

INTRAVENOUS ACCESS VIA PICC/PVAD [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.

B. **Hemodialysis shunt:** A surgically created arteriovenous connection used for hemodialysis. **Not** approved for access by prehospital personnel.

C. **Internal subcutaneous infusion ports:** **Not** approved for access by prehospital personnel.

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

INTRAVENOUS ACCESS VIA PICC/PVAD
(continued)

V. ADMINISTRATION OF IV FLUIDS/MEDICATIONS:

- A. Prepare IV solution, IV administration set, and 18 ga. one inch needle.
- B. Prepare injection port with alcohol swab.
- C. Puncture injectable cap with needle.
- D. Adjust IV flow.
- E. Tape needle to catheter.
- F. Administer medications IVP via main line.
- G. Flush well following each medication administered

LVAD TROUBLESHOOTING (Left Ventricular Assist Device)

NOTE:

The current LVAD deployed is the HeartMate II. This device provides "pump" assistance to the left ventricle in patients with severe heart failure. It is implanted in the chest of the patient with connections from the apex of the left ventricle to the ascending aorta. The pump itself is implanted in the chest with the controller external to the chest with a conduit connecting the two.

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 will 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)**



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. **Do NOT perform 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.

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 of 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 as 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. 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. As a reminder, the legal age of majority or adulthood in Oregon concerning consent or refusal is 18. Of critical importance to the EMT is the exception in the law where the EMT may treat and/or transport under the doctrine of implied consent, a minor who required immediate care to save a life or prevent serious injury. This consent is also provided by these protocols (off –line medical direction). The minor who refuses care but who in the EMT's judgment needs care should have OLMC consulted.
- F. 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.

PEDIATRIC FIELD SURVEY

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.

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: <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 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. Vacuum Mattress) | <ol style="list-style-type: none"> 1. Suspected spinal injury as alternative to LBB. Patients who might benefit from full body splint: <ol style="list-style-type: none"> 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, respiratory 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. Clean chest vigorously: alcohol, betadine or soap
- C. On affected side, locate the mid-clavicular line
- D. Insert a large (10 - 14 gauge) 3 inch length angiocath over the superior margin of the third 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 ≥ 92%

TENSION PNEUMOTHORAX NEEDLE DECOMPRESSION

[EMT-P]

(Continued)

- 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 cm².
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 cm².
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 O₂ Saturation, Endtidal CO₂ monitoring, and/or ABG's at physicians clinical judgment.

III. PHYSICIAN ORDERS FOR TRANSPORT: Ventilator parameters should be ordered;

- 1. FIO₂
- 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 CO₂, 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 O₂ 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 & O₂ Sat. is adequate. If both are OK & meets physician orders, turn main switch OFF. [Patient will receive O₂ 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

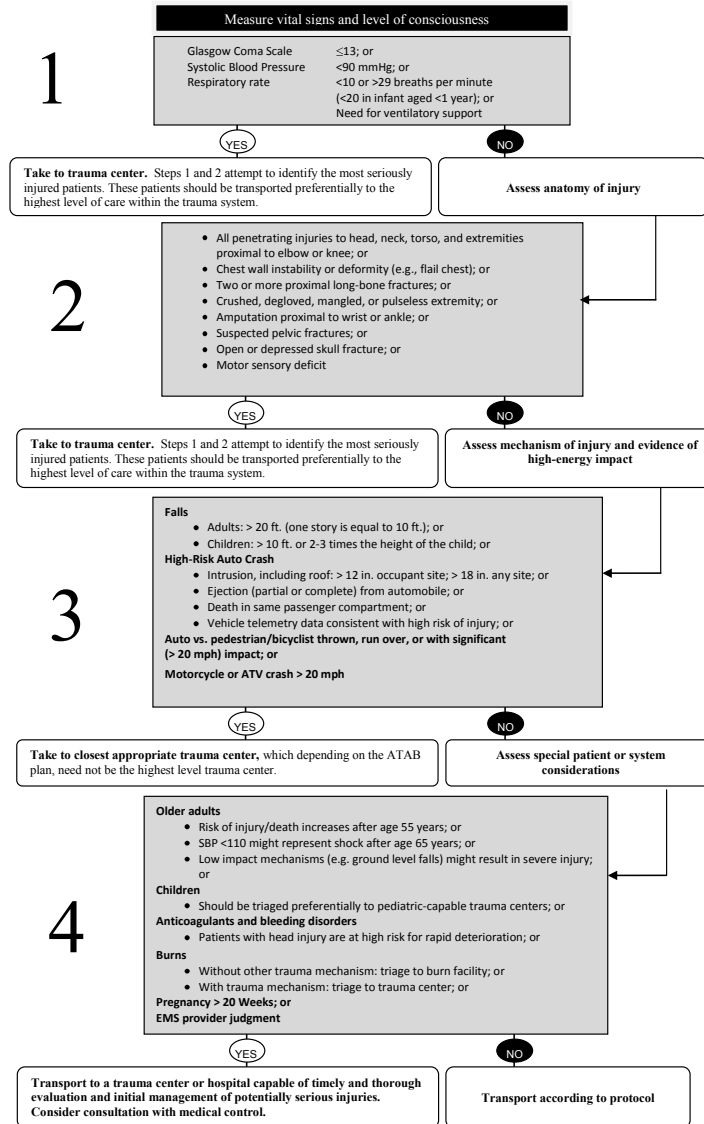
- A. Demand valve senses when patient is breathing.
- B. Ventilator inhibits only on a breath to breath basis. (So Pt. May breath on their own and be assisted by ventilator.)
- C. Low flows are ignored (needs 400cc TV to inhibit breaths, ignores weak or panting breaths.
- D. If main switch is off, demand valve is still active and patient can be given 100% O₂.
- 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 vacutainer system and placing the blood in a red top, purple top, green top and blue top vacutainer 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 MERS): PATIENT EVALUATION
[All EMS Responders]

Note: The purpose of this guideline is to enhance EMS provider safety in the setting of suspected Ebola or MERS virus patient evaluation.

CDC Case Definitions

| Ebola Infection | MERS Infection
(Middle East Respiratory Syndrome) |
|---|--|
| <p>EMS patient assessment criteria:</p> <ol style="list-style-type: none"> 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). <p><u>AND EITHER:</u></p> <ol style="list-style-type: none"> 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 <u>OR</u> 3. Close contact with a patient known to have Ebola | <p>EMS patient assessment criteria:</p> <ol style="list-style-type: none"> 1. Fever, cough or shortness of breath, <u>AND EITHER:</u> <ol style="list-style-type: none"> a. History of travel from countries in or near the Arabian Peninsula within 14 days before symptom onset, <u>OR</u> b. Close contact with a symptomatic traveler who developed fever and acute respiratory illness (not necessarily pneumonia) within 14 days after traveling from countries in or near the Arabian Peninsula, <u>OR</u> 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 MERS-CoV is being evaluated, in consultation with state and local health departments. <p><u>OR</u></p> 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 or near the Arabian Peninsula in which recent healthcare-associated cases of MERS have been identified. |

For both Ebola and MERS, 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.

Initial Assessment and Treatment

- C. EMS providers should minimize the number of crew members in close contact with the patient until the initial interview is completed.
- D. Perform initial interview of all patients from at least six (6) feet away, to determine if additional PPE precautions are necessary.
- E. 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/MERS 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 the MCEMS “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.

Transport

- A. For patients in whom Ebola/MERS 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.

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.

2018 PROCEDURE REVISIONS

| Protocol | Changes: | Page # | Date of change |
|------------------------------|--|---------------|-----------------------|
| Airway King LT | Minor changes to be consistent with ACLS protocols preoxygenation | 7-10 | 02/18/2018 |
| Transcutaneous Pacing | Updated to conform to protocol. Added peds and adult pads to equipment, removed age contraindication, minor formatting changes | 70 | 02/18/2018 |