

# 12 Lead Cardiac Monitoring

## FR/EMT's

### Procedure

Acquiring the 12-lead:

1. Attach the 6-lead cable to 4-lead cable
2. Attach the electrodes and pads on to the patient for 12-lead acquisition
3. Assure a readable tracing on the monitor. A reading with excessive artifact will not be useful for the hospital
4. Press the 12-lead key and fill in the age using the rotating black selector knob
5. Tell patient to remain still. Press the rotating black selector knob to acquire the reading  
Once the machine starts to analyze, the patient can move or the leads can be removed
6. One reading will print automatically. Use code summery for other copies

### Indication

12-Lead ECG monitoring should be preformed:

- For the patient with suspected MI. This can be with or without chest pain
- Confirmation of SVT vs. Rapid Atrial Fibrillation
- Confirmation of arrhythmias that can indicate electrolyte abnormalities e.g. hyperkalemia
- Confirmation of V-Tach with a pulse from other wide-complex tachycardias.
- Patients with Shortness of Breath, for cardiac or unknown causes

### Definition:

The use of 12-lead ECG equipment to establish clinic support for suspected, stable MI patients with typical and atypical presentation

### Precautions:

Do not delay transport of the critical or unstable patient to perform a 12-lead reading

# Advance Directives and Do Not Resuscitate Orders

## Purpose

The EMS system believes in respect for patient autonomy. The patient with decision-making capacity has the right to accept or refuse medical intervention. This includes the right to specify, in advance, patient preferences when the person is no longer able to communicate wishes.

## Procedure

The EMS system shall honor Advance Directives and DNAR orders that the FR, EMT or Paramedic sees in writing, under the following circumstances:

1. Do Not attempt resuscitation (DNAR): For the patient who is not breathing and is pulse less who does not meet the criteria for the Death in the Field protocol but is suspected to be a candidate for withholding resuscitation, BLS procedures will be followed until one of the following occurs:
  - a. The EMT sees a written DNAR that should be honored and resuscitation stopped
  - b. OLMC is contacted and directs the EMT to discontinue resuscitation
  - c. A valid Advance Directive or Directive to Physician is seen and directs not to continue resuscitation
  - d. The patient's attorney-in-fact (Power of Attorney Health Care or Durable Power of Attorney for Health Care) directs the EMT to discontinue resuscitation
2. Advance Directives: DNAR orders apply only if the patient is in cardiopulmonary arrest. If the patient's PAHC, DPAHC, Directive to Physicians, or other Advance Directive is available to convey the patient's wishes, and the EMT has seen a copy of the document, the EMT must honor the treatment preferences expressed.
3. Physician Orders for Life-Sustaining Treatment (POLST, formerly the Medical Treatment Coversheet) - If a POLST signed by a patient's physician, who clearly expresses the patient's wishes is available, the EMT should honor the patient's treatment care preferences as documented in the EMS section of the POLST. [Cite: OAR 847-035-030 (7)].
4. If there is a question regarding the validity or enforceability of the health-care instruction, err on the side of treatment and contact OLMC.
5. It is always appropriate to provide comfort measures as indicated.

## Definitions

1. Do Not Attempt Resuscitation Order (DNAR): An order written by a physician stating that in the event of a cardiopulmonary arrest, cardiopulmonary resuscitation will not be administered. DNAR orders apply only if the patient is not breathing and is pulse less.
2. Health-Care Instruction: A document executed by a person to indicate the person's instructions regarding health-care decisions.

# Advance Directives and Do Not Resuscitate Orders

3. Advance Directive: A document that contains health-care instruction or a power-of-attorney for health care.
4. Directive to Physician: A written document directing the withholding or withdrawal of life-sustaining procedures.
5. Living Will: A document that may confirm an Advance Directive or Directive to Physician informing him/her that if the patient has a terminal illness and death is imminent, the patient would not wish to be placed on artificial life support which will only prolong the process of dying. In general, the traditional Living Will document alone is not helpful in the out-of-hospital setting because of its multiple restrictions and lack of clarity on when it should take effect.
6. Attorney-in-Fact: An adult appointed to make health care decisions for a person.
7. Durable Power of Attorney for Health Care (DPAHC): a power of attorney executed prior to November 1993 and still in effect that authorizes an attorney-in-fact to make health care decisions for a person when the person is incapable. When an attorney-in-fact speaks, it is as if the patient is expressing his wishes.
8. Power of Attorney for Health Care (PAHC): Power-of-attorney document that authorizes an attorney-in-fact to make health-care decisions for a person when the person is incapable.
9. Physician Orders for Life-Sustaining Treatment (POLST): The POLST is a voluntary form that was developed to document and communicate patient treatment preferences across treatment settings. It includes a section for documentation of DNAR orders and a section communicating patient preferences for EMS care. While these forms are most often used to limit care, they may also indicate that the patient wants everything medically appropriate done. Read the form carefully! When signed by a physician, the POLST is a physician's order.
10. At any time the alert and oriented patient may verbally over ride any advanced directive

# Airway Management Procedure

## Procedure

### FR and EMT's, Adult and *Ped*

#### Passive Airway Delivery Systems

**Nasal Cannula (NC):** To be used when small amounts of supplemental oxygen is desired. Flow rates should not exceed 6 liters per minute or discomfort and drying of the nasal mucosa occurs. If greater flows are required, use of a mask is recommended. In infants, delivery of oxygen via the oxygen tubing inserted in the base of a cup may help alleviate anxiety.

**Non-Rebreather Mask (NRB):** Recommended when higher flows and concentrations of oxygen need to be delivered. Oxygen concentrations near 100% can be achieved with a high flow and a good facial fit. NRM are to be used in all patients with an altered level of consciousness, severe chest pain, or hypovolemia. The patient must be able to maintain his or her own airway, and suction equipment should be nearby. Only masks that have an oxygen reservoir attached and allow a clear view of the patient's nose and mouth may be used. It is recommended that the NRM be moved away from the patient's nose and mouth when disconnected from the oxygen supply for any reason.

#### Airway Maintenance Devices

**Nasopharyngeal Airway (NPA):** Recommended for adult patients who are unconscious or who have an altered level of consciousness and are unable to maintain their own airway. While a conscious child might better tolerate an NPA than an OPA, the smaller diameter and relatively greater length make an NPA more likely to become obstructed by secretions. Therefore, the use of NPA's in children and infants is discouraged. All NPA's must be lubricated with water-soluble jelly prior to insertion and may be used with a NRM or with a Bag Valve Mask device.

**Oropharyngeal Airway (OPA):** To be used in patients who are unable to control their own airway and do not have a gag reflex. OPAs may be used on both adult and pediatric patients, and should not be used in conscious patients. It is important that the proper size be utilized. An OPA may also be used as a block to prevent patients from biting down on endotracheal tubes and restricting airflow. Most patients who tolerate an OPA are candidates for intubations. OPAs must always be used with high-flow, high-concentration oxygen delivery devices such as a Bag-Valve Mask.

**Bag-Valve Mask (BVM):** The BVM is used for patients unable to maintain an airway and/or their respiratory drive is compromised. In all cases where the patient needs ventilations assistances, the FR or EMT can utilize a Bag-valve device with either the mask or attached to a combi-tube or endotracheal tube. The BVM must be equipped with an oxygen reservoir and attached to an oxygen source capable of delivering at least 12 liters per minute. The EMT must ensure a proper face seal if using the bag-valve device with a mask; the patient's head must be positioned properly and an OPA or NPA should be inserted.

**Ventilator:** The ventilator is used for patients unable to maintain an airway and/or their respiratory drive is compromised. In all cases where the patient needs ventilations assistances, the FR or EMT can utilize ventilator with either the mask or attached to a combi-tube or endotracheal tube. The EMT must ensure a proper face seal if using the ventilator with a mask; the patient's head must be positioned properly and an OPA or NPA should be inserted.

**NOTE:** The use of a BVM or ventilator and NPA or OPA is not considered sufficient to provide and maintain a protected airway for a long period of time. It is ideal for the limited time prior to intubations or during drug administration in the Altered Mental Status Protocol. Suction should be nearby as using the BVM might cause abdominal distention. Patients who need their airway protected should be endotracheally intubated or place King Airway as soon as possible.

# Airway Management Procedure (Cont.)

## FR/EMT's Adult and Peds

### Pulse Oximetry

#### **Indications**

Respiratory distress/complaints  
Cardiac problems  
Multiple system trauma  
Poor color  
Pts requiring airway adjuncts and/or assisted ventilations  
Suspected shock  
Altered LOC

#### **Precautions**

Hemoglobin disorders (e.g. CO poisoning, anemia) may cause artificially high or low SaO<sub>2</sub> readings, which should be interpreted with extreme caution.  
SaO<sub>2</sub> reading may be difficult to obtain in states of low perfusion.

#### **Procedure for SaO<sub>2</sub> <90% OR Falling SaO<sub>2</sub>:**

Check airway and manage as indicated.  
Check probe placement. Causes of inaccurate readings include:  
A. Excessive probe movement  
B. Optical interference by bright light; cover the sensor  
C. Poor waveforms/signals (hypovolemia, hypothermia, hypotension or vasoconstriction)  
D. Artificial fingernails and dark-colored nail polishes, turning probe sideways on the finger may help  
Increase oxygen liter flow and/or assist ventilation.

#### **Pediatric Considerations**

Special probes may be required to obtain readings in pediatric pts.

#### **Notes**

Best probe site in adults is usually middle fingertip with nail polish removed.  
Attempt to obtain and document SaO<sub>2</sub> before and during O<sub>2</sub> therapy.  
Oximetry may detect hypoxia not evidenced by signs or symptoms.  
Normal SaO<sub>2</sub> for healthy individuals is 95-100%. Patient with history of COPD is 90 to 95%  
Low ( $\leq 93\%$ ) or falling SaO<sub>2</sub> indicates airway or ventilator status may be compromised.

## FR/EMT's Adult and Peds

### Carbon Dioxide Monitoring

#### **Indications:**

Consider when ever treating patient for chest pain or respiratory distress  
Any patient intubated

#### **Precautions:**

In low perfusion states, such as cardiac arrest, the production of CO<sub>2</sub> is significantly diminished  
A patient that has recently consumed carbonated beverages may cause a false positive reading if ventilation is attempted through a tube placed in the esophagus.

# Airway Management Procedure (Cont.)

## EMT Adult

### King Airway

#### **Indications:**

Adults in respiratory or cardiac arrest

#### **Size King Airway as per chart Contraindications:**

Intact gag reflex

Known esophageal disease

Caustic substance (acid or lye) ingestion

#### **Precautions:**

May be used in trauma; but take care to prevent neck movement

In arrested patient needing defibrillation, defibrillation takes priority over King Airway insertions.

#### **Insertion Procedure:**

Hyperventilate for 2 – 3 min. prior to inserting King Airway.

Assemble as follows (syringes pre-drawn to approx volumes): King Airway:

Test cuffs and leave syringes attached to speed insertion.

Lubricate tube tip and pharyngeal balloon well with water-soluble gel.

Place head in neutral position. Grasp lower jaw & tongue.

Insert GENTLY as far as possible.

Do not force. If resistance is met, withdraw, reposition the head and reattempt placement.

If unable to place in 30 sec., hyperventilate for 1 – 2 min. and reattempt placement.

Limit insertion attempts to 2 unless otherwise directed by Medical Control.

Inflate pharyngeal balloon per chart

Begin ventilating

Assess placement by: Listening over the epigastrium for air gurgling in stomach, observing for chest rise and fall, listening for bilateral lung sounds (midaxillary).

Bilateral LS, absent stomach sounds and good chest rise indicate esophageal placement.

Continue ventilating with 100 % oxygen

Additional adjuncts may be helpful in determining tube placement:

SaO<sub>2</sub>: low readings may indicate ineffective vent. Decreased readings may indicate incorrect ventilation port.

ETCO<sub>2</sub>; maintain reading of 35 to 45mm Hg

Direct visualization with laryngoscope

Remove King Airway if tube placement cannot be determined.

Once tube placement is confirmed, secure the tube with tape or tube restraint.

Hyperventilate for 2 – 3 min., then once q. 5 sec. Switch to ventilator when convenient.

# Airway Management Procedure (Cont.)

## EMT P

### Intubations

#### Indications for Simple Intubations

- Airway obstruction
- Respiratory insufficiency
- Brain injury or Glasgow Coma Scale < 8
- Potential airway compromise
- Shock
- Overdose

#### Indications for Neuromuscular Blockade

- Clenched Jaw
- Elective intubations for airway protection
- Active gag reflex in patients with GCS < 8
- Uncontrollable combative behavior
- Burn injury involving airway
- To maintain spinal precautions in a suspected spinal injury
- Overdose

#### Guidelines for Neuromuscular Blockade Intubations

For trauma patients who are hemodynamically unstable without a palpable radial pulse that can be adequately ventilated with a bag-valve-mask, begin transport ASAP if transport time is less than 10 minutes. If the patient is unstable and cannot be adequately ventilate with a bag-valve-mask, secure an airway prior to transport.

For patients who are hemodynamically stable with a palpable radial pulse, and cannot be adequately ventilated with a bag-valve-mask, intubate immediately without regard to transport time.

If the patient has mid-face injuries or an airway obstruction and you are unable to perform oral intubations with paralytics and in-line traction, perform a cricothyrotomy (see Cricothyrotomy Protocol).

#### Intubated Patients

All patients that have been intubated shall have the following assessments, criteria, or items performed and/or documented on the pre-hospital care report.

##### ET Tube Verification

- Tube passing through the cords
- Breath sounds present bilaterally
- Absent air movement in abdomen
- Rise and fall of chest
- End-tidal CO<sub>2</sub> reading of 35 – 45 mm Hg
- Fogging of the tube

## Charting

- Indications for intubations
- Preoxygenation before intubations
- Patient's weight if paralytics were used
- Number of attempts

# Airway Management Procedure (Cont.)

## EMT P

### Cricothyrotomy

#### Indications

Acute upper airway obstruction which cannot be relieved by other maneuvers  
Patients who meet the criteria to be intubated per the airway management protocol and cannot be ventilated with a bag-valve-mask and for whom oral intubations and intubations with paralytics has been unsuccessful.

#### Procedure

Expose the neck.  
Identify the trachea, and then locate the slight depression just below the notch of the thyroid cartilage. This is the position of the cricothyroid membrane.  
Prepare site: Clean the neck with alcohol, betadine, or soap.  
Follow the manufacturer's directions of the department-approved cricothyrotomy device.  
Dress the wound.

#### Precautions

Bleeding is common if you trespass away from the cricothyroid membrane, but rare if you stay in the right area. If bleeding occurs, use suction and pressure, and proceed.  
Be familiar with the local anatomy:  
Major vessel cannulation or injury may result in a stroke.  
Posterior penetration may result in injury to the esophagus.  
Cricothyroid membrane is inferior to the vocal cords.  
Cricothyroid membrane is superior to the thyroid and its vessels.  
Lateral lays the cricoid arteries and jugular veins.

#### Charting

All patients that have had a cricothyrotomy shall have the following assessments, items, or criteria performed and / or documented on the pre-hospital care report.

Indications for cricothyrotomy

Tube size, how secured

#### Cricothyotomy Verification

Breath sounds present bilaterally

Absent air movement in abdomen

Rise and fall of chest

Carbon Dioxide Detection, normal 35 – 45 mm Hg

# Chest Decompression

## EMT P

### Procedure

Be certain the following equipment is in the chest decompression kit.

- 2-large bore angiocath needles
- Alcohol wipes
- Sterile 2x2 gauze pads
- Heimlich type valves
- Tape

Select site: Expose the entire chest. The mid-clavicular line at the 2<sup>nd</sup> intercostal space is the preferred site.

Mid-auxiliary at the 5<sup>th</sup> intercostals space if chest trauma is present

Prepare site: Clean the chest vigorously with alcohol, betadine, or soap.

Insert needle through skin at the selected site over the superior margin of the rib.

Hit the rib and then slide over it since the blood vessels run in the groove under each rib.

Attach Heimlich-type valve for continued decompression.

Dress the area and secure with tape.

### Indications

Traumatic cardiac arrest

History consistent with tension pneumothorax, i.e., chest trauma, COPD patient on positive pressure ventilation

Signs consistent with tension pneumothorax;

- Progressive respiratory distress
- Shock, hypotension
- Distended neck veins (may not be present)
- Tracheal deviation away from affected side (late sign)
- Hyperexpanded chest on affected side
- Asymmetrical movement on inspiration
- Drum-like percussion on affected side
- Increased resistance to positive pressure ventilation, especially if intubated.

### Precautions

Exact diagnosis is paramount. Simple pneumothorax has one set of signs and tension pneumothorax has another set in addition.

Patient's chest should be auscultated often for the return of tension or other respiratory complications.

# Cardioversion

## EMT P

### Procedure

Versed 2.5-5 mg IV or 10 IM, repeat as needed to a maximum of 10 mg, premeditated whenever possible

Place defibrillator pads on the patient as indicated

Turn on synchronized (sync) mode

Charge defibrillator to 50J for PSVT or A-Flutter, 100J for V-tach or A-fib to start

Assure no one is in contact with the patient

Defibrillate, holding button until defibrillation is complete

If unsuccessful, charge and resynchronize to 100J for PSVT or A-Flutter, or 200J for V-tach or A-fib and repeat step

Continue increasing charge (200J, 300J, and 360J) until resolved, max 360J

### Contraindications

Poison or drug induced tachycardia

# CPAP

## (Continuous Positive Airway Pressure)

### EMT's Adult and Peds

#### Procedure

- Place patient in position of comfort
- Assess VS, SpO<sub>2</sub>, HR and Rhythm
- Connect CPAP unit to suitable O<sub>2</sub> supply and apply breathing circuit to device
- Place delivery device over mouth and nose
- Increases in CPAP pressure until improvement in patient's SpO<sub>2</sub> and symptoms to max of 10 cm H<sub>2</sub>O
- **Peds** under 12 of age with well fitting mask to a max of 5 cm of H<sub>2</sub>O
- Continue treatment throughout transport
- Continue coaching patient to keep mask in place and readjust as needed
- If respiratory status/level of consciousness deteriorates, remove mask and consider aggressive airway management
- Advise receiving hospital as soon as possible
- EMT P and I consider sedation to facilitate CPAP
- Do not remove CPAP until hospital therapy is ready to be placed on the patient

#### Indications

Respiratory distress secondary to suspected congestive heart failure, acute cardiogenic pulmonary edema, pneumonia, chronic obstructive pulmonary disease (asthma, bronchitis, emphysema) and/or patient is complaining of shortness of breath for reasons other than pneumothorax

Has the ability to maintain an open airway

Has a systolic blood pressure above 90 mmHg

#### Contraindications

Unconsciousness

Suspected pneumothorax

Inadequate respiratory effort

Shock/Hypotension

Chest trauma

Persistent nausea/vomiting

Inability to obtain mask seal

Has active upper GI bleeding or history of recent gastric surgery

#### Note

Monitor for gastric distension

# Death in the Field

## Procedure

Determining death in the field (DIF) without initiating resuscitative efforts should be considered under the following conditions:

Patient qualifies as a Do Not Resuscitate (DNR) or DNAR patient (See Advance Directives and Do Not Attempt Resuscitation protocol)

A patient without respirations in a mass casualty incident or a multiple patient scene where the resources of the system are required for the stabilization of living patients

Decapitation

Rigor Mortis in a warm environment

Decomposition

Skin discoloration in dependent body parts (dependent lividity)

### Traumatic cardiac arrest

At a trauma scene the EMT should consider the circumstances surrounding the incident including the possibility that a medical event (cardiac arrhythmia, seizure, and hypoglycemia) preceded the accident. When a medical event is suspected, treat as a medical cardiac arrest.

In addition to the conditions listed above, a victim of trauma should be determined to be dead at the scene if

The patient is a victim of blunt trauma and has no vital signs (no respirations or pulse) when the EMT arrives at the scene

Opening the airway does not restore vital signs. (Transport the patient only if there are extenuating circumstances.)

A cardiac monitor may be helpful in determining death in the field:

A narrow complex rhythm (QRS) suggests profound hypovolemia, which may respond to fluid resuscitation. Ventricular fibrillation should raise your index of suspicion for a medical event

In instances prior to transport where the patient declines to the point of no vital signs, a monitor should be applied to determine if the patient has a viable rhythm

Note: If CPR has been started by a bystander, family, or first responder these conditions may still be used to determine DIF without OLMC

### Medical Cardiac Arrest

If the patient's ECG shows asystole or agonal rhythm upon initial monitoring, and if in the best judgment of the EMT in charge the patient is not resuscitatable;

The EMT in charge should determine DIF and notify the law enforcement or;

Begin BLS procedures and obtain OLMC with available patient history, current condition, requesting to discontinue resuscitation efforts or;

For the patient who has shown to be unresponsive to appropriate advanced cardiac resuscitative measures, and declining into asystole or agonal rhythm (after checking all leads, electrodes).

The EMT in charge may discontinue resuscitation efforts

Patients in Pulseless Electrical Activity (PEA) who have not responded to appropriate advanced cardiac resuscitative measures for PEA may discontinue resuscitation efforts after OLMC

All patients in Ventricular Fibrillation should in general be transported, except when Advanced Directives, DNAR orders, or other withholding resuscitative efforts apply. If in doubt, obtain OLMC.

# Death in the Field

## Procedure Continue

Medical Cardiac Arrest (BLS):

If after applying the semi-automatic defibrillator, the patient who is not breathing, pulse less and does not have a shockable rhythm (No Shock Indicated) the EMT should:

Begin BLS procedures and obtain OLMC with available patient history, current condition with a request to discontinue BLS resuscitation.

## Documentation

All patient care should be documented with procedure and time

When a cardiac monitor is used, in all cases of non-resuscitation or stopped resuscitation, a strip showing ECG calibration, and the patient's rhythm should be recorded and attached to the Prehospital Care Report,

All conversations with attending physicians or OLMC should be carefully documented with physician's name, times, and instructions.

## Precautions

Most victims of electrocution, lightning, and drowning should have resuscitative efforts begun and be transported to the hospital

Hypothermia patients should be treated per the Hypothermia Protocol.

# Nasogastric Tube

**EMT P Adult and Peds**

## **Required Equipment**

Sump tube (16-18 French for adults), *Peds* = (8-12 French for pediatric pts)

50 or 60-ml syringe with plain tip

Water-soluble lubricant

Adhesive tape

## **Procedure**

Pre measure, wrap tubing around gloved hand to form curve

Inspect the nasal passages prior to attempting nasogastric tube placement

Lubricate the nasal passage with a water-soluble lubricant

Placed the tube in the nostril that has the largest opening

Insert slowly down the esophagus until you reach the stomach

Attach the syringe to the end of the tube and inject air

Listen for air movement in the stomach

Secure the tube with tape

Withdraw the air as need using the syringe

## **Indications**

Nasogastric tube placement is indicated in cases where evacuation of air from the stomach is required during cardiac and respiratory arrest.

## **Contraindications**

Patients with severe facial trauma, especially trauma that involves the nasal area

Patients with epiglottitis or croup (laryngotracheobronchitis)

Closed head injury

## **Notes**

For the patient who is already intubated, the gastric tube may be placed orally under direct laryngoscope visualization of the esophagus.

## **Precautions**

## **Complications**

Bleeding from the nose is a common complication of nasogastric intubation. It frequently occurs when too large a tube is used or if the tube is not adequately lubricated. It is not uncommon for the tube to curl up inside the pharynx as placement is attempted. If this occurs, the tube should be withdrawn and placement reattempted.

# Patient Assessment

## Assessment Guidelines

Assess the entire patient, not just one body part or region.

Do not let graphic wounds distract from something life threatening.

Learn what is abnormal by studying what is normal.

The only way to become good at patient assessment is to practice.

## FR and EMT's

### Primary Survey

Airway, which includes C-spine

Breathing (Look, Listen, Feel)

Circulation and bleeding

Check for presence of pulse, rate, strength, and regularity. Check perfusion by assessing skin color, temperature and capillary refill.

Pulses obtained show blood pressures of:

Carotid: >60mm Hg

Femoral: >70mm Hg

Radial: >80mm Hg

Disability level of consciousness (AVPU: alert, voice, pain or unconscious)

Expose injury site and protect from the environment

Note: correct the problem of the area you are surveying prior to moving on to the next area.

### Patient History

(S) Pain and symptoms

Onset and provocation - What brought it on?

Quality - What does it feel like?

Radiation - Does it move anywhere else?

Intensity - How bad is it using the scale of 0 - 10?

Chronology - How long has it lasted and have you had it before?

Aggravation and Alleviation - What, if anything, makes it worse or better?

Associated symptoms - nausea, vomiting, diaphoresis, shortness of breath, etc.

(A) Allergies: medications and others

(M) Current medications (Including over-the-counter medications and vitamins)

(P) Past medical history: Diabetes, epilepsy, myocardial infarction, congestive heart failure, emphysema, asthma, aneurysm, alcoholism, substance abuse, etc.

Past pertinent surgery: appendectomy, coronary bypass, carotid, eye, back, etc.

(L) Last meal

(E) Event (Chief complaint)

### Vital Signs

Minimum of two sets required.

For extended periods of time, vitals should be taken every half hour.

With serious conditions, vital signs should be checked frequently.

With critically injured patients, the FR or EMT may be unable to obtain vital signs (airway problems, etc.).

If vital signs were not obtained, FR or EMT must document why.

Obtain and document vitals before and after drug administration.

## **Patient Assessment**

### **Focused Survey**

#### **FR and EMT's**

Patient Positioning: Upright trying to breathe, curled up in pain, holding very still guarding an injury.

Skin: Color, temperature and moisture.

Head Inspection: Obvious trauma, Cerebrospinal fluid in ears and nose, Pupils – symmetry, Foreign objects in mouth (teeth etc.)

Neck Inspection: Obvious trauma

Trachea: Jugular venous distention, Neck muscles (tense, guarding to cervical region)

Chest: Inspection (obvious trauma, symmetry), Palpation (deformities, equal expansion),

Auscultation (breath sounds - quality and volume), Percussion (dullness or tympany)

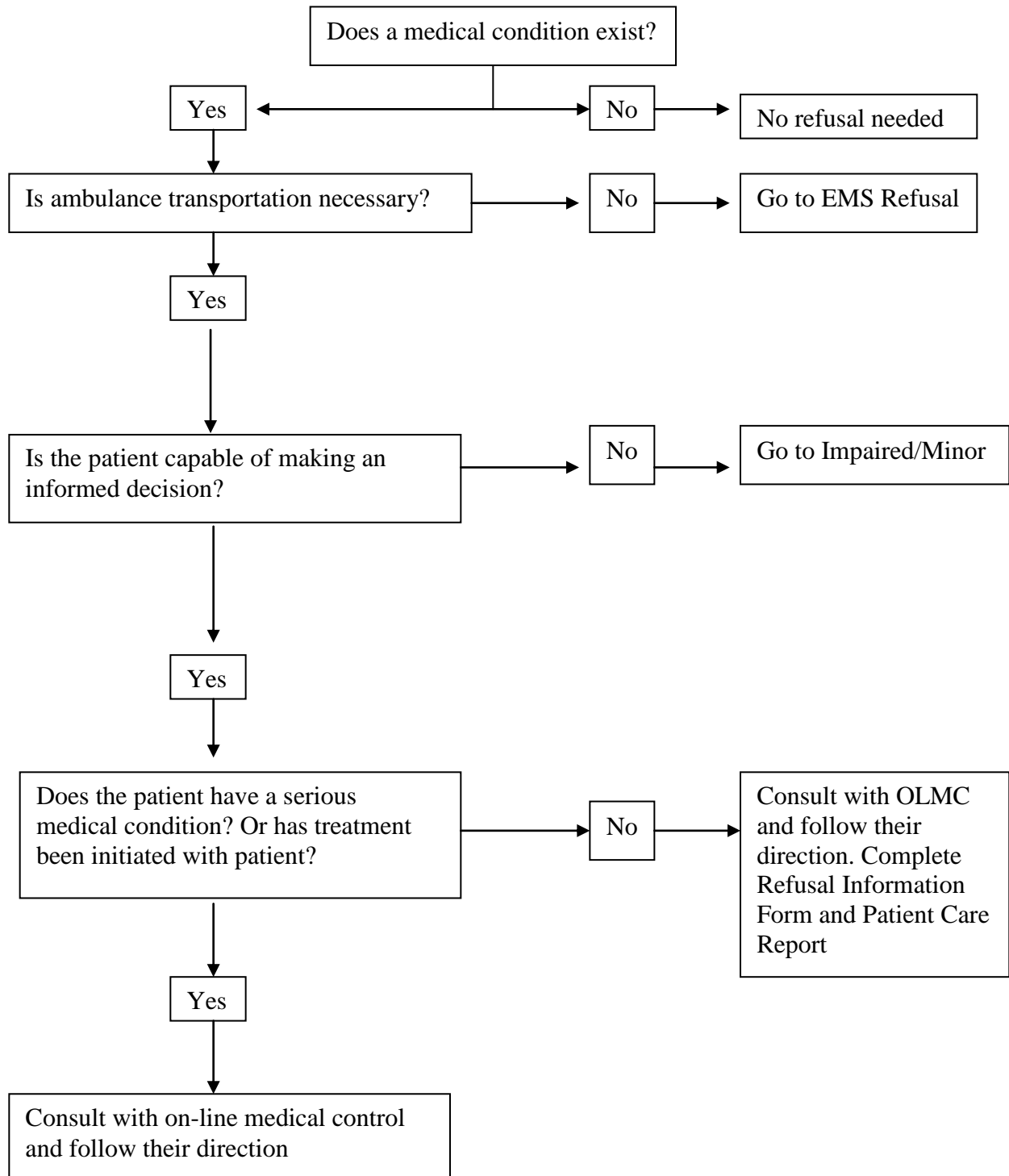
Abdomen: Inspection (trauma, distention, etc.), Palpation (guarding, rebound tenderness, masses, etc.), Auscultation (bowel sounds present, hyper/hypoactive)

Pelvis: Inspection (obvious trauma, symmetry, etc.), Palpation (movement and pain)

Extremities: Obvious trauma and function (Can patient use affected limb?), Palpation (crepitation, swelling, deformity, distal pulses), Sensory and motor movement and range of motion. Note: clavicles are included with extremity survey.

# Patient Refusals & No Transports

## Procedure



# Patient Refusals & No Transports

## Purpose

Refusal of medical care and transport is a difficult problem for the pre-hospital EMS system. The pre-hospital EMS system is not designed to provide or arrange alternative or definitive care in most instances, at this time). In terms of liability, the patient not transported poses a very high risk. This protocol will define situations in which it is appropriate to obtain a refusal and also define other situations with possible alternatives.

## Situations

There are several situations EMTs may be faced with in regards to no-transport:

1. People in which no medical need exists. (In this situation no refusal needed.)
2. There are situations where the EMS system has been activated and the EMTs find that no medical condition exists upon their arrival. Examples of no medical need include motor vehicle collisions with no injuries or the arrival at a scene with no patient. The EMT should always assume a medical condition exists until proven otherwise. Even minor injuries may constitute a medical need.
3. People with normal decision making capacity who, after being informed of the potential risks and benefits of treatment, voluntarily refuse further services. In this case, the refusal information form shall be used and attached to the Pre-Hospital Care Report.
4. A patient with impaired decision making capacity including minors less than 18 years of age.
5. Power-of Attorney for Healthcare
6. A person for whom an alternative means of transportation is appropriate (EMS Refusal).

## Checklist for Informed Refusal

1. Give the patient accurate information about the possible medical problems and risks associated with not being treated and/or transported.
2. Have the patient verbalize these problems, risks of refusal and benefits of treatment/transport so that you are certain the patient understands them.
3. Make sure the patient is able to make a decision that is consistent with his or her beliefs and life goals.

### Person with Impaired Decision Making Capacity

1. Impaired decision-making capacity is defined as the inability of the person to understand the nature of his illness or injuries, or the risks and consequences of refusing care. The following people may fall into this category:
  - a. Minors < 18 years of age without documentation proving that they have been emancipated
  - b. A mother <14 y/o making a decision for her child
  - c. A patient with a head injury
  - d. People under the influence of drugs or alcohol
  - e. Patients with a psychiatric problem
2. In individuals with no medical need identified but who are deemed incapacitated, attempt to place the person with someone who is responsible

## **Patient Refusals & No Transports**

3. In patients with a minor medical needs but who are incapacitated and refusing care, make a reasonable attempt to assure that the patient receives medical care. Attempt to contact family, friends, or the patient's responsible party to help with care. On-line medical control should be contacted if there are problems concerning disposition of the patient
4. When a major medical condition exists for an incapacitated person who is refusing medical care, every reasonable attempt should be made to transport the person to the hospital. If at all possible, do not leave the incapacitated person at the scene. Use all available resources including law enforcement.
5. Attempt restraints and transport only if it can be done safely. (Refer to Patient Restraint protocol.)
6. If all resources have been exhausted (including on-line medical control and law enforcement) and the person cannot be safely restrained, the EMT may be forced to leave the incapacitated person at the scene. Document efforts well.
7. Documentation should reflect that the EMT used all reasonable attempts to transport the person to the hospital. Factors leading to the determination that the person was incapacitated should be detailed. These include general appearance of the patient, vital signs, history, a complete physical exam, mental status; indication of the presence of drugs or alcohol and the person's response to efforts by the EMTs to provide care. Also, all communication with law enforcement caseworkers, medical control, etc. should be well documented.
8. Do not allow an impaired patient to sign a refusal form. If such a patient signs a refusal form, the presumption is that he/she understands the information on the form. If the EMT believes the patient is incapacitated, there should be no presumption that he/she has decision-making capacity. Therefore, the refusal form should not be signed.

### **Person with Decision Making Capacity**

1. If the patient is believed to be able to make a decision, explain the risks of the illness or injury afflicting the patient and the possible consequences of refusing care and/or transport. If a serious medical need exists and the patient is believed to have decision-making capacity and still refuses care, enlist the help of law enforcement or family and friends to convince the patient that medical care is needed. Initiate on-line medical control when the patient is refusing medical care for a serious medical need or a potentially serious medical problem.
2. If a patient with decision-making capacity continues to refuse, the refusal form should be signed. The form encourages an evaluation of decision-making capacity and allows recording of formal medical consultation that may have occurred. The patient needs to sign only one form. The bottom copy is given to the patient with an explanation of the risks of refusal and benefits of treatment/transport along with information about seeking medical attention if the present condition deteriorates. The remaining copy is for the district.
3. Complete patient care form documentation of the call is important in addition to the refusal form. This should include a complete history and physical exam, vital signs, general appearance of the patient, mental competency, indication of drugs or alcohol, as well as the information included in the refusal checklist.

# Patient Refusals & No Transports

## Power-of-Attorney for Healthcare

Anytime an EMT encounters someone who has activated the EMS System and a refusal is requested based on the Power-of-Attorney for Healthcare, on-line medical control should be contacted.

## Guidelines for Contacting On Line Medical Control (OLMC)

Contact Medical Control (see instruction page)

1. Anytime you suspect the individual might have impaired decision-making capacity
2. Anytime an individual is refusing care and you suspect the person could have a serious medical problem
3. Anytime there is a conflict on the scene such as the family wanting a person to go, but the person refusing
4. For all minors (under 18) without an adult who has legal authority to refuse for the patient
5. Anytime you are uncertain of the risks the patient might encounter by refusing
6. Anytime treatment or medication have been given

## EMS Refusals

1. EMS refusals are appropriate when ALL of the following criteria are met,
  - a. The person has a minor injury or illness.
  - b. The person is ambulatory.
  - c. This injury or illness does not require ambulance transportation or the attendance of an EMT enroute to medical care.
  - d. The person has alternative means of transportation with a responsible person.
  - e. The person feels comfortable with this course of action.
2. Documentation should reflect the nature of the problem and factors leading to the determination that the illness or injury did not require ambulance transportation. Also, all communication with the patient, relatives, friends, law enforcement, and medical control should be documented.
3. Leave the patient copy of the refusal form with the patient and check the alternative patient disposition box.

## Notes and Precautions

1. 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
2. EMTs may treat and/or transport minors under the doctrine of implied consent when they require immediate care to save a life or prevent serious injury. This consent is also provided by these protocols (standing orders or off-line medical control).

# Patient Restraints

## FR and EMT's

Airway protocol, do not fight with the patient

Physical Restraints Procedure: A variety of methods may be used to restrain a patient. The objective is to control the patient, which involves securing the torso and all extremities.

Ensure sufficient manpower is available to control patient. Use law enforcement when available.

Place patient face up on long backboard, and pad under the patient's head and any other necessary areas to prevent further injury or restriction of circulation.

Secure all extremities to the backboard using tape, soft restraints, or flex cuffs.

Immobilize the head / neck whenever spinal injury is possible.

Isolate fingers using tape, socks, or other means.

Secure backboard to gurney for transport using additional straps if necessary.

Consider Hypoglycemia protocol if hypoglycemia is suspected

## EMT I, P

Large-bore IV, balanced salt solution, TKO or as indicated

If in shock follow shock protocol

Cardiac monitor

## EMT P

Chemical Restraint Procedure

Have sedative medications prepared for injection

Versed 2.5-5 mg IV or 5 mg IM may repeat once to a maximum of 10 mg. *Peds* = 0.1 mg/kg IV to a maximum of 5 mg or 0.2 mg/kg IM to a maximum of 10 mg

OLMC if additional doses are needed

## Physical Restraints Guidelines

**REMEMBER, patient combativeness may be caused by a treatable medical condition.**

Always treat for these potential conditions after restraint takes place. (See appropriate protocols.)

Use the minimum physical restraint required to accomplish necessary patient care and ensure safe transport. If law enforcement or additional manpower is needed, call for prior to attempting restraint procedures.

Never endanger yourself or your crew.

Avoid placing restraints in such a way as to preclude evaluation of the patient's airway, breathing, and circulation status.

Consider whether placement of restraints will interfere with necessary patient care or will cause further harm.

# Patient Restraints

## Chemical Restraint Guidelines

Sedative agents may be used to provide a safe method of restraining the uncontrolled combative patient who presents a danger to himself/herself or others, and to prevent the uncontrolled combative patient from further injury while secured by physical restraints.

These patients may include:

Alcohol, and/or drug-intoxicated patients

Restless, combative head-injury patients

Note: Assess the need for sedation carefully. The patient who is combative stands a lesser chance of injury when sedated.

## Documentation

The purpose of restraining the patient

The method(s) of restraining patient, both physical and chemical

The patient's response to restraints, both physical and chemical

Vital signs within 5 minutes after chemical restraint, and then every 10 minutes or as appropriate

Distal circulation every 15 minutes if physical restraints are used

Blood glucose level

# Rapid Sequence Intubation

## EMT P

1. Preparation Phase (0-10 minutes)
  - a. Ventilate the patient with 100% oxygen
  - b. Establish IV
  - c. Have suction ready
  - d. Monitor heart-rate with monitor
  - e. Monitor oxygen saturation with pulse oximeter
  - f. Have airway equipment ready
  - g. Select ET tube
  - h. Prepare laryngoscope and blade
2. Preoxygenations Phase (0-7 minutes)
  - a. 5 minutes of 100% oxygen or
  - b. Ventilate with bag-valve-mask with 100% oxygen
  - c. Begin Sellick maneuver
3. Pretreatment Phase (0-2 minutes)

Adult and **Peds** = Lidocaine 1.5 mg/ kg IV/IO  
**Peds** = Atropine 0.02 mg/ kg IV if pre-existing bradycardia or < 6 years old (0.1 mg minimum dose)
4. Paralysis Phase (Time 0)
  - a. Versed 5mg IV/IO. Dose may be repeat as needed to a maximum of 10 mg, **Peds** = 0.1 mg/kg IV, repeat as needed to a maximum of 5 mg
  - b. Succinylcholine 1.5 mg/ kg IV, **Peds** = <6 years old, 2mg/kg IV/IO if Succinylcholine is contraindicated use Rocuronium Adult or **Peds** 1mg/kg IV/IO, Dose may be repeated once if needed
  - c. Ventilate patient with 100% oxygen with bag-valve-mask
5. Pass the Tube Phase (0 + 45 seconds)
  - a. Intubate
  - b. Verify tube placement
  - c. Secure the tube
  - d. Rocuronium Adult or **Peds** 0.2mg/kg IV/IO, Dose may be repeated once if needed

## CRASH - RSI

1. Ventilate with 100% oxygen and establish IV/IO
2. Lidocaine Adult or **Peds** 1.5 mg/ kg IV/IO
3. Atropine 0.02 mg/ kg for **Peds**
4. Versed 2.5 to 5mg IV or IM, **Peds** = 0.1 mg/kg IV/IO, repeat as needed to a maximum of 5 mg, 0.2 mg/kg IM, repeat as needed to a maximum of 10 mg
5. Ventilate 4-5 times with bag-valve-mask
6. Succinylcholine 1.5 mg/kg IV or IO, **Peds** = <6 years old, 2mg/kg IV/IO if Succinylcholine is contraindicated use Rocuronium Adult or **Peds** 1mg/kg IV/IO, Dose may be repeated once if needed
7. Intubate after 45-90 seconds
8. Rocuronium Adult or **Peds** 0.2mg/kg IV or IO, Dose may be repeated once if needed

# Rapid Sequence Intubation

## CRASH-RAPID SEQUENCE INTUBATION

Ventilate with 100% oxygen and establish IV.
Versed 0.1 mg/kg IV.
Lidocaine 1.5 mg/kg IV.
Atropine 0.02 mg/kg IV for children < 6 years old. Minimum of 0.1 mg.
Ventilate with BVM at 100 % O <sub>2</sub> .
Succinylcholine Adult 1.5 mg/kg IV. Or Children 2.0mg/kg < 6 y/o
Intubate after 45-90 seconds.

### RAPID SEQUENCE INTUBATION DOSAGES

Weight 1 kg =2.2 lbs	Versed 0. 1mg/kg 5mg in 1cc	Lidocaine, 1.5mg/kg 100mg in 5cc	Atropine 0.02mg/kg 1mg in 10cc	Succinylcholine 1.5mg or 2.0mg/kg 200mg in 10cc <b>OR</b>	Rocuronium 1mg/kg 10mg in 1cc	ET Size	Rocuronium 0.2mg/kg 10mg in 1cc
7 kg (mo)	0.7mg/0.15cc	10mg/0.5cc	0.1mg/cc	14mg/0.7 cc	7mg/0.7cc	3.5	1.4 mg/0.2cc
10 kg (1 yr)	1mg/0. 2cc	15mg/0.75cc	0.2mg/2cc	20mg/1cc	10mg/1cc	4.0	2 mg/0.2cc
15 kg (3 yr)	1mg/0. 2cc	20mg/1cc	0.3mg/3cc	30mg/1.5cc	15mg/1.5cc	4.5	3 mg/0.3cc
20 kg (6 yr)	2mg/0.4cc	30mg/1.5cc	0.4mg/4cc	30mg/1.5cc	20mg/2cc	5.5	4mg/0.4cc
25 kg (8 yr)	2.5mg/0.5cc	40mg/2cc		40mg/2cc	25mg/2.5cc	6.0	5 mg/0.5cc
30 kg (10 yr)	2.5mg/0.5cc	45mg/2.25cc		40mg/2cc	30mg/3cc	6.5	6 mg/0.6cc
40 kg (12 yr)	2.5mg/0.5cc	60mg/3cc		60mg/3cc	40mg/4cc	7.0	8mg/0.8cc
50 kg/110 lbs	5mg/1cc	80mg/4cc		80mg/4cc	50mg/5cc	7.0	10mg/1cc
60 kg/132 lbs	5mg/1cc	90mg/4.5cc		90mg/4.5cc	60mg/6cc	7.5	12mg/1.2cc
70 kg/154 lbs	5mg/1cc	100mg/5cc		100mg/5cc	70mg/7cc	7.5	14mg/1.4cc
80 kg/ 176 lbs	5mg/1cc	120mg/6cc		120mg/6cc	80mg/8cc	8.0	16mg/1.6cc
90 kg/ 198 lbs	5mg/1cc	140mg/7cc		140mg/7cc	90mg/9cc	8.0	18mg/1.8cc
100 kg/220 lbs	5mg/1cc	150mg/7.5cc		150mg/7.5cc	100mg/10cc	8.5	20mg/2cc
110 kg/242 lbs	5mg/1cc	160mg/8cc		160mg/8cc	110mg/11cc	8.5	22mg/2.2cc
120 kg/264 lbs	5mg/1cc	180mg/9cc		180mg/9cc	120mg/12cc	9.0	24mg/2.4cc

# Transcutaneous Pacing

## **EMT P**

### **Procedure**

Be certain the following equipment is present:

- Combined defibrillator/pacer
- Pacing electrodes

Pain Management protocol

Ensure that the pacemaker leads are attached and the monitor is displaying a cardiac rhythm

Attach pacing electrodes to anterior/posterior or anterior/lateral chest just to the left of the sternum and spinal column respectively

Begin pacing at a heart rate of 80 beats per minute with 0 current output

Increase current in increments of 20 mA's while observing monitor for evidence of electrical capture, then confirm by checking pulses and blood pressure

Depending on patient comfort, consider decreasing current in increments of 5 mA's

Be sure to maintain capture

### **Indications:**

Transcutaneous pacing should be considered in the following settings:

Bradycardia (heart rate < 60), with evidence of inadequate perfusion, e.g. hypotension, or altered mental status

Asystole

### **Precautions:**

Transcutaneous pacing should not be used for the following situations:

Patients < 14 years of age

Patients meeting death in the field criteria

Patients with signs of penetrating or blunt trauma

# Trauma

## Triage Criteria

Patients are to be entered into the trauma system in ATAB 2 when they have been involved in a trauma incident and meet the following criteria.

Physiological and Anatomical Criteria patients in general should be transported to Good Samaritan Hospital (south end of the district) or Salem Hospital (north end of the district)

### 1. Physiological Criteria:

#### A. Adults:

- Systolic BP < 90mm/hg
- Respiratory distress (rate < 10 or > 29)
- Altered mental status as evidenced by a Glasgow Coma < 13

#### B. Pediatrics < age 14:

- Excessive tachycardia
- Abnormal capillary refill, > 2 seconds
- BP < 90 in a child > age 6
- BP < 60 in a child < age 6
- Respiratory distress
- Altered mental status

### 2. Anatomical Criteria:

- a. Flail chest
- b. Two or more obvious long bone fractures (humerus or femur)
- c. Penetrating injury to the head, neck, torso, or groin
- d. Amputations proximal to the wrist or ankle
- e. Spinal cord injury with limb paralysis.

Mechanism or EMT discretion can be transported to Samaritan Albany General Hospital

### 3. Mechanism of Injury:

- a. Heavy tool extrication time > 20 min
- b. Death of an occupant in the same vehicle
- c. Ejection from an enclosed vehicle.

### 4. EMT Discretion:

If, in the best judgment of the EMT the patient has been involved in an accident that has resulted in severe injury or the potential of severe injury, the EMT should enter that patient into the trauma system. The EMT's suspicion of trauma should be raised by the following factors.

(Consider entering the patient if the patient meets two or more of the following criteria):

- a. High energy transfer situations:
  - Falls > 20 feet
  - Pedestrian hit at > 20 mph or thrown 15 feet
  - Rollovers
  - Motorcycle, ATV, Bicycle Crashes
  - Significant intrusion into occupant space of vehicle
- b. Co-morbid factors:
  - Age < 5 or > 55
  - Past medical history of bleeding disorder or patient on anticoagulants, cardiac or respiratory disease, insulin-dependent diabetes, cirrhosis, or morbid obesity
  - Pregnancy
  - Immunosuppressed patient
  - Presence of intoxicants

# Trauma

# Trauma

## Transport Guidelines

1. After gaining access to the patient, the goal is to not exceed 10 minutes for any patient who is entered into the trauma system, document reason for extended scene times. Start IVs and initiate other care enroute to the hospital.
2. The stable, conscious, oriented patient will be allowed to determine destination hospital
3. If unable to establish and maintain an adequate airway, patient should go to the nearest acute care facility to obtain definitive airway control.
4. Patient destination should be directed using the following guidelines:
  - a. Patients should be transported to a level 1 or 2 trauma center
  - b. Patients should be transported to a Level 3 (Local) *or* Level 4 (Community) facility if the expected scene time and transport time to a Level 1 (Regional) or Level 2 (Area) trauma facility is significantly greater than transport time to the local hospital
  - c. On-Line medical control may override these standards based on patient condition, hospital resources, or multiple patient scenes. On-Line medical communication between the field and hospital is encouraged by ATAB2. Some examples would include:
    - 1) When the closest facility is not capable of meeting hospital resource standards.
    - 2) When transporting a patient to a facility to receive specialized care such as neurosurgery, burn care, pediatric surgical intervention, or cardio-pulmonary bypass.
    - 3) When there is a multiple patient scenario that would overwhelm the capabilities of the closest facility.
5. Air transport; follow Helicopter EMS (HEMS) in operation guideline

# Vascular Assess

## EMT I, P

### Intravenous Therapy

IV solutions generally consist of:

Balanced salt solution for volume replacement

Balanced salt solutions for medication drips

A saline lock may be substituted at the EMT's discretion

IV rates are usually wide open (fluid challenge) or TKO (To Keep Open)

Use umbilical cord IV if needed for new born

### IO Indications

An intraosseous infusion is indicated in situations where the urgent administration of fluids or medications is indicated and IV cannulation is either too difficult or too time consuming

Children under 5 years of age with a decreased level of consciousness

This procedure will not delay transport and should be secondary treatment to aggressive airway management

### Precautions

Potential complications include osteomyelitis, growth plate injury, and extravasation of fluid with compression of popliteal vessels or the tibial nerve

Do not forget about the airway

This procedure is not appropriate for alert patients without adequate anesthesia

## EMT I, P

### IO Procedure, *Peds*

Be certain the following equipment is in the I.O. kit.

One 15-gauge and one 18-gauge bone marrow needle

Alcohol wipes

Sterile 2x2 gauze pads

1 bottle normal saline flush

Two 5cc syringes

One 3-way stopcock

Tape

Select site: The proximal tibia is currently the preferred site in children. Avoid using a badly traumatized or infected leg.

Prepare site: Prep tibia with alcohol 1 cm distal and 1 cm medial to the tibial tuberosity

Fill one syringe with normal saline flush and set it aside.

Insert needle through skin with obturator in place at the chosen site. Once the bone has been encountered, direct the needle away from the joint (toward the foot) at a 30 to 45 degree angle.

The needle should be pushed through the cortex of the bone using a rotation (not rocking) motion until a "pop" or loss of resistance is felt.

Confirm placement: Remove obturator, attach 3-way stopcock, and then attach dry syringe and attempt to aspirate bone marrow.

When marrow is obtained, disconnect syringe saving bone marrow specimen for chemistry or future labs.

Flush needle: Attach syringe with saline flush and to flush the needle while watching for any soft tissue swelling.

Attach IV tubing and tape in place. If treating hypovolemic shock, a pressure infusion bag should be attached to facilitate rapid infusion.

# Vascular Assess

## EMT I, P

### IO Procedure, Adult

1. May be used in the severely comprised patient who is unconscious OR suffering from a life threatening illness or injury.
2. May be utilized in emergency situations when IV access attempts have been unsuccessful; e.g. antecubital veins and external jugular veins. The potential benefits of rapid vascular access must outweigh the risks of complication in using the FAST 1 device.
3. To be used in adult patients only! (Normal sized adults, not smaller adults)The only approved site is the adult manubrium, which is expected to have a thickness greater than 6.0mm.
4. CAUTION SHOULD BE USED for patients with severe skin compromise over the site, suspected or known fracture of the sternum, previous sternotomy, and severe osteoporosis.
5. Medications and IV fluids may be used through the FAST 1 device. Initial fluid boluses should be administered with a pressure bag. Further attempts at IV access should be made if large, rapid fluid administration is required.
6. REMEMBER: THE REMOVAL TOOL MUST BE LEFT ATTACHED TO THE PATIENT OR THE PHCR. NOTIFY THE PHYSICIAN IMMEDIATELY THAT THE PATIENT HAS A STERNAL IO DEVICE AND THAT IT REQUIRES A TOOL TO REMOVE. LEAVE INSTRUCTIONS OR EDUCATE THE PHYSICIAN ON THE REMOVAL PROCEDURE.