation (BSI) precautions prior to arrival at scene, for all patient contacts. Apply appropriate personal protective equipment (PPE). Use special care in the handling of sharps, contaminated objects, linens, etc.
- Assure the well-being of the EMS crew by assessing scene safety. If the scene is not safe, do not enter until appropriate authorities have secured the scene (i.e., violence, hazardous material, etc.).
- Determine mechanism of injury, number of patients and need for additional resources.

2. General Patient Assessment:

- Initial Assessment (Primary Survey):
    - Airway: Assess airway patency. Assess for possible spinal injury.
    - Breathing: Assess for ventilatory distress; bilateral chest expansion; rate, pattern and depth of ventilations; adequacy of gas exchange; use of accessory muscles; breath sounds.
    - Circulation: Assess rate, quality, regularity of pulses, skin color and condition, hemodynamic status, neck veins, and heart sounds, if indicated. Evaluate and record cardiac rhythm if indicated. Check for and control any major bleeding.
    - Disability: Mini-neuro exam to include brief pupil check and assessment of mental status:
        - A - Alert and oriented x 3 (time, person and place).
        - V - Not alert but responds to verbal stimuli.
        - P - Not alert but responds to painful stimuli.
        - U - Unresponsive to all stimuli.
    - Expose and examine as indicated.

- Focused History and Physical Exam (Secondary Survey)/or Detailed Physical Exam:
    - Vital signs (VS) and, where applicable, Glasgow Coma Scoring.
    - Chief complaint and history of present illness, past medical history, allergies and current medications (SAMPLE HISTORY).
    - Systematic head-to-toe assessment (detailed exam/second survey) DCAPBTLS.

3. Initial Medical Care:

- Airway: Establish and maintain a patient's airway by using appropriate patient positioning, airway adjuncts, suctioning and advanced airway (CPAP, Combitube, endotracheal intubation) as indicated.
- Breathing: Evaluate adequacy of respirations by assessing chest movement and consistency and skin condition. Provide or assist ventilations as necessary. Initiate oxygen therapy if indicated.
- Circulation: Evaluate perfusion status by assessing carotid and peripheral pulses and skin condition. Initiate CPR and early defibrillation if indicated. Control any external hemorrhage. Establish IV access if indicated.
- Loosen tight clothing and reassure patient. Keep NPO (nothing by mouth) unless specified by SOP or medical control.
- BLS/ILS: Initiate ALS intercept if indicated. (Refer to Requesting Advanced Assistance for Optimal Patient Care Policy and Procedure).
- Place patient in semi-fowler's position or position of comfort unless contraindicated. Use caution with patients with altered mental status to prevent aspiration.

- Evaluate pain. Ask patient to rate any pain on a scale of 0 - 10 with 0 indicating a pain free state and 10 being the worst pain imaginable.
- Recheck and record vital signs and patient responses at least every 15 minutes for stable patients, 5 minutes for priority or Critical patients, and after each intervention, noting the times obtained.
- Establish on-line medical communications as indicated
- Transport to the nearest hospital by time travel unless patient has specific request or their primary care physician is known to be affiliated with a particular hospital. Patients with immediate life threatening illnesses or injuries should be transported to the nearest facility. If the patient refuses transport to that facility, medical control should be contacted.

PROTOCOL
Routine (Initial) Patient Care

First Responder Care should be focused on assessing the situation and establishing initial care to treat and prevent shock.

1. Open and/or maintain an open airway.
2. Loosen all tight clothing and be prepared to expose vital body regions if necessary.
3. Reassure patient by identifying yourself, explaining how you will help and inform the patient additional help is on the way.
4. Sit patient in position of comfort / up-right position unless hypotensive (BP < 90 systolic). Trauma patients should be left in position found unless there is a scene safety issue.
5. Administer oxygen to maintain oxygenation
6. Ensure EMS has been activated for further care & transport. Provide patient and situation information to responding EMS units. When appropriate may initiate paramedic and/or air transport intercept.
7. Monitor patient's vital signs, level of consciousness, etc. for any acute changes.

BLS Care should be directed at conducting a thorough patient assessment, providing care to treat for shock and preparing or providing patient transportation.

1. BLS care includes all the components of First Responder Care.
2. Attach pulse oximeter and obtain analysis (if available).
3. Attach cardiac monitor to the patient and evaluate cardiac rhythm, if indicated.
4. Initiate ALS intercept, if indicated or when appropriate, air transport.
5. Simultaneously with above, obtain history, vitals and perform physical assessment/exam.
6. Establish on-line medical communications as indicated.
7. Perform an on-going exam while transporting.
8. Patient transportation should be initiated at earliest possible opportunity.

ILS Care should be directed at conducting a thorough patient assessment, providing care to treat for shock and preparing or providing patient transportation. The necessity of establishing IV access is determined by the patient's condition and chief complaint. Consideration should also be given to the proximity of the receiving hospital.

1. ILS care includes all the components of BLS Care.
2. If indicated, establish IV access of Normal Saline. No more than 2 attempts should be made on scene additional attempts may be made during transport. Infuse at a rate to keep the vein open (TKO); approximately 8 to 15 drops per minute or as directed by medical control.

ALS Care should be directed at conducting a thorough patient assessment, providing care to stabilize the patient by treating for shock and providing patient transportation. The necessity of establishing IV access is determined by the patient's condition and chief complaint. Consideration should also be given to the proximity of the receiving hospital.

1. ALS care includes all the components of ILS Care.
2. If indicated, establish IV access.
3. If indicated, obtain 12-Lead Electrocardiogram.

Critical Thinking Elements

- When determining the extent of care needed to stabilize the patient the EMS provider should take into consideration the patient's presentation, chief complaint, risk of shock and proximity to the receiving facility.
- Indication for establishing IV access is based on the patient's need for fluid replacement or drug administration route.
- Saline Locks may be used as a drug administration route if fluid replacement is not indicated.
- IV access should not significantly delay initiation of transportation or be attempted on scene with a trauma patient meeting load-and-go criteria.
- Obtaining a 12-lead EKG should not significantly delay initiation of transportation.
- Indications for performing a 12-lead EKG include; chest pain, epigastric pain, shortness of breath, syncope, and in those with signs of shock.
- If the patient looks sick, then treat patient as a priority patient.
- Initiate higher level of care service in a timely fashion when indicated.

PROCEDURE
Medication Administration

DESCRIPTION: Medication administration is accomplished by specific routes as indicated by the protocols. This procedure describes the traditional medication routes for use in the prehospital setting.

MATERIALS/EQUIPMENT: PPE, needleless system, syringes of various sizes, Providine-iodine or alcohol preps, sterile gauze pads, sharps container

PROCEDURE:

Preparation steps regardless of route:

1. Observe universal precautions for body substance exposures.
2. Confirm the drug order, amount to be given, and route.
3. Confirm patient is not allergic to the medication.
4. Check the medication.
    a. Is it the right medication (name)?
    b. Expiration date?
    c. Check for coloration and clarity.
5. Explain the procedure to your patient.
6. Assemble necessary equipment of appropriate size.
7. Calculate and draw up the desired volume of the drug or confirm concentration if administering from a pre-filled syringe.
8. Eject any air from the syringe.
9. Confirm again.
    a. Is it the right medication?
    b. It is the right patient?
    c. Is it the right dose?
    d. Is it the right route?
    e. Is it the right time?

Intravenous Administration:

1. This procedure utilizes an IV that has previously been established and placement confirmed.
2. Cleanse the injection port (inlet port) with an alcohol prep pad.
3. Insert syringe into the inlet port.
4. Stop the flow of the IV by pinching off the IV tubing above the inlet port if required.
5. Inject the desired amount of drug at the speed indicated by protocol.
6. Release (unpinch) the IV tubing.
7. Flush the IV tubing with approximately 10 cc – 20 cc of fluid to assure delivery of the drug.
8. Properly dispose of the contaminated equipment.
9. Document the time the medication was administered.

10. Monitor the response of the patient to the medication.

Endotracheal Administration:

1. This procedure utilizes an ET tube which has previously been established and placement confirmed. Only certain drugs may be given the ET route as specified in protocols: Narcan, Atropine, Valium, Epinephrine, and Lidocaine can be given via ETT.
2. Oxygenate the patient.
3. Disconnect the Bag-Valve device.
4. Stop chest compressions (if performing).
5. Double the dose of the medication if indicated by protocol.
6. Place the syringe tip into the lumen of the ET tube.
7. Inject the desired amount of drug into the lumen.
8. Flush with 10ml of Normal Saline
9. Replace the Bag-Valve device and resume ventilations while withholding chest compressions for 5 seconds, then resume full resuscitation.
10. Document the time the medication was administered.
11. Properly dispose of the contaminated equipment.
12. Monitor the response of the patient to the medication.

Intramuscular Injection:

1. Intramuscular injection is administered into the muscle tissue that requires adequate perfusion for absorption.
2. Identify an injection site, the deltoid muscle of the shoulder and upper arm and the upper outside quadrant of the gluteus muscle are commonly used.
3. Clean the injection site with alcohol or providine swab.
4. Stretch or “flatten” the skin overlying the site with your fingers.
5. Advise the patient to expect the stick and try to relax.
6. Insert the needle (preferably a 1 ½ to 2-inch, 20-22g needle) at a 90-degree angle into the muscle tissue.
7. Pull back (aspirate) on the syringe to confirm placement is NOT in a vessel by observing for blood return.
8. If blood aspires into the syringe, discontinue the injection and start the procedure over.
9. If no blood aspires into the syringe, slowly inject the drug into the muscle tissue.
10. Withdraw the needle and apply pressure to the site with a gauze pad.
11. Document the time the medication was administered.
12. Properly dispose of the contaminated equipment.
13. Monitor the response of the patient to the medication.

PROCEDURE
Intravenous Cannulation

DESCRIPTION: Intravenous Cannulation is used in the prehospital setting to establish a drug administration route (lifeline) and/or provide fluid replacement. Intravenous Cannulation should not significantly delay scene times or be attempted while on scene with a trauma patient who meets load-and-go criteria.

MATERIALS/EQUIPMENT: PPE, intravenous fluid (Normal Saline), administration set, intravenous catheter of various sizes, 5 cc – 10 cc syringe, alcohol preps, tourniquet, tape or commercial site protector sterile gauze pads, sharps container.

PROCEDURE:

Preparation steps:

1. Explain to the patient the need for the procedure and briefly describe the procedure to the patient.
2. Observe universal precautions for body substance exposures.
3. Obtain catheter of appropriate size. Catheter size will depend on the intended use of the IV and the condition and accessibility of the patient's veins.
    a. 18 to 22 gauge for lifelines
    b. 14 to 16 gauge for fluid replacement
4. Check the intravenous fluid (Normal Saline).
    a. Is it the right fluid?
    b. Confirm fluid has not past the expiration date.
    c. Check for coloration and clarity. NS should be a clear fluid with no particles.
5. Connect administration set to IV fluid.
6. Expel air bubbles from tubing.
7. Assure all chambers have appropriate fluid levels.
8. Prepare tape or commercial site protector.
9. Maintain a clean environment and protect administration set from contamination. Any IV supplies that become contaminated by inadvertently touching an object should be discarded and replaced with clean equipment (i.e., uncapped administration set dropped to floor).

Site selection and preparation:

1. Apply a venous tourniquet just proximal to the antecubital area.
2. Select, by palpation, a prominent vein.
    a. Choose a distal vein on the forearm or back of the hand.
    b. The antecubital space may be used if pharmacological therapy, fluid replacement or patient condition requires a more proximal site.
3. Cleanse the site with a prep pad, using a circular motion moving from the site.
4. Stabilize the vein by applying traction below the puncture site.
5. Inform the patient of your intent to puncture the site.

Venipuncture procedure:

1. Enter the vein directly from above or from the side of the site. With the bevel of the needle upward, puncture the skin using a 30 to 45-degree angle.
2. If you feel a "pop" and blood return flows through the catheter precede with insertion.
3. If you do not see blood return flow through the catheter, release the tourniquet and discontinue the attempt. If time and patient condition allows, you may attempt another site with a new catheter (do not exceed more than 2 attempts on scene).

Insert the catheter:

1. Carefully lower the catheter and advance the needle and catheter just enough to stabilize the needle in the vein.
2. Slide the catheter off the needle into the vein and then remove the needle, immediately disposing of it in an approved "sharps" container.
3. Slightly occlude the vein proximal to the catheter with gentle finger pressure.
4. If indicated by protocol, draw a blood sample using a vacutainer.
5. Release the tourniquet.
6. Connect the administration set to the catheter.
7. Open the flow regulator on the administration set and briefly allow IV fluid to run to assure a patent line (do not allow the IV to run freely for more than 20 cc). If line is patent, adjust flow rate as indicated by protocol or medical direction orders.
8. Secure the catheter and tubing using tape or a commercial site protector. "Loop" the IV tubing and secure to the patients arm. (Do not apply tape circumferentially to the extremity.)

Saline locks:

1. Saline locks may be substituted if fluid replacement is not indicated:
2. Assemble pre-filled saline syringe or draw up 3-5 cc of sterile saline.
3. Obtain and inspect an injection site link. If required, inject saline and expel air from injection site chamber.
4. After site selection, Venipuncture and catheterizing the vein, connect the injection site link to the catheter and insert the syringe into the access port.
5. Pull back (aspirate) on the syringe to confirm placement is in a vessel by observing for blood return.
6. If blood aspires into the syringe, continue by injecting saline into the chamber.
7. If no blood aspires into the syringe, discontinue the attempt and prepare to repeat the procedure at a new site.
8. If fluid replacement becomes necessary attach an administration set to the injection port by 18 gauge needle or other needle less device and administer fluids in accordance with appropriate protocol.
9. Secure the catheter and link using tape or a commercial site protector.

External Jugular Vein Cannulation:

1. External Jugular Vein may be utilized if traditional extremity cannulation cannot be established and the patient requires immediate, stabilizing fluid replacement and/or drug administration route (lifeline).
2. Position the patient supine with feet elevated.

3. Turn the patient's head in the direction away from the side to be cannulated.
4. Cleanse the site with a prep pad, using a circular motion moving from the site.
5. Stabilize the vein by applying traction just above the clavicle.
6. Inform the patient of your intent to puncture the site.
7. A 10 cc syringe may be used on the IV catheter. Align the catheter and point the tip of the catheter toward the patient's feet.
8. Enter the vein midway between the angle of the jaw and the clavicle. With the bevel of the needle upward, puncture the skin using a 30 degree angle and aim toward the shoulder on the same side.
9. As you enter the vein, apply gentle aspiration by pulling on the syringe plunger and if blood returns through the flash chamber and syringe precede with insertion. Slightly occlude the vein proximal to the catheter with gentle finger pressure. Connect the administration set to the catheter and secure the site. If you do not see blood return flow through the flash chamber or syringe, discontinue the attempt. Contact medical control if more than one EJ is required.

Special Considerations:

1. If blood begins to back-flow in the IV tubing:
    a. check the location of the bag to assure it is in a gravity flow position and check to assure all valves are properly set
    b. If the IV equipment is set properly and blood continues to back-flow, re-identify the vessel to assure cannulation of an artery has not occurred.
2. Edema, pain and lack of fluid flow at the site may indicate infiltration or incorrect angle of insertion.
3. Needles that are partially withdrawn and then reinserted can result in catheter shear.
4. Do not substitute a saline lock for IV fluid in trauma patients, patients who are in shock, patients with unstable vital signs, patients requiring multiple drug administrations.
5. External jugular vein cannulation is contraindicated in patients with suspected cervical injury.

PROTOCOL
Pain Control

Overview: Pain, and the lack of relief from the pain, is one of the most common complaints among patients. Pain control can reduce the patient's anxiety and discomfort therefore making patient care easier. The patient's severity of pain must be properly assessed in order to provide appropriate relief. Managing pain clinically in the prehospital setting will provide greater patient care.

First Responder, BLS, and ILS Care: Should focus on the reduction of the patient anxiety due to the pain.

- Render initial care in accordance with the Routine Patient Care Protocol
- Assess level of pain using approved pain scale.
- Place patient in position of comfort unless contraindicated as in a trauma patient
- Reassure patient.
- Consider ice or splinting.
- Reassess level of pain using approved pain scale.
- ILS care should include IV access and ALS intercept to treat pain as indicated

ALS (Paramedic) Care: Should focus on the pharmaceutical management of pain.

- FR, BLS, ILS care
- Assess the patient's severity of pain by use of the Pain Assessment Scale (1-10 rating).
- Place patient on cardiac monitor. Utilize continuous pulse oximetry and monitor blood pressure every 5 minutes.
- Use analgesic meds per protocol (SBP greater than 90 mmHg):
    - ***Morphine Sulfate: 2-5 mg IVP or Fentanyl 50-100mcg*** as indicated

- Consult Medical Control for additional direction regarding pain management:

    - ***Morphine Sulfate: 2-5mg IV*** every 5 minutes to reduce the patient's anxiety and severity of pain, or ***2-5mg IM*** to reduce the patient's anxiety and severity of pain

    - ***Fentanyl: 50-100 mcg IV*** to reduce the patient's anxiety and severity of pain, or 100mcg IM to reduce the patient's anxiety and severity of pain

    - ***Dilaudid (Hydromorphone):*** **(Manitowoc Fire Dept and Valders Fire Dept Only)**

        - 0.5 – 1mg IVP every 5 minutes to reduce the patient's anxiety and severity of pain, or 1.0 – 2.0mg IM to reduce the patient's anxiety and severity of pain

    - ***Ativan 1mg IVP*** for sedation to reduce the patient's anxiety and pain, or 1mg IM for sedation to reduce the patient's anxiety and pain.

Critical Thinking Elements:

- Monitor the patient for respiratory depression when giving narcotics and benzodiazepines.
- Verify the patient is not allergic to the pharmaceutical agent prior to administering.
- Those with systolic blood pressure less than 90 mmHg should not receive pain control until cleared by medical control.
- Multi-system trauma patients, abdominal pain of unknown etiology, and head injury patients **should not receive pain medications unless cleared with medical control**.

PROTOCOL
Nausea and Vomiting

Overview: Nausea and vomiting are common among patients seeking medical care. This can be secondary to pain, bowel obstruction, medication interaction, and a host of other causes. Nausea control can reduce the patient's anxiety and discomfort therefore making patient care easier.

First Responder, BLS, and ILS Care: Should focus on the reduction of the patient anxiety due to the nausea.

- Render initial care in accordance with the Routine Patient Care Protocol
- Place patient in position of comfort unless contraindicated as in a trauma patient
- Reassure patient.
- Consider fanning around head.
- ILS care should include IV access and ALS intercept if vomiting severe.

ALS Care: Should focus on the pharmaceutical management of pain or antiemetic.

- FR, BLS, ILS care
- Place patient on cardiac monitor. Utilize continuous pulse oximetry and monitor blood pressure every 5 minutes.
- Administer ***0.9% Normal Saline 100 to 200ml bolus IV***
- Use analgesic meds per protocol
  - ***Phenergan 12.5 to 25mg IV*** **(one time only) or Zofran (Ondansetron) 4.0 mg IV over 1 minute (one time only)—Paramedic only**
  - ***For pediatric patients contact medical control-Zofran pediatric dose is 0.15mg/Kg not to exceed 4mg.***

Critical Thinking Elements:

- Monitor the patient for respiratory depression when giving antiemetics or pain meds.
- Verify the patient is not allergic to the pharmaceutical agent prior to administering.
- Patients with altered mental status should not receive phenergan or Zofran unless approved by medical control.

PROCEDURE
Basic Airway Control

DESCRIPTION: Establishing and maintaining an open airway and assuring adequate ventilation is a treatment priority with all patients. Proper techniques must be used to assure treatment maneuvers do not inadvertently complicate the patient's condition.

INDICATIONS: Airway monitoring is indicated in all patients.

MATERIALS/EQUIPMENT: PPE, Pocket Face Mask (with barrier protection), Bag-Valve-Mask (with reservoir bag and oxygen inlet), Oropharyngeal airway (of various sizes), Nasopharyngeal airway (of various sizes), Combitube, Suction equipment (with connecting tubing and tips), Magils forceps and laryngoscope, Oxygen Delivery System, Nasal Cannula, Non-Rebreather Mask.

PROCEDURE:

Assess Airway

1. Assure an open airway by utilizing either the head-tilt/chin-lift maneuver, the modified jaw-thrust (without head-tilt) maneuver, or the tongue-jaw lift maneuver. The head-tilt/chin-lift maneuver is NOT to be used if there is any possibility of cervical spine injury.
2. Expose the chest and visualize for chest rise and movement, simultaneously listen and feel for air movement at the mouth and nose. This procedure will need to be done initially and after correcting an obstruction and securing the airway.
3. If chest is not rising and air exchange cannot be heard or felt:
    - Deliver two positive-pressure ventilations. If resistance is felt re-position the head and re-attempt ventilations.
    - If resistance continues, follow the AHA sequence for obstructed airway rescue.
4. Reassess breathing and check for a carotid pulse.
5. If spontaneous respirations return and a pulse is present
    - provide supplemental oxygen by NRM or
    - assist respirations with bag-valve-mask at 15L/min.
6. If the patient remains breathless and a pulse is present, initiate positive-pressure ventilation with supplemental oxygen (15L/min) at the rate of 16 to 20 per minute for the first minute then 12-16 per minute.
7. If the patient remains breathless and a pulse is not present, initiate CPR and institute appropriate cardiac protocol.
8. If noisy or snoring respirations, render treatment for partial airway obstruction (PAO).
    - Reassess effectiveness of airway maneuver.
    - If PAO persists, suction the airway and visualize the pharynx for any evidence of foreign objects. Perform a finger sweep or use magil forceps if a foreign object can be seen.
    - If PAO persists, treat patient in accordance with AHA guidelines.
    - Secure the Airway (only after obstruction corrected).
9. Insert an oropharyngeal airway in the unconscious (without gag reflex) patient.
10. Insert a nasopharyngeal airway in the conscious patient or patient with gag reflex.

Assess Breathing

1. Establish the presence and adequacy of breathing by observing the frequency, depths and consistency of respirations. Also, observe the chest wall for any indications of injuries which may contribute to respiratory compromise.
2. ***Supplemental oxygen*** should be delivered to any patient who exhibits signs of difficulty breathing, sensation of shortness of breath (not related to hyperventilation syndrome), and respiratory rate greater than 20 per minute, use of accessory muscles, altered level of responsiveness, cyanosis, cardiac symptoms, head injury or any indications of shock.
3. ***Supplemental oxygen*** should be provided by a Non-Rebreather Mask (NRM) at a rate of 15L/min. (assuring reservoir bag is inflated).

4. If patient is unable to tolerate the NRM, then oxygen should be provided by Nasal Cannula (NC) at a rate of 4-6L/min.
5. Bag-Valve-Mask ventilation with supplemental oxygen (15L/min) should be initiated at appropriate rate if patient not breathing adequately on his own.

Special Considerations:

- Inadequate maintenance of the patient's airway, inappropriate airway maneuvers, using inappropriate sized airway equipment and/ or failure to recognize an obstructed airway may complicate the patient's condition.
- Jaw thrust maneuver should be used on a suspected spinal injury patient for airway control.
- Proper facemask seal during artificial ventilations is imperative to assure adequate ventilation.
- Inadequate oxygen delivery settings (too low) will complicate the patient's condition.
- Basic life support providers should establish basic airway and ventilation measures and request advanced assistance (intercept) for patients who meet the criteria for advanced airway control.
- Advanced life support and intermediate life support providers should establish basic airway and ventilation measures and then initiate advanced airway procedures (endotracheal intubation or CPAP) if indicated.

PROCEDURE
Advanced Airway Control

DESCRIPTION: Endotracheal Intubation (ET) is the best method of securing the airway and ventilating a patient in situations that warrant aggressive airway and respiratory management. If endotracheal intubation is unsuccessful, the combitube should be inserted or basic airway control measures should be re-established without delay.

INDICATIONS: Patient is not breathing or agonal respirations.

SCOPE: Paramedic, Intermediate (I99) and trained and approved Advanced Emergency Medical Technician

MATERIALS/EQUIPMENT: Basic airway control equipment, laryngoscope handle with various blades, forceps, stethoscope, water soluble lubricant, 10ml syringe, various sizes of endotracheal tubes, guide wire (stylet), tape or commercial securing device.

PROCEDURE:
Endotracheal intubation may be attempted after assessing, opening and securing the airway in accordance with basic airway control procedures.

Technique for inserting the ET tube in non-traumatic patients:

1. Assemble equipment
    a. Select proper tube size (based on patient size).
        i. Adult Females: 6.0 – 7.5
        ii. Adult Males: 7.0 – 8.5
    b. If you are using a cuffed tube, attach a 5 or 10 cc syringe and inflate the cuff to be sure it does not leak. The cuff must be deflated prior to insertion.
    c. Insert a wire guide and bend to the approximate configuration of the pharynx.
    d. Lubricate the ET tube with water-soluble lubricant.
    e. Have suction, ventilation bag, and stethoscope readily available.
    f. Have verification device available (esophageal detector, capnometer (CO_2 detector), continuous capnography).
    g. Prepare tape or commercial securing device.
    h. Assemble and check laryngoscope handle and blade as described below.

2. Assemble the laryngoscope
    a. Pick up the laryngoscope handle with your left hand and the appropriate blade with your right hand
    b. Holding the blade parallel to the handle, attach the blade to the handle by inserting the U-shaped indentation of the blade into the small bar at the end of the handle. When the indentation is aligned with the bar, press the blade forward and snap into place.
    c. Lower the blade until it is at a right angle to the handle. The light should come on. If it does not, see if the bulb is tight and/or the batteries need to be replaced. (This should be done on a daily basis so you do not have to spend valuable time fixing it at the scene of a call.)

3. Suction the pharynx as needed.

4. Oxygenate the patient with high concentration oxygen prior to each intubation attempt.

5. Insert the blade into the mouth on the right side, moving the tongue to the left. Follow the natural contour of the pharynx, lifting the tongue (not prying) until you can see the glottic opening.

6. If you are using a straight blade, insert it until you can see the epiglottis. With the tip of the blade lift up on the epiglottis so that you can visualize the vocal cords and glottic opening. You may have to have someone press down gently on the cricoid cartilage (Sellick Maneuver) so that you can se the cords well.

7. If you are using a curved blade, insert the tip into the vallecula and lift up. This will lift the epiglottis and expose the vocal cords and glottic opening. You may have to have someone press down gently on the cricoid cartilage so that you can see the cords well.

8. Visualizing the glottic opening and grasping the ET tube with your right hand advance the tube from the right corner of the mouth. Insert the tube into the glottic opening between the vocal cords (direct visualization), only far enough to pass the cuff of the tube past the opening. Typically, the ET tube is inserted to 3 times the diameter of the tube (i.e. an 8.0 ETT is inserted to 24 cm).

9. Verify proper position by ventilating the patient through the tube with a bag-valve-device while listening to each side of the chest with a stethoscope to be sure air is entering both lungs. Also, check for inadvertent esophageal intubation by listening for air movement in the epigastric area during ventilations.

10. If breath sounds are heard on both sides of the chest and no epigastric sounds are heard, inflate the cuff with 10 cc of air and secure the tube with tape or a commercial securing device.

11. If you have inserted the tube too far, it will usually go into the right main stem bronchus; therefore, if you hear breath sounds only on the right, you should pull the tube back 1 cm at a time until you hear bilateral breath sounds. Inflate the cuff with 10 cc of air and secure the tube with tape or a commercial securing device.

12. If you hear no breath sounds, you are in the esophagus and must remove the tube immediately. Another intubation attempt may be conducted after hyperventilating the patient with the bag-valve-mask or other method.

13. The endotracheal tube place should be confirmed by more than one method:
    a. Direct visualization of tube going through the cords
    b. Bilateral breath sounds without epigastric sounds
    c. End tidal CO_2 detection
    d. Continuous CO_2 monitoring during the transport.

14. Secure the endotracheal tube with tape or a commercial securing device.

15. Ventilate the patient at a rate of 12-16 times per minute.

16. Trauma Intubation:

    a. Any type of airway manipulation may be dangerous during airway control of the suspected spinal injury patient. The following procedure should be used to maintain in-line stabilization during intubation attempts of the suspected spinal injury patient.

    b. Minimum of two trained rescuers to assure special attention to spinal precautions

    c. One rescuer will apply manual in-line stabilization by placing the rescues hands about the patient's ears with the little fingers under the occipital skull and the thumbs on the face over the maxillary sinuses. Maintain stabilization of the neck in a neutral position. This should be done from below.

    d. The rescuer performing the intubation should take a position at the patient's head that allows the rescuer to accomplish the intubation. The prone position is a posture

commonly used. A position that results in the rescuer straddling the patient's head should not be used due to possible stabilization compromise.

e. If a third rescuer is available, additional stabilization should be provided by grasping and stabilizing the parietal regions of the skull.

f. Once the rescuers are in position and the patient's cervical spine is stabilized, the technique for inserting the ET tube should be followed without cervical manipulation.

Critical Thinking Elements:

- Trauma patients needing definitive airway control are "load and go" patients. Multiple attempts at intubation should not hold up transport. Use of a Combitube (in those without gag reflex) or simply bagging with BVM until ED arrival is acceptable if intubation is difficult or would prolong scene time.

PROCEDURE
Rapid Sequence Intubation

Description: Rapid Sequence Intubation shall be used in patients requiring immediate Endotracheal Intubation. **Medical Control must be contacted prior to endotracheal intubation in patients requiring sedatives and paralytics**. RSI requires 2 paramedics at the patient's side during the procedure.

Indications:
1. Respiratory failure.
2. Loss of gag and protective reflexes.
3. Obtunded and/or a Glascow Coma Scale less than 8 in head injured patients
4. Spinal cord injuries.
5. Burns.

Contraindications:
1. Spontaneous breathing with adequate ventilation.
2. Major facial or laryngeal trauma.
3. Upper airway obstruction.
4. Distorted facial or airway anatomy.
5. Soft tissue/penetrating injury to neck, i.e., gunshot wound, stab wound with hematoma compromising airway.

RSI Procedure:
1. History and assessment of patient, including allergies;
2. Administer Oxygen; establish IV of Normal Saline TKO. EKG Monitor;
3. Prepare drugs and necessary equipment, i.e., oximeter, suction, laryngoscope;
4. Pre-Oxygenate with 100% Oxygen;
5. Consider premedication with adjunctive agents; consider Atropine in pediatrics, Lidocaine for head injured patients, defasiculation adjunct if using Succinylcholine;
6. Assist ventilation's with concomitant use of cricoid pressure;
7. Sedate patient;
8. Administer Neuromuscular blockade to create muscle relaxation;
9. Intubate
10. Verify Endotracheal tube placement; assure adequate sedation for prolonged paralysis;
11. Ventilate and maintain inline stabilization for suspected cervical spine injured patients.

RSI Algorithm:
1. Preparation
2. Oxygenation: patient with BVM at 15 LPM
3. Premedication:
    a. Head injury/suspected Head Injury - ***Lidocaine 1.5-2mg/kg***
    b. Ages 1-5: ***Atropine - 0.02mg/kg*** (min 0.1mg; max 1mg)
4. Defasiculation Dose: **Vecuronium - 0.01mg/kg** (if using Succinylcholine for paralytic).
5. Sedation: ***Versed 0.1-0.4mg/kg*** (if normotensive) or ***Etomidate 0.2mg/kg***
6. Paralyze: ***Succinylcholine 1-2mg/kg*** (preferred) or ***Vecuronium 0.1mg/kg*** (if cannot use Succinylcholine)
7. Cricoid Pressure: use during ventilations and intubation
8. Intubate
9. ETT Confirmation:
    a. Direct visualization of tube going through cords
    b. Good chest rise and fall with bagging
    c. Auscultation
    d. Continuous Pulse Oximetry

e. Tube Checker or End-tidal CO_2 detection
f. Continuous CO_2 monitoring
g. Secure Endotracheal Tube
h. Complete MCEMS Advanced Airway Form

Medications for RSI:

Sedation	Medications	Dose Indications
Versed	0.1-0.4mg/kg	Shorter sedation; Status Epileptics
Etomidate	0.2mg/kg	Good for hypotensive or head injured patient; adult only

Paralytic Agents	Dose	Onset Intubation	Condition (sec)	Duration (min)
Succinylcholine*	1-2 mg/kg	15-30 sec	45-60	5-12
Vecuronium	0.1 mg/kg	30-120 sec	60-240	20-60

* Side Effects: Bradycardia, hypotension, cardiac arrest, pulmonary edema, increased ocular pressure, hyperkalemia, malignant hyperthermia, masseter spasm.

Premedication Adjuncts	Dose	Action/Uses
Lidocaine	1.5-2mg/kg	Blunt systemic pressor (2-3 min before intubation) response or tachycardia association with laryngoscopy and intubation. Blunts increase in ICP.
Atropine	0.02mg/kg (max dose 1 mg, min dose 0.1 mg)	Used in infants and children to 5 years of age receiving Succinylcholine and any patient with Bradycardia at time of intubation. Atropine minimizes effects of Succinylcholine.

Contraindications for Use of Neuromuscular Blocking Agents:

1. Succinylcholine
    a. History or family history of malignant hyperthermia;
    b. Hyperkalemia;
    c. One week or more following major burns or crush injuries;
    d. Penetrating eye injuries
2. Nondepolarizing muscle relaxants (Vecuronium)
    a. Myasthenia Gravis.

Failed Intubation Following Paralysis:

1. Intubation should be accomplished in 45-120 seconds after the paralytic Succinylcholine is administered. If unable to intubate reattempt after oxygenating. Another approved and trained provider may attempt as well.
2. If unable to intubate:
    a. Insert Combitube (adults only).
    b. If unable to insert Combitube, ventilate patient with BVM, 100% oxygen and cricoid pressure and transport.
3. If unable to insert Combitube and unable to ventilate patient with BVM perform an emergency cricothyroidotomy or needle cricothyroidotomy (children) using Melker kit. (Paramedic only)

Special Considerations:

- RSI does take time to accomplish. If able to ventilate patient with BVM (or able to intubate without the need for sedation and paralytics) and have transport time less than 10 minutes rapid transport without RSI would be indicated.
- Endotracheal intubation requires much practice to master. The greatest danger to the patient is wasting too much time attempting the difficult procedure or assuming the tube is in correct position when it is not. Time is precious, if you cannot intubate in two attempts, allow another advance provider 2 attempts, then use another method of airway control but do not delay the patient's transport. Do not interrupt ventilation for more than 30 seconds per attempt.
- Endotracheal intubation causes cardiac rhythm disturbances produced by catecholamine release and from vagal stimulation. Closely monitor the patient's cardiac rhythm.
- Verification of endotracheal tube placement is of vital importance since unrecognized esophageal intubation is clearly detrimental. The EMS provider should utilize multiple methods of confirming proper endotracheal tube placement. This includes direct visualization of the tracheal opening when inserting the tube, observation of chest movement during ventilations, auscultation of breath sounds, confirming absence of epigastric sounds during ventilations, reservoir bag compliance and exhaled tidal volume, absence of gastric content within the tube
- End tidal CO_2 will be monitored during transport of the patient. This will identify if the ETT somehow moves and is no longer in the proper position.

Rapid **S**equence **I**ntubation Medication Chart

Kilograms	10kg	20kg	30kg	40kg	50kg
Pounds	22lb	44lb	66lb	88lb	110lb
	INFANT	**Child**	**Child**	**Child/Adult**	**Adult**
Pre-Medication					
Lidocaine - 1.0-2.0mg/kg	15-20mg	30-40mg	45-60mg	40-60mg	50-75mg
Atropine - 0.02mg/kg	0.2mg	0.4mg	0.6mg	0.8mg	DO NOT USE
Defasiculation Dose					
Vecuronium - 0.01mg/kg	0.1mg	0.2mg	0.3mg	0.4mg	0.5mg
Sedation					
Etomidate 0.2mg/kg	**DO NOT USE**	**DO NOT USE**	**DO NOT USE**	**DO NOT USE**	10mg
Versed 0.1 - 0.4mg/kg	1mg	2mg	2.5mg	2.5mg	5mg
Paralytic					
Succinylcholine 1-2mg/kg	20mg	40mg	60mg	40-80mg	50-100mg
Vecuronium 0.1mg/kg	1mg	2mg	3mg	4mg	5mg

Rapid **S**equence **I**ntubation Medication Chart

Kilograms	60kg	70kg	80kg	90kg	100kg
Pounds	132lb	154lb	176lb	198lb	220lb
	Adult	**Adult**	**Adult**	**Adult**	**Adult**
Pre-Medication					
Lidocaine - 1.0-2.0mg/kg	60-90mg	70-105mg	80-120mg	90-135mg	100-150mg
Atropine - 0.02mg/kg	Age 5 and Under Only - Minimum 0.1mg / Maximum 1.0mg				
Defasiculation Dose					
Vecuronium - 0.01mg/kg	0.6mg	0.7mg	0.8mg	0.9mg	1.0mg
Sedation					
Etomidate 0.2mg/kg	12mg	14mg	16mg	18mg	20mg
Versed 0.1 - 0.4mg/kg	5mg	5mg	5mg	5mg	5mg
Paralytic					
Succinylcholine 1-2mg/kg	60-120mg	70-140mg	80-160mg	90-180mg	100-200mg
Vecuronium 0.1mg/kg	6mg	7mg	8mg	9mg	10mg

PROCEDURE
NON-VISUALIZED AIRWAY
(COMBITUBE)

Description: Non-visualized airway placement may be performed by properly licensed/certified EMT's and First Responders who are affiliated with an approved service. This applies for the Combitube or similar devices (Note: ALL other devices must be approved by HFS-EMS prior to use). Medical Control contact defined below.

Indications:

1. Cardiac arrest from any cause
2. Respiratory arrest with absent gag reflex
3. Unconscious patient with inadequate respirations and absent gag reflex
4. Combitube SA (small adult) sized for 4 to 5.5 feet tall
5. Combitube sized for above 5 feet tall
6. King LTS-D above 4 feet tall

Contraindications:

1. Height restrictions per manufacturer's guidelines
2. Active gag reflex
3. Known or suspected esophageal disease
4. Ingestion of caustic substance

Preparation:

1. Non-visualized airway insertion may proceed per standing orders.
2. Maintain ventilation with an oropharyngeal airway and bag-valve-mask
3. Take appropriate body substance isolation precautions
4. Prepare the device
5. Determine cuff integrity per manufacturer's directions
6. Lubricate as necessary
7. Ensure all necessary components are at hand
8. Prepare the patient
9. Reconfirm original assessment
10. Inspect upper airway for visible obstructions and remove
11. Oxygenate for at least 30 seconds
12. Position the patient's head in a neutral position

Airway Insertion:

1. AIRWAY INSERTION should be accomplished according to the manufacturer's directions (KING LTS-D)
2. Insert with airway curvature in the same direction as natural curvature of pharynx

3. Grasp tongue and lower jaw between index finger and thumb (jaw-lift maneuver) and lift upward
4. Insert the airway gently but firmly until black rings on the tube are positioned at the patient's teeth
5. DO NOT USE FORCE. If tube does not insert easily, withdraw and reattempt.
6. Maximum of 3 attempts at 30 seconds each, with oxygenation between attempts.
7. Using pre-connected syringes, inflate Combitube pharyngeal cuff through tube #1 (blue) with 100ml air (85ml SA) and distal cuff through tube #2 (white) with 15ml air (12ml SA). If using another device, follow manufacturer's directions.
8. Ventilate through primary #1 (blue) tube
9. Confirm placement by auscultating breath sounds over the stomach and at both axillary areas.
10. Esophageal placement = preferred
    a. Epigastric sounds absent and breath sounds present bilaterally
    b. Continue to ventilate through the #1 (blue) tube
    c. Ventilate for a minimum of 30 seconds before further interventions
    d. With this placement, the #2 (white) tube may be used for removal of gastric fluids or gas with the catheter provided in the kit.
11. Tracheal placement = alternate
    a. Epigastric sounds present and axillary breath sounds absent
    b. Ventilate through #2 (white) tube
    c. Confirm presence of axillary breath sounds with this route
    d. Ventilate for a minimum of 30 seconds
12. Unknown placement
    a. Epigastric and axillary breath sounds both absent
    b. Immediately deflate cuffs, #1 (blue) then #2 (white)
    c. Withdraw device slightly 2-3 cm
    d. Re-inflate cuffs, #1 (blue) then #2 (white)
    e. Ventilate and assess placement
    f. If epigastric and breath sounds are still absent
        i. Immediately deflate cuffs and extubate
        ii. Suction as necessary
        iii. Insert oropharyngeal or nasopharyngeal airway
        iv. Ventilate via bag-valve-mask
        v. Continue patient assessment and treatment

13. King LTS-D
    1. Simultaneously gently bag the patient and withdraw the King LTS-D until ventilation is easy and free flowing
    2. Readjust cuff inflation
    3. Secure airway in place
    4. Continue ongoing respiratory assessment and treatment

Non-Visualized Airway Removal:

1. Indications
    a. Patient regains consciousness
    b. Protective gag reflex returns
    c. Ventilation is inadequate
2. May be removed per standing orders
3. Position patient on side, using spinal injury precautions as necessary
4. Deflate cuffs, #1 (blue) then #2 (white)
5. Withdraw airway in smooth and steady motion
6. Suction
7. Place the patient on high-flow oxygen and assist ventilation as needed
8. Monitor airway and respirations closely, suction as needed
9. Prepare for prompt transportation

PROCEDURE
CPAP

DESCRIPTION: Continuous positive airway pressure (CPAP) may be of significant value to a patient with significant respiratory distress. The appropriate use of CPAP can often times improve the patient's condition preventing need for more advanced airway management such as endotracheal intubation. CPAP may be used by approved and trained EMT-Basic to Paramedic.

MATERIALS/EQUIPMENT: CPAP machine and mask.

PROCEDURE:

1. Determine if patient meets criteria for CPAP:
    a. Exclusion Criteria: If patient has any of the following CPAP is contraindicated.
        i. Respiratory or cardiac arrest
        ii. Unable to follow commands
        iii. Unable to independently maintain airway
        iv. Major trauma
        v. Suspicion of pneumothorax
        vi. Vomiting or active GI bleeding

2. Inclusion Criteria: If patient has 2 or more of the following criteria CPAP may be indicated.
    a. Retraction or use of accessory muscles
    b. Brochospasm or rales present
    c. Respiratory rate > 28/min
    d. Oxygen saturation less than 92% on high flow O2
3. Administer CPAP at 5 cm H20 and transport as soon as possible.
4. Assess for anxiousness.
    a. If patient is anxious, reassure patient. Paramedic may administer Ativan 1mg IV.
5. Continue appropriate respiratory distress protocol
6. Continue to assess and monitor patient.
    a. If patient deteriorates discontinue CPAP and consider endotracheal intubation
7. Complete appropriate documentation for CPAP use and submit to Service Director.
8. Complete MCEMS Advanced Airway Form (located in Appendix)

PROCEDURE
Needle Thoracentesis
(Chest Decompression)

DESCRIPTION: Thoracic decompression is placement of a needle through the chest wall of a critical patient who has a life threatening tension pneumothorax and is rapidly deteriorating due to intra-thorax pressure.

INDICATIONS: A patient suffering from a tension pneumothorax. Signs and symptoms may include: restlessness and agitation, severe respiratory distress, increased airway resistance on ventilating patient, JVD, tracheal deviation, subcutaneous emphysema, unequal breath sounds, absent on the affected side, hyperresonance to percussion on the affected side, hypotension, cyanosis, respiratory arrest.

CONTRAINDICATIONS: There are no contraindications for patients meeting the above criteria; however, Medical Control must be contacted prior to performing the procedure.

MATERIAL/EQUIPMENT: Large bore over-the-needle catheter (2-inch, 14-16gauge), 10-20 cc syringe, Alcohol preps, sterile dressing, and sterile gloves.

APPROVED FOR: This procedure may be performed by Paramedic or Intermediate (I99).

PROCEDURE:

1. Observe universal precautions using sterile gloves.
2. Routine Trauma Care & identification of the presence of a pneumothorax.
3. Locate the second intercostal space in the midclavicular line on the side of the pneumothorax.
4. Cleanse the site with Alcohol preps and maintain as much of a sterile field as possible.
5. Obtain a 2-inch, 14-16gauge over-the-needle catheter.
6. Puncture the skin perpendicularly just superior to the third rib in the second intercostal space. Direct the needle just over the third rib and into the thoracic cavity. You should feel a “pop”, possibly hear a rush of air and observe the plunger of the syringe push outward.
7. Advance the catheter while removing the needle.
8. Remove the syringe.
9. Secure the catheter in the chest wall with a dressing and tape.
10. Reassess patient and continue trauma care.

PROCEDURE
CRICOTHYROTOMY

Indication: Complete airway obstruction lasting more than 3 minutes.

Contraindications: Alternative airway available
Children less than 4

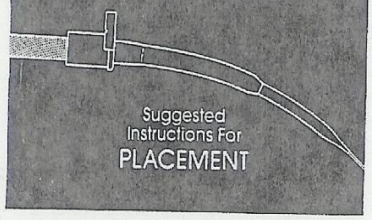
Supplies: Melker Emergency Cricothyrotomy Catheter Set
3.5 mm ID—Pediatrics 4 to 7 years of age
6 mm ID—Patients 8 years of age or older

Procedure: May be performed by EMT-Paramedic only

1. Identify the cricothyroid membrane. Identification of the correct anatomy is required to successfully perform the procedure.
    a. Place a finger on the lower trachea between clavicles
    b. Run finger up the trachea until a protuberant ring is felt (cricoid cartilage).
    c. Run finger up over cricoid cartilage onto recessed cricothyroid membrane
    d. Alcohol prep this location
    e. Keep a finger on the cricoid cartilage to mark lower border of the membrane
2. While stabilizing the cartilage, make a vertical incision in the midline using the #15 short handle scalpel blade. An adequate incision eases introduction of the dilator and airway.
3. With the supplied 6 cc syringe attached to the 18 gauge TFE catheter introducer needle, advance it through the incision into the airway at a 45 degree angle to the frontal plane in the midline in a caudal direction. When advancing the needle forward, verification of entrance into the airway can be confirmed by aspiration on the syringe resulting in free air return.
4. Remove the syringe and needle, leaving the TFE catheter in place. Advance the soft, flexible end of the wire guide through the TFE catheter and into the airway several centimeters.
5. Remove the TFE catheter, leaving wire guide in place.
6. Advance the handled dilator, tapered end first, into the connector end of the airway catheter until the handle stops against the connector. NOTE: This step may be performed prior to beginning procedure. Use of lubrication on the surface of the dilator may enhance fit and placement of the emergency airway catheter.
7. Advance the emergency airway access assembly over the wired guide until the proximal stiff end of the wire guide is completely through and visible at the handle end of the dilator. It is important to always visualize the proximal end of the wire guide during the airway insertion procedure to prevent its inadvertent loss into the trachea. Maintaining the wire guide position, advance the emergency airway access assembly over the wire guide with a reciprocating motion, and completely into the trachea. Care should be taken not to advance the tip of the dilator beyond the tip of the wire guide within the trachea.
8. Remove the wire guide and dilator simultaneously.
9. Fix the emergency airway catheter in place with the cloth tracheostomy tape strip in a standard fashion.
10. Connect the emergency airway catheter, using its standard 15-22 adapter to an appropriate ventilatory device.

C-T-TCCS1093

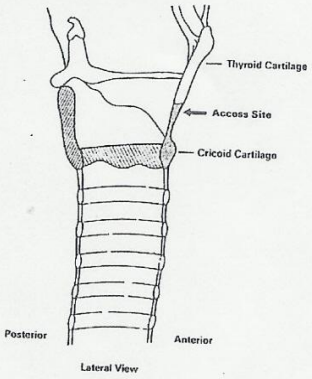
MELKER EMERGENCY CRICOTHYROTOMY CATHETER SETS



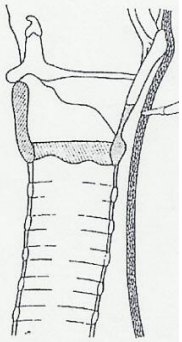
Suggested Instructions For PLACEMENT

COOK®
CRITICAL CARE

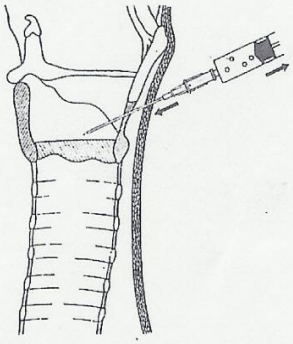
SUGGESTED INSTRUCTIONS FOR PLACEMENT OF THE MELKER EMERGENCY CRICOTHYROTOMY CATHETER



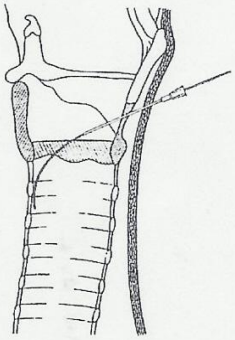
1. Identify the cricothyroid membrane between the cricoid and thyroid cartilages.



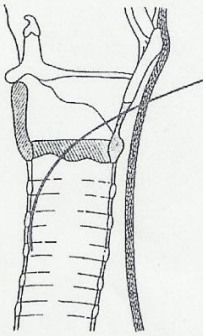
2. Carefully palpate the cricothyroid membrane a bilizing the cartilage, make a vertical incision i using the #15 short handle scalpel blade. A incision eases introduction of the dilator and ai



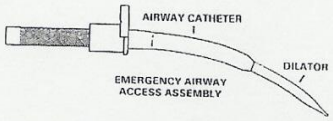
3. With the supplied 6 cc syringe attached to the 18 gage TFE catheter introducer needle, advance it through the incision into the airway at a 45° angle to the frontal plane in the midline in a caudad direction. **When advancing the needle forward, verification of entrance into the airway can be confirmed by aspiration on the syringe resulting in free air return.**



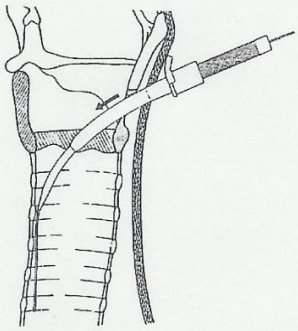
4. Remove the syringe and needle, leaving the TFE catheter in place. Advance the soft, flexible end of the wire guide through the TFE catheter and into the airway several centimeters.



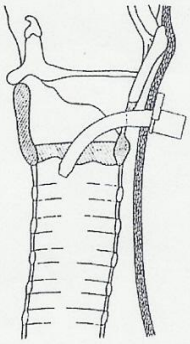
5. Remove the TFE catheter, leaving wire guide in pla



6. Advance the handled dilator, tapered end first, into the connector end of the airway catheter until the handle stops against the connector. **NOTE:** This step may be performed prior to beginning procedure. Use of lubrication on the surface of the dilator may enhance fit and placement of the emergency airway catheter.



7. Advance the emergency airway access assembly over the wire guide until the proximal stiff end of the wire guide is completely through and visible at the handle end of the dilator. **It is important to always visualize the proximal end of the wire guide during the airway insertion procedure to prevent its inadvertent loss into the trachea.**
Maintaining the wire guide position, advance the emergency airway access assembly over the wire guide with a reci-



8. Remove the wire guide and dilator simultaneously.
9. Fix the emergency airway catheter in place with the tracheostomy tape strip in a standard fashion.
10. Connect the emergency airway catheter, using its stan 15-22 adapter to an appropriate ventilatory device.

POLICY
Requesting Advanced Assistance
For Optimum Patient Care

POLICY STATEMENT:

When a patient's condition warrants the highest level of available care, in-field service level upgrades shall be utilized to optimize patient outcome. "In-Field Service Level Upgrades" as referred to in this policy implies services above the level of care provided by the initial responding agency.

GOAL/PURPOSE: To assure the highest level of care is being utilized when indicated and available.

POLICY/PROCEDURE:

When a patient's condition warrants a higher level of care and an advanced level is available then the more advanced agency shall be called for immediate assistance.

Conditions warranting the highest available level of care include, but are not limited to:

A. **EMT Advanced EMT Level requesting advanced care:**

1. Suspected Cardiac Arrest (Dispatch Information, First Responder Report, On Scene Evaluation, etc...)
2. Airway compromise requiring intubation or cricothyrotomy
3. Pt requiring airway placement via RSI
4. Pt requiring chest needle decompression (Trauma or Medical)
5. Respiratory Distress in pts meeting CPAP Inclusion Criteria if the responding service does not have CPAP capabilities
    a. Respiratory Distress and 2 or more of the following:
    b. Retractions of accessory muscles
    c. Pulmonary Edema
    d. Resp. rate > 25 min.
    e. PaSO2 < 92%
        i. Indications for CPAP
            1. Acute/Chronic CHF
            2. COPD
6. Symptomatic Bradycardia
    a. Heart rate less than 60 with symptoms (Hypotension, CP, SOB, Altered LOC)
7. Symptomatic Tachycardia
    a. Heart rate greater than 150 with symptoms (Hypotension, CP, SOB, Altered LOC)
8. Angina not relieved with oxygen, ASA, and 3 Nitroglycerin
9. Chest Pain with hypotension or altered LOC
    a. (Examples include Elevated ST MI, cardiogenic shock)
10. Chest Pain with elevated ST visible in Lead II
11. Seizure patients

12. GCS less than 10
13. Trauma involving greater than 20 minute extrication
14. Trauma pt with Air Transport Enroute
15. Medical Control Request
16. Patient Request
17. Ambulance Crew feels uncomfortable with pt condition and requests additional assistance.

B. **Intermediate (I99) requesting advanced care:**

1. Airway compromise requiring cricothyrotomy
2. Pt requiring airway placement via RSI
3. Chest Pain with hypotension or altered LOC
    a. cardiogenic shock
4. Trauma involving greater than 20 minute extrication
5. Trauma patient with Air Transport Enroute
6. Medical Control Request
7. Patient Request
8. Ambulance Crew feels uncomfortable with pt condition and requests additional assistance.

C. **Availability of advanced assistance:**

1. If the primary response area is covered by any combination of BLS, ILS or ALS, the highest level of service shall be utilized for any patient whose condition warrants advanced level care as indicated in item B above. “Primary Response Area” is the immediate coverage area of an agency.
2. When determining need for assistance from an advanced secondary or tertiary provider, consideration should be given to the following:
3. Transport time to hospital. Units with less than a 5 minute transport time to the hospital may complete transport without an intercept.
4. Early activation. Diligent effort should be made in requesting the intercept. This could include a simultaneous dispatch of an advanced unit to the scene of the emergency.
5. Rendezvous site. Intercepts should be in a safe area, away from traffic.
6. Availability of resources.
    i. Units used for intercept should be in direct travel to the receiving hospital.
    ii. Transportation shall not be delayed due to lack of available intercept.
    iii. Patients should not be transported via a longer route in order to obtain an intercept.
7. Interventions needed (i.e., defibrillation, airway, medications)
8. Transfer of care should not unreasonably delay transport
9. Decisions for/or against requesting advanced assistance should be based on the patient’s best interest. “Err on the side of the patient.”

10. Regardless of response jurisdiction, if two different agencies with different levels of care are dispatched to and arrive on the scene of an emergency, the agency with the highest certification level shall assume control of the patient(s).

D. **Transfer of care:**

1. Safety will be emphasized throughout the intercept and transfer of care.
2. Patient transport should not be delayed.
3. Ambulances should rendezvous at the site predetermined by operating procedures or unit-to-unit radio contact.
4. Intercepts and rendezvous should not take place on heavily traveled roadways. Sites considered for rendezvous should be along the lines of parking lots, safe shoulders, or side streets.
5. Patients should not be transferred from ambulance-to-ambulance. The higher-level personnel, with proper portable equipment, shall board the transporting vehicle and oversee patient care with the assistance of the requesting agency's personnel.
6. The higher-level personnel that have boarded the transporting ambulance will determine the transport code of the remainder of the patient transport (emergency transport with lights and siren in operation; or Non-emergency transport with all normal traffic laws observed and no operation of lights and siren).
7. Pertinent patient information should be transmitted to the intercepting ambulance prior to rendezvous (i.e., nature of problem; need for intubation, defibrillation, medications, etc.).
8. Calls that have required advanced assistance are reviewed by service medical director and provided to the medical director of the transporting service.

PROCEDURE
Transition to ILS/ALS Care

DESCRIPTION: A smooth transition of care between EMS providers is essential for optimum patient care. First Responder, BLS non-transport, BLS transporting, and ILS crews routinely transfer care to advanced transporting EMS providers. The transfer of advanced procedures presents unique concerns for both the EMS provider relinquishing patient care and the EMS provider assuming patient care. The intercept program has exemplified that a smooth transition of care within a tiered ALS program is practicable.

INDICATIONS: This procedure is designed to address questions and concerns regarding the transfer of patient care to ILS and ALS EMS providers.

PROCEDURE:

1. EMS non-transport providers arriving at the scene of an EMS call shall initiate care in accordance with the guidelines provided in this Prehospital Care Manual. The EMS provider must maintain a constant awareness as to what would be the best course of action for optimum and compassionate patient care. Focus should be placed on conducting a thorough patient assessment and providing adequate First Responder/BLS care. The benefit of remaining on scene to establish specific treatments versus prompt transport to a definitive care facility should be a consideration of each patient contact.

2. Once on scene, the EMS transporting agency shall, in conjunction with Medical Control, be the on-scene authority having jurisdiction in the determination of the patient care plan. The rank or seniority of a non-transport provider shall not supersede the authority vested in the transporting EMS provider by the EMS Medical Director.

3. Upon the arrival of the transporting agency, the non-transport provider should provide a detailed verbal report to the transporting provider and then immediately relinquish care to the transport provider. The non-transport provider may continue the establishment of ILS/ALS procedures with the concurrence of the transporting provider.

4. The transport provider should obtain report from the non-transport provider and conduct a thorough patient assessment. Treatment initiated by the non-transport provider should be taken into consideration in determining subsequent patient care steps.

5. If the non-transport provider has initiated advanced procedures, then the transport provider should verify the integrity of the procedure prior to utilizing for further treatment. (i.e. peripheral intravenous cannulation should be assessed to assure it is patent and Combitube should be checked for proper placement.) Transporting crews shall not arbitrarily avoid the use of (or discontinue) an advanced procedure established by non-transport personnel. Reasons and rationale for discontinuing an established procedure should be documented on the Prehospital Care Report form.

6. Properly licensed and certified non-transport providers may be utilized to establish ILS/ALS procedures with the concurrence of the transporting provider. EMS personnel are encouraged to utilize all responders for efficiency in coordinating patient care.

7. Any questionable ET tube placement should be immediately removed (in accordance with the Advanced Airway Procedure).

POLICY
Patient Destination

POLICY STATEMENT: The patient (or the patient's Power-of-Attorney for Healthcare) has the right to make an informed decision as to hospital destination. The patient's decision to be transported to a hospital of choice should be respected unless the risk of transport to a more distant hospital of choice outweighs the medical benefits of transporting to the nearest hospital. A trauma patient may benefit from transport directly to the closest most appropriate geographically located hospital (see Trauma Protocol). A Map defining closest Manitowoc County Hospital is located in the appendix.

GOALS/PURPOSE:

1. To assure patient hospital preference is respected unless such preference would jeopardize patient outcome.
2. To assure trauma patients are transported to the closest most appropriate facility.

POLICY/PROCEDURE:

1. An ambulance patient should be transported to the nearest appropriate hospital unless the patient (or parent of the patient less than 18 years of age) expresses a specific hospital preference.
2. Bypassing the nearest hospital to respect the patient's hospital choice is a medical decision based on medical benefits and associated risks and should be made in accordance with:
    a. Urgency of care and risk factors, based on:
        i. Mechanism of Injury (Physiologic factors)
        ii. Perfusion Status and Assessment (Anatomic factors)
        iii. Transport distance and time (Environmental factors)
    b. On-line Medical Control
    c. Patient's hospital preference
    d. Patient's regular source of health care and hospitalization
    e. Capacity of nearest facility or facility of choice
    f. Available resources of the transporting agency
    g. Traffic and weather conditions
3. Patients, family, DPA or physician may request transfer to facility of choice if patient is stable. . Unstable or Critical patients will be transported to the closet facility. If patient or patient's family absolutely refuse this they must be informed that by doing so may result in death or significant morbidity. If they still refuse transport to the closest facility (and it is deemed they are able to make this decision—i.e. not under the influence of alcohol, drugs, etc.) proceed as requested and contact the facility.
4. Cases where individuals request transport to a medical facility outside Manitowoc County (to a hospital located further than either Aurora Medical Center—Two Rivers or Holy Family Memorial) need to be cleared by Medical Control.

POLICY
Transfer and Termination of Patient Care

POLICY STATEMENT:

Patient abandonment occurs when there is termination of the caregiver / patient relationship without consent of the patient and without allowing sufficient time and resources for the patient to find equivalent care. This is assuming, and unless proven otherwise, there exists a need for continuing medical care and the patient is accepting treatment.

GOAL/PURPOSE:

To assure abandonment of the EMS patient does not occur.

POLICY/PROCEDURE:

1. EMS personnel must not leave or terminate care of a patient if a need exists for continuing medical care that must be provided by a knowledgeable, skilled and licensed EMS provider unless one or more of the following conditions exist:
    a. Appropriate receiving hospital personnel assume medical care and responsibility for the patient.
    b. The patient or legal guardian refuses EMS care and transportation. In this instance, follow the procedure as outlined in the Patients Right to Refuse policy.
    c. When law enforcement, fire officials or the EMS crew determine the scene is not safe and immediate life or injury hazards exists.
    d. The patient has been determined to be dead and all policies and procedures related to death cases have been followed.
    e. Medical control concurs with a DNR order.
    f. Whenever specifically requested to leave the scene due to a specific overbearing need (i.e., disaster, triage prioritization).
    g. Medical care and responsibility for the patient is assumed by comparably trained, certified and licensed personnel in accordance with applicable policies.
2. If EMS personnel arrive on scene and establish contact, evaluate and/or instruct the patient and the patient refuses care, the EMS crew shall conduct termination of the patient contact in accordance with the Patient Right to Refuse policy and communications policies (regardless of circumstances surrounding the refusal).
3. EMS personnel may leave the scene of an episodic illness or injury incident where initial care has been provided to the patient and the only responsibility remaining for the EMS crew is transportation of the patient or securing a signed refusal, if the following conditions exist:
    a. Delay in transportation of another patient (i.e. Trauma patient) from the same incident would threaten life or limb.
    b. An individual or occurrence of a more serious nature elsewhere necessitates life-saving intervention that could be provided by the EMS crew and without consequence to the original patient.
    c. More appropriate or prudent transportation is available.
    d. Definitive arrangements for the transfer of care and transportation of the initial patient to other appropriate EMS personnel must be made prior to the departure of the EMS crew;

and the alternate arrangements should, in no way, jeopardize the well being of the initial patient.

4. During the transport of a patient by ambulance, should the EMS crew come across an emergency requiring ambulance assistance; the local EMS system will be activated. Crews involved in the treatment and transportation of a patient are not to stop and render care. The priority is to the patient onboard the ambulance. If the event you are transporting the patient with more than two Prehospital trained personnel, you may elect to leave one medical attendant at the scene to render care and the other two (2) will continue to transport the patient to the receiving facility.
5. In the event there is not a patient onboard the ambulance and an emergency situation is encountered requiring ambulance assistance, the crew may stop and render care. However, the local EMS agency should be activated and their jurisdiction respected.

PROCEDURE
Helicopter Requests

Description: There are certain times when helicopter transport to a medical facility may facilitate expeditious patient care

1. Requesting agencies (all requests should be made after an EMS scene assessment)
    a. Any ambulance service
    b. Any First Responder service
    c. Any Fire service as a designee of their EMS unit (after EMS assessment)
    d. At the direction of medical control
2. Information to be given upon request of helicopter
    a. Requesting agency
    b. Landing site location with landmarks and hazards
    c. GPS coordinates
    d. Type of accident or response for which they are being requested
    e. Number of victims to be transported by helicopter
    f. Name of incident command person or contact person for helicopter (this in NOT PSJS) ---someone on scene in command role
    g. Radio frequency for helicopter transmissions---County Fire, Valders, etc.
    h. Your name and phone number for call back purposes
3. Reasons to implement helicopter services & criteria for **consideration of use**
    a. General criteria for consideration of helicopter use
        i. When time of transport by ground to an appropriate facility poses a threat to the patient's survival and recovery
        ii. When extrication and rescue or weather/traffic conditions would delay the patient's access to advanced life support
        iii. When advanced life support personnel and equipment are needed to adequately care for the patient before and/or during transport
    b. Scene criteria for consideration of helicopter use
        i. Multiple patients
        ii. Injured patient with bleeding disorder or who is on anticoagulation medication
        iii. Fall of 20 feet or greater
        iv. Pedestrian hit at a speed of 20 miles per hour or more

v. Motor vehicle accidents involving speeds of 40 mph or more
vi. Rear-end displacement of the front of the car of greater than 20 inches or front axel
vii. Significant passenger compartment intrusion
viii. Ejection of the patient from a vehicle
ix. Roll over of a vehicle
x. Significant deformity of the vehicle (steering wheel, dash, windshield)
xi. Death of occupant in the same vehicle
xii. Patient criteria for consideration of helicopter use
xiii. Unconscious or decreasing LOC (Glasgow coma score of < 14)
xiv. Penetrating injuries to chest, abdomen, head, neck, groin
xv. Two or more proximal long bone fractures (femur/humerus)
xvi. Flail chest
xvii. Amputation of extremity
xviii. Paralysis or suspected spinal cord injury
xix. Severe burns
xx. Injuries to two or more body systems
xxi. Revised trauma score of 10 or less; pediatric trauma score of less than 8
xxii. Compromised airway
    1. Respirations of <10 or >30; systolic BP < 90 mmHg
xxiii. Other considerations

4. General practices
    a. No patient shall remain on scene with available ground transport while awaiting arrival of a helicopter with an ETA of greater than 3-5 minutes. Transport will be done to the closest appropriate facility and the helicopter diverted to that facility to make the transfer at that location.
    b. Cancellation of the helicopter will be done by the SCENE incident commander in conjunction with the responding ambulance
    c. Diversion of the helicopter will be done by the responding ambulance agency in conjunction with the on scene EMS agency and medical control
    d. Radio communications with the helicopters will be done by on scene EMS agencies command personnel

e. Helicopters may be put onto “stand by” mode but they will generally launch toward your site; if they are cancelled and not used, no fees are generated for any person or agency

f. Available services
    i. Theda Star
    ii. Eagle 3
    iii. Flight For Life
    iv. Other services are available for larger scenes or mass casualty situations

g. Landing Zones
    i. Daytime zones should be 100 feet by 100 feet
    ii. Nighttime zones should be 150 feet by 150 feet
    iii. Surfaces need to be smooth and level
    iv. Sites should be free of wires, trees, towers, and other obstacles
    v. Crowds need to be kept back 150 feet
    vi. Stand with your back to the wind when signaling where the helicopter should land
    vii. No vehicles within 50 feet of the helicopter
    viii. No smoking or running by the helicopter
    ix. Always approach from the front of the helicopter
    x. Carry all equipment below the waist
    xi. Do not open or close doors
    xii. Landing zone light sources must be secured
    xiii. Preferred light placement includes lights in four corners or two corners & headlights converging onto the center of the landing zone in the other two corners; lights which are amber or red
    xiv. One person should be the landing zone coordinator
    xv. Do not shine lights toward the helicopter

PROCEDURE
Intraosseous Infusion With EZ I/O Drill (Adult and Pediatric)

DESCRIPTION: Intraosseous (I/O) infusion is defined as a puncture into the medullary cavity of a bone that provides a route for rapid access of fluids and medication. Obtaining emergency intravascular access in critically ill patients, especially those can be extremely difficult, time consuming and at times impossible when peripheral veins are collapsed and other means are not feasible. Intraosseous access is performed on critically ill patients in whom fluid and/or drug treatment is paramount and intravascular access is not rapidly accessible or feasible.

INDICATIONS:

1. Cardiac arrest.
2. Multi-system trauma with associated shock and/or severe hypovolemia.
3. Severe dehydration associated with vascular collapse and/or loss of consciousness.
4. Any patient who is in need of immediate drug or fluid resuscitation and other vascular access is not available.

MATERIALS/EQUIPMENT: PPE, EZ I/O needle, IV solution, administration set, IV aseptic set-up material, pressure infuser, lidocaine, 3 way stop cock.

PROCEDURE:
1. Observe universal precautions.
2. Assemble and prepare equipment.
3. Locate landmarks of insertion site by palpating the anterior surface of the tibial bone 1–3 cm below the tibial tuberosity and slightly medial. Landmark must avoid the joint and epiphyseal plate. With medical control authorization the Paramedic may request Proximal Humerus or distal tibia if Tibial tuberosity site is not available.
4. Prep the site with alcohol, set up IV solution as if for regular IV with pressure bag attached.
5. Use appropriate size needle (under 80 pounds use the pediatric needle and over 80 pounds adult needle for EZ IO Drill Kit) .
6. Locate site and press needle through the skin until the needle hits the bone. Check to see if 5 cm mark is visible, if not use larger needle. Engage drill until a pop is felt. Remove Drill.
7. Remove inner stylet and attach an extension set.
8. Connect conventional IV line with pressure infuser.
9. If Patient is conscious the paramedic may administer 20-40mg of lidocaine or 5mg/kg up to 20mg for a pediatric Patient. This will help with pain control for the conscious patient.
10. Bolus line to confirm patency. Secure line with tape.
11. Administer drugs and fluids as needed.
12. Assess site for signs of infiltration or leakage. Discontinue line if either of these occurs.
13. Document Time of insertion.
14. If you need to remove IO attach syringe to port and turn clockwise while pulling outward.

Special Considerations:

- Do not use an access site that is fractured at or above IO insertion or has obvious indications of infection.
- Do not use an area previously used for IO attempts.
- Placement too shallow or too deep may result in an IO that does not Flow.
- Excessive movement of needle may result in leakage. Never connect syringe directly to port.
- Do not use IO if patient has had a total knee replacement. May consult with medical control to use proximal humerus.
- If Drill does not work the needle may be placed manually by pushing and twisting clockwise until pop is felt.
- Pressure infuser should be used for fluid to run freely. Do not exceed 300mmhg

PROCEDURE
Intraosseous Infusion With Bone Injection Gun B.I.G. (Adult and Pediatric)

DESCRIPTION: Intraosseous (I/O) infusion is defined as a puncture into the medullary cavity of a bone that provides a route for rapid access of fluids and medication. Obtaining emergency intravascular access in critically ill patients, especially those can be extremely difficult, time consuming and at times impossible when peripheral veins are collapsed and other means are not feasible. Intraosseous access is performed on critically ill patients in whom fluid and/or drug treatment is paramount and intravascular access is not rapidly accessible or feasible.

INDICATIONS:

5. Cardiac arrest.
6. Multi-system trauma with associated shock and/or severe hypovolemia.
7. Severe dehydration associated with vascular collapse and/or loss of consciousness.
8. Any patient who is in need of immediate drug or fluid resuscitation and other vascular access is not available.

MATERIALS/EQUIPMENT: PPE, B.I.G, Extension Tubing, Saline Flush, IV solution, administration set, IV aseptic set-up material, pressure infuser, Lidocaine, 3 way stop cock.

PROCEDURE:

15. Observe universal precautions
16. Use appropriate size B.I.G. The Pediatric B.I.G for patient up to age 12, the Adult B.I.G. for patients 12 years and older.
17. Assemble and prepare equipment.
18. Locate landmarks of insertion site by palpating the anterior surface of the tibial bone up to the tibial tuberosity**. Go 2cm medial and 1cm towards the proximal tibia. For Pediatrics up to age 12, Go 1-2cm medial and 1-2cm towards the distal tibia.**
19. Prep the site with alcohol, Prime the extension tubing with Saline, set up IV solution as if for regular IV with pressure bag attached.
20. Locate site and with one hand holding firmly, position the B.I.G. at a 90 degree angle to the surface of the skin. With one hand holding the B.I.G firmly, pull out the safety latch by squeezing its two sides together. While holding firmly down, trigger the device as directed by the manufactures' recommendations. Remove the device and pull out the trocar.
21. Attach an extension set.
22. Connect conventional IV line with pressure infuser.
23. If Patient is conscious the paramedic may administer 20-40mg of Lidocaine or 5mg/kg up to 20mg for a pediatric Patient. This will help with pain control for the conscious patient.
24. Bolus line to confirm patency. Secure line with tape.
25. Administer drugs and fluids as needed.
26. Assess site for signs of infiltration or leakage. Discontinue line if either of these occurs.
27. Document Time of insertion.
28. If you need to remove IO attach syringe to port and turn clockwise while pulling outward.

Special Considerations:

- Do not use an access site that is fractured at or above IO insertion or has obvious indications of infection.
- Do not use an area previously used for IO attempts.
- Placement too shallow or too deep may result in an IO that does not Flow.
- Excessive movement of needle may result in leakage. Never connect syringe directly to port.
- Do not use IO if patient has had a total knee replacement. May consult with medical control to use proximal humerus.
- If Drill does not work the needle may be placed manually by pushing and twisting clockwise until pop is felt.
- Pressure infuser should be used for fluid to run freely. Do not exceed 300mmhg

PROCEDURE
12-Lead Electrocardiogram

Indications:
Chest pain, epigastric pain, cardiogenic shock, CHF, pulmonary edema, tachycardia, bradycardia, hypotension, shortness of breath, syncope/near-syncope, weakness, vertigo/dizziness/light headedness, hyper-/hypokalemia, headache, and altered level of consciousness. **In addition, a 12 lead EKG should be performed on all patients age 35 or older with a medical complaint.**

Procedure:

1. Upon determining a patient has a complaint or symptom(s) that indicate performance of a 12 lead EKG, initiate routine BLS/ILS/ALS care and obtain a 12 lead EKG during cardiac monitoring.

2. Capture of the EKG should be done, if possible, in the stationary position.

3. **BLS/ILS**: If the interpretation on the 12 lead EKG tracing obtained reads **"Acute MI",** refer to the **CHEST PAIN/STEMI** protocol.

4. **PARAMEDIC ONLY**: If ST-elevation myocardial infarct or a new left bundle branch block is noted, refer to **CHEST PAIN/STEMI** protocol.

5. **CONTACT MEDICAL CONTROL** with a description of findings when giving report.

6. Upon arrival to the emergency department, a copy of the 12-lead EKG should be given to the accepting nurse or physician.

7. Copies of the 12 lead EKG are to be mounted on appropriate paper and included with all other EMS documentation

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Special Considerations:

- Care must be taken to assure that artifact is kept to a minimum, thus assuring accuracy of the 12 lead EKG tracing

- Attempt to get 12 lead EKG as soon in medical care as practical

- Note that ST segment elevation can occur in minutes, so the 12 lead EKG may be repeated every 5 minutes.

PROCEDURE
Conscious Sedation

Description: Prehospital sedation is a fully monitored pharmacologic intervention applied in instances where conscious patients may need short-term analgesic and/or anxiolytic therapy for procedures that may be painful or anxiety producing, such as Endotracheal Intubation, Synchronized Cardioversion, and Transcutaneous Pacing. Prior Permission from Medical Control Is Required.

Indications:

1. Conscious patients requiring Endotracheal Intubation
   a. Administer Etomidate 0.3 mg/kg, IV/Saline Lock bolus, over 30-60 seconds. (Maximum total dose is 20 mg.) After successful intubation, Lorazepam 2 mg, IV/Saline Lock or IM, for continued sedation.

   b. Administer Midazolam 1 – 2 mg, IV/Saline Lock bolus. Repeat doses of Midazolam 1 mg, IV/Saline Lock bolus, may be given as necessary. (Maximum total dosage is 5 mg.)

2. Conscious patients requiring Synchronized Cardioversion OR Transcutaneous Pacing

   a. Administer Midazolam 1 – 2 mg, IV/Saline Lock bolus. Repeat doses of Midazolam 1 mg, IV/Saline Lock bolus, may be given as necessary. (Maximum total dosage is 5 mg.)

Contraindications:

6. Spontaneous breathing with adequate ventilation.
7. Major facial or laryngeal trauma.
8. Upper airway obstruction.
9. Distorted facial or airway anatomy.
10. Soft tissue/penetrating injury to neck, i.e., gunshot wound, stab wound with hematoma compromising airway.
11. Allergy to the Medication

Sedation Procedure:

12. History and assessment of patient, including allergies;
13. Administer Oxygen; establish IV of Normal Saline TKO. EKG Monitor;
14. Prepare drugs and necessary equipment, i.e., oximeter, suction, laryngoscope;
15. Pre-Oxygenate with 100% Oxygen;
16. Assist ventilation's with concomitant use of cricoid pressure;
17. Sedate patient;
18. Intubate/Synchronized Cardioversion/Transcutaneous Pacing
19. Verify Endotracheal tube placement; assure adequate sedation for prolonged periods.
20. Ventilate and maintain inline stabilization for suspected cervical spine injured patients.

Sedation Algorithm:

10. Preparation
11. Oxygenation: patient with BVM at 15 LPM
12. Sedation: ***Etomidate 0.2mg/kg*** *or* ***Versed 0.1-0.4mg/kg*** (if normotensive)
13. Cricoid Pressure: use during ventilations and intubation
14. Intubate
15. ETT Confirmation:
    a. Direct visualization of tube going through cords
    b. Good chest rise and fall with bagging
    c. Auscultation
    d. Continuous Pulse Oximetry
    e. Tube Checker or End-tidal CO_2 detection
    f. Continuous CO_2 monitoring
    g. Secure Endotracheal Tube
    h. Complete MCEMS Advanced Airway Form

Medications for Conscious Sedation:

Sedation	Medications	Dose Indications
Versed	0.1-0.4mg/kg	Shorter sedation; Status Epileptics
Etomidate	0.2mg/kg	Good for hypotensive or head injured patient; adult only

* Side Effects: Bradycardia, hypotension, cardiac arrest, pulmonary edema, increased ocular pressure, hyperkalemia, malignant hyperthermia, masseter spasm.

Premedication Adjuncts	Dose	Action/Uses
Lidocaine	1.5-2mg/kg	Blunt systemic pressor (2-3 min before intubation) response or tachycardia association with laryngoscopy and intubation. Blunts increase in ICP.
Atropine	0.02mg/kg (max dose 1 mg, min dose 0.1 mg)	Used in infants and children to 5 years of age receiving Succinylcholine and any patient with Bradycardia at time of intubation. Atropine minimizes effects of Succinylcholine.

Failed Intubation Following Sedation:

4. Intubation should be accomplished in 45-120 seconds after the Sedative is administered. If unable to intubate reattempt after oxygenating. Another approved and trained provider may attempt as well.
5. If unable to intubate:
    a. Insert Combitube (adults only).
    b. If unable to insert Combitube, ventilate patient with BVM, 100% oxygen and cricoid pressure and transport.
6. If unable to insert Combitube and unable to ventilate patient with BVM perform an emergency cricothyroidotomy or needle cricothyroidotomy (children) using Melker kit. (Paramedic only)

Special Considerations:

- Sedation does take time to accomplish.
- Endotracheal intubation requires much practice to master. The greatest danger to the patient is wasting too much time attempting the difficult procedure or assuming the tube is in correct position when it is not. Time is precious, if you cannot intubate in two attempts, allow another advance provider 2 attempts, then use another method of airway control but do not delay the patient's transport. Do not interrupt ventilation for more than 30 seconds per attempt.
- Endotracheal intubation causes cardiac rhythm disturbances produced by catecholamine release and from vagal stimulation. Closely monitor the patient's cardiac rhythm.
- Verification of endotracheal tube placement is of vital importance since unrecognized esophageal intubation is clearly detrimental. The EMS provider should utilize multiple methods of confirming proper endotracheal tube placement. This includes direct visualization of the tracheal opening when inserting the tube, observation of chest movement during ventilations, auscultation of breath sounds, confirming absence of epigastric sounds during ventilations, reservoir bag compliance and exhaled tidal volume, absence of gastric content within the tube
- End tidal CO_2 will be monitored during transport of the patient. This will identify if the ETT somehow moves and is no longer in the proper position.

- **NOTE: PATIENTS RECEIVING PREHOSPITAL SEDATION MUST BE CONTINUOUSLY ADMINISTERED HIGH CONCENTRATION OXYGEN AND MUST BE CONTINUOUSLY MONITORED USING CARDIAC MONITORING AND PULSE OXIMETRY (IF AVAILABLE)**

Conscious Sedation Medication Chart					
Kilograms	10kg	20kg	30kg	40kg	50kg
Pounds	22lb	44lb	66lb	88lb	110lb
	INFANT	**Child**	**Child**	**Child/Adult**	**Adult**
Pre-Medication					
Lidocaine - 1.0-2.0mg/kg	15-20mg	30-40mg	45-60mg	40-60mg	50-75mg
Atropine - 0.02mg/kg	0.2mg	0.4mg	0.6mg	0.8mg	DO NOT USE
Sedation					
Etomidate 0.2mg/kg	**DO NOT USE**	**DO NOT USE**	**DO NOT USE**	**DO NOT USE**	10mg
Versed 0.1 - 0.4mg/kg	1mg	2mg	2.5mg	2.5mg	5mg

Conscious Sedation Medication Chart					
Kilograms	60kg	70kg	80kg	90kg	100kg
Pounds	132lb	154lb	176lb	198lb	220lb
	Adult	**Adult**	**Adult**	**Adult**	**Adult**
Pre-Medication					
Lidocaine - 1.0-2.0mg/kg	60-90mg	70-105mg	80-120mg	90-135mg	100-150mg
Atropine - 0.02mg/kg	Age 5 and Under Only - Minimum 0.1mg / Maximum 1.0mg				
Sedation					
Etomidate 0.2mg/kg	12mg	14mg	16mg	18mg	20mg
Versed 0.1 - 0.4mg/kg	5mg	5mg	5mg	5mg	5mg