PROCEDURES

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AIRWAY MANAGEMENT - ENDOTRACHEAL INTUBATION [EMT-P]

NOTE:
- ✦ Non-paralytic intubation should be performed in a patient who is pulseless and apneic or cannot protect their airway due to altered mental status.
- ✦ Rapid Sequence Intubation (RSI) is the technique of administering paralytics to facilitate intubation and decrease the risk of hypoxemia and aspiration.
- ✦ RSI should be used when the EMT-P is unable to intubate without paralytic medications because of a clenched jaw or active gag reflex, combativeness or difficult airway problems due to head injury, altered mental status, OD or status epilepticus

A. INDICATIONS:
1. Airway obstruction
2. Patient needs intubation for airway protection (potential compromise due to burns)
3. Respiratory insufficiency not responding to respiratory support.
4. Apnea from any cause except severe hypothermia.
   (See Environmental Emergency Protocol)
5. Cardiac arrest.
6. Severe Traumatic Brain Injury (TBI) with GCS < 8
7. Unconscious or Altered Mental Status with Airway Compromise
8. Uncontrollable combative behavior in a trauma patient who is at risk of harming self

B. CONTRAINDICATIONS:
1. Total upper airway obstruction
2. Total loss of facial/oropharyngeal landmarks
3. A surgical airway is indicated if above contraindications exist

C. PROCEDURE:

PREOXYGENATION:
1. Administer oxygen via nasal cannula.
2. Administer 100% oxygen via nonrebreather mask for 3 - 5 minutes.
3. If possible, have patient take 8 vital capacity breaths of 100% oxygen.
4. Assist ventilation with BVM only if needed to maintain $SaO2 \geq 90\%$.

PREPARATION:
1. Assemble equipment including cardiac monitor, oximeter and alternative airway devices including PEAD and cricothyrotomy kit available.
2. Confirm that intubation equipment is available and functioning.
3. Have suction immediately available.
4. Establish an IV/IO and secure well.
5. Attach cardiac monitor, pulse oximetry and have capnometry in place.
6. Assess for difficult airway.
7. Consider contraindications to medications, and prepare medications for administration if indicated.

POSITIONING:
1. Place towels under patients head or shoulders to align external auditory meatus with sternal notch

AIRWAY MANAGEMENT - ENDOTRACHEAL INTUBATION (continued)

PRETREATMENT:
1. If performing RSI, consider pre-medication with the following drugs if time permits:

Lidocaine - to attenuate increase in ICP and airway resistance

Adult	Pediatric
1.0 -1.5 mg/kg IV/IO	1 mg/kg IV/IO

Atropine - to prevent or treat bradycardia

Adults with bradycardia	Pediatric <1 years old
0.5 mg IV/IO	0.02 mg/kg IV/IO (minimum dosage of 0.1 mg) given 3 min. prior to Succinylcholine.

PARALYSIS WITH INDUCTION:
(IV/IO administration is preferred; use IM route only if IV cannot be established.)
1. Administer one of the following rapidly-acting induction agents:

Etomidate - preferred in trauma patients or hypotensive patients

Adult	Pediatric < 6 years old
0.3 mg/kg IV/IO	Same as Adult

Ketamine - useful in patients with bronchospasm or during pregnancy

Adult	Pediatric < 6 years old
2 mg/kg IV/IO 4 mg/kg IM	Same as Adult

Versed - useful for elderly septic patient or patient with adrenal suppression. (Consider lower dose (0.2 mg/kg) in patients over 60 yo)

Adult	Pediatric < 6 years old
0.3 mg/kg IM/IV/IO	0.2 mg/kg IM/IV/IO

2. Administer neuromuscular blocking agent:
Succinylcholine - contraindicated in penetrating eye trauma, hyperkalemia, neuromuscular disorders or known sensitivity to succinylcholine.

Adult	Pediatric < 6 years old
1.5 mg/kg IV/IO push or 2.5 mg/kg IM	2 mg/kg IV/IO push or 4.0 mg/kg IM

Rocuronium Bromide (zemuron) - if contraindications to succinylcholine

Adult	Pediatric < 6 years old
1 mg/kg IV/IO push over 5 sec; Rebolus 0.1 - 0.3 mg/kg q 20-30 min	1 mg/kg IV/IO push over 5 sec; Rebolus 0.1 - 0.3 mg/kg q 20-30 min

PLACEMENT WITH PROOF:

1. Administer high flow O2 via nasal cannula (15 L/min)
2. Perform intubation, visualizing the ET tube passing through the vocal cords.
3. Apply BURP (Backward Upward Rightward Pressure) if needed to improve visualization of cords.
4. If unable to visualize cords, a Bougie can be used to facilitate intubation.
5. No single attempt should last longer than 30 seconds.
6. If using RSI and relaxation in 60-120 seconds is inadequate, repeat dose of neuromuscular blocking agent and reattempt intubation.
7. If 2 attempts at intubation are unsuccessful, attempt to place PEAD.
8. If unable to place PEAD, ventilate with BVM.
9. If unable to ventilate patient, perform cricothyrotomy.
   REFER TO AIRWAY MANAGEMENT - CRICHOTHYROTOMY OR NEEDLE CRICHOTHYROTOMY PROCEDURE.
10. Upon successful intubation, confirm ET tube placement, by 5-point auscultation and end tidal CO_2 detector/capnometry.
11. Secure ET tube with Endo-Sure-type device
12. Mark and record tube depth at teeth.

POST-INTUBATION MANAGEMENT:

1. Monitor capnometry frequently to assess adequacy of ventilation.
   a. Maintain CO_2 levels of 35 - 40 mmHG in most patients
   b. In patients with signs of increased ICP (unilateral pupil dilatation, posturing, focal neurologic findings) maintain CO_2 between 30 -35.
   c. Avoid aggressive hyperventilation!
2. Use bite block if patient becomes conscious after intubation.
3. If the patient becomes agitated or combative, treat pain and agitation with:

Morphine

Adults:	**Pediatric < 6 years old**
1 - 20 mg IV/IO	0.1 – 0.2 mg/kg IV/IO

Fentanyl

Adults:	**Pediatric < 6 years old**
25 - 100 mcg (0.5-1 mcg/kg) IV/IO/IM/IN slowly over 1-2 min NMT 200 mcg	1 - 2 mcg/kg IV/IO/IM slowly over 1-2 min NMT 4 mcg/kg

Versed (midazolam)

Adults:	**Pediatric < 6 years old**
0.1 – 0.2 mg/kg IV/IO NMT 20 mg	0.1 – 0.2 mg/kg IV/IO NMT 20 mg

4. If patient continues to be agitated or combative despite adequate analgesia and sedation, consider paralysis with Rocuronium Bromide (zemuron) or Vecuronium (norcuron).

Rocuronium (zemuron)

Adults:	**Pediatric < 6 years old**
If not given as initial paralytic: 1 mg/kg IV/IO push over 5 sec;	1 mg/kg IV/IO push over 5 sec;
Rebolus 0.1 - 0.3 mg/kg q 20-30 min	Rebolus 0.1 - 0.3 mg/kg q 20-30 min

Vecuronium (norcuron)

Adults:	**Pediatric < 6 years old**
Rebolus 0.01 mg/kg IV/IO q 30-40 min.	Same as adult

AIRWAY MANAGEMENT – I-GEL SGA
[EMT, AEMT, EMT-I, RN, EMT-P]

I. DEFINITION:

A. The i-gel® is a disposable supraglottic airway (SGA) created as an alternative to endotracheal intubation or mask ventilation.
B. The i-gel® is designed for positive pressure ventilation as well as for spontaneously breathing patients.

II. INDICATIONS:

A. Apneic patient when endotracheal intubation is not possible or available.
B. After 2 failed intubation attempts.
C. Patient must be *unconscious, without a gag reflex*.

III. CONTRAINDICATIONS:

A. Trismus (clenched jaw), limited mouth opening
B. Suspected upper airway obstructions secondary to laryngeal edema, smoke inhalation, foreign body, tumor, mass, or abscess.

IV. PROPER SELECTION OF I-GEL SIZE:

A. Selecting proper tube size is based on the weight of the patient (kg).
B. Use the table below, or refer to the packaging of the I-gel.

I-gel size	**Patient size**	**Patient weight (kg)**
1	Neonate	2-5
1.5	Infant	5-12
2	Small Pediatric	10-25
2.5	Large Pediatric	25-35
3	Small Adult	30-60
4	Medium Adult	50-90
5	Large Adult	90+

V. PROCEDURE:

A. Identify correct size i-gel®.
B. Lubricate i-gel® prior to insertion with a thin layer of water soluble gel applied only to the back side of the device.
C. Position the Patient. The patient should be in the "sniffing" position, with head extended and neck slightly flexed forward. *If cervical injury is suspected, use the modified "jaw thrust".* The chin should be gently pressed down/inferior before proceeding to insert the I-Gel.
D. Suction the upper airway PRIOR to insertion as needed.
E. Grasp the lubricated I-Gel firmly along the integral bite block (tube portion of the device).
F. Position the device so that the I-Gel cuff outlet is facing toward the chin of the patient.
G. Introduce the leading tip into the mouth of the patient in a direction toward the hard palate.
H. Glide the device downwards and backwards along the hard palate with a continuous, but gentle push, until a definitive resistance is felt. WARNING: Do not apply excessive force on the device during insertion. It is not necessary to insert your fingers or thumbs into the oral cavity of the patient during insertion of this device. If there is resistance during insertion, a "jaw thrust" and slight rotation of the device is recommended.
I. Determine appropriate depth of insertion. When placed correctly, the tip of the i-gel® will be within the upper esophageal opening and the cuff should be against the laryngeal framework. The incisors should be resting on the integral bite block.

VI. POST PLACEMENT

A. Auscultate breath sounds, check for chest rise and confirm placement with ETCO2 and SpO2 monitoring.
    1. ETCO2 monitoring
        (A) Head Injuries: 30 – 35 mmHg
        (B) All other patients should be between 35-40 mmHg
B. Secure i-gel® to maxilla with approved holder, strap, or tape.
C. Monitor and sedate per protocol as indicated.

VII. SUCTIONING THROUGH I-GEL

A. If gastric distention is present or fluid is present in the gastric channel of i-gel®, an appropriately sized lubricated orogastric tube (Fig. 2) may be passed down the gastric channel and applied to suction to decompress the stomach.
B. Choose the appropriate size orogastric tube:

i-gel Size	Maximum Size of Orogastric Tube (French Gauge) or French Suction Catheter
1	N/A
1.5	10
2	12
2.5	12
3	12
4	12
5	12/14

C. If necessary, lubricate the catheter with a water-soluble gel.
D. Insert suction catheter into the opening of the gastric access port and advance to maximum depth.
E. Turn on the suction unit and maintain continuous suction until there is no further return of stomach contents.
F. After detaching the suction unit, the suction catheter may be left in place to prevent any additional stomach contents from being expelled from the gastric access port.
G. If active suctioning is not preformed, a suction catheter may be placed in the gastric access port to act as a passive vent, and to prevent stomach contents from being expelled into the lumen.

VIII. OTHER CONSIDERATIONS

A. Sometimes a feel of “give-way” is felt before the end point resistance is met. This is due to the passage of the i-gel bowl through the faucial pillars (pharyngo-epiglottic folds).
B. Once resistance is met and the teeth are located on the integral bite block, do not repeatedly push the I-Gel down or apply excessive force during insertion.
C. This is an alternative to a King-LT or Combitube. It is NOT a definitive airway and aspiration can occur with this device. Device should not be left in place for >4 hours.

AIRWAY MANAGEMENT - KING LT
[EMT, AEMT, EMT-I, RN, EMT-P]

I. Purpose/Definition
The King LT-D and LTS-D airways are disposable supra-glottic airways created as alternatives to tracheal intubation or mask ventilation. These devices offer the ability to provide positive-pressure ventilation, thus allowing maximum versatility as an airway management tool.

II. Indications:
A. Use of the King Airway is indicated if endotracheal intubation cannot be performed and the patient needs a secure airway.
B. The King Airway is an acceptable alternative primary airway device over an endotracheal tube in the setting of a cardiac arrest.
C. For pediatric patients under 4 feet, the primary method for advanced airway management is endotracheal intubation. In the event that ALS is not available, or difficult or failed intubation happens, the King Airway can be used as an alternative airway.

III. Contraindications:
A. The King Airway is contraindicated, and should not be used with patients in the following situations:
1. An intact gag reflex.
2. Airway obstruction.
3. Patients under 3 feet in height.
4. Known or suspected caustic ingestion/airway edema.
5. Known esophageal disease. (eg. varices)

IV. Proper Selection of Tube Size
A. Selecting the proper tube size is based on the height of the patient.
B. Recommended tube size as follows:

Patient Height	Tube Size	Tube Color	Inflation Volume	Age
3-3.5 feet	2	Green	25-35 mL	4-8
3.5-4 feet	2.5	Orange	30-40 mL	5-10
4-5 feet	3	Yellow	40-55 mL	Adult
5-6 feet	4	Red	50-70 mL	Adult
> 6 feet	5	Purple	60-80 mL	Adult

King LT-D/LTS-D Airway Device
-Continued-

V. Procedure
   A. Attach pulse oximeter, and monitor oxygen saturation
   B. If vomitus, blood or other foreign material is present in the hypopharynx, suctioning and/or manual removal must be done *prior* to attempting intubation with King Airway.
   C. Preoxygenate patient with high flow O2 via NC or bag-valve-mask (BVM) prior to insertion of King Airway.
      1. Those steps as described in Sections A and C above, will not be necessary when placing the King as the primary airway in cardiopulmonary arrest.
   D. Estimate patient's height, and select the proper size tube.
   E. Lubricate the posterior distal end of the King Airway with a water-soluble gel.
   F. Place patient's head into a "sniffing" position.
      1. In cases of suspected or potential cervical spine injury, place the patient's head in a neutral position.
      2. For obese patients, elevation of the shoulders and upper back may be considered.
      3. Attempt to align external auditory meatus with sternal notch
   G. Hold the King Airway device at the connector with dominant hand. With the non-dominant hand, hold the mouth open and apply tongue jaw lift.
   H. Using a midline approach, introduce tip of tube into the mouth. The blue orientation line on the tube should face the chin of the patient.
   I. Advance the tip of the tube behind the base of the tongue.
   J. Without exerting excessive force, advance the tube until the base of the connector is aligned with the teeth and/or gums.
   K. Inflate the tube cuffs to the appropriate volume of air using the 100 ml color-coded King Systems (or other appropriate size) syringe.
   L. **Note:** Typical inflation volumes are as follows:

Size #5	70-90 ml	**Size #4**	60-80 ml
Size #3	45-60 ml	**Size #2.5**	30-40 ml
Size #2	25-35 ml		

   M. Attach bag-valve device with supplemental oxygen to connector. While gently bagging the patient to assess ventilation, simultaneously withdraw the King LT-D until ventilation is easy and free-flowing (large tidal volume with minimal airway pressure).
   N. Listen for lung sounds in both lateral lung fields and over the epigastrium.
   O. Attach end-tidal CO_2 monitor.
   P. As soon as feasible, secure the King Airway with an endotracheal tube holder. Do not use tape.
   Q. If ventilation is not sufficient, gently withdraw the device approximately 1 cm in order to achieve optimal ventilation.

King LT-D/LTS-D Airway Device
-Continued-

VI. Suctioning through the King LTS-D:

A. Use of the gastric access lumen for suctioning and removal of stomach contents will be at the discretion of the user.
B. Attach a maximum size 18 Fr. Suction catheter to a portable suction unit.
C. If necessary, lubricate the catheter with a water-soluble gel.
D. Insert suction catheter into the opening of the gastric access lumen, and advance to the maximum depth.
E. Turn on suction unit and maintain continuous suction until there is no further return of stomach contents.
F. After detaching the suction unit, the suction catheter may be left in place to prevent any additional stomach contents from being expelled from the gastric access lumen.
G. If active suctioning is not performed, a suction catheter may be placed in the gastric access lumen to act as a passive bent, and to prevent stomach contents from being expelled from the lumen.

VII. Precautions

A. It is important that the tip of the device be maintained at the patient's midline. Keeping the tip at the midline assures that the distal tip is properly placed in the hypopharynx and upper esophagus.
B. Depth of insertion is the key to providing a patent airway. A shallow initial insertion will require deflation of the cuffs to advance the tube deeper.
C. It is *extremely important* to properly open the airway and ensure that the tip of the King Airway advances past the base of the tongue. If you are having difficulty placing the King Airway with blind insertion technique, a laryngoscope can be used to lift the tongue to facilitate insertion.
D. Adequacy of ventilation and position of the King *must* be re-evaluated any time after a patient has been moved (e.g., floor to stretcher; stretcher to ambulance, etc.)

AIRWAY MANAGEMENT - CRICOTHYROTOMY
[EMT-P]

I. DEFINITION

An emergency cricothyrotomy is the creation of an entry into the trachea at the level of the membrane lying between the thyroid and cricoid cartilages for the purpose of establishing an emergency airway when no other means to do so exist.

II. INDICATIONS

This procedure is to be used only when other attempts to establish an airway have been unsuccessful and complete respiratory obstruction exists. Such conditions are most likely to be found with foreign-body obstruction; facial or laryngo-tracheal trauma; inhalation injury including thermal or caustic injury of the upper airway, angioneurotic edema, upper airway hemorrhage, epiglottitis, and croup.

III. PRE-PROCEDURE RECOMMENDATIONS

A. Spinal Injury: Whenever possible, the cervical spine should be immobilized before beginning the procedure.
B. Whenever possible and appropriate, utilize aseptic technique and local anesthetic for the procedure.
C. The Surgical Cricothyrotomy kit contains all supplies required to perform this procedure
    A. (1) Tracheostomy tube, 6.0, cuffed with Velcro strap
    B. (1) Trach hook
    C. (1) Syringe, 10 mL, Luer lock tip ET tube introducer
    D. (1) Scalpel, disposable
    E. (1) Pack of gauze, 4" x 4"
    F. (1) Chloraprep
D. Open package, remove and assemble as necessary,
E. Place pillow or piece of clothing under the patient's shoulders, hyperextending the neck if possible.

CRICOTHYROTOMY
(Continued)

VI. PROCEDURE

A. Prep the skin for sterile insertion.
B. Immobilize the larynx with your non-dominant hand and palpate the cricothyroid membrane with your index finger.
C. Make a 3-4 cm midline vertical incision through the skin and subcutaneous tissues. Palpate the membrane through the skin to confirm anatomy.
D. Make a 1 cm horizontal incision through the cricothyroid membrane. Note that the skin incision is vertical, but the membrane incision is horizontal.
E. Insert the tracheal hook in the opening of the membrane and rotate it cephalad while grasping the inferior border of the thyroid cartilage. Ask an assistant to keep upward traction on the tracheal hook.
F. Insert the tube into the trachea and advance tube until the flange meets the skin and the inflatable cuff can be securely inflated within the trachea.
G. Remove the tracheal hook.
H. Inflate cuff only until air seal is created within the trachea. (Excessive inflation may cause tissue damage.) Secure the tube with provided securing device or tape.
I. Apply connecting tube or BVM and ventilate the patient.Watch for chest rise, auscultate for lung sounds and place on ETCO2 capnography to confirm correct placement.

VII. PRECAUTIONS

A. Hazards in performing this procedure are primarily those of damage to nearby structures, major vessels to either side of the mid-line, vocal cords if the puncture is made to high, and through and through puncture of the trachea with entry into the esophagus lying immediately behind if entered too deeply.
B. The latter is more commonly seen in infants and children whose tracheas may be deceptively narrow.

VIII. NOTE

A. The Emergency cricothyrotomy set is a temporizing measure only: ventilatory support is poor, but is superior to needle cricothyrotomy.
B. It will deliver a better flow of air to the patient, still requiring rapid transport to a medical facility.
C. NOTIFY THE MEDICAL CONTROL HOSPITAL AT THE TIME OF TRANSPORT that a cricothyrotomy. airway has been placed.

AIRWAY MANAGEMENT - NEEDLE CRICOTHYROTOMY
[EMT-P]

I. DEFINITION

Cricothyrotomy is the creation of an entry into the trachea at the level of the membrane between the thyroid and cricoid cartilages for the purpose of establishing an emergency airway when no other airway can be established

II. INDICATION

A. This technique is to be used only when other attempts to establish an airway have been unsuccessful and total, complete airway obstruction exists.
B. Such conditions are most likely to be found with foreign-body obstruction; facial or laryngo-tracheal trauma; inhalation; thermal, or caustic injury of the upper airway, angioneurotic edema, upper airway hemorrhage, epiglottitis, and croup.

III. PROCEDURE

A. Place the patient in a supine position with support under the shoulders and mild hyperextension of the neck.
B. Palpate the neck in the mid-line and locate the slight depression just below the notch of the thyroid cartilage. This is the position of the cricoid membrane.
C. Prep the skin as for intravenous catheter placement
D. Take the largest catheter-over-needle available (10-12 ga. for adults, 12-14 ga for infants and children).
E. Insert the needle and catheter assembly through the cricoid membrane aiming toward the feet at about a 45^{o} angle.
F. While inserting the catheter-needle assembly, apply negative pressure to an attached 10 cc syringe.
G. When air is easily withdrawn remove the needle and advance the catheter to the hub, keeping the catheter in place within the trachea.
H. Attach a 3 mm endotracheal tube adapter to the hub of the catheter (it just fits) and ventilate with bag-valve and 100% 02-
I. Secure the catheter to ,the skin.
J. In certain cases, insertion of a second needle may improve ventilation.

NEEDLE CRICOTHYROTOMY
[EMT-P]
(continued)

IV. PRECAUTIONS

A. Hazards in performing this procedure are primarily those of damage to nearby structures:
   1. Major vessels to either side of the mid-line
   2. Vocal cords if the puncture is made too high,
   3. Through and through puncture of the trachea with entry into the esophagus lying immediately behind if entered too deeply.
B. The latter is more commonly seen in infants and children whose tracheas may be deceptively narrow.
C. If obstruction is suspected above the vocal cords a second catheter may be placed through the cricoid membrane to aid exhalation.

IV. NOTE

A. Needle cricothyrotomy is a temporizing measure only:
B. Ventilatory support is very poor and the most one can hope for is a slight improvement in the oxygen concentration delivered to the alveoli.
C. Rapid transport with no delay in the field for other than the most essential measures is a necessity.
D. NOTIFY MEDICAL CONTROL HOSPITAL AT TIME OF TRANSPORT

ALTERNATE DESTINATION TRANSPORTATION GUIDELINES
[EMT, AEMT, EMT-I, RN, EMT-P]

NOTE:
- ✦ These guidelines are to aid EMS in determining whether patients are suitable for transport to an alternate destination other than the Emergency Department.
- ✦ EMS should follow the guideline currently designated below by their EMS Medical Director
- ✦ "Clean" patients are defined as those who have screened negative or low risk for pandemic illness
- ✦ "Dirty" patients are defined as those who have screened positive or high risk for pandemic illness

I. If a patient calls 911 for EMS transport for medical care, and the paramedic feels that the patient could be appropriately treated at an alternate destination, this guideline should be used to determine whether the patient is suitable for transport to the alternate destination.

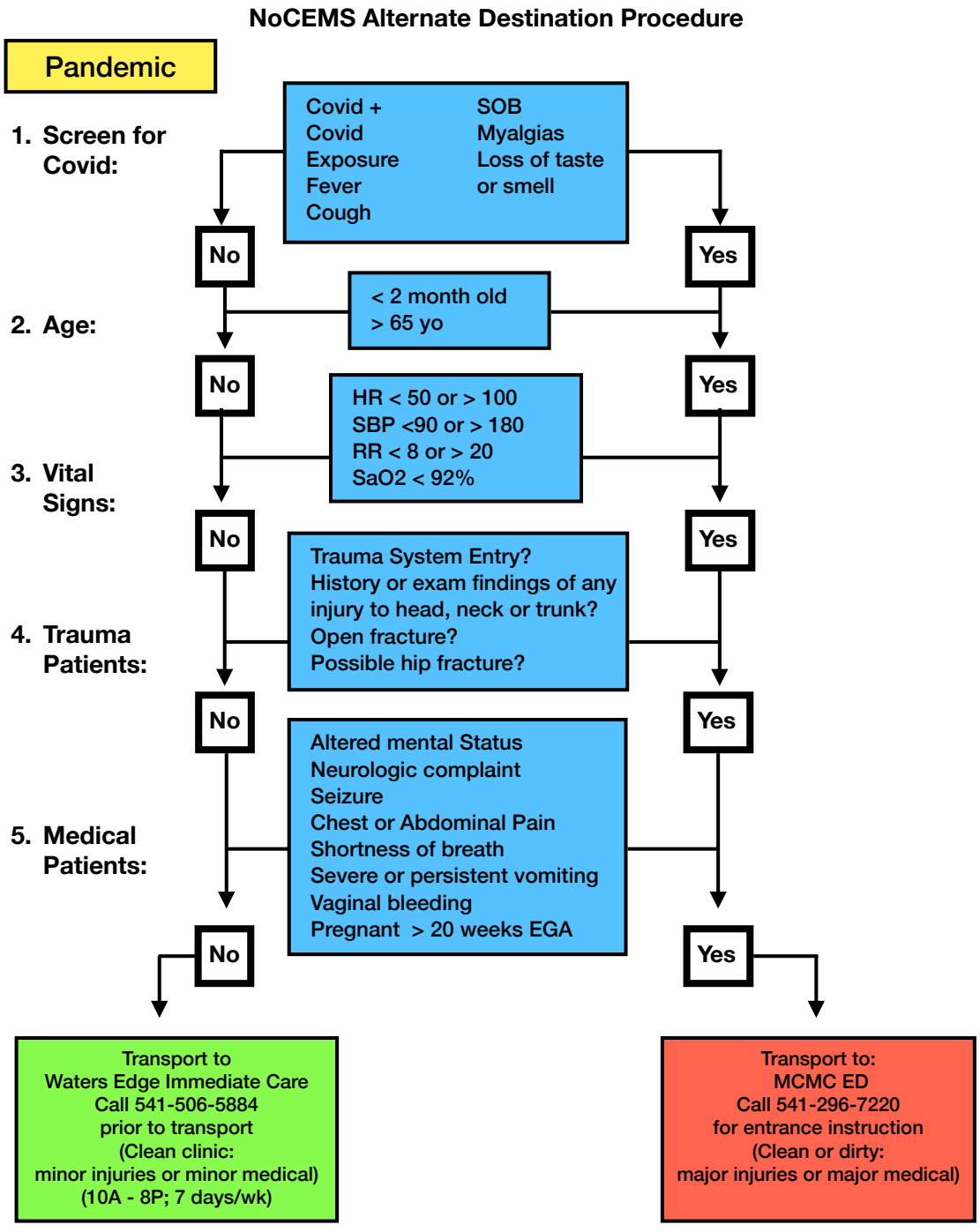
II. There are 3 potential pathways for screening, based on the 2018 Oregon Crisis Care Guidelines - Conventional, Contingent (Pandemic) or Crisis. The need for implementation of Conventional, Pandemic or Crisis strategies will be determined by the EMS Medical Director in consultation with local hospital and county health officials and Incident Command.
   A. During times of Conventional Care, patients with minor illness or injury, who are unlikely to require surgery, advanced imaging or inpatient treatment can be transported to an alternate destination.
   B. During times of Pandemic Care, "clean" patients with minor illness or injury, who are unlikely to require surgery, advanced imaging or inpatient treatment can be transported to an alternate destination.
   C. During times of Crisis Care, when the emergency department resources are overwhelmed, "clean" or "dirty"patients with minor illness or injury, who are unlikely to require surgery, advanced imaging or inpatient treatment can be sorted for transport to "clean" or "dirty" facilities.

III. If after reviewing the currently implemented guideline, the EMT feels the patient is suitable for transport to an alternate facility, the patient can be offered transport to the alternate destination. If the patient still wishes to be transported to the Emergency Department, their choice of destination should be honored, unless the Crisis Care Pathway has been implemented. During Crisis Care screening, patients should be transported to the alternate destination defined in the Crisis Pathway.

IV. Prior to transport to an alternate facility, the facility should be contacted to ensure they are available to receive the patient. This call can also serve as patient report to communicate pertinent information to the receiving facility.

V. The **Pandemic** Screening guidelines are currently in effect as of 5/14/2020. As the COVID-19 Pandemic progresses, we may at some point move to the Conventional or Crisis Pathway.

ALTERNATE DESTINATION TRANSPORTATION GUIDELINES
(Continued)



Thursday, May 14, 2020

BODY SUBSTANCE ISOLATION (BSI)
[EMR, EMT, AEMT, EMT-I, RN, EMT-P]

NOTE:
- ✦ Universal precautions should be utilized at all times during patient care, whether potential body fluid exposure is recognized or not.

I. Universal Precautions/Personal Protective Equipment
   A. Personal protective equipment (PPE) must be worn during all patient care as appropriate to the anticipated situation. PPE will be kept "readily accessible for rescuers' use.
   B. The Infection Control Officer is responsible for ensuring that the appropriate equipment is issued and that staff are trained in how, when and who will provide the PPE.
   C. It is imperative that employees wear appropriate protective body coverings such as gowns, gloves, coats, pants and boots when occupational exposure is possible. The type and characteristics will depend upon the task and degree of exposure anticipated.
   D. All rescuers must have quick access to kits containing impervious gloves, resuscitation bags or mouth pieces, eye protection, aprons, disinfectant towelettes or solution for hand washing, and red bags or biohazard bags.
   E. PPE items include:
      1. Disposable gloves for tasks where you may have hand contact with blood or other potentially infectious materials.
      2. Gowns or other protective body covering shall be worn in occupational exposure situations where contaminate may spread between the source and the rescuer. The type shall be appropriate for the tasks being performed.
      3. Face shields, Masks and Eye protection. PPE such as goggles or glasses with solid side shields or chin length face shields shall be worn with all patient contact.
      4. Resuscitation bags and mouth pieces to prevent direct contact with patient secretions
   F. All rescuers using PPE must observe the following precautions:
      1. Remove protective equipment carefully and appropriately before leaving the work area and after a garment becomes contaminated.
      2. Place used protective equipment in appropriately designated area containers when being stored, washed, decontaminated or discarded.
      3. Wash hands immediately or as soon as feasible after removal of gloves or other personal protective equipment.

Note: Areas or containers, which are to be used for contaminated PPE should be designated in each station and employees should be familiar with their location.

BODY SUBSTANCE ISOLATION (BSI)
(Continued)

II. Body Fluid Exposure

NOTE:
- Following any contact of body areas with blood or any other infectious materials, you must wash your hands and any other exposed skin with soap and water as soon as possible. Medic's must also flush exposed mucous membranes (eyes, mouth, etc) with water.
- Any body fluid exposure must be immediately reported so that appropriate testing and treatment can be initiated.

A. Decontamination:
   1. Clothing: If blood or other potentially infectious materials contaminate a garment(s), the garment(s) must be removed immediately or as soon as feasible. If a pullover shirt becomes minimally contaminated, rescuers should be trained to remove the pullover shirt in such a way as to avoid contact with the outer surface; e.g., rolling up the garment as it is pulled toward the head for removal. However, if the amount of blood exposure is such that the blood penetrates the garment and contaminates the inner surface, not only is it impossible to remove the shirt without exposure to blood, but the penetration itself constitutes exposure. Rescuers shall be trained to cut such a contaminated shirt to aid removal and prevent exposure to the face. Repair and/or replacement of PPE will be of no cost to rescuers.
   2. Utility gloves: Gloves may be decontaminated for reuse if their integrity is not compromised. The decontamination procedure will consist of washing with a solution of bleach and water. Discard utility gloves when they show signs of cracking, peeling, tearing, puncturing, or deterioration. Never wash or decontaminate **disposable** gloves, either for reuse or before disposal.

CARDIAC/12-LEAD ECG PROCEDURE
[EMT, AEMT, EMT -I, RN, EMT-P]

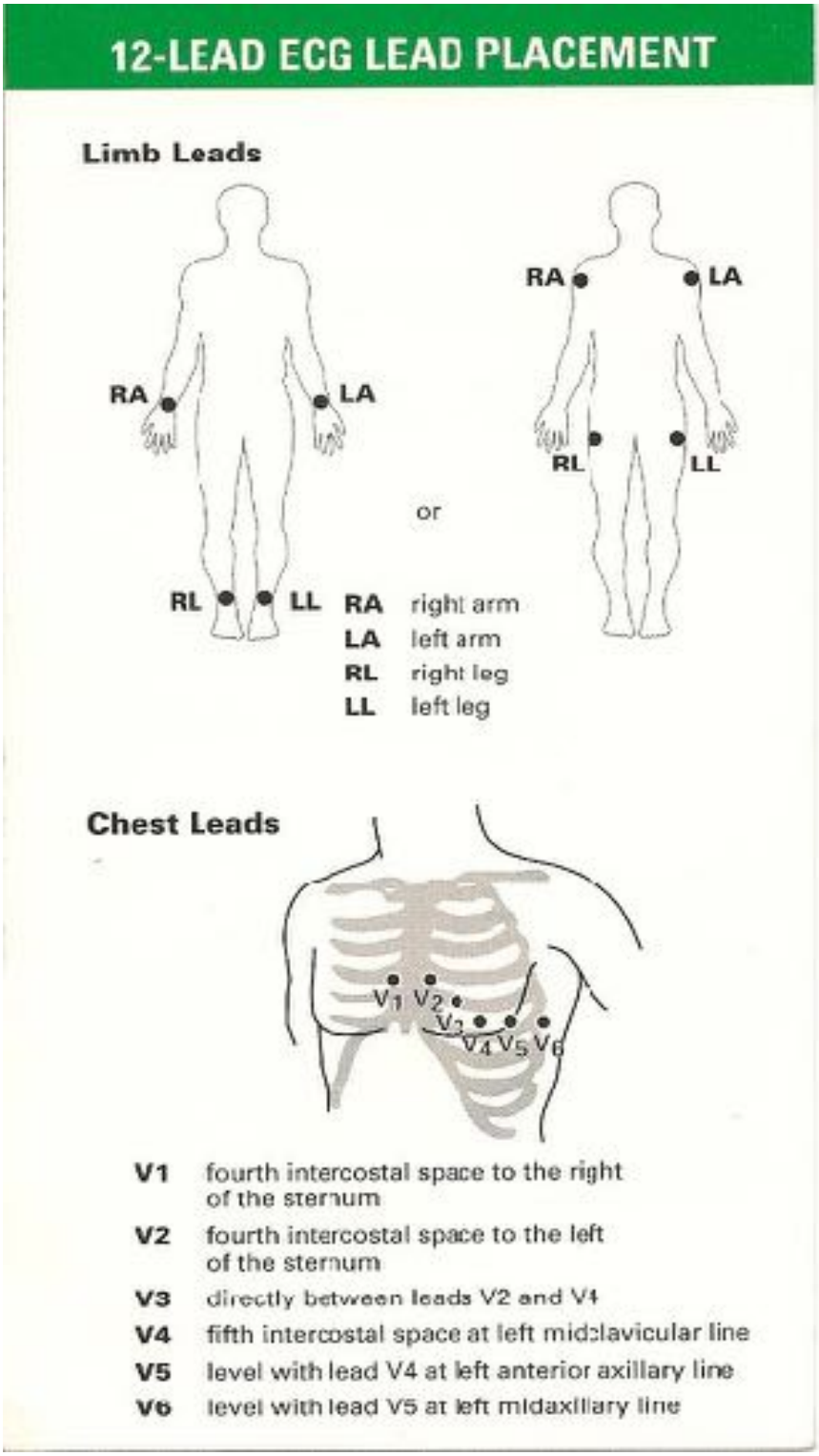
Prehospital 12-lead ECG should be performed, when possible, on patients with chest pain who are at risk for acute myocardial infarction (AMI). For additional treatment see Chest Pain Protocol.

I. Indications - 12-lead ECG should be acquired on the following patients:
   A. Adults with a complaint of non-traumatic chest pain
   B. Patients whom the paramedic suspects AMI for any reason.
   C. Patients on whom a physician requests that the paramedic do a 12-lead ECG for evaluation.
   D. Patient with upper abdominal pain > 35 years of age.

II. Criteria of exclusion for 12-lead acquisition:
   A. A patient for whom the acquisition of a prehospital 12-lead ECG will cause significant time delay.
   B. A patient who refuses to allow a 12-lead ECG to be performed.
   C. Any other circumstance that is not in the best interest of the patient.

III. Acquisition (See lead placement diagram on following page)
   A. Lead Placement - Limb leads. The limb leads are the paramedic's first response to acquire rate and rhythm. Four patches are required for this procedure. The preferred site is listed first:
      1. Left shoulder (anterior axillary line) or L. Wrist
      2. Right shoulder (anterior axillary line) or R. Wrist
      3. Left ankle or L. hip (anterior superior iliac crest)
      4. Right ankle or R. hip (anterior superior iliac crest)
   B. Lead placement - Precordial leads
      1. V_1, fourth intercostal space just to the right of the sternum.
      2. V2, fourth intercostal space just to the left of the sternum.
      3. V3, in between V2 and V4
      4. V4, fifth intercostal space mid-clavicular line.
      5. V5, anterior axillary line level with V4
      6. V6, mid axillary line level with V4and V5
   C. In patients with evidence of an inferior MI, consider R. side ECG
      1. V4, fifth intercostal space in right mid-clavicular line.

IV. Interpretation: What each lead sees
   A. Leads I, AVL, V5, V6 - lateral wall
   B. Leads II, III, AVF inferior wall
   C. Leads V1, V2 - septal wall
   D. Leads V3, V4 anterior wall
   E. Leads V4R right ventricle


12-LEAD ECG LEAD PLACEMENT
Limb Leads
RA
LA
RL
LL
or
RA
LA
RL
LL
RA right arm
LA left arm
RL right leg
LL left leg
Chest Leads
V1
V2
V3
V4
V5
V6
V1 fourth intercostal space to the right of the sternum
V2 fourth intercostal space to the left of the sternum
V3 directly between leads V2 and V4
V4 fifth intercostal space at left midclavicular line
V5 level with lead V4 at left anterior axillary line
V6 level with lead V5 at left midaxillary line

CARDIAC/12-LEAD ECG PROCEDURE
(continued)

NOTE:
- ❖ 12-lead ECG interpretation is in the Scope of Practice for EMT-I and above.
- ❖ The Oregon Medical Board authorizes EMT & AEMT to attach and record 12 lead cardiac tracings, but not to interpret the tracing. If the tracing is set up to print out an interpretation, this information should be communicated by the EMT to OLMC

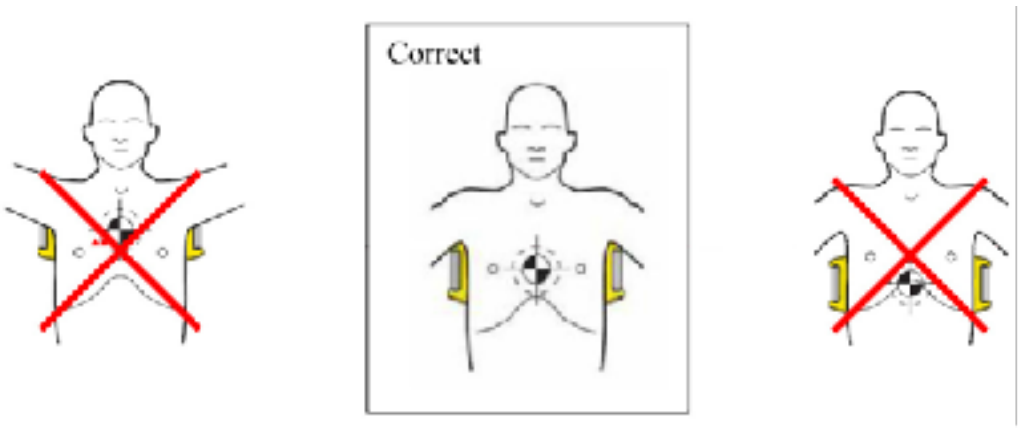
V. Procedure
   A. Attach the ECG leads as directed above and acquire the 12-lead while the patient assessment is taking place.
   B. Acquire the12-lead ECG in the patient's residence or incident location prior to moving the patient to the vehicle or in vehicle just prior to beginning transport.
   C. Towels should be used as needed to protect the modesty of your patient. In the female patient, the chest leads must be positioned under the breast.
      NOTE: This may be accomplished by lifting the breast with the back of a gloved hand.
   D. If defibrillation, synchronized cardioversion or pacing is necessary, quickly remove the necessary precordial leads to allow for quick combo patch placement and proceed with the appropriate protocol or place pads below such pads.
   E. If feasible, the 12-lead ECG should be acquired with the patient in the supine position. Do not, however, compromise your patient to acquire it. Some of your cardiac patients will be orthopneic and unable to tolerate the supine position. Write on the 12-lead what position it was acquired in.
   F. 12-lead interpretive findings should be reported to OLMC during the patient assessment. ECG should be faxed via cell phone if possible.
   G. If an AMI is suspected, all interventions should be documented on the **STEMI Checklist**
   H. The Thrombolytic Checklist should be filled out on the way to the hospital, as time permits.
   I. The following paperwork will be hand delivered to the receiving hospital or receiving medic unit with the patients name on each sheet:
      1. EKG
      2. STEMI Checklist
      3. Thrombolytic Checklist if completed
   J. A second copy of the 12-**lead** shall be attached to the run report

CHEST COMPRESSION DEVICE (CCD)
[EMR, EMT, AEMT, EMT-I, RN, EMT-P]

NOTE:
- All therapies related to the management of cardiopulmonary arrest should be continued as currently defined in the **Cardiac Arrest Protocol**.
- CHEST COMPRESSION DEVICE (CCD) placement and use may vary depending upon brand.
- Consider placing CCD (chest compression device) when short-staffed, pt having intermittent ROSC, or when moving pt to transport.

I. Initiate resuscitative measures.
   A. Manual chest compressions should be continued while the CCD is being placed on the patient.
   B. Limit interruptions in chest compressions to 10 seconds or less.
   C. Do not delay manual CPR for the CCD. Continue manual CPR until the device can be placed.
   D. While resuscitative measures are being performed, the CCD should be removed from carrying case and placed on the patient using the manufacturers guidelines. (Diagrams included are for the Defibtech device)

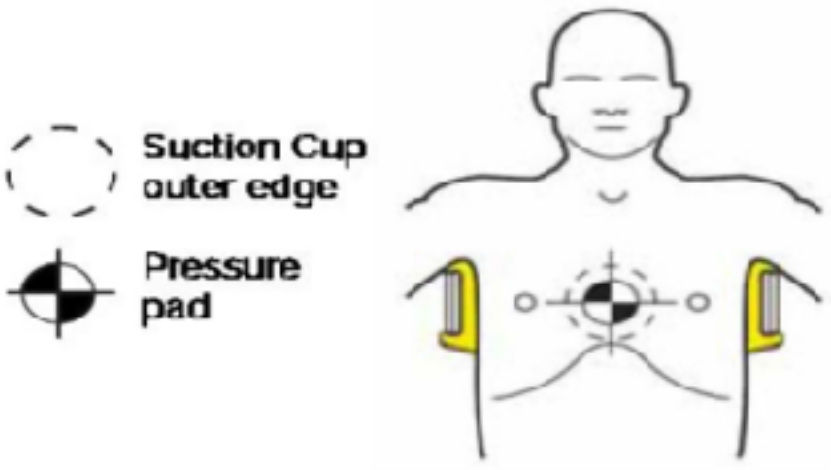
II. Place Backplate
   A. The backplate should be centered on the nipple line and the top of the backplate should be located below the patient's armpits.
   B. If the patient is already on the stretcher, place the backplate underneath the thorax. This can be accomplished by log-rolling or sliding the backplate under the patient or raising the torso.
   C. Placement should occur during a scheduled discontinuation of compressions.



CHEST COMPRESSION DEVICE (CCD)
(Continued)

III. Position the Compressor
   A. Turn the CHEST COMPRESSION DEVICE on.
   B. Approach the patient from the side opposite the person performing manual chest compressions.
   C. Attach the device to the backplate on the side of the patient opposite from where compressions are being provided.
   D. Place the device across the patient, between the arms of the person who is performing manual CPR.
   E. At this point the person performing manual CPR stops and assists attaching the device to the backplate on their side.
   F. Pull up on the device once to ensure that the parts are securely attached.

IV. Adjust the height of the Compression Arm
   A. Use two fingers (V pattern) to make sure that the lower edge of the Compression Piston Interface Pad is immediately above the end of the sternum. If necessary, move the device by pulling the support legs to adjust the position.



CHEST COMPRESSION DEVICE (CCD)
(Continued)

B. Press the Adjust Up/Down Button. Adjust the height of the Piston until it is just touching the patient's chest.
C. If the Piston cannot be adjusted to reach the patient's chest, the patient is too small. Remove frame and continue with manual CPR compressions.
D. If the patient is too large for the frame, remove frame and continue manual CPR compressions.
E. Once the Piston is properly adjusted, start compressions by pushing the Run Continuous button.
F. If the patient is not intubated with an ET or does not have a PEAD in place, and you will be providing compression-to-ventilation ratio of 30:2, push the Active ►30:2 Button.
G. If the patient is intubated with an ET or has a PEAD in place, and you will be providing continuous compressions, push the Active ► (Continuous) Button.

E. Defibrillation
A. Defibrillation can and should be performed with the CCD. There is no need to stop the device to deliver a shock.
B. Apply the defibrillation electrodes either before or after the device has been put into position.
C. Ensure that there are no wires underneath the Compression Piston.
D. If double sequential defibrillation is anticipated, consider application of the posterior therapy pad/electrode prior to the device backplate placement.
E. For rhythm analysis, stop the compressions by pushing the Pause button. The duration of interruption of compressions should be kept as minimal as possible and should not be > 10 seconds. ***There is no need to interrupt chest compressions other than to analyze the rhythm.***

F. Pulse checks/Return of Spontaneous Circulation (ROSC)
A. Pulse checks should occur intermittently while compressions are occurring.
B. If the patient moves or is obviously responsive, pause the device and evaluate the patient.
C. If there is a change in rhythm, but no obvious indication of responsiveness or ROSC, a pulse check while compressions are occurring should be done. If the palpated pulse is asynchronous, consider pausing the device. If the pulse remains, reassess the patient. If the Pulse disappears, immediately restart the CCD.
D. A sudden change in ETCO2 may indicate ROSC.

G. Stabilization
A. Lift patient's head and place strap behind patient's neck. NOTE: Use other accepted patient handling techniques if the patient has suspected head, neck or spine injuries.
B. Connect the Stabilization Strap to the frame. This will prevent the CCD from migrating toward the patient's feet. Place the patients arms in the arm straps if provided.

H. Transport
To move the patient to a stretcher or another piece of transportation equipment:
A. Prepare the stretcher/transport equipment near the patient.
B. Position two people on either side of the patient. Other personnel may be needed to stabilize the patient's head and limbs, as necessary.
C. When ready to move the patient, push **Pause** to temporarily stop compressions.
D. Lift the patient by grabbing the handle with one hand and use the other hand to support the lower torso by grasping the patient's leg, belt or pants.
E. After the patient is safely on the stretcher/transport equipment, check the CCD to ensure that the Piston has not changed position. Readjust the target area, is necessary.

F. Push **Pause** again or the appropriate **Run Compressions** button to resume compressions.

I. **Other Considerations**
   A. If the CCD malfunctions, immediately revert to manual CPR.
   B. If the battery pack is depleted, replace with extra battery. The unit can also be operated by connecting to an external power source with the AC adapter.
   C. NEVER LEAVE THE DEVICE RUNNING UNATTENDED!

COMMUNICATIONS
[EMR/EMT/AEMT/EMT-I/RN/EMT-P]

NOTE:
- This protocol describes the indications for contacting Medical Resource Hospital (MRH) and/or a Receiving Hospital for On-Line Medical Control (OLMC), and describes the contents of the various reports.
- Note that all patients will now be designated as RYG to communicate illness severity to receiving hospital.

I. EMS Providers shall contact MRH or the Receiving Hospital by radio or telephone in the following situations:

A. As required by the protocols.
B. As required for trauma services.
C. When On-Line Medical Control is needed.
D. To report on patients being transported to that facility

II. When requesting OLMC, or reporting on patients being transported, the following information must be relayed on all patients:

A. Unit number, identity and certification level of person making contact.
B. Location of the call, street address if appropriate.
C. Purpose of call. (Identify the protocol being followed or question if requesting OLMC advice).
D. If Multiple Patient Incident : Number of patients. If MCI, give abbreviated report per MCI protocol.
E. Age and sex of patient.
F. Patient's chief complaint.
G. Triage category - RYG (similar to MCI designations)
    1. Red - Immediate life threat
    2. Yellow - Delayed
    3. Green - Ambulatory
H. Brief history, prior medical history, medications, and allergies.
I. Vital signs.
J. Pertinent physical findings.
K. Treatment at scene.
L. If trauma patient
    1. Trauma System entry criteria (be as specific as possible).
    2. Trauma Band number(s).
M. ETA, including loading time.

NOTE:
- DO NOT GIVE THE PATIENT'S NAME OVER THE RADIO

For acute overdose, contact Poison Control at OHSU: 1-800-222-1222

CONTROL AND MONITORING OF INTRAVENOUS SOLUTIONS
[AEMT, EMT-I, RN, EMT-P]

I. DEFINITION

The administration of fluid or medication by continuous infusion through an intravenous line.

II. PURPOSE

To decrease the likelihood of inadvertently administering an excess volume of medication.

III. INDICATIONS

This procedure must be followed:

A.Any time fluid or medication is administered by continuous infusion in pediatric patients under the age of five.
B.Any time a medication is administered as a continuous infusion.

IV. PROCEDURES (Any one of the following mechanisms may be used.)

A.Use a volutrol or soluset type device.
1.Prepare solution.
2.Connect the volutrol between the solution bag and the tubing.
3.Place one hour's solution into the volutrol and close the connection between the volutrol and the solution bag.
4.Establish IV access
5.Begin infusing solution into patient at the appropriate rate.
6.If necessary, additional solution may be placed in the volutrol so long as no more than one hour's solution is in the volutrol at any one time.

B.Use a Dial-a-Flow meter type device.
1.Prepare solution.
2.Connect Dial-a-Flow meter to IV tubing.
3.Establish IV access
4.Set appropriate infusion rate.

C.Use an infusion pump.
1.Prepare solution.
2.Connect IV tubing to infusion pump according to manufacturer's directions.
3.Establish IV access
4.Begin infusing solution into patient at appropriate rate.

NOTES:

A.At the time of transfer-of care from one agency to another transporting agency or transporting unit (i.e., First responder to emergency department) the care form should include the amount of solution that has been infused. All infusions and patient response should be closely monitored.

COVID19 VACCINE ADMINISTRATION
Moderna mRNA cx-024414
[EMT-P]

Indications
This medicinal product has been given Emergency Use Authorization by the FDA for active immunization in individuals 18 years of age and older to prevent COVID-19 caused by SARS-CoV-2 virus

Contraindications
• Age < 18 years • Current Illness (Current Infection) • Hx of severe allergic reaction to a previous dose of this vaccine • Current pregnancy or chance of becoming pregnant (Refer patient to their PMD) • Breastfeeding (Refer patient to their PMD) • Testing positive for COVID-19 in the last 12 weeks • Any of the following symptoms in the last 10 days: fever (>100.4F), chills, cough, shortness of breath, difficulty breathing, fatigue, muscle or body aches, headache, new altered sense of taste or smell, sore throat , congestion or runny nose, nausea, vomiting, or diarrhea

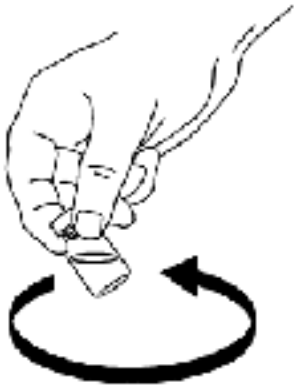
Cautions
• History of severe allergies or reactions to any medications, foods, vaccines, or latex → Monitor closely after administration (30 minutes minimum) • Immunocompromised or on a medication that affects the immune system → Inform patient vaccine might not provide as strong an immune protection • Bleeding disorder or taking blood thinners → Risk of hematoma at injection site • Has received a first dose of another COVID-19 Vaccine → Ensure same

Procedure
• Prepare patient and supplies: ○ Ensure appropriate monitoring equipment and treatment supplies are available to manage any adverse reactions (e.g. Anaphylaxis) ○ Ensure correct patient identification ○ Verify "Covid-19 Screening and Consent Form" has been completed ○ Ensure "Notice of Privacy Practices" and "EUA Fact Sheet for Recipients and Caregivers" have been provided ○ Re-confirm patient meets indications and has no contraindications
• Thaw and prepare dose (if not already done): Frozen vials should be transferred to 2 °C to 8 °C to thaw; a 10 pack of vials may take 2.5 hours to thaw. Unused vials may be stored between 2 °C to 8 °C for up to 30 days prior to first use. Alternatively, frozen vials may also be thawed for 60 minutes at temperatures from 15 to 25 °C for immediate use Unpunctured vials kept between 8 °C to 25 °C may be stored for up to 12 hours.
Once thawed and used, the vaccine should be held between 2 to 25 °C for up to 6 hours. Do NOT refreeze. Discard vial after 6 hours.      Each vial contains 10 doses of 0.5mls. Thawed vials should be marked with the discard date/time and stored between 2 °C to 25 °C.

COVID19 VACCINE ADMINISTRATION
Moderna mRNA cx-024414
(continued)

Use immediately, and within 6 hours after first use.

Gently swirl the vial after thawing AND before withdrawing a dose.
DO NOT SHAKE!
DO NOT DILUTE!



Vaccine is a white to off-white colored suspension. Discard the vaccine if particulates or discoloration are present.

Withdraw the required 0.5 mL dose of vaccine using a sterile needle and syringe. Check that there are no particulates or discolorations present in the vaccine prior to administration

COVID19 VACCINE ADMINISTRATION Moderna mRNA cx-024414 (continued)
• Administer Vaccine Dose: Choose correct needle length (1" or 1.5") to reach muscle, prep skin with alcohol swab, and stabilize/stretch skin if excess soft tissue (do not bunch skin) Inject 0.5 mL of the Moderna COVID-19 mRNA Vaccine cx-024414 vaccine intramuscularly in the deltoid muscle of the arm Cover injection site with bandage
Monitor for adverse reactions (e.g. anaphylaxis) for minimum 15 minutes and initiate immediate treatment (below) as needed
• If mild injection site reaction or allergic reaction consult ordering physician/On-Line Medical Control (OLMC) for management • If signs of severe allergic reaction/anaphylaxis (dyspnea, stridor, severe urticaria, tachycardia, hypotension, or Altered Mental Status) activate emergency response system and initiate treatment if available: ○ Epinephrine 0.3 mg (1mg/mL concentration) intramuscular (may use epinephrine auto-injector if available) ○ Perform Airway Management as required per local EMS protocols ○ Establish IV/IO access and initiate cardiac monitoring ○ Diphenhydramine 50 mg IV/IO or intramuscular ○ Albuterol 2.5 mg nebulized if wheezing/dyspnea, may repeat x 1 ○ Initiate transport per local EMS protocols ○ Consult OLMC for additional epinephrine/push dose pressor as needed ○ Report any adverse reactions

Documentation: Use provided forms to document vaccine manufacturer, injection site, lot number and expiration date.

Complications
• Allergic/anaphylactic Reaction • Bleeding, local site pain, infection • Common side effects (fever, headache, chills, muscle aches, fatigue)

COVID19 VACCINE ADMINISTRATION
Moderna mRNA cx-024414
(continued)

References

- Vaccines and Related Biological Products Advisory Committee December 17, 2020 Meeting Presentation- FDA Review of Efficacy and Safety of Moderna COVID-19 Vaccine EUA
- https://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/covid-19/clinical-considerations.html
- https://www.cdc.gov/vaccines/hcp/vis/index.html
- CDC Vaccine Storage and Handling Toolkit - November 2020

CPAP
[EMT, AEMT, EMT-I, RN, EMT-P]

NOTE:
- ❖ Continuous Positive Airway Pressure has been shown to rapidly improve vital signs & gas exchange, and to decrease the work of breathing, the sense of dyspnea and the need for endotracheal intubation in many patients who suffer from shortness of breath secondary to CHF, pulmonary edema, asthma or COPD or suspected Carbon Monoxide Exposure.

I. INDICATIONS - MEDICAL patients complaining of moderate to severe respiratory distress meeting ALL the following criteria:
   B. Is awake and oriented and has the ability to maintain an open airway
   C. Has signs and symptoms consistent with either CHF/pulmonary edema/RAD/COPD
   D. Has a systolic blood pressure above 90 mmHg (MAP of 65 mmHg)
   E. Is over 12 years old and is able to fit the CPAP mask

II. CONTRAINDICATIONS
   A. Respiratory arrest
   B. Non-cooperative patient
   C. Suspected pneumothorax
   D. Hemodynamically unstable
   E. Presence of tracheostomy
   F. Inability to maintain mask seal
   G. Active vomiting

III. CAUTIONS
   A. CPAP can cause air-trapping in some patients with severe asthma, so these patients should be monitored closely for signs of worsening respiratory distress/decreased air movement

IV. SETTING UP SYSTEM
   A. Select mask size for proper patient use per manufacturers recommendations:
   B. Ensure adequate oxygen supply to ventilate device.
   C. Connect Oxygen source to device.
   D. Attach mask to device via tubing.
   E. Start with oxygen flow at the manufacturer's recommended rate
   F. Set initial PEEP (peak end expiratory pressure) to 5cm H_2O where applicable

V. INITIATING TREATMENT
   A. Place the patient on continuous pulse oximetry and end-tidal CO_2.
   B. Explain to the patient how the CPAP will help their breathing.

C. Gently hold or have the patient hold the mask to the patients face insuring a good face/ mask seal.
D. Adjust the mask and/or head strap accordingly.
E. Check for air leaks.
F. Monitor and document the patient's respiratory response to the treatment.
G. Gradually adjust the flow to achieve the desired level of CPAP.
H. Increase PEEP if needed up to 10 cm H_2O to assist alveolar expansion and improve gas exchange. PEEP should not be increased to the point it causes CO_2 retention or the patient cannot overcome the resistance during exhalation.
I. Continue to coach patient to keep mask in place and readjust as needed.
J. Once in the ambulance, switch to the ambulance main oxygen system at the desired flow rate.
K. IF RESPIRATORY STATUS DETERIORATES, REMOVE DEVICE AND CONSIDER BAG VALVE MASK VENTILATION AND/OR ENDOTRACHEAL INTUBATION.

VI. NEBULIZER TREATMENT - nebulizers can be administered through some CPAP systems. If manufacturer recommends using nebulizer through your CPAP system:
A. Set up the nebulizer as prescribed.
B. Insert the nebulizer into the face mask.
C. Connect the nebulizer tubing to an Oxygen source and run at 6 l/min to power the nebulizer.
D. Maintain O2 flow to CPAP system at desired flow
E. Monitor patient for improvement.
F. If patient does not improve, be prepared to assist patient ventilation with BVM and call for ALS.

VII. REMOVAL OF CPAP
A. CPAP therapy needs to be continuous and should not be removed unless the patient cannot tolerate the mask or experiences continued or worsening respiratory failure.

VIII. ADDITIONAL NOTES:
A. If unable to maintain oxygen saturation > 90%, administer positive airway pressure via BVM and PEEP valve.
B. Reassessment of the patient's status is critical and documentation should be performed every 5-10 minutes until patient is stable.
C. Remove CPAP mask temporarily to administer nitroglycerin.
D. Suctioning of secretions may be required on some patients. This may be done thru the opening in the front of the CPAP without disrupting the treatment or pressures.
E. Watch for gastric distention and/or nausea.
F. See table below for estimated time of oxygen supply based on flow rate:

Minutes of Oxygen by Cylinder Size
All based on full 2200 PSI cylinder

Flow (LPM)	D-Cylinder (EMS Portable)	E-Cylinder (EMS Portable	M/J-Cylinder (EMS Ambulance)
12	29 minutes	51 minutes	299 minutes
15	23 minutes	41 minutes	199 minutes
20	16 minutes	29 minutes	175 minutes
25	14 minutes	23 minutes	140 minutes

DEATH IN THE FIELD
[EMT, AEMT, EMT-I, RN, EMT-P]

PURPOSE:
- ✦ If BLS has been started by a bystander, family or first responder these conditions may still be used to determine DIF without receiving hospital contact.

I. WITHHOLDING RESUSCITATIVE EFFORTS

Determining death in the field without initiating resuscitative efforts should be considered under the following conditions.

A. Patient qualifies as a "DNR" patient (see DNR Protocol).
B. A pulseless, apneic patient in a multiple casualty incident, where the resources of the system are required for the stabilization of living patients.
C. Decapitation.
D. Rigor Mortis in a warm environment.
E. Decomposition.
F. Venous pooling in dependent body parts (dependent lividity).

II. DETERMINING DEATH IN CARDIAC ARREST

A. Traumatic Arrest:.
   If the patient is a victim of Trauma and has no vital signs in the field (pulseless, apneic, fixed and dialated pupils) the patient will be declared dead at the scene.
B. Non-Traumatic Arrest:
   The victim of a medical (non-traumatic) cardiac arrest should not be determined dead at the scene unless:
   1. The patient has been shown to be unresponsive to appropriate advance cardiac resuscitative measures, for example:
      a. All patients with Ventricular Fibrillation or Electromechanical Dissociation should be transported with the above exception.
      b. Patients found in Asystole (after checking all leads, and a printed ECG recording of leads I, II, III), who have not responded to the appropriate treatment of Asystole, (see Protocol) may be determined to be dead at the scene after consultation with the patient's physician or the ED physician.
   2. The patient has signs of Dependant Lividity, Rigor mortis, and the body Core is cold but is not frozen.

III. DOCUMENTATION

A. All patient care provided should be documented with procedure and time.
B. In non-traumatic deaths, all non-resuscitation or stopped resuscitation cases should have an ECG strip which shows the patient's rhythm in leads I, II, III.
C. All conversations with Physicians or OLMC should be fully documented with physician's name, time, and instructions.

IV. PRECAUTIONS

All hypothermic patients, victims of electrocution, lightning, and drowning should have resuscitative efforts begun and transported to the hospital.

"DO NOT RESUSCITATE" ORDERS
[EMT, AEMT, EMT-I, RN, EMT-P]

PURPOSE:
- ✦ Patients transported under these treatment protocols must be treated when life-threatening problems develop.
- ✦ The protocols can at times come into conflict with the ethical issue of the terminally ill patient's right-to-die.
- ✦ The purpose of this protocol is to attempt to clarify EMS personnel's responsibilities to the terminally ill patient and his/her family.

I. When personnel respond to a cardiac arrest patient, full resuscitation measures to the level of the crew's ability will be initiated with the following exceptions:
   A. The patient's private physician[1] is present and orders that resuscitation efforts be terminated or not instituted.
   B. Personnel are presented with a written copy of a physician's order (**POLST**)[2] to withhold some or all resuscitative measures or a document signed by the patient expressing his/her wishes not be to resuscitated.
   C. Pulseless/Apneic in Multiple Casualty Incident.

II. If any question exists about the appropriateness of resuscitation, it should be instituted at the available level of care. If resuscitation has been instituted prior to EMS arrival, and the resuscitation appears to be inappropriate, consultation will be made with medical control to determine further action.

III. Once resuscitation has been initiated by the EMS team, treatment will continue unless otherwise ordered by the patient's private physician, OLMC or personnel are presented a written copy of a physician's order (**POLST**) to withhold some or all resuscitative measures, or a document signed by the patient expressing his/her wishes not to be resuscitated.

IV. If resuscitation is withheld or terminated prior to arrival at the hospital, details of resuscitation efforts by EMS personnel, any actions taken by bystanders or family before and/or after EMS arrival, and any physician consultation shall be documented in detail on the prehospital care report (PHCR). Copies of all applicable documents should be attached to the PHCR.

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[1] If another physician is at the scene and requests some action on the part of the responding EMT's that is contrary to written protocol, see the "On-Scene Physician" protocol

[2] **Physician Orders for Life-Sustaining Treatment (POLST)**
In addition to the above for the full arrest patient, the EMT may encounter a form requesting less than full resuscitative measures on a patient who has a pulse and may or may not be breathing. The **POLST** form is in use in the community and may be used for this purpose. If the POLST form is not available on scene, contact the Oregon **POLST** Registry Hotline: **888-476-5787**

V. If a patient is not going to be resuscitated, notify the on-call medical examiner (ME) via dispatch and wait until arrival of the ME or police personnel before leaving the scene.

VI. Our intent is to honor the patient's and physician's wishes regarding the amount and level of care that they want initiated if the patient becomes unable to make those wishes known.

VII. If presented with a **POLST**[3], the EMT will follow the wishes expressed as closely as possible. If there appears to be a question of the exact wishes of the patient or physician, for example an apparent conflict between sections A and B of the **POLST** form, the EMT will contact on-line medical control or the patient's private physician for instructions.

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[3] **Physician Orders for Life-Sustaining Treatment (POLST)**
In addition to the above for the full arrest patient, the EMT may encounter a form requesting less than full resuscitative measures on a patient who has a pulse and may or may not be breathing. The POLST form is in use in the community and may be used for this purpose. If the POLST form is not available on scene, contact the Oregon POLST Registry Hotline: **888-476-5787**

END TIDAL CO_2 MONITORING
[AEMT, EMT-I, RN, EMT-P]

PURPOSE:
- ✦ To measure the effectiveness of ventilation by measuring the amount of carbon dioxide in exhaled air for intubated patients and for patients in respiratory distress.

X. **Procedure:**

A. Manage airway according to Airway Management procedure.

B. Apply $ETCO_2$ monitor. Maintain $ETCO_2$ output between 35 – 40 mmHg.

The following approximate the degree of ventilation:

> 40 mmHg = Hypoventilation

35-40 mmHg = Normal ventilation

30-35 mmHg = Hyperventilation

C. Patients with signs of increased intracranial pressure (unilateral dilated pupil, posturing, focal neurologic findings): maintain CO_2 between 30-35 mmHg.

D. Document pulse oximetry and $ETCO_2$ readings in your pre-hospital care report at regular intervals, especially following movement of the patient or change in vital signs.

XI. **Precautions:**

A. Remember: pulse oximetry does not equate to ventilation. You can have a poorly ventilated patient displaying an oxygen saturation of 100%. Excessively high PaCO2 levels can be detrimental to your patient's outcome.

B. A sudden drop in CO_2 output from normal (35-40 mmHg) to 15-20 mmHg and an obvious change in the waveform is indicative of tube displacement, most likely into the hypopharynx. Reassess tube placement immediately and take corrective action.

C. A sudden rise in CO_2 output during cardiac arrest may indicate ROSC. Reassess patient and initiate post-resuscitation care if indicated.

D. Do not rely on pulse oximetry or ETCO2 monitoring solely to determine the efficacy of intubation.

HEMOSTATIC AGENTS
[EMT, AEMT, EMT-I, RN, EMT-P]

I. Indications
   A. Hemostatic agents can be used to control external hemorrhage when use of direct pressure and tourniquets fail.
   B. This is most likely to involve wounds in junctional areas (i.e. axilla, groin, neck, face, or scalp).

II. Contraindications:
   A. Minor bleeding.
   B. Bleeding that can be controlled by direct pressure.
   C. Bleeding that can be controlled by application of a tourniquet.
   D. Open abdominal or chest wounds. Hemostatic agents should never be packed into open chest or abdominal cavities

III. Procedure:
   A. Follow the manufacturer's instructions for proper technique.
   B. Cut and remove any clothing away from the area, remove any large debris and clean the wound.
   C. Pack the wound with the chosen hemostatic agent. More than one package may be needed.
   D. Apply direct pressure over the wound for a minimum of 3 minutes or until bleeding stops.
   E. Apply pressure dressing over wound and hemostatic agent.
   F. Advise receiving hospital personnel of use of hemostatic agent.

IV. Notes & Precautions:
   A. All hemostatic agents used shall not contain shellfish, or cause any exothermic reactions or heating.
   B. Z fold gauze is preferred since it is easier to remove and account for during removal.
   C. The following hemostatic agents are approved for use:
      1. QuikClot® Combat Gauze
      2. QuikClot® 1st Response

INTERCEPTS

PURPOSE:
- ✦ Some patients encountered by EMT's may require care emergently which is beyond those EMTs' scope of practice.
- ✦ These are general guidelines to consider when deciding whether to call for an intercept. These lists are not all inclusive, and decisions may have to be made with limited information.
- ✦ Each patient and situation is unique, so relative severity, overall transport time and time to reach intercept must be factored in for each patient.

I. **Patient conditions** which may require a higher level of care:
   A. Trauma – patients with signs or symptoms of life threatening illness or hemodynamic instability that may require emergent IV fluid resuscitation or airway control.
   B. Airway emergencies – patients with evidence of airway compromise, including patients with altered mental status who are unable to protect their airway.
   C. Respiratory distress – patients with hypoxemia not responding to 100% O2, or showing signs of impending respiratory failure.
   D. ACLS – patients with unstable arrhythmias who may benefit from medical therapy.
   E. Chest pain – if suspicious for cardiac cause, ongoing CP not responding to basic measures such as rest, oxygen and nitroglycerine.
   F. Diabetic emergencies – prolonged hypoglycemia may lead to brain damage.
   G. GI Bleeding – with unstable vital signs.
   H. Status epilepticus – prolonged seizure activity may lead to brain damage.

II. **Objective measures** which may indicate the need for advanced treatment:
   A. Oxygen saturation (SaO2) - SaO2 < 90%, not responding to 100% O2 therapy.
   B. Heart rate (HR) - unstable HR with associated symptoms of chest pain, altered mental status or focal neurologic deficits
      1. Bradycardia – HR < 50 with associated symptoms
      2. Tachycardia – HR > 120 with associated symptoms
   C. Blood Pressure (BP)
      1. Hypertensive emergencies – High blood pressure associated with chest pain, altered mental status or focal neurologic deficits
         a. DBP > 110
         b. SBP > 220
      2. Shock – especially in Trauma patients who may be losing blood rapidly and may require large volume fluid resuscitation.
         a. SBP < 90
   D. Respiratory Rate (RR)
      1. Tachypnea – RR > 30. Prolonged hyperventilation in COPD/CHF patients leads to acidosis and poor outcomes.
   E. Mental Status: GCS < 8 may need to be intubated to protect airway
   F. Blood Glucose – BGL < 50 and unable to take oral glucose because of altered mental status, seizures or focal neurologic deficits.

III. **Prolonged Transport** – anticipated transport time to closest facility > 1 hour from time of event for critically ill or injured patients is a reason to consider air ambulance intercept.

IV. **OLMC Guidance** - EMT's should consider calling OLMC from scene if there are any concerns about patient instability or possible need for intercept. The OLMC physician may request an intercept if a patient report indicates that the patient is unstable. A rendezvous should be arranged with intercepting agency, but transport should not be delayed.

INTRAOSSEOUS INFUSION
[AEMT, EMT-I, RN, EMT-P]

PURPOSE:
- ✦ An alternative technique for establishing IV access in patients in whom IV access is critical and peripheral IV access is difficult and time consuming

I. Indications:
A. Intraosseous infusion is indicated in emergency situations when life-saving fluids or drugs should be administered and IV cannulation is difficult, impossible or too time-consuming to perform.
B. If a peripheral IV cannot be established after two attempts or within 60–90 seconds of elapsed time and in:
C. Adult and pediatric patients, within the proper weight range, who present with one or more of the following clinical conditions:
   1. Cardiac arrest.
   2. Hemodynamic instability (BP < 90 mmHg and clinical signs of shock).
   3. Imminent respiratory failure.
   4. Status epilepticus with prolonged seizure activity greater than 10 minutes, and refractory to IM anticonvulsants.
   5. Toxic conditions requiring immediate IV access for antidote.
D. IO placement may be considered prior to peripheral IV attempts in cases of cardiopulmonary or traumatic arrest, in which it may be obvious that attempts at placing an IV would likely be unsuccessful and/or too time consuming, resulting in a delay of life-saving fluids or drugs.

II. Contraindications (all ages):
A. Fracture of the bone selected for IO insertion (consider alternate site).
B. Previous significant orthopedic procedures involving selected bone (IO within 24 hours; prosthesis).
C. Infection at the site selected for insertion (consider alternate site).
D. Excessive tissue at insertion site, with absence of anatomical landmarks (consider alternate site).
E. In hemodynamically stable patients IO access is not indicated.

III. Precautions & Possible Complications (all ages):
A. Osteomyelitis, growth plate injury (in pediatric patients), and extravasation of fluid with compression of popliteal vessels or the tibial nerve may occur.
B. Airway and breathing should be established first in accordance with other protocols.
C. Do not perform more than one attempt in each tibia.
D. Any ALS medication may be administered IO.
E. Do not use hypertonic saline through an IO.

IV. ADULT EZ-IO™ PROCEDURE (patients weighing > 40 kg)

A. Determine patient's weight.
B. Assemble all necessary equipment.
   1. The standard EZ-IO AD® needle should be utilized on patients who weigh > 40 kg (approximately 88 lbs. or greater).
C. Site Selection
   1. Proximal tibia (patella and tibial tuberosity).
      Insertion site should be approximately one finger width to the medial side of the tibial tuberosity.
   2. Distal tibia (especially for morbidly obese patients).
      Insertion site should be two finger widths proximal to the medial malleolus along the midline of the tibia.
   3. Proximal Humerus
      a. Ensure that the patient's hand is resting on the abdomen and that the elbow is adducted (close to the body).
      b. Insertion site is located directly on the most prominent aspect of the greater tubercle. Slide thumb up the anterior shaft of the humerus until you feel the greater tubercle, this is the surgical neck. Approximately 1 cm (depending on patient anatomy) above the surgical neck is the insertion site.
D. Needle Insertion
   1. Prep the surface with Betadine and wipe dry with a sterile gauze pad.
   2. Stabilize patient's leg or arm and begin insertion from a 90-degree angle to the insertion site. Gently advance the needle set into position–do not force. Stop when you feel the "pop."
   3. When needle is in proper position, remove stylet (if insertion fails, leave the needle in place and clamp the EZ-Connect; do not attempt second insertion on same leg).
   4. Connect extension tubing or EZ-Connect, primed with saline, to IO hub.
   5. Confirm the catheter position (catheter is stable at a 90-degree angle to the bone, able to aspirate blood, and fluids flow without evidence of extravasation).
   6. Rapid bolus or "power" flush with approximately 10 mL normal saline when using the EZ-IO AD needle.
   7. Connect IV tubing and bag to extension tubing or EZ-Connect.
   8. Consider additional bolus of saline if flow rates slower than expected.
   9. Utilize a blood pressure cuff or pressure bag to help infuse fluids.
   10. Dress site and secure tubing.

V. **PEDIATRIC EZ-IO™ PROCEDURE** (patients weighing 3-39 kg):
   A. Assemble all equipment.
      1. The EZ-IO PD needle should be used on patients who weigh between 3–39 kg (approximately 6–87 lbs.).
   B. Site Selection
      1. Palpate the landmarks at the proximal tibia (patella and tibial tuberosity).
      2. Insertion site is one finger below the tuberosity, then medial along the flat aspect of the tibia.
      3. If the tibial tuberosity cannot be identified on the child, then the insertion site may be two finger widths below the distal portion of patella, then medial along the flat aspect of the tibia.
      4. Distal femur
         A. Secure the leg out-stretched to ensure the knee does not bend.
         B. The insertion site is just proximal to the patella (maximum 1cm) and approximately 1-2 cm **medial** to midline. This will avoid the growth plate.
   C. Needle Insertion
      1. Prep the surface with Betadine and wipe dry with a sterile gauze pad.
      2. Stabilize patient's leg and begin insertion from a 90-degree angle to the insertion site. Gently advance the needle set into position–do not force. Stop when you feel the pop.
      3. When needle is in proper position, remove stylet (if insertion fails, leave the needle in place and clamp the EZ-Connect; do not attempt second insertion on same leg).
      4. Connect extension tubing or EZ-Connect, primed with saline, to IO hub.
      5. Confirm the catheter position (catheter is stable at a 90-degree angle to the bone, able to aspirate blood, and fluids flow without evidence of extravasation).
      6. Rapid bolus or "power" flush with approximately 5 ml normal saline when using the EZ-IO PD needle.
      7. Connect IV tubing and bag to extension tubing or EZ-Connect.
      8. Consider additional bolus of saline if flow rates slower than expected.
      9. Utilize a blood pressure cuff or pressure bag to help infuse fluids.
      10. Dress site and secure tubing.

VI. Pain management
   A. If the procedure is performed on a conscious or semi-conscious patient, immediately following placement of the IO needle, administer 0.5 mg/kg 2% lidocaine (not to exceed 50 mg) slowly (over 30-45 seconds) through the IO site. Wait approximately 30–60 seconds before "power" flushing with normal saline. (See Hixson Intraosseous Lidocaine Chart in MEDICATIONS for pediatric dosing)
   B. In the event a patient regains consciousness and complains of severe pain secondary to the IO insertion, temporarily stop infusing the fluids, and administer lidocaine as in E. 1. above. Wait approximately 30–60 seconds before continuing fluid administration.
   C. If fluids do not flow freely, flush IO site with an additional 10 mL normal saline.

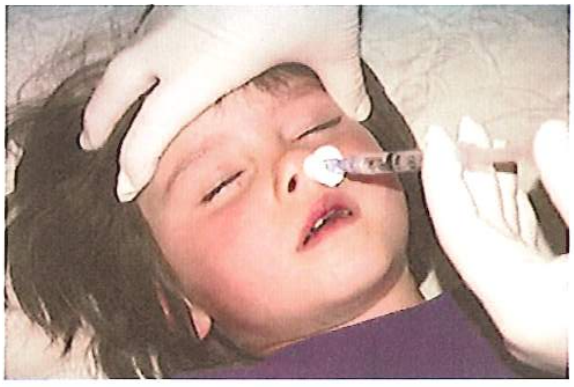
INTRANASAL MEDICATION ADMINISTRATION
[EMR, EMT, AEMT, EMT-I, RN, EMT-P]

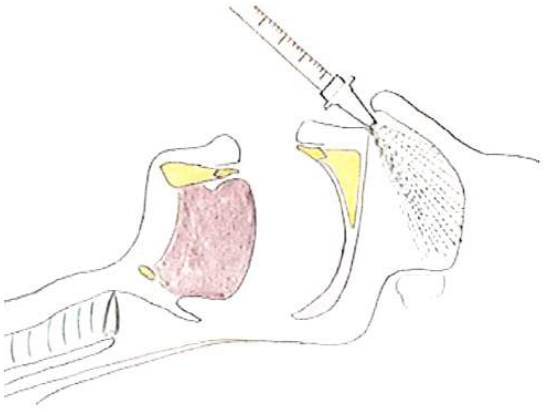
PURPOSE:
- ✦ The Intranasal Mucosal Atomization Device (MAD) provides a non-invasive method of delivering medications.
- ✦ The intranasal route can reduce the risk of needle sticks while delivering effective medication levels.

I. INDICATIONS:
A. Medication administration when IV administration is unavailable.
B. For use with the following medications:
   1. Fentanyl
   2. Versed
   3. Naloxone

II. CONTRAINDICATIONS:
A. Active nose bleed
B. Acute nasal trauma
C. Nasal congestion or discharge

III. PROCEDURE:
A. Place patient supine. If unable to place supine, compress nares after administration.
B. Load a syringe with a maximum of 2 cc's of the correct medication
C. Place MAD 1 to 1.5 cm into nostril, directing tip 45 degrees towards top of skull
D. Briskly depress the plunger to administer a maximum of 1 cc of medication per nostril





IV. NOTES
A. Administer a MAXIMUM of 1 cc of medication per nostril.
B. 1/3 to 1⁄2 cc is ideal to avoid some run off.
C. If dose required is greater than 2 cc's consider titration with second dose in 5 minutes.

INTRAVENOUS LINE INSERTION
[AEMT, EMT -I, RN, EMT-P]

I. INDICATIONS

A. Indications for large bore IV (14 or 16) and volume expander fluid [a] include:
   1. Trauma patients (2 IV's large bore)
   2. Any patient in shock or with abnormally low BP < 90
   3. Patients who are stable but who could go into shock.

B. Other patients requiring IV's should have the largest feasible standard IV catheter (18, 20, 22 GA) placed. Remember you can infuse TKO through a large bore IV but you can not effectively infuse volume through a small IV.

II. PROCEDURE

Upper extremity:

A. Explain procedure to patient

B. Connect tubing to IV solution bag

C. Fill drip chamber one-half full by squeezing. Use macro-drip for all but cardiac problems and pediatric patients

D. Tear sufficient tape or use Venagard to anchor IV in place

E. Apply tourniquet proximal to proposed site. Alternatively, use blood pressure cuff blown up to 40 torr.

F. SCRUB insertion site. Choice of cleansing agents is less important than the mechanical act performed with vigor.

G. Put gloves on before puncturing vein

H. Hold vein in place by applying gentle traction on vein distal to the point of entry

I. Puncture the skin with the bevel of the needle upward about 0.5 to 2 cm. from the vein and enter the vein either from the side or from above.

J. Note blood return and advance the catheter either over or through the needle (former is the preferred type).

K. Remove needle and connect tubing. Note: as needed, blood may be drawn with syringe before connecting tubing.

L. Release tourniquet

M. Open IV tubing clamp full to check flow and placement, then slow rate to TKO or as directed.

N. Administer volume expander fluid as indicated:
   1. Normal saline (0.9% NaCl) or
   2. Lactated Ringers.

INTRAVENOUS ACCESS VIA INDWELLING CATHETER/PORT
[EMT-P]

INDICATIONS: Certain PVADs (Pre-existing Vascular Devices) can be utilized in patients with indwelling device when a life threatening condition requires immediate vascular access.

I. APPROVED FOR INFUSION:
   A. Locally approved intravenous fluids
   B. Medications - all medications approved for venous administration
   C. Administration of all drugs should always be followed by a flush of 10 ml normal saline to prevent catheter damage.

II. PROCEDURE:
   A. A preexisting vascular-access device (PVAD) is an indwelling catheter/device placed into one of the central veins, to provide vascular access for patients requiring long-term intravenous therapy or hemodialysis.

III. CATHETER TYPES:

   A. **External silastic indwelling catheter/device tube:**
      1. **Broviac, Hickman, and others:** A silicone tube that is inserted into the superior vena cava or the right atrium usually via the cephalic vein. The catheter enters the skin through an incision in the chest. The line is kept heparinized and protected by an injectable cap
      2. **PICC line:** Peripherally inserted central catheter usually inserted into the right atrium via the antecubital vein. If possible, access medial port for medications and fluids. If this doesn't flow, use other ports as needed.
   B. **Hemodialysis shunt:** A surgically created arteriovenous connection used for hemodialysis. **Not** approved for access by prehospital personnel.
   C. **Internal subcutaneous infusion ports:** Commonly termed mediport or power port (Bard Power Port) (Xcela Power Injectable Port) This is an implanted port typically found beneath the skin, across upper chest near the clavicle. Used commonly for chemotherapy or other long term infusions. Palpable just beneath skin. Typically a single lumen device although some double lumen devices exist. Some brands have a raised triangle or 3 dot silicone bumps to find the center of the injectable septum. Others will have only a raised palpable injection site. Requires use of a special needle for access (Huber type needle 20 g 3/4" - 1 1/2")

IV. ESTABLISH PATENCY:

   A. Apply clean gloves.
   B. Discontinue current IV solutions.
   C. Use extreme caution when discontinuing a continuous IV infusion containing chemotherapy to minimize exposure.

D. Prepare 10 ml syringe, IV administration set and IV solution.
E. Prepare injection port with alcohol swab.
F. If clamped, unclamp catheter.
G. Slowly inject 5 ml normal saline into the injection port. If resistance is met when trying to inject, reclamp catheter, and do not use.
H. Aspirate

V. ADMINISTRATION OF IV FLUIDS/MEDICATIONS:

A. Prepare IV solution, IV administration set, and 20 g 3/4"-1 1/2" Huber type needle for indwelling subcutaneous port.
B. Prepare external injection port with alcohol swab **OR** cleanse skin over site with Chora-prep, iodine, or alcohol prep
C. Puncture injectable cap with needle for external device. OR locate injectable surface of implanted device and press needle into subcutaneous port.
D. Adjust IV flow.
E. Tape needle to catheter **OR** secure to skin over site using tape or transparent IV dressing.
F. Administer medications IVP via main line.
G. Flush well following each medication administration.

LVAD TROUBLESHOOTING
(Left Ventricular Assist Device)

NOTE:
Left ventricular assist devices (LVADs) are designed to assist the pumping function of the patient's left ventricle. The Heartware HVAD®, Heartmate II® and Heartmate III® devices attach to the apex of the left ventricle (pump inflow) and propel blood to the ascending aorta (pump outflow). All devices utilize an external wearable system that includes a small controller connected to the internal pump by an external driveline and is powered by two batteries.
All devices may also be "plugged in" to 110 or 12 V power, depending on the device. When managing an LVAD patient, follow general assessment guidelines.

If patient is not breathing and you cannot hear a VAD hum, initiate CPR and follow ACLS Protocols

For Oregon LVAD patients, contact coordinator:
Oregon LVAD Program Coordinator - St. Vincent's: 1-971-678-4042
Oregon LVAD Program Coordinator - OHSU: 1-503-494-900

Indications:
Evaluation of a patient with implanted LVAD

Troubleshooting: HeartMate II
Two potential treatable device complications may present with an LVAD patient:
1. Battery Failure
2. Controller Failure

Either of these may present as a catastrophic failure of the pump resulting in:
1. A low flow state such as CHF or altered mental status
2. Cardiac arrest

When the pump has stopped:
1. Check the connections between the controller and the pump and the power source.
2. Fix any loose connections to restart the pump
3. If the pump does not restart and the patient is connected to batteries, replace the current batteries with a new fully-charged pair of batteries.
4. If pump does not start, then change the controller.

CHANGING BATTERIES:
Warning: At least one power lead must be connected to the power source AT ALL TIMES. DO NOT remove both batteries at the same time or the pump will stop.
1. Obtain 2 charged batteries from the patient's accessory bag. Charged batteries should be marked with a white fuzzy tab at the end of the battery.
2. Remove only one battery from the clip by pressing the black tab on the battery clip to unlock the battery.
3. Controller will start beeping and flashing green light signals when you remove the battery. This is normal.
4. Replace the new battery by lining up arrows on the battery and clip.
5. Slide a new, fully charged battery into the empty battery clip by aligning the black arrows. The battery will click into the clip. Gently tug at the battery to assure connection. If the battery is properly secured, the beeping and green flashing lights will stop.
6. Repeat the previous steps with the second battery.

LVAD TROUBLESHOOTING
(continued)

CHANGING CONTROLLERS:

1. Place the replacement controller within easy reach, along with the battery and battery clips or PBU/Power Module cable. The spare controller is usually found in the patients's travel case.
2. Make sure the patient is sitting or lying down since the pump will momentarily stop during this procedure.
3. Rotate the PERC lock on the replacement Controller in the direction of the "unlocked icon" until the PERC lock clicks into the fully unlocked position.
4. Repeat this same step for the original Controller until the PERC lock clicks into the unlocked position.
5. Attach the power leads on the new replacement Controller to the battery clips or PBU/Power Module cable.
6. If using battery power, place fully-charged batteries into the battery clips after attaching the power leads.
7. Press the Silence Alarm Button on the new, replacement Controller to silence its Red Heart Alarm for 2 minutes.
8. Disconnect the PERC Lead/Driveline from the original Controller by pressing the metal release tab on the connector socket. The pump will stop and an alarm will sound. The alarm will continue until power is removed from the original controller. **Getting the new replacement Controller connected and the pump restarted is the first priority.**
9. Connect the new replacement Controller
   A. Line up the mark on the PERC lead connector with the mark on the metal tab of the new Controller
   B. Fully insert the connector into the socket of the new Controller. The pump should restart & alarms should stop.
   C. Gently tug on the metal end of the lead to make sure the PERC lead is fully inserted into the socket. DO NOT pull the lead.
10. If the pump restarts, skip to Step 12 **OR**
11. If the pump does not restart and the RED Heart Alarm continues:
    A. Firmly press the Silence Alarm or Test Select Button to restart the pump.
    - If the pump speed is set below 8,000 rpm, the pump will NOT automatically restart when the power is restored. Pressing the Silence Alarm or Test Select button is required to restart the pump if the pump speed is set below 8,000 rpm

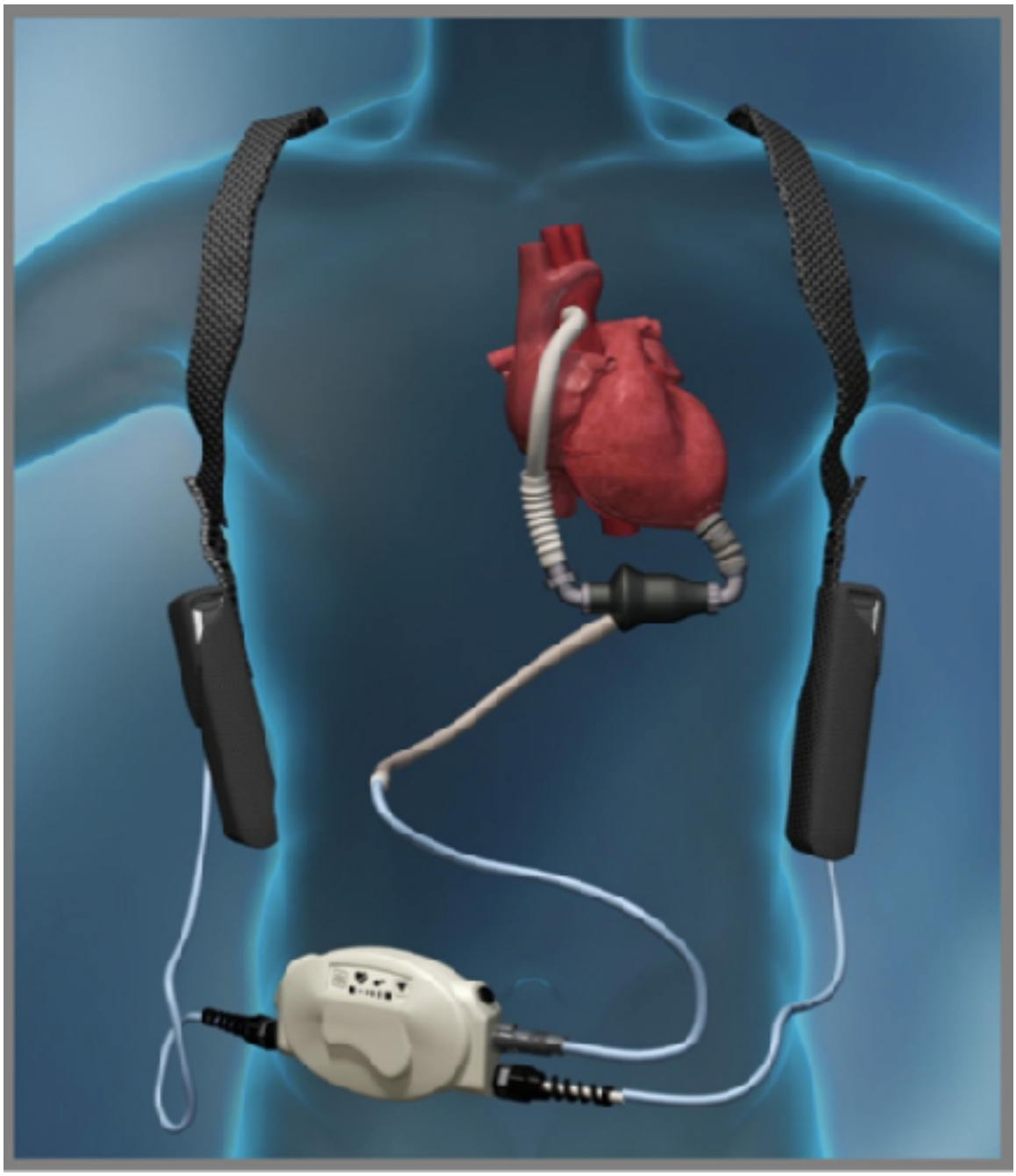
    B. Check the power source. Make sure that power is going to the Controller.
    C. Gently tug on the metal end of the lead to make sure the PERC lead is fully inserted into the socket. DO NOT pull the lead.
    D. If the pump still does not restart, then try to restart the pump using the System Controller backup system:
    E. Press and hold both the Test Select and Silence Alarm Buttons at the same time. The RED Heart Alarm will stop and you ill hear a repeating cycle of 1 beep per second for 2 seconds followed by 2 seconds of silence to indicate that the System Controller is operating on the backup system.
12. After the pump restarts, rotate the PERC lock on the new replacement controller in the direction of the locked icon until the PERC lock clicks into the fully locked position. If unable to engage PERC lock to the locked position, gently push the driveline into the controller to assure a proper connection. Retry to engage PERC lock.
13. Disconnect power from the original Controller. The original Controller will stop alarming once power is removed.

LVAD TROUBLESHOOTING
(continued)

PRECAUTIONS:

1. Blood pressure may be difficult to obtain on these patients. Most patients have a mean arterial blood pressure of 70 - 90 with a narrow pulse pressure.
2. ***Palpable pulse may be weak or absent.***
3. The conduit from the chest to the Controller is the electrical line from the pump which connects to the controller which runs the pump.
4. Common presenting non-pump related complications include bleeding and infection.
5. If device slows down, LOW FLOW STATE alarm will go off.
6. **If patient is not breathing and you cannot hear a VAD hum, initiate CPR.**
7. All ACLS drugs may be administered
8. Pump does not affect the patient's ECG.
9. The patient can be defibrillated while connected to the device without any disconnection required.
10. The patient can be paced; treat per protocol.
11. One set of batteries lasts approximately 8 - 10 hours.
12. Any emergency mode of transportation is OK. These patients are permitted to fly.
13. Be sure to bring ALL of the patient's equipment with them.
14. Alarms
    A. Yellow or Red Battery Alarm
        i. Need to change batteries.
    B. Red Heart Flashing Alarm
        i. This may indicate a Low Flow Hazard. Check patient: the flow may be too low.
        ii. This alarm will consist of red heart alarm indicator light and steady audio alarm if the flow rate is less than 2.5 liters per minute.
        iii. If the patient is hypovolemic, treat per protocol
        iv. If the patient is in right heart failure, treat per protocol.
        v. If the pump has stopped, check connections, batteries and Controllers as instructed in the section above.

LVAD TROUBLESHOOTING
(continued)



MASS CASUALTY INCIDENTS
[EMT, AEMT, EMT -I, RN, EMT-P]

❖This protocol is designed to guide field personnel in handling EMS situations where the demand on the system is greater than the system can handle with normally available resources.

❖It is intended to complement and not to replace the Incident Command System in place for other incidents.

I. NOTIFICATION
   A. The ATAB 6 MCI plan will be enacted when dispatch receives notice of an incident that potentially has multiple victims. The dispatch matrix will be used to determine the number of ambulances needed.
   B. Any first in unit on the scene may notify medical control and dispatch that the incident falls into the category of mass casualty and may request additional resources as needed.
   C. The report to medical control should include:
      1. A brief summary of the incident.
      2. The approximate number of victims
      3. An estimate of the type and severity of injuries using the Red-Yellow-Green-Black triage criteria.
      4. Include information regarding the possibility of patients that may be contaminated with hazardous materials.
      5. Updates will be given as the situation progresses.

II. RESPONDER ORIGINATION
   The responding organizations will operate within the Incident Command System as established by the ATAB-6 MCI Plan.

NASOGASTRIC/OROGASTRIC TUBE INSERTION
[EMT -I, RN, EMT-P]

Indication: For decompression of gastric distension

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ **EMT -I, RN CARE**~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Orogastric Tube Insertion ONLY

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~**EMT-PARAMEDIC CARE**~~~~~~~~~~~~~~~~~~~~~~~~~~~~

I. Prepare equipment
   A. Premature infant size 3 ½ to 5 fr.
   B. Infant to child size 8-10fr.
   C. Adolescent to adult. Size 12-16 fr.
   D. NG tube
   E. Water soluble lubricant
   F. 12 ml syringe and cath Tip syringe
   G. tape
II. Prepare patient
   A. Maintain patient supine with head in neutral or slightly flexed position.
   B. Determine length of tube for insertion.
   C. Measure and mark from ear lobe to tip of nose to bottom of sternum.
III. Procedure
   A. Insertion
      1. Lubricate tip of NG tube.
      2. Insert tube through nose as far as marked length.
      3. May insert tube through the mouth as an alternate method.
   B. Assess for placement
      1. Visualize mouth and hypopharynx for inappropriately coiled tube. Remove if necessary.
      2. Inject 6-10ml if air into stomach while auscultating over area.
      3. Aspirate stomach contents with syringe.
   D. Tape tube to nose
   E. Allow tube to drain via gravity
      1. If there is excessive gastric drainage you may place end of tube into empty IV bag for collection.
      2. Consider connecting NG to suction for prompt gastric decompression.

ON-SCENE MEDICAL DIRECTION
[EMT, AEMT, EMT-I, RN, EMT-P]

Purpose:
- ❖ The purpose of this protocol is to describe who is in charge of patient care on the scene of medical emergencies and how to resolve disputes with other medical professionals in attendance.
- ❖ This protocol is not meant to apply to MCI events.
- ❖ EMT's working under these protocols are not allowed to perform tasks outside their scope of practice as defined by the State of Oregon, even with orders from a physician.

I. If EMS is approached by a person claiming or known to be a medical provider and requests either directly or through their actions to be involved in medical care on scene, the following procedures must be followed:

   A. EMS Providers and Paramedics may take medical direction from:
      1. Physician Advisor/Supervisors
      2. Regional Protocols
      3. On-Line Medical Control (OLMC) as directed in protocols
      4. Oregon Licensed physicians on-scene (MD or DO), and only as allowed in this protocol. (see Physician On Scene Policies below)
   B. EMTs and Paramedics may not take medical direction from Physician's Assistants, Nurse Practitioners, Nurse Anesthetists, Nurses, Dentists, Chiropractors, Naturopaths or Veterinarians
      1. Such professionals may assist only as any other lay person
      2. Such professionals may not direct care or assume patient care responsibility

II. Physician On Scene Policy (Within office)

   A. When EMS is called to a physician's office, the EMS Providers and Paramedics should receive information from the physician and attempt to provide the service requested by the physician.
   B. While in the physician's office, the physician shall remain in charge of the patient.
   C. The EMS Providers and Paramedics may follow the direction of the physician as long as it is within the Scope of Practice and protocols of the PIC.
   D. Once the patient is in the ambulance, unless the physician accompanies the patient, the EMS Providers and Paramedics shall follow the protocols.
   E. Anytime there is a conflict between a physician's orders and the protocols, OLMC shall be contacted.

III. Physician On Scene Policy: (Out of office)
   Occasionally the EMT in the field will encounter a physician (MD or DO) on-scene who will request that they perform some task that is outside the EMT's scope of practice or contrary to these protocols. If that should occur, the following steps should be followed.

A. Any physician (MD or DO) at the scene of an emergency may be qualified to provide assistance to EMS Providers and Paramedics and shall be treated with professional courtesy.
B. A licensed physician requesting control of patient care at the scene shall be:
    1. Thanked for the offer by the PIC.
    2. Advised that the EMS Providers and Paramedics work under regional protocols and On-Line Medical Control.
    3. Advised that we are not permitted to relinquish medical control to a physician on the scene without agreement from On-Line Medical Control.
C. If the physician requesting control is not the patient's "physician of record," EMS Providers and Paramedics shall be authorized to proceed under the direction of the physician-Only if all three of the following provisions are met:
    1. OLMC is contacted and authorizes transfer of patient care.
    2. The physician agrees to accompany the patient to the hospital in the ambulance.
    3. The physician agrees to complete and sign the appropriate patient care report.
D. If communication with OLMC cannot be established, care may be provided only according to approved ALS protocols. No direction from an on scene physician may be accepted.
E. Documentation will include the:
    1. Physician's name and address (correct spelling is important);
    2. Procedures performed under his/her direction;
    3. Patient's response to the procedures.

IV. Intra-facility Transfers:
When performing intra facility transfers, EMT's are authorized to follow orders from Transferring Physicians as long as orders are within scope of practice

V. RN on scene:
RNs are only authorized to provide medical care with direct physician orders or protocols. RNs may not participate as pre-hospital providers unless they are licensed as an EMS provider in the state of Oregon. If an RN is providing care when EMS crew arrives, care is to be transferred to the highest certified EMS Provider, unless that RN is an EMS provider licensed in the state of Oregon. Licensed EMS providers should follow the procedures below (under Non-physician Provider On Scene).

VI. Non-physician Provider On Scene:
A. The first arriving, highest certified EMS Provider will be the Person-In-Charge (PIC) and will assume responsibility for directing overall patient care. The team approach to patient care assessment and treatment should be utilized by the PIC.

B. When a higher level EMS Provider arrives, in an EMS role, that individual shall assume the role of PIC, after receiving verbal report from the initial PIC.
C. The responsibilities of the PIC directing overall patient care include:
    1. Assuring that treatment, operations, and communications follow protocols.
    2. Coordinating patient care activities.
        a. This PIC must watch over the entire patient care scene activities and be sure that the patient care activities are being accomplished in a rapid, efficient, and appropriate manner.
        b. If there are only two advanced EMS Providers at the scene, the PIC must do only those patient care activities (e.g., starting IVs) which will allow him/her to watch over the whole scene easily.
    3. Directing other EMS Providers to establish airway management, start IVs, etc.
    4. Establishing the appropriate time to be spent at the scene for doing patient care.
    5. Determining when transportation of the patient is to occur.
    6. Performing medical coordination with all agencies and personnel.
D. The PIC directing overall patient care will be held responsible and accountable for patient care activities performed at the scene and be identified on all patient care reports.
E. If a patient requires transport and the first arriving PIC is not affiliated with the transporting agency, provision of patient care will be turned over to the transporting EMS Providers (Paramedic) or flight personnel when:
    1. The patient is placed on the transport unit's gurney, OR
    2. At a time agreed upon by both EMS Providers (Paramedic);
F. Continued patient care will then become the responsibility of the transporting unit. There will be a verbal agreement anytime transfer of care from one EMS Provider (Paramedic) to another takes place. Example: "I am now turning over care of this patient to you."
G. If the PIC is of higher licensure/certification and wishes to continue to provide patient care during transport, they may continue to remain responsible for patient care until the patient can be turned over to a provider with higher licensure/certification provided the following conditions are met:
    1. The EMT has been authorized by their Supervising Physician to provide care outside their ASA
    2. The EMS agency must include in their report the EMT's name, contact information, license number (if available) and involvement in care.
    3. Any care rendered which is outside the agencies scope of practice must be approved by OLMC

VII. Disputes On-Scene Between EMS Providers or Other Medical Professionals

A. Disagreements about care should be handled in a professional manner and shall not detract from patient care.
B. To the extent possible, the ALS and BLS protocols shall be followed and provide the basis for resolving disputes.

C. If an unresolved dispute continues between EMS Providers or other medical professionals concerning the care of a patient, OLMC shall be contacted.
D. If a dispute arises which results in transfer of patient care from one PIC to another, the approximate time of the transfer shall be included on the patient care report.
E. Disputes shall not appear on patient care reports. Written "Quality Assurance Reports" should be completed following any dispute arising at the scene.

P.A.S.G
[EMT, AEMT, EMT-I, RN, EMT-P]
(Pneumatic Anti-shock Garment)

I. GENERAL CONSIDERATIONS
Use of the pneumatic anti-shock garment (PASG) may be considered for any patient with suspected pelvic or bilateral leg fractures and uncontrolled bleeding from the lower extremity.

II. PREHOSPITAL MANAGEMENT
- A. INDICATIONS FOR INFLATION
  1. Hemorrhage control in pelvis or lower extremities;
  2. Fracture splinting--pelvis, bilateral femur, etc.;
- B. ABSOLUTE CONTRAINDICATIONS --PULMONARY EDEMA
- C. USE WITH CAUTION IN:
  1. Pregnancy
  2. Head injury
  3. Bleeding above level of PASG
- D. INFLATION
  1. Inflate legs first.

III. NOTES
- A. Remove all clothing that will be under the PASG
- B. Do not give narcotics
- C. Monitor vital signs closely
- D. Follow shock or trauma protocols as indicated
- E. PASG should not extend higher than the lowest ribs.
- F. Use PASG of the proper size for your patient.
- G. Do not inflate abdominal section on patient <10 years of age or in pregnant patients.

PATIENT ASSESSMENT
[EMT, AEMT, EMT-I, RN, EMT-P]

I. ENVIRONMENT

A.Recognize environmental hazards.
B.Identify number of patients. Initiate a triage system, if appropriate.
C.Recognize mechanism of injury of chief complaint, and note the position of the patient.
D.Identify self to patient and bystanders or witnesses as necessary.
E.Call for back-up as needed; initiate communications and documentation.

II. PRIMARY SURVEY

A.Airway: Open, check for adequacy, note potential problems including need for neck immobilization.
B.Breathing: Respiratory noises and effort, skin color, behavior.
C.Circulation: Stop exsanguinating hemorrhage, note presence and quality of pulse.
D.Level of consciousness.
E.Neurologic: Evaluate for neck trauma and immobilize if appropriate.

III. SPECIAL NOTES

A. The primary survey should take 30 seconds or less for assessment.
B. Cervical spine immobilization should be provided throughout the primary assessment.
C. Call for ALS back-up if needed.

IV. VITAL SIGNS

A.Obtain first quantitative set of VS within 3 minutes, if practical. These will include at a minimum: pulse, blood pressure, and respiratory rate.
B.Repeat according to patient's condition. At least one more set prior to transport.
C.Note neurological status; monitor level of consciousness and document according to the descriptive terms listed under Neurological Assessment.
D.Obtain history of event: "What is the problem? When did it start? What were you doing? Have you had this before? What makes it better or worse? Associated signs/symptoms? Pain: quality, radiation, severity, onset? Other medical problems, medications, allergies, physician, hospital preference?

PATIENT ASSESSMENT
(continued)

V. SECONDARY SURVEY

A. Head and face:
   1. Palpate for deformities, asymmetry, blood, pain.
   2. Recheck airway for potential compromise, dentures, loose or avulsed teeth, proper occlusion. Prevent aspiration by body positioning, and by pharyngeal suctioning as needed. Comatose patients and patients in severe respiratory distress are in need of advanced respiratory care, and ALS assistance should be requested.
   3. Eyes: Pupils (equal or unequal, responsiveness to light), direction of gaze, foreign bodies, contact lenses, lacerations, visual changes.
   4. Nose: Deformity, bleeding, discharge (watery, purulent).
   5. Ears: Bleeding, discharge (watery, purulent).

B.Neck:
   1.Recheck for deformity or tenderness if not already immobilized.
   2.Note wounds, neck vein distention, use of neck muscles for respiration, tracheal deviation, altered voice and medical alert tags

D.Chest:
   1.Inspect for open wounds, symmetry of respirations.
   2.Auscultate for presence and quality of breath sounds.
   3.Palpate for tenderness, wounds, fractures, unequal rise of chest, crepitus, subcutaneous emphysema.

E.Abdomen:
   1.Inspect for wounds, bruising.
   2.Palpate for tenderness, rigidity.

F.Pelvis:
   1.Palpate and compress for tenderness, instability.

G.Shoulders/Upper extremities:
   1.Palpate systematically for wounds, fractures, and tenderness.
   2.Check for distal pulses, color, medical alert tags.
   3.Check for sensation.
   4.Check for weakness (have patient squeeze your hands if no obvious fracture present).
   5.If exam normal, gently move arms to check overall function.

PATIENT ASSESSMENT
(continued)

VI. SECONDARY SURVEY (continued)

A.Lower Extremities:

1.Inspect for unequal length or rotation.

2.Palpate systematically for wounds, fractures, and tenderness.

3.Check for sensation.

4.Check for distal pulses, color.

5.Check for weakness (have patient push feet against your hands if no obvious fracture present).

6.If exam normal, gently move legs to recheck overall function.

I.Back:

1.Inspect and palpate for wounds, fractures, and tenderness.

2.Recheck for motor or sensory deficits as appropriate.

VII.SPECIAL NOTES ON PATIENT ASSESSMENT

A. Should take 1 - 2 minutes to complete.
B. Should be systematic, though exact order may vary.
C. Do not interrupt for treatment unless ABC deterioration noted.
D. Re-obtain quantitative vital signs after secondary survey is complete unless patient shows signs of shock. If patient shows signs of shock, treat first, then obtain sequential vital signs.

VIII.NEUROLOGICAL ASSESSMENT

A. General Considerations
   1. Precision and consistency are most important in the field evaluation of patients with head injuries or neurological illnesses.
   2. It is vital that the receiving physician(s) have a record of the initial vital signs and level of consciousness recorded as specific responses to specific stimuli.
   3. Vague, poorly understood terms must not be used.
   4. It is just as obvious that repeated observations during transport must adhere to the format of those initially obtained.
B. Vital signs: Observe particularly for adequacy of ventilation, patterns of breathing, depth, and frequency.
C. Level of Consciousness:

1.Eye opening:

- Never
- To pain
- To speech
- Spontaneously

PATIENT ASSESSMENT
(continued)

2.Best Verbal Response:
- None
- Incomprehensible sounds
- Inappropriate words
- Confused conversation
- Oriented

3.Best motor response (of upper extremity):
- None
- Abnormal extension (decerebrate)
- Abnormal flexion ~(decorticate)
- Withdrawal (ineffective in removing painful stimulus)
- Localization (moves to painful stimulus when applied to more than one site)
- Obeys commands

D.Eyes:
1.Direction of gaze.
2.Size and reactivity of pupils.

E.Movement: Observe for equal movement of all extremities.

F.Sensation: (test only if patient is awake) Observe for absent, abnormal or normal sensation at different levels if cord injury suspected.

IX. SPECIAL NOTES

A. Sensory and motor exam must be performed before moving patient with suspected spinal injury.
B. Document all findings.
C. Note what stimulus is being used when recording responses.
D. Applied painful stimuli must be adequate to the task but not excessive. Initial mild stimuli can include light pinch, dull pin prick, or light sternal rub. If these are unsuccessful at eliciting a pain response, pressure with a dull object to base of nail bed, stronger pinch (particularly in axilla), or strong rub will be necessary to clearly define your patient's best motor response.

PATIENT REFUSAL
[EMT, AEMT, EMT-I, RN, EMT-P]

I. Purpose

A. Refusal of medical care and transport is a difficult problem for the EMS system.
B. The EMS system is not designed to provide definitive care for patients.
C. The person left at a scene is the highest source of liability for the EMT and EMS system.
D. This procedure attempts to define situations in which it is appropriate to obtain a valid refusal and times.
E. The EMS provider should never encourage a patient to refuse transport.

II. Indications

The system recognizes two categories of persons who may decline EMS services:

A. **Persons in which no medical need exists**.
   1. No refusal form is needed. There are situations where the EMS system is activated but when the EMT's arrive, no medical need exists. However, the EMT should always assume that the EMS system was activated for a sound reason and need exists until proven otherwise.
   2. Examples of no medical need include the motor vehicle collision with no injuries and arrival on a scene when the potential patient is no longer on the scene.
   3. Even minor injuries may constitute a medical need.
B. **Informed refusal**.
   1. Persons with normal decision making capacity who, after being informed of the potential risks and benefits of treatment, voluntarily refuse further services.
   2. The refusal information form must be used.

All other persons will be assumed to need a medical screening examination and EMT's will use all resources available to get the person treated and transported.

III. Procedure

Process Leading to Refusal: The process leading to a refusal in the field will follow a systematic approach:

A. Upon arrival, define if a medical need exists.
B. Based on that medical need, care will be initiated.
C. If the person is resisting or refusing medical care, establish if the person is capable of making informed decisions. This will include consideration of :
   1. The patient is a minor,
   2. The effects of a head injury, drugs, alcohol, or a psychiatric problem that may be complicating the patient's ability to make a correct, informed decision.
   3. If language is a barrier, call Medical Control.

PATIENT REFUSAL
(Continued)

IV. Criteria For Informed Refusal / Consent:
   A. The person is given accurate information about possible medical problems and the risks of refusing treatment/transport.
   B. The patient is able to understand and verbalize these risks and benefits.
   C. The patient is able to make a decision, which is consistent with his or her beliefs and life goals.

V. Person with Decision Making Capacity:
   A. If the patient is believed to be able to make a decision, explain the risks of the illness or injury affecting the patient and the possible consequences of refusing care and/or transport.
   B. If a serious medical need exists, and the patient is believed to have a decision-making capacity and still refuses care, enlist the help of law officers or family and friends to convince the patient that medical care is needed.
   C. Initiate on-line medical control when the patient is refusing care for a serious medical need or a potentially serious problem.
   D. If a patient with decision making capacity continues to refuse, the refusal form will be signed. The refusal form should be co signed, preferably by a family member, bystander or police officer who witness the informed refusal.
   E. Complete patient care form documentation of the call is important and should follow. This should include:
      1. A complete history and physical examination
      2. The general appearance of the patient
      3. Vital signs,
      4. Mental status exam
      5. Indication of the presence of drugs or alcohol
      6. Documentation that the patient was told of the risks of refusing care
      7. Recommendations for follow-up medical care.
      8. Documentation of any communication with medical control and subsequent advice given should be included.

PATIENT REFUSAL
(Continued)

VI. The Person with Impaired Decision Making Capacity:

A. Impaired decision-making is defined as the inability of the person to understand the nature of their illness or injuries, or the risks and consequences of refusing care.
B. Individuals with no medical need identified but who are deemed incapacitated, attempt to place the person with someone who is responsible.
C. Patients with a minor medical need but who are incapacitated and refusing care, make a reasonable effort to assure that the patient receives medical care. Attempt to contact family and friends to help with the care. Medical Control should be utilized to reach a decision concerning disposition.
D. When a major medical need exists for an incapacitated patient who is refusing care, make a reasonable effort to assure that the patient receives medical care. Attempt to contact family and friends to help with the care. Medical Control should be utilized to reach a decision concerning disposition.
E. Attempt restraints and transport only if this can be done **safely**. Always maintain a high index of suspicion for possible cervical spine injuries, potential airway compromise and other potential traumatic injuries when restraints are used.
F. If all possible resources have been exhausted and the person cannot be safely restrained, and the police officers cannot or will not help in transporting the patient, then the lead EMT may be forced to leave an incapacitated person on the scene.
G. It is imperative that excellent documentation describes all of the steps taken to care for the person. Documentation should reflect that the EMS crew used all reasonable means to attempt to transport the person to a hospital. Factors leading to the determination that the person is incapacitated should be detailed. These include general appearance of the patient, vital signs, history, a complete physical examination, mental status, indication of the presence of drugs or alcohol and the person's response to efforts by EMT's to provide care. All communication with law officers, medical control and with the patient should be well documented.
H. **A refusal form should not be signed by an impaired patient. If such a patient signs a refusal form, the presumption is that they understand the information on the form. If the patient is truly felt to be incapacitated there should be no presumption that he has decision making capacity. Hence, the refusal form should not be signed.**

PATIENT REFUSAL
(Continued)

VII. Guidelines for Contacting On Line Medical Control (OLMC) For Refusals:

A. Any time you suspect the individual might have impaired decision making capacity.
B. Any time an individual is refusing care and you suspect that person could have a serious medical problem.
C. Anytime there is a conflict on the scene such as the family wanting a person to go, but the person is refusing.
D. For all minors without an adult who has legal authority to refuse for the patient. (Minor is under age 18).
E. Any time you are not certain of the risks a patient might encounter by refusing.

VIII. Consent and refusal guidelines for minors (reflecting Oregon Revised Statutes):

A. In any EMS call involving a minor, attempt to contact parent or legal guardian to inform them of the EMS call. If the need for care is emergent, treatment can be initiated prior to contacting the parent or guardian.
B. No Medical Need: A child under the age of 10 cannot be left alone even if he or she is not a patient. If there is no medical need and no responsible adult is present contact law enforcement. If no medical need is identified in a child over the age of 10, attempts should be made to contact a parent or responsible adult if the child is unaccompanied.
C. Medical Need with Patient Consent: Although the legal age of majority or adulthood in Oregon is 18, minors who are ages 15 or older are authorized by ORS 109.640 to consent to treatment as defined in these protocols. Minors under the age of 15 with identified medical need should be treated and/or transported under the doctrine of implied consent.
D. Medical Need with Patient Refusing Care: A minor < 15 cannot legally refuse care and should be treated and transported. If a minor age 15 or older refuses care, but in the EMT's judgment needs care, OLMC should be consulted.

IX. NOTES AND PRECAUTIONS

A. The more critical the person and the more urgent the need for care, the higher the standard must be for refusal. For example, patients may be able to refuse treatment for a minor laceration, but not for a stab wound to the chest.
B. Since the ability to refuse care is based on information provided to the person by EMT's, and the level of urgency affects the standard for refusals, the EMT must consider the most serious problems the person could have.
C. The ALS protocols are intended for use with a conscious, consenting patient, or an unconscious (implied consent) patient.
D. A patient has the right to select a local hospital to which to be transported if he/she has decision making capacity and if in your best judgment, transport to that hospital will not cause loss of life or limb. When in doubt contact Medical Control and fully document all of your actions.

E. A patient care form must be completed on all patients when the refusal information form is used. A copy will be attached to the patient care form. The patient only needs to sign one refusal.

PEDIATRIC FIELD SURVEY

I. Initial Survey:
   A. Observe PAT (Patient Assessment Tri-angle).
      1. Observe patient breathing pattern, chest rise
      2. Establish level of consciousness, movement, recognition.
   B. Provide basic airway skill, and spinal immobilization, as needed.
   C. Start Oxygen, follow Airway Management procedures. Assist with BVM if needed.
   D. Control hemorrhage. Evaluate and support circulation.
   E. Perform an environmental assessment, including consideration of intentional injury.
   F. Follow appropriate treatment protocols.

II. Treatment: See specific protocol for pediatric considerations.

III. Special Considerations:
   A. Identify sign of airway obstruction and respiratory distress, including:
      1. Cyanosis
      2. Stridor
      3. Drooling
      4. Nasal flaring
      5. Choking
      6. Grunting
      7. Intercostal retraction
      8. Absent breath sounds
      9. Bradycardia, tachycardia
      10. Apnea, bradypnea or tachypnea
   B. Open airway, using jaw thrust and chin-lift (and/or head tilt if no suspected spinal trauma), and if indicated, use suction. Consider placement of OPA if child is unconscious.
   C. If cervical spine trauma is suspected, immobilize spine with cervical immobilization device and backboard. Infants and young children may require under-shoulder support to achieve neutral spine position.
   D. Use OPA, (NPA's are not recommended), partial rebreather mask, or O2 blow –by, as tolerated, with child in position of comfort.
   E. Use chest rise as indicator of adequacy of ventilation, (belly on infant). If chest rise is inadequate, consider:
      1. Repositioning the airway.
      2. Foreign body in the airway.
      3. Inadequate bag volume or activated pop-off valve on BVM.

F. Rescue breathing
   1. 2 initial breaths (approx. 1.3 sec.).
   2. The at a rate of 30 breaths per minute for neonates and 8-10 breaths per minute for infant or child.

G. Assess perfusion using:
   1. Heart rate
   2. Skin signs
   3. Capillary refill
   4. Mental status
   5. Quality of pulse
   6. Blood Pressure

H. Compression / ventilation rate

Pediatric	No advanced airway	Advanced airway present
Compressions / minute	100	100
Breaths / minute	8-10	8-10
Compressions / Breath ratio	30:2	Continuous compressions Interposed breaths
Neonatal		
Compressions / minute	90	100
Breaths / minute	30	30
Compressions / Breath ratio	3:1	

PELVIC FRACTURE SUPPORT/SAM SLING
[EMT, AEMT, EMT-I, RN, EMT-P]

I. PURPOSE

To properly secure a suspected pelvic fracture of a patient and to help tamponade possible internal hemorrhage from the pelvic fracture and to decrease patient pain level through splinting.

II. PROCEDURE:

A. With patient in supine position, unfold sling with white surface facing up.
B. Place white side of Sling beneath patient at level of buttocks in line with greater trochanters and symphysis pubis. If placing over an outer garment, be sure there is nothing in the patients' pockets.
C. Firmly close Sling by placing orange Velcro side of flap down on blue surface of Sling. Fold back material as needed. Try to place buckle close to midline.
D. Grab the orange handle on outer surface of the flap and release from flap by pulling it upward.
E. With or without assistance pull both orange handles in opposite directions to tighten the Sling.
F. Keep pulling the free handle until you hear or feel the buckle click or stop. DO NOT release the tension on the free handle.
G. Maintain the tension until you have firmly pressed the Velcro surface of the free handle against the blue Sling.
H. To remove the Sling, lift the orange handle next to the flap and release the Velcro by pulling upward. Maintain the tension and slowly allow the sling to loosen.
I. Continue monitoring patient.

REMOVAL OF SPORTS PROTECTIVE EQUIPMENT
[EMR, EMT, AEMT, EMT-I, RN, EMT-P]

I. PURPOSE:

A. Although some organizations recommend that sporting equipment such as protective helmets and pads should not be removed in the field, there is limited evidence to support this approach.
B. Since removal of this equipment can induce spinal motion, in the event of a suspected spinal cord injury, it is safest if this equipment can be removed by an adequate number of trained personnel, and this may best be accomplished on the field, where there is complete access to the player from all sides.
C. Spinal motion restriction should be maintained throughout removal of equipment, until a cervical collar can be placed after removal of helmet and pads.
D. For football players with chest protector pads, both the helmet and pads should be removed to maintain neutral alignment of the cervical spine prior to transport. Removal of the helmet without removal of the pads can cause excessive extension of the spine.
E. A backboard is not required for transport, but may be useful for transferring the patient from the ground to gurney. A scoop stretcher, vacuum splint or KED device can also be used to restrict spinal motion during transfer to gurney.
F. In addition to trained EMS personnel, athletic trainers who have been trained in removal of sports protective equipment can assist EMS with removal.

II. PROCEDURE: This procedure requires a minimum of 4 trained rescuers.

A. Stage 1 - Stabilization
1. Rescuer 1
   a. Maintains cervical immobilization at the head/helmet.

B. Stage 2 - Preparation for helmet and shoulder pad removal
1. Rescuer 2
   a. Remove face mask and ear pads. With certain models of helmet, ear pad removal may not be possible without undue movement of the head and neck. If this is the case ear pads should remain in the helmet.
   b. Cut the jersey off and expose the front of the shoulder pads.
   c. Open the buckles or cut the straps on the shoulder pads to expose the chest and then open or cut the side straps (some manufacturers have a quick-release strap on the upper-right side of the chest plate).

C. Stage 3 - Helmet removal
1. Rescuer 2 straddles the athlete and takes control of the C-spine at the jaw and base of the occiput (Figure 1).
2. Rescuer 1 removes helmet; then again assumes cervical spine control, allowing Rescuer 2 to release.

D. Stage 4 - Shoulder Pad Removal - 2 techniques can be utilized - the log roll technique or the elevated torso technique. A minimum of 4 trained rescuers are needed for shoulder pad removal. When a low thoracic or lumbar spine injury is suspected, the log roll technique should be used. When a cervical or high thoracic injury is suspected, the elevated torso technique may be more effective at restricting spinal motion.
1. **Log roll technique.** A standard log roll technique is utilized:
   a. Rescuer 1 stabilizes c-spine.
   b. Rescuers 2 & 3 perform supine log roll, pausing at the top of the roll. Rescuer 4 cuts the jersey and shoulder pads in back then positions spine board. Athlete is lowered onto board.
   c. Jersey and shoulder pads are cut in the front and bi-valved shoulder pads are removed from each side by Rescuers 2 & 3 while Rescuer 1 continues to stabilize c-spine.

2. **Elevated torso technique:**
   a. Step 1 - Maintain immobilization
      i. Rescuer 1 maintains in-line stabilization
      ii. Rescuer 2 straddles the athlete and places their arms up and under through the front of the shoulder pads and take control of the C-spine at the jaw and base of the occiput
   b. Step 2 - Preparation for elevation
      i. Rescuers 3 and 4 slide their hands under the athletes scapula in preparation for elevated torso technique (Lumbar Spine must be cleared to perform this technique)
   c. Step 3 - Equipment removal (Figure 2)
      i. On rescuers 2's count rescuer 3 and 4 four elevate the torso while rescuer 2 maintains c-spine stabilization.
      ii. Once the torso is elevated rescuer 1 removes helmet and shoulder pads.
      iii. After helmet and shoulder pads have been removed, on rescuer 2's count, rescuer 3 and 4 lower the athlete's body to the ground while rescuer 2 maintains c-spine stabilization. Once the athlete is flat on the ground rescuer 1 resumes c-spine stabilization. Stage 4 - Apply C-Collar
   d. Rescuer 1 maintains in-line stabilization
   e. Rescuer 2 applies cervical collar

III. ILLUSTRATIONS:

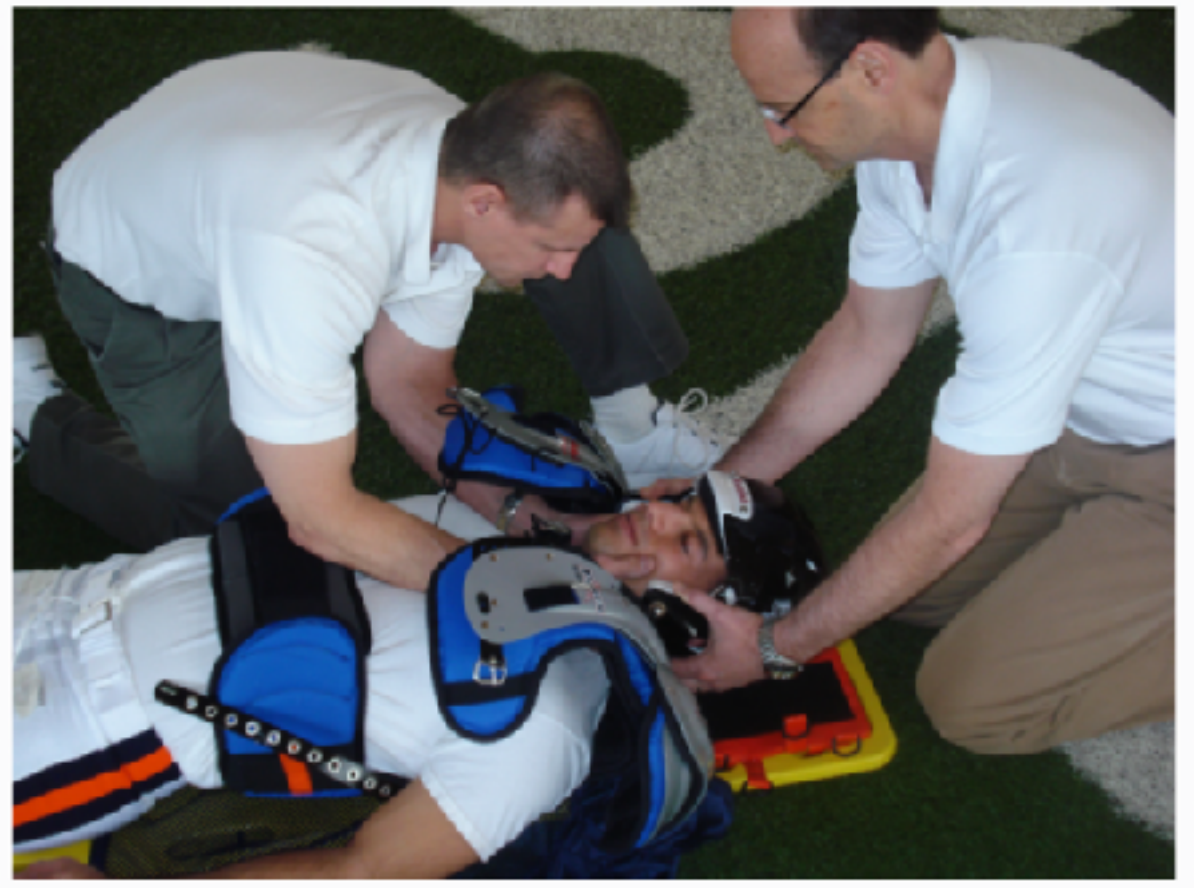


Figure 1 - Helmet removal with facemask off

Figure 2 - Elevated torso technique with 4 rescuers

SPLINTING
[EMR, EMT, AEMT, EMT-I, RN, EMT-P]

Purpose:
- ❖ Immobilization due to suspected fracture, sprain, or injury
- ❖ Assess neurovascular status before and after application of splint

Device	Indication
SIMPLE EXTREMITY SPLINT	Suspected limb injury - splint the following injuries as directed: 1. Suspected fracture - Splint in anatomical position 2. Suspected fracture with poor neurovascular status – make one attempt to realign to anatomical position and improve circulation. 3. Suspected joint injury – splint in position found
TRACTION SPLINT	Suspected mid-shaft or distal femur fracture with no evidence of hip or pelvic fracture *Traction should be applied at no more than 10% of the patient's weight, and not to exceed 15 lbs
PELVIC SPLINT	Suspected Pelvic Fracture - splint with sheet or pelvic sling (see Pelvic Fracture Procedure)
KED	1. Suspected spinal injury in a stable seated patient. Can be used in place of LBB - see Trauma Protocol 2. Extrication when use of a long back board
FULL BODY SPLINT (eg. Vaccuum Mattress)	1. Suspected spinal injury as alternative to LBB. Patients who might benefit from full body splint: 1. Elderly 2. Kyphosis (excessive curvature of the spine) 3. Extended transport (See Trauma Spinal Stabilization Protocol) 2. Suspected hip fracture/dislocation

SALINE LOCK
[AEMT, EMT-I, RN, EMT-P]

I. GENERAL CONSIDERATIONS

A.In general, where an IV is indicated, it should be started and appropriate fluid hung at TKO rate if volume replacement is not needed.
B.In certain situations where the EMT feels that there is significant risk of tubing becoming separated or dislodged or if extrication will be made difficult due to IV a saline lock may be used.
C.Saline lock may be used in lieu of an IV in situations where the only anticipated use would be for drug therapy (e.g. stable chest pain patient who may potentially need intravenous medications or patient with seizures who may need IV diazepam, lorazepam, versed, etc.)
D.Saline lock should not be used in situations where patient needs or potentially needs volume replacement (e.g. trauma, shock)

II. PROCEDURE

A.Attach saline lock (macro-bore extension), to carpoject NS flush.
B.Clear air from macro-bore extension with NS flush.
C.Proceed with IV cannulation as per protocol
D.After IV is established occlude vein by applying pressure just proximal to tip of IV catheter.
E.Remove Tourniquet
F.Remove cap from saline lock and insert into tube of IV catheter.
G.Flush with remainder of saline solution.
H.Secure IV with tape or Venagard via the usual fashion.

TASER REMOVAL
[EMT, AEMT, EMT-I, RN, EMT-P]

NOTE:
- Do not forget to assess for potential trauma that may have occurred before or after the patient was hit by the taser.
- Remember that the process of removing a Taser probe is not a time-critical emergency. Calm and decisive actions by the EMS provider will deliver the best patient care and help prevent biohazard exposure.

I. DESCRIPTION:
   A. EMS may be called by police after a TASER has been used on a suspect. EMS personnel may be requested to remove probes from skin.
   B. Once probes have been removed, providers are not required to transport if patient meets criteria for refusal of transport listed below.

II. INDICATIONS:
   A. When TASER darts have been deployed by law enforcement officers to subdue adult suspects.
   B. TASER dart removal in the field should proceed only if ALL criteria for refusal of transport are met:
      1. Patient must have a GCS of 15
      2. Patient must have a heart rate of <110 bpm, repiratory rate >12, O2 saturation >94%, systolic blood pressure >100mmHg and <180mmHg
      3. No dart has penetrated the eye, face, neck, breasts (females), axilla or genitals
      4. Patient has no other acute medical or psychiatric condition requiring medical evaluation, such as:
         a. Traumatic injury sustained in TASER induced fall or law enforcement encounter
         b. Hypoglycemia
         c. Acute psychiatric disturbance or agitated delirium
         d. No titanic muscle contractions
         e. Patient is not requesting transport to hospital
         f. Patient is 18 years of age or older
         g. All darts which have been deployed are accounted for

III. CONTRAINDICATIONS:
   A. Do not remove Taser Barbs from the face, neck, or groin area, or imbedded in the bone. These patients must be seen at the Emergency Department
   B. Patients with altered mental status, suspected drug abuse, barb related injury, injury related to fall, pregnancy or complaints of chest pain/shortness of breath must be transported to closest facility

IV. PRECAUTIONS:
   A. Patients should be in police custody and monitored by law enforcement for the safety of medical personnel.
   B. Tasers emit two barbs. Make sure both are removed. Treat all barbs as a bio-hazard and dispose as you would any other sharps. Some law enforcement agencies may direct you to place the probe back into the cartridge as evidence.
   C. Where both implanted barbs and wires are still connected to the Taser Gun, shock can still be delivered.

TASER REMOVAL
(continued)

V. PROCEDURE:
   A. Once a TASER has been used against a suspect and the scene has been secured, a medical evaluation is required to ensure the suspect is safe to be taken into custody.
   B. If patients meet refusal of transport criteria, have their darts removed, and do not request transport to the hospital, they may be released into police custody, without hospital attendance.
   C. If all of the above criteria are met, the following steps may be followed for TASER dart removal:
      1. Ensure that the TASER device is no longer applying electrical charge prior to contacting the patient, darts, or wires
      2. Use scissors to cut the wire at the base of each dart cylinder to disconnect the dart(s) from the TASER cartridge
      3. Wearing gloves, make an "L" with your non-dominant hand and stabilize the extremity or area in the general proximity of the probe, keep your hand several inches away from the probe itself, and do not attempt to stretch the skin immediately around the probe
      4. Grasp the cylinder of the TASER dart between the thumb and index finger of one hand, remove dart with a quick firm pull directed perpendicular to the skin surface. Dispose of the dart in a sharps container, being careful not to poke oneself with the barb. Repeat this step for the next barb.
      5. Cleanse each dart wound and the surrounding skin with saline-soaked gauze or alcohol pad
      6. Cover each area with a band-aid or other sterile dressing. Inform the patient and police that this may be removed in 24 – 48 hours
      7. Ask the patient if they would like to be taken to the hospital. If the patient refuses, document the patient's refusal as per guideline. If the patient wishes to transport to the hospital, then transport is to be initiated
      8. If the patient refuses transport, instruct the patient to seek medical attention immediately, if he/she develops any signs of infection around one or more of the wounds (fever, increased pain, redness, heat, swelling, purulent discharge).

I. DOCUMENTATION REQUIREMENTS:

The following information must be documented on the patient care report:
   A. Patient's presenting signs and symptoms, including vital signs, level of consciousness and oxygen saturation
   B. Indications for protocol use
   C. Time of removal
   D. Location (anatomic) of dart embedment
   E. Findings / results of dart removal
   F. Repeat assessment, including vital signs, level of consciousness, and oxygen saturation as indicated
   G. Changes from baseline, if any, that occur during treatment or transport
   H. Documentation of refusal of transport with witnessed signature

TENSION PNEUMOTHORAX NEEDLE DECOMPRESSION
[EMT-P]

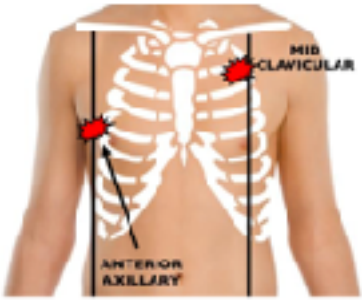
I. DESCRIPTION
The emergency decompression of tension pneumothorax using an over-the-needle catheter and a Heimlich type valve.

II. INDICATIONS
To warrant chest decompression in the field, the patient must be in immediate risk of dying with:
A. High clinical suspicion of Tension Pneumothorax **AND**;
B. Progressive respiratory distress **AND**;
C. Shock symptoms with low or rapidly decreasing blood pressure **AND** at least ONE of the following:
1. Consistent history, i.e., chest trauma, COPD, Pt. on positive pressure ventilation.
2. Shock, low BP or rapidly decreasing BP.
3. Progressive respiratory distress
4. Tracheal shift away from affected side
5. Distended neck veins
6. Asymmetrical movement on inspiration
7. Hyper-expanded chest on affected side
8. Drum like percussion on affected side
9. Increased resistance to positive pressure ventilation, especially if intubated.

EMS witnessed traumatic arrest patients with abdominal or chest trauma for whom resuscitation is indicated should have bilateral chest decompression performed even in the absence of the above signs.

III. CONTRAINDICATIONS
Simple or non-tension pneumothorax is relatively common, is not immediately life-threatening, and should not be decompressed in the field. A simple pneumothorax may present with:
A. Respiratory distress, mild to severe
B. Chest pain
C. Decreased or absent breath sounds on affected side
D. Subcutaneous emphysema or crepitus

IV. PROCEDURE - Needle Decompression:
A. Expose the entire chest
B. On affected side, locate the appropriate landmarks:
1. Anterior – 2nd intercostal mid clavicular or if unavailable.
2. Lateral – 4th intercostal space anterior axillary (above nipple).
(see diagram below)



TENSION PNEUMOTHORAX NEEDLE DECOMPRESSION
[EMT-P]
(Continued)

C. Clean chest vigorously: alcohol, betadine or soap
D. Insert a large (10 - 14 gauge) 3 inch length angiocath over the superior margin of the rib
E. Hit the rib, then slide over it
F. If the air is under tension, the barrel will pull easily and "pop" out the back of the syringe. Remove syringe, advance catheter, and remove needle. Attach one-way valve. Be sure closed end is away from the patient.
G. Tape tension outlet securely.

V. SPECIFIC PRECAUTIONS

A. Exact diagnosis is paramount - note that simple pneumothorax has one set of signs and tension pneumothorax another set in addition.
B. Patient's chest should be auscultated often for return of tension or other respiratory complications.
C. Patients should be adequately oxygenated at all times, titrating to $SaO2 \geq 92\%$
D. Tension pneumothorax is a rare condition, but can occur both with trauma and spontaneously. It can also occur as a complication of CPR Tension takes time to develop, but rate of development may be increased by forceful ventilations during CPR.
E. Possible Complications:
    1. Creation of pneumothorax if none existed previously
    2. Laceration of lung
    3. Laceration of blood vessels: slide above rib (intercostal vessels run in groove under each rib)
    4. Infection: clean rapidly but vigorously; use sterile gloves if possible
F. The procedure is extremely painful, especially when piercing the pleura but should not be delayed for the administration of pain medications or sedation.
G. Tension pneumothorax can be precipitated by occlusion of an open chest wound. If the patient deteriorates after dressing an open chest wound, remove the dressing.

TOURNIQUET PLACEMENT
[EMT, AEMT, EMT-I, RN, EMT-P]

I. Indications

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

II. Precautions

A. A tourniquet applied incorrectly can increase blood loss.

B. Applying a tourniquet can cause nerve and tissue damage whether applied correctly or not.

C. Injury due to tourniquet is unlikely if the tourniquet is removed within 1 hour. In cases of life threatening bleeding, benefit outweighs theoretical risk.

D. A commercially made tourniquet is the preferred tourniquet. If none is available, a blood pressure cuff inflated to a pressure sufficient to stop bleeding is an acceptable alternative.

E. Other improvised tourniquets are not allowed.

III. Technique

A. First attempt to control hemorrhage by using direct pressure over bleeding area.

B. If a discrete bleeding vessel can be identified, point pressure over bleeding vessel is more effective than a large bandage and diffuse pressure.

C. If unable to control hemorrhage using direct pressure, apply tourniquet according to manufacturer specifications and using the steps below:

1. Cut away any clothing so that the tourniquet will be clearly visible. NEVER obscure a tourniquet with clothing or bandages.
2. Apply tourniquet proximal to the wound and not across any joints.
3. Tighten tourniquet until bleeding stops. Applying tourniquet too loosely will only increase blood loss by inhibiting venous return.
4. Mark the time and date of application on the tourniquet tag, (or on the patient's skin next to the tourniquet if there is no tag attached to the tourniquet).
5. Keep tourniquet on throughout pre-hospital transport – a correctly applied tourniquet should only be removed by the receiving hospital.

TRANSCUTANEOUS PACING
[EMT-P]

I. DEFINITION

Transcutaneous pacing is the technique of electronic cardiac pacing accomplished by using skin electrodes to pass repetitive electrical impulses through the thorax.

II. INDICATIONS

Transcutaneous pacing should be considered in the following setting:

A. Bradycardia, (Heart rate < 60), and
B. Evidence of inadequate perfusion, (e.g., hypotension (BP less than 90), altered mental status).

III. EQUIPMENT

A. Combined defibrillator/pacemaker.
B. Adult — total active area of both pads combined should be at least 150 cm^2.
   Adult pads are recommended for use on children weighing 10 kg or more.
C. Pediatric — total active area of both pads combined should be at least 45 cm^2.
   Recommended for use on children weighing less than 10kg.

IV. PROCEDURE

A. Ensure that the pacemaker leads are attached and the monitor is displaying a cardiac rhythm.
B. Attach pacing electrodes to chest.
C. Begin pacing at a heart rate of 80 beats per minute and zero current output.
D. Increase current by increments of 20 mAs while observing cardioscope for evidence of electrical capture, then confirm mechanical capture by checking pulses and BP.
E. If patient comfortable at this point, continue pacing. If patient uncomfortable at this point, decrease current output by increments of 5 mA to a point just above electrical and mechanical capture.
F. Consider pain control for the patient with Versed, 5mg IV or Ativan, 0.5 mg – 1mg IV.
G. If the patient remains unconscious during pacing, assess capture by observing the monitor and evaluating pulse or blood pressure changes. In the event of electrical capture and no pulses, follow EMD protocol.
H. If there is no response to pacing and ACLS drugs, consult OLMC.
I. If a change in pacing rate is desired contact OLMC.

V. PRECAUTIONS

A. Transcutaneous pacing should not be used in the following settings:
   1. Patients meeting death in the field criteria.
   2. Patients with signs of penetrating or blunt trauma.
   3. Patients found in Asystole.

TRANSPORT VENTILATOR USAGE
[EMT-P]

I. INTRODUCTION
Mechanical ventilation is used to control or assist with ventilation. It is usually used in patients who cannot maintain adequate ventilatory status due to disease or a physical condition.

II. POLICY
A. Fire Department Paramedics shall store, provide routine maintenance and monitor use of transport ventilator.
B. The ventilator unit should be Bio-medical inspected and certified at least once a year.
C. Respiratory therapy will assist the paramedics in setting the appropriate parameters in accordance with physician orders.
D. Endotracheal tube placement must be verified along with satisfactory O_2 Saturation, Endtidal CO_2 monitoring, and/or ABG's at physicians clinical judgment.

III. PHYSICIAN ORDERS FOR TRANSPORT:Ventilator parameters should be ordered;
1. FIO_2
2. Rate
3. Tidal volume

B. To ensure adequate ventilation, sedation should be ordered;
1. Sedation to prevent patient from fighting ventilation.
2. Sedation to prevent patient from inhibiting the settings on the ventilator that are being delivered. [Unless otherwise stipulated by the Physicians clinical judgement.]

IV. INDICATIONS
A. Apnea, hypoventilation
B. Ventilator dependant patient
C. Achieve hyperventilation (when indicated for head injury, etc.)
D. Ventilatory failure (Responsibility rests with physicians clinical judgment).

V. PROCEDURE
A. Documentation of a functional check must be made before placing the ventilator into service, (see check procedure.)
B. Obtain history and ventilator settings from RN, RT, and/or Physician.
C. Ventilated patients parameters may be determined by pre-existing ventilator settings with acceptable ABG's, (physician judgment).
D. Patients ventilated with a BVM (ie---patients taken from ER for transport to Portland) should have ventilator parameters ordered by the physician and it may be advisable for a trial of a 15 minute period on the ventilator with ABG's done.
E. Connect the supply hose to an oxygen supply and be sure it is turned on.
F. Turn main switch on.

TRANSPORT VENTILATOR USAGE
(continued)

G. Set ventilator parameters as ordered and follow manufactures machine specific instructions.
H. Occlude the patient connection port with thumb. Check, peak inflation pressure on the manometer. (Alarm should sound.)
I. Connect the patient to the patient valve.
J. Set the pressure limit as indicated for the patient.
K. Auscultate patient Breath Sounds for adequate gas exchange.
L. Monitor Oxygen Saturation, End tidal CO_2, and pressure required to ventilate.
M. Make any adjustments as may be necessary.

VI. HAZARDS/COMPLICATIONS
A. VENTILATOR MALFUNCTION
1. SYMPTOMS
a. Sudden loss of pressure
b. Decreased breath sounds
c. Apnea alarm from ETCO2 on LP12 monitor.
2. ACTION: REMOVE PATIENT FROM VENTILATOR AND MANUALLY VENTILATE WITH **BVM**.
a. Check E.T. tube cuff for leakage.
b. Check for disconnection or leak in patient hose system.
c. Check Oxygen cylinder pressure gauge.
B. VENTILATOR OBSTRUCTION
1. SYMPTOM
a. Sudden or frequent pressure alarming.
2. ACTION
a. Check patient valve for foreign material.
b. Clear airway with suctioning .
c. Check for kinked tubing & E.T. tube.
d. Check for bronchospasms or coughing.
e. If all the above are OK, the Volume Flow may be set to high.
C. TENSION PNEUMOTHORAX
1. SYMPTOMS
a. Increased (sudden) peak pressure.
b. Decreased breath sounds on affected side.
c. Intercostal muscle bulging on affected side.
d. Decreased O_2 Sat. and/or decreased Blood Pressure.
e. Tracheal deviation away from tension.
2. ACTION: SEE CHEST DECOMPRESSION PROTOCOL./TENSION PNEUMOTHORAX PROTOCOL.

TRANSPORT VENTILATOR USAGE
(continued)

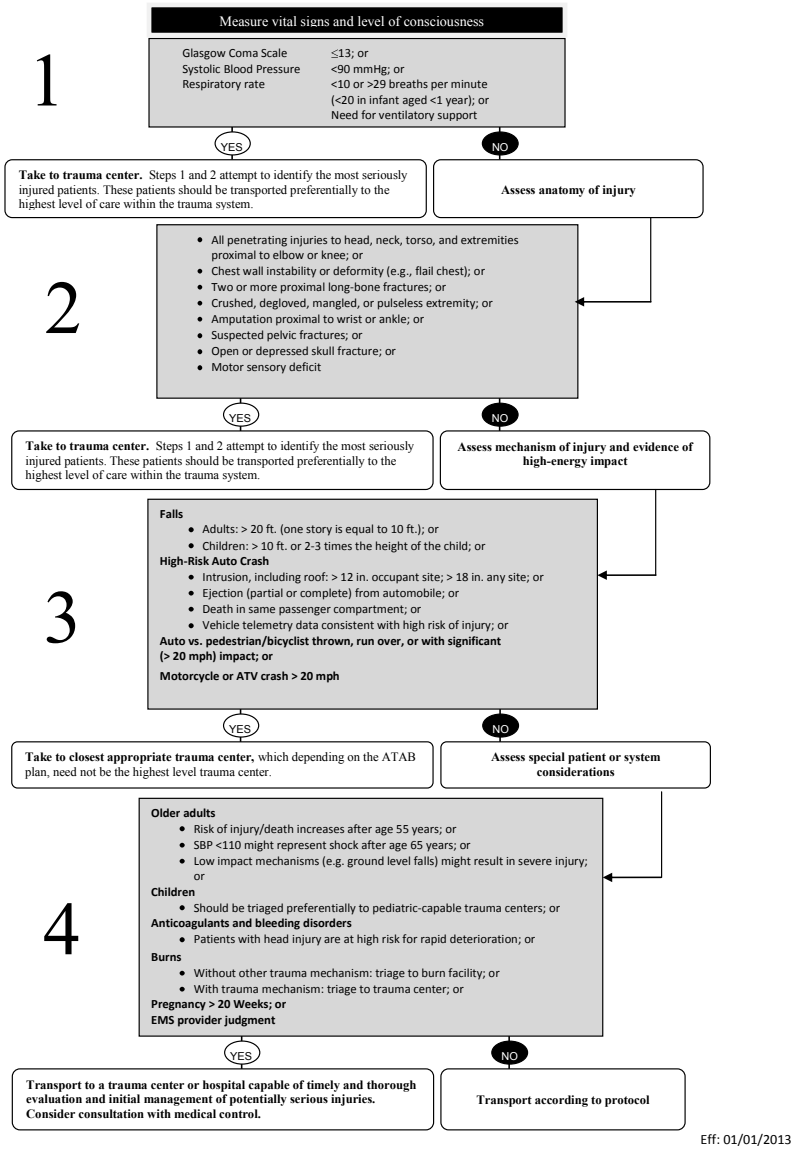
D. GASTRIC DISTENTION
   1. ACTION: Patient should already have NG tube in place prior to transport. If not, it may be necessary to insert one.
E. HYPOPNEA: DUE TO INHIBITION OF VENTILATOR.
   1. SYMPTOMS
      a. Patients own respiratory efforts override ventilator (with minimum 400cc TV & breathing rate of 12).
      b. Manometer will read into the negative when breath is initiated.
   2. ACTION:
      a. Check B.S. to see if they are adequate & O_2 Sat. is adequate. If both are OK & meets physician orders, turn main switch OFF. [Patient will receive O_2 as blow by from ventilator.]
      b. If not adequate or desired, sedate patient so ventilator will determine ventilation.
      c. If more control of patients breathing is required you may want to increase respiratory frequency slightly.

VII.SAFETY FEATURES
A. Demand valve senses when patient is breathing.
B. Ventilator inhibits only on a breath to breath basis. (So Pt. May breath on their own and be assisted by ventilator.)
C. Low flows are ignored (needs 400cc TV to inhibit breaths, ignores weak or panting breaths.
D. If main switch is off, demand valve is still active and patient can be given 100% O_2.
E. Relief valve limits maximum pressure by venting excess gas.
F. f a gas failure occurs the switch opens to atmosphere.

VIII.APPENDIX:
A. Cleaning and maintenance
B. Functional check

TRAUMA SYSTEM ENTRY
[EMR/EMT/AEMT/EMT-I/RN/EMT-P]

Exhibit 2
Guidelines for Field Triage of Injured Patients



Eff: 01/01/2013

VENOUS BLOOD SAMPLES
[AEMT, EMT-I, RN, EMT-P]

Note: These samples will always be venous blood unless otherwise ordered or indicated:

A. The technique of obtaining these samples will be using a vaccutainer system and placing the blood in a red top, purple top, green top and blue top vaccutainer tube.
B. These specimens will routinely be done just prior to the start of an intravenous infusion. The specimen should not be drawn after the infusion has been started unless specifically ordered that way.
C. These samples will be drawn on direct, or standing order of OLMC or the supervising physician.
D. These samples will be given to the receiving RN as soon as possible after being drawn.
E. The indications for blood glucose samples to be drawn are:
    1. Diabetes Mellitus (known or presumptive), especially with possible complications such as insulin reaction or ketoacidosis.
    2. Alcoholism, especially with mental impairment.
    3. Convulsive disorder
    4. Unconsciousness, with or without known head trauma
    5. Special request of OLMC, or supervising physician
    6. Respiratory
    7. Seizures
    8. Trauma
    9. CVA
    10. Altered Mental Status
    11. Abdominal Pain

VIRUS INFECTION (EBOLA AND SARI): PATIENT EVALUATION
[All EMS Responders]

Note: The purpose of this guideline is to enhance EMS provider safety in the setting of suspected Ebola or Sudden Acute Respiratory Illness patient evaluation.

I. Case Definitions:

Ebola Infection	SARI Infection (Sudden Acute Respiratory Infection) (eg. SARS, MERS, Coronavirus)
EMS patient assessment criteria: **1.** Fever (101.5 F or 38.6 C) and additional symptoms such as headache, joint and muscle aches, weakness, fatigue, diarrhea, vomiting, abdominal pain, or unexplained hemorrhage (bleeding or bruising). **AND EITHER:** **2.** Travel to or from West Africa (Guinea, Liberia, Sierra Leone, Senegal, Nigeria or other countries where Ebola transmission has been reported by WHO) within 21 days (3 weeks) of symptom onset **OR** **3.** Close contact with a patient known to have Ebola	**EMS patient assessment criteria:** **1.** Fever, cough or shortness of breath, **AND EITHER:** **a.** History of travel from countries or regions where a severe acute respiratory infections outbreak has been reported **b.** Close contact with a symptomatic traveler who developed fever and acute respiratory illness (not necessarily pneumonia) within 14 days after traveling from countries or regions with reported cluster of SARI, **OR** **c.** A member of a cluster of patients with severe acute respiratory illness (e.g., fever and pneumonia requiring hospitalization) of unknown etiology in which a SARI is being evaluated, in consultation with state and local health departments. **OR** **2.** Fever AND symptoms of respiratory illness (not necessarily pneumonia; e.g. cough, shortness of breath) AND being in a healthcare facility (as a patient, worker, or visitor) within 14 days before symptom onset in a country or territory in which recent healthcare-associated cases of SARI have been identified.

II. Initial Assessment

G. EMS providers should minimize the number of crew members in close contact with the patient until the initial interview is completed.
H. Perform initial interview of all patients with fever or respiratory illness wearing a surgical mask, gloves and eye protection. Attempt to maintain distance of at least six (6) feet away, to determine if additional PPE precautions are necessary.

VIRUS INFECTION (EBOLA AND SARI): PATIENT EVALUATION (Continued)

III. Treatment - for patient with suspected SARI at any time, and for all patients during a pandemic or epidemic, adhere to the following guidelines:

I. For all patients, apply minimum of droplet and contact precautions:
   1. Droplet and contact precautions prevent direct or indirect transmission from contact with contaminated surfaces or equipment (i.e. contact with contaminated oxygen tubing/interfaces).
   2. Use PPE (simple medical mask, eye protection and gloves) when caring for patient. If supplies are limited, a washable cloth mask can be used in lieu of a medical mask
   3. Give suspect patient a simple medical mask (Not N-95)
   4. If possible, use either disposable or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers). If equipment needs to be shared among patients, clean and disinfect between each patient use.
   5. Refrain from touching eyes, nose, and mouth with potentially contaminated gloved or ungloved hands.

J. For patients with confirmed or suspected SARI, providers should wear N-95 or higher level of protection and gown. If a patient has altered mental status or other reasons that you cannot confirm that they are at low risk for SARI, or the patient refuses to wear a simple mask, assume they are high risk and wear appropriate PPE.

K. Apply airborne precautions when performing an aerosol generating procedure:
   1. When performing aerosol-generating procedures (i.e. open suctioning of respiratory tract, intubation, bronchoscopy, cardiopulmonary resuscitation) use PPE, including gloves, eye protection, and fit-tested particulate respirators (N95 or equivalent, or higher level of protection).
   2. Consider long-sleeved gowns if suspicious for viral infection.
   3. Whenever possible, use adequate ventilation during procedures

IV. Treatment - for suspected Ebola, adhere to the following guidelines:

A. PPE (Personal Protective Equipment) - Recommended provider PPE includes:
   1. Gloves (double gloving);
   2. Full body protective outer garment (Tyvek suit or higher) with integral hood and booties
   3. PAPR (if available) or full face mask with P100 or higher respiratory protection.

B. PPE should be donned and doffed according to published guidelines to prevent cross contamination.

C. Patient PPE Transport:
   1. If patient is ambulatory, place patient into protective Tyvek full body suit and a surgical or N95 mask (on all patients with suspected Ebola/SARI symptoms) before performing a detailed examination.

2. If patient requires resuscitation where body fluid exposure risk is high, Fire/EMS providers should attempt to place the patient into a "patient isolation bag" to decrease exposure risk during transport whenever possible.

D. Avoid droplet-producing procedures whenever possible, including nasal or oral airways placement, use of nebulizers, bag-valve-mask (BVM) use, suctioning or endotracheal or King Airway intubation. If BVMs are needed, use with HEPA filters whenever possible.

V. Transport:

A. For patients in whom Ebola/SARI is suspected, only providers essential for patient care should be in the patient compartment of the ambulance.
B. Turn on ambulance exhaust fans in the patient compartment to the highest possible setting. If feasible, open the outside air vents.
C. Alert receiving hospital personnel of the possibility of an infectious patient as soon as possible, and hold suspected infectious patients in the ambulance until either the ED or hospital staff is ready to receive them.

VI. Cleaning and Disinfection

A. EMS personnel cleaning equipment and patient care areas should wear full PPE including face and airway protection prior to initiating cleaning.
B. Upon completion of the call, use an approved U.S. Environmental Protection Agency (EPA) registered hospital disinfectant for any non-enveloped virus to thoroughly clean all equipment and all patient-care areas (including stretchers, railings, medical equipment control panels, and adjacent flooring, walls, and work surfaces).
C. After completing cleaning tasks, including cleaning and disinfection of reusable equipment, cleaning personnel should carefully remove and dispose of PPE.
D. If possible remove the ambulance from any patient care service for a minimum of 24 hours post transport for suspected Ebola.

2021 PROCEDURE REVISIONS

Procedure	Changes:	Page #	Date of change
iGel	Added new procedure for placement of iGel which can be used in place of King LT	8	1/16/22
Cardiac 12-Lead EKG	Interpretation moved into EMT-I Scope in Protocols and Procedures	22	1/16/22
Tension Pneumothorax/ Needle Decompression	Add 4th ant axillary site and diagram inserted	83	1/16/22
Viral Infection	Changed to consider use of gowns during aerosolized procedures in suspected viral infection. Masks are still required for all patient interactions in healthcare settings per Oregon Administrative Rule (OAR) 333-019-1011.	93	8/25/2022