

AUTOMATIC TRANSPORT VENTILATORS

09/10/2013

[EMT, A-EMT, EMT-I, PARAMEDIC]

The ATV provides an automatic specific tidal volume, respiratory rate, and minute ventilation to a patient.

INDICATIONS

1. Use of the Automatic Transport Ventilator (ATV) is appropriate for patients weighing over 20 kg requiring short-term ventilatory support while being monitored by an EMT trained in its use.
2. The Automatic Transport Ventilator (ATV) may be used as a method of ventilating the patient once airway control has been established by other means (intubation, BVM, or King Airway®).

CONTRA-INDICATIONS

1. Patient weight of <20Kg.
2. Pneumothorax/Tension pneumothorax.

PROCEDURE

1. Determine the need for ATV and assure a clear airway using approved methods.
2. Insure all tubing is free from kinks, and all components are properly attached.
3. Set tidal volume (8-10 ml/kg). Begin with the Tidal Volume (TV) setting at the lower limit appropriate to the patient.
4. Set the inspiratory time control knob to the desired adult or child position. Rotate the control knob to either position until it is against the end stop.
5. Set the Breaths Per Minute (BPM) control to the desired rate of 12 for an adult and 20 for a child.
6. Occlude the outlet port of the patient valve assembly (or non-rebreathing valve). The audible pressure limit alarm should sound as the ventilator cycles through the delivery phase indicating proper operation.
7. Connect patient valve assembly to the resuscitation mask, endotracheal tube, tracheostomy tube or King Airway®.
*NOTE: follow approved methods for opening and maintaining a patent airway.
8. When assisting the unintubated patient, the rescuer may use both hands on the face mask to maintain a seal and proper airway position. Cricoid pressure may be applied with one hand as the other maintains a mask seal.
9. Check the following parameters immediately after connecting the device to the patient:
 - BPM - verify the number of breaths delivered to the patient for one full minute as indicated on the BPM knob. Adjust accordingly to achieve the desired rate.

AUTOMATIC TRANSPORT VENTILATORS

09/10/2013

[EMT, A-EMT, EMT-I, PARAMEDIC]

	<p>Verify after each adjustment.</p> <ul style="list-style-type: none"> • Tidal Volume (TV) - Observe patient's chest rise and fall. Expansion should appear normal and equal on both sides. Observation of adequate chest rise and fall is the desired goal. Do not rely solely on ATV setting. Verify TV occasionally. • Inspiratory Time (IT) - Verify the IT setting is set to the appropriate position and against the end stop. <p>10. If ventilating by mask, check oral cavity frequently for emesis. If vomiting occurs, clear airway by approved manner.</p>
<p>PRECAUTIONS</p>	<ol style="list-style-type: none"> 1. Automatic Transport Ventilators (ATVs) augment staffing by allowing personnel to perform tasks other than ventilation. The patient must always be attended while an auto-vent is in use. 2. If the pressure limit alarm sounds during the inspiratory phase and adequate chest movement does not occur, an increase in airway resistance, a blocked airway and/or stiff lung is probable. <u>Discontinue the use of the device and attempt to ventilate via other means.</u> 3. Monitor the compressed gas cylinder frequently. The cylinder should be changed at or near 200 psi. The ATV may not operate properly at cylinder pressures of less than 200 psi. 4. Biomedical service checks and maintenance of the ATV should be performed on a schedule to be developed by each agency using the ATV.

BLOOD SPECIMEN COLLECTION

01/15/2014

[A-EMT, EMT-I, PARAMEDIC]

INDICATIONS

Blood collection is indicated for:

- Use of the Cyanokit
- Source patient testing in the event of an exposure in a patient that is not transported.

Blood collection is at the discretion of the medic, and requires the initiation of an I.V in the field. The collection of blood should not delay care to the patient.

PROCEDURE

Use the following tubes for collection of a blood specimen:

- Two (2) 4ml green top tubes for cyanide testing.
- Two (2) tiger top tubes for source patient testing.

All specimens must be placed in a properly labeled collection kit.

- Label to include: (Template)
 - Patient Name: Last, first, middle initial (Smith, Sally A.)
 - Date of Birth
 - Date and Time Collected: (04/24/2012, 1500hrs)
 - Initials of the person who collected the specimen

For Source Blood in addition to the Patient Name include the last 4 of the exposed care giver's SSN with the first and last initial of the exposed care giver.

For cyanide testing, deliver the collection kit to the nurse assigned to that patient.

For exposures, when the patient is not transported, agencies should ensure that the blood is delivered to a lab for exposure testing. If taking the blood to RBH, the charge nurse should be alerted. All agencies should follow their established procedures.

BLOOD SPECIMEN COLLECTION

01/15/2014

[A-EMT, EMT-I, PARAMEDIC]

SPECIAL INFORMATION

1. It is understood that there will be occasions in which the patient's critical condition will necessitate the omission of obtaining a blood specimen in the field. In the event that this was an exposure the medic should contact the charge nurse to ensure that source patient testing is completed.
2. The minimum size IV catheter which can be used to collect a blood specimen is a 20 gauge.

CAPNOGRAPHY/ETCO₂
12/03/2013

[EMT, A-EMT, EMT-I, PARAMEDIC]

INDICATIONS	<p>Capnography/End Tidal Carbon Dioxide (ETCO₂) is used to measure effectiveness of ventilation by measuring the amount of carbon dioxide in exhaled air. It may be helpful for the following:</p> <ol style="list-style-type: none"> 1. Monitoring severity of pulmonary disease and evaluating response to therapy 2. Determining tracheal vs. esophageal intubation. 3. Predicting outcomes in cardiac arrest patients. A sudden rise in ETCO₂ can indicate an increase in metabolic activity/ROSC. Conversely, after working a cardiac arrest using ALS guidelines ≥ 20 minutes and having an ETCO₂ of ≤ 10 the likelihood of ROSC is poor and is used as a benchmark for stopping resuscitation efforts. 4. Guiding ventilation in patients with acidosis or increased intracranial pressure.
PROCEDURE	<ol style="list-style-type: none"> 1. Apply ETCO₂ device. 2. If patient is being mechanically ventilated, attempt to maintain ETCO₂ output between 35-45 mm Hg. If patient is suspected to be acidotic and/or compensating with hyperventilation prior to RSI target ETCO₂ to 15-20 range. This may require ventilatory rate in the range of 20-30 /min. This does not apply to patients suspected of head injury. In patients suspected of increased ICP (head injury/stroke) ventilate at rate to maintain ETCO₂ value of 35-40. 3. In patients with signs of herniation, ventilate at a rate to maintain an ETCO₂ value of 30-35. 4. Document ETCO₂ values
KEY POINTS	<ol style="list-style-type: none"> 1. A sudden drop in ETCO₂ with wave form changes may indicate any of the following events: <ol style="list-style-type: none"> a. A change in the minute volume (increased respiratory rate & increase in tidal volume.) b. Decrease in metabolic rate c. Decrease in cardiac output. d. Possible pulmonary embolus. e. ET tube misplaced 2. DO NOT rely on ETCO₂ monitoring solely to determine the efficacy of intubation.

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CARDIOVERSION

09/10/2013

[PARAMEDIC]

- Synchronized cardioversion is only for rhythms generating a pulse - **See Cardiac Tachyarrhythmia with A Pulse**

INDICATION	<ul style="list-style-type: none"> • Supraventricular or Ventricular tachyarrhythmia with hemodynamic compromise
PROCEDURE	<ol style="list-style-type: none"> 1. Place defib pads on patient 2. Consider midazolam for sedation, if time and patient condition permits 3. Turn on synchronization 4. Charge monitor to 100J 5. Deliver shock 6. Check patient 7. If patient is shocked into V-Fib, turn off synchronization and defibrillate the patient. 8. If patient does not convert, check that synchronization is still on, increase the energy (120J, 150J, 200J) and shock again.

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CPAP	
12/13/2013	
[EMT, A-EMT, EMT-I, PARAMEDIC]	
INDICATIONS	<ol style="list-style-type: none"> 1. CHF 2. COPD 3. Respiratory Distress 4. Bariatric patients with respiratory distress or hypoxia (SpO₂<92%) when placed in a supine position or LBB.
INCLUSION CRITERIA	<p>Respiratory distress with any of the following:</p> <ol style="list-style-type: none"> 1. Retractions or accessory muscle use 2. Pulmonary edema 3. Hypoxia despite supplemental oxygen (SpO₂ <92%) 4. Respiratory fatigue 5. Respiratory rate>25
EXCLUSION CRITERIA	<ol style="list-style-type: none"> 1. Resp./ Cardiac Arrest 2. BP < 90 Systolic 3. Unresponsive to speech 4. Inability to maintain patent airway 5. Major Trauma/Pneumothorax 6. Vomiting or active GI bleeding 7. Asthma 8. Not indicated for pediatric patients.
PROCEDURE	<ol style="list-style-type: none"> 1. Monitor vital signs every ten minutes, <ul style="list-style-type: none"> • 1st set with SpO₂ at room air or home oxygen 2. Oxygen therapy, NRB Mask 3. Administer CPAP using max. FiO₂ <ul style="list-style-type: none"> • COPD 5cm H₂O • CHF 10cm H₂O 4. If patient is stable/improving, continue CPAP, reassess and consider decreasing FiO₂ to maintain SpO₂ ≥ 94% 5. If patient is deteriorating, consider intubation– See RSI Protocol

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CRICOTHYROTOMY
06/10/2014

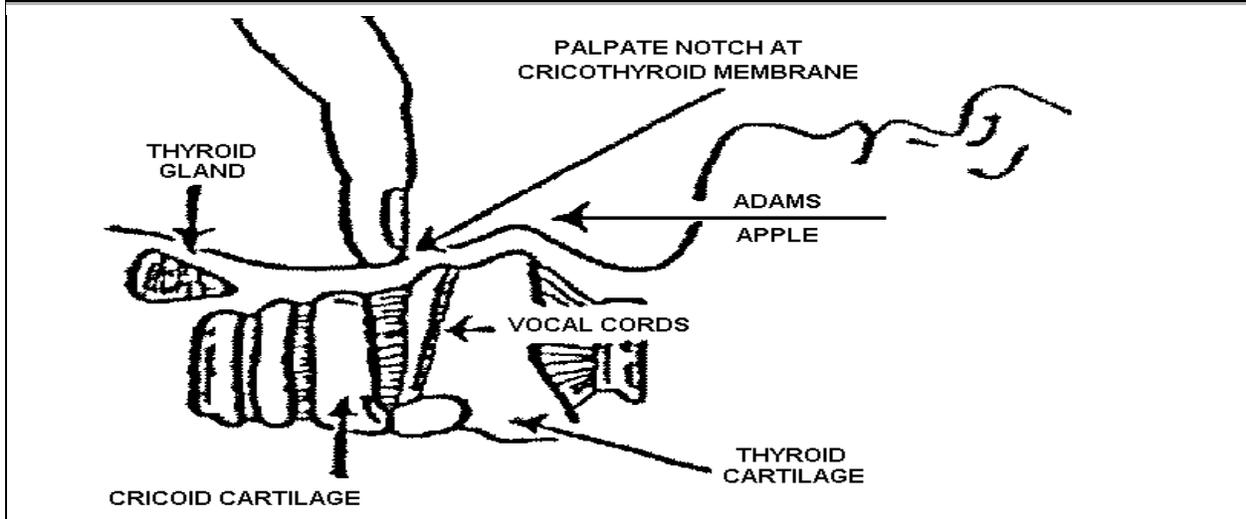
[PARAMEDIC]

<p>INDICATIONS</p>	<p>Used when other attempts to establish an airway have been unsuccessful and definite airway compromise exist such as:</p> <ul style="list-style-type: none"> • Foreign body obstruction • Facial or laryngotracheal trauma • Inhalation, thermal, or caustic injury of the upper airway • Oropharyngeal/tongue swelling with airway compromise (angioedema) • Upper airway hemorrhage • Epiglottitis or croup <p>**CRICOTHYROTOMY BY ANY MEANS IS NOT RECOMMENDED FOR ANY PATIENT < 10 kg (22 lbs)</p>
<p>PROCEDURE: SURGICAL CRICOTHYROTOMY (Patients ≥ 8 years)</p>	<ol style="list-style-type: none"> 1. Assemble equipment: Antiseptic, #15 Scalpel, Trach Hook, #6 cuffed ETT with stylet, 4 x 4 sponges, umbilical tape. 2. Cleanse the site. 3. Stabilize the trachea with non-dominant hand and locate cricothyroid membrane. 4. Make a generous vertical incision through the skin to expose/locate the trachea and cricothyroid membrane. 5. Make a horizontal/stab incision into the cricothyroid membrane. 6. Insert tracheal hook and provide inferior traction to open incision and stabilize trachea. 7. Insert #6 cuffed ETT with a stylet or bougie and inflate cuff. 8. Confirm placement. 9. Secure tube.
<p>PROCEDURE: NEEDLE CRICOTHYROTOMY (Patients < 8 years)</p>	<ol style="list-style-type: none"> 1. Assemble equipment. Antiseptic, 14g or 16g Angiocath, 5ml Syringe, 3.0 mm ETT adapter, oxygen, BVM. 2. Expose the neck. 3. Identify cricothyroid membrane. 4. Prep area. 5. Stabilize trachea by holding the thyroid cartilage between the thumb and fingers. 6. Attach syringe to needle. Insert at 45 degree angle caudally into trachea. 7. Aspirate with syringe. 8. Advance the catheter over the needle until hub is resting on skin then remove needle. 9. Attach 3.0 mm ETT adapter and ventilate with BVM. 10. Confirm placement 11. Secure device.

CRICOTHYROTOMY

06/10/2014

[PARAMEDIC]



DEFIBRILLATION
12/16/2013

[EMR, EMT, A-EMT, EMT-I, PARAMEDIC]

Defibrillation with either an Automatic External Defibrillation (AED) device or a manual defibrillator involves the delivery of non-synchronized direct electric current to the myocardium.

INDICATIONS	<p>Patients who are unconscious and are not breathing normally that have:</p> <ul style="list-style-type: none"> • Ventricular fibrillation. • Ventricular tachycardia without a pulse. • Ventricular tachycardia with inadequate perfusion, and for whom effective and rapid synchronized cardioversion is impossible.
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SPECIAL INFORMATION	<ul style="list-style-type: none"> • Always check the leads if clinical findings are at odds with monitor rhythm. • Avoid direct contact with the patient during defibrillation. • Ensure no one else is in contact with the patient. • Dry chest wall if wet. • Defibrillation may not be successful in ventricular fibrillation due to severe hypothermia until core temperature is above 86°F (30°C). • Patients with Automatic Implantable Cardioverter-Defibrillators (AICD) will need external defibrillation if the AICD is ineffective. • If defibrillation is needed on a patient with a permanent implanted pacemaker or AICD, the defibrillator pads should be placed at least 1 inch from the device.
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DEFIBRILLATION DELIVERY DEVICE

ADULT (AED) EMR, EMT, A-EMT, EMT-I, PARAMEDIC	<ol style="list-style-type: none"> 1. Establish unresponsiveness. 2. Turn the AED on 3. Follow the prompts of the device 4. Place pads on the chest as recommended by the manufacturer.
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PEDIATRIC (AED) EMR, EMT, A-EMT, EMT-I, PARAMEDIC 	<ol style="list-style-type: none"> 1. Establish unresponsiveness. 2. Turn the AED on 3. Switch the AED to Pediatric Mode if possible. 4. Follow the prompts of the device 5. Place pads on the chest as recommended by the manufacturer. If pediatric mode is unavailable place pads anterior posterior.
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DEFIBRILLATION
12/16/2013

[EMR, EMT, A-EMT, EMT-I, PARAMEDIC]

<p>MANUAL DEFIBRILLATOR ADULT EMT-I, PARAMEDIC</p>	<ol style="list-style-type: none"> 1. Establish unresponsiveness 2. Turn the defibrillator on 3. Place pads on the chest as recommended by the manufacturer 4. Select the energy to be delivered as per the defibrillator manufacturer or agency specific guidelines 5. Charge the defibrillator 6. Clear the patient 7. Deliver the defibrillation
<p>MANUAL DEFIBRILLATOR PEDIATRIC EMT-I, PARAMEDIC</p> 	<ol style="list-style-type: none"> 1. Establish unresponsiveness 2. Turn the defibrillator on 3. Place pediatric pads on the chest as recommended by the manufacturer or anterior posterior 4. Initial energy selection should be 2 J/kg 5. Charge the defibrillator 6. Clear the patient 7. Deliver the defibrillation 8. Subsequent energy selection should be 4 J/kg until conversion.

ECG MONITORING -12 LEAD

12/13/2013

[EMT-I, PARAMEDIC]

Single Monitoring leads help establish the rate and regularity of the heartbeat. They also help identify if there is an arrhythmia.

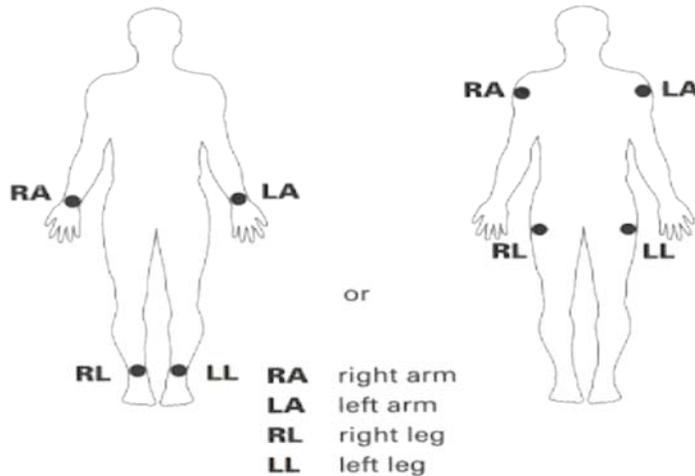
The 12-Lead ECG is used to evaluate patients for the possibility of acute myocardial infarction (AMI) and improve the evaluation of arrhythmias.

INDICATION	<ol style="list-style-type: none"> 1. Evaluate patient for the possibility of acute myocardial infarction (AMI), with or without chest pain. 2. Evaluation of arrhythmias (including trauma, electrical electrolyte abnormalities (e.g. hyperkalemia), and many other conditions.)
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PROCEDURE Limb Leads
The Limb Leads record activity from a vertical plane of reference.

Lead	Placement
RA/White	Right mid-clavicular line (MCL), below clavicle; or above anterior wrist
LA/Black	Left (MCL), below clavicle; or above anterior wrist.
LL/Red	Between 6th and 7th intercostal space, left MCL line; or ankle or thigh.
RL/Green	Between 6th and 7th intercostal space, right MCL line; or ankle or thigh.

Limb Leads



ECG MONITORING -12 LEAD
12/13/2013

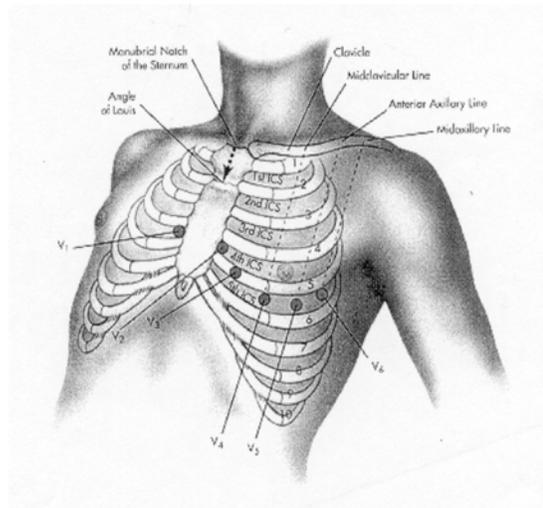
[EMT-I, PARAMEDIC]

Precordial Leads

Certain landmarks help with the location of electrode placement

- Angle of Louis - this structure is a ridge on the sternum directly below the manubrial notch at the top of the sternum. Directly below and to the sides of the Angle of Louis is the second intercostal space. Use this to count down two more spaces for placement of V1 & V2.
- Mid-Clavicular Line - from MCL runs down to 5th intercostal space for V4.
- Axilla - left armpit, point where axilla meet the chest determines the Anterior Axillary line. V5 is positioned in horizontal alignment with V4 on the left Anterior Axillary line. Midway down the axilla is the Mid-Axillary Line. V6 is placed in horizontal alignment with V5 on the Mid-Axillary Line.

	Placement
V1	4 th Intercostal space to the right of the sternum.
V2	4 th Intercostal space to the left of the sternum
V3	Midway between V2 and V4
V4	On the mid-clavicular line, at the 5 th intercostal level.
V5	On the anterior axillary line, at the 5 th intercostal level.
V6	On the mid-axillary line, at the 5 th intercostal level.



ECG MONITORING -12 LEAD

12/13/2013

[EMT-I, PARAMEDIC]

AMI Recognition

1. Common abnormal findings:

- ST Elevation (presumptive evidence of AMI)
- ST Elevation with Q Waves
- ST Depression (ischemia)
- T wave inversion (Subendocardial infarct or ischemia)
- Peaked T wave (Hyperacute Infarction)
- The presence of Q waves with ST elevation usually indicates an old infarction.

2. Basic Lead Groups

Leads	Areas of the Heart Muscle Seen
II, III, aVF	Inferior leads - lower portion of the heart.
V1 & V2	Septal leads - muscle between right & left ventricles.
V2, V3, V4	Anterior leads - front of the heart.
V4, V5, V6	Lateral pre-cordial leads - lateral aspects of the heart.
I & aVL	High lateral leads - lateral aspect from above

3. Location:

AMI Recognition

Limb Leads		Chest Leads	
I Lateral	aVR	V1 Septal	V4 Anterior
II Inferior	aVL Lateral	V2 Septal	V5 Lateral
III Inferior	aVF Inferior	V3 Anterior	V6 Lateral

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EZ-IO/IO INFUSION

09/10/2013

[EMT-A, EMT-I,PARAMEDIC]

Any substance which can be given intravenously can be administered via Intraosseous Infusion (I.O)

INDICATIONS	<ol style="list-style-type: none"> 1. Peripheral IV cannot be established in 2 attempts or 90 seconds AND the patient exhibits one or more of the following: <ol style="list-style-type: none"> a. An altered mental status (GCS \leq 8) b. Respiratory compromise(SaO₂ 80% after appropriate oxygen therapy) c. Respiratory rate < 10 or > 40 min d. Hemodynamic instability (Systolic BP of < 90) 2. May be considered PRIOR to peripheral IV attempts in the following situations: <ol style="list-style-type: none"> a. Cardiac Arrest b. Profound hypovolemia with altered mental status c. Patient in extremis with immediate need for delivery of medications and or fluids
CONTRA-INDICATION	<ol style="list-style-type: none"> 1. Fracture of the bone selected for IO insertion 2. Excessive tissue at insertion site with the absence of anatomical landmarks 3. Previous orthopedic procedures near insertion site 4. IO within 24 hours at the same site 5. Infection at the site selected for insertion
PROCEDURE	<ol style="list-style-type: none"> 1. Preferred site is proximal tibia, alternate site is proximal humerus 2. Gather and assemble equipment from the EZ-IO/IO Kit 3. Insert IO 4. Slowly administer lidocaine 2% IO to <u>conscious patients</u> <u>Adult: 20-40 mg slowly prior to saline flush</u> <u>Pediatric: 0.5 mg/kg slowly prior to saline flush</u> 5. Rapid flush immediately with NS <ul style="list-style-type: none"> • Adult: 10cc • Pediatric: 5cc 6. Secure the device

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GASTRIC DECOMPRESSION

12/16/2013

[EMT-I, PARAMEDIC]

Gastric decompression relieves gastric distention.

INDICATIONS	<ol style="list-style-type: none"> 1. To alleviate gastric distention with either an ET tube or King airway in place. 2. Persistently hypotensive patients with obvious gastric distention secondary to BVM ventilation (time permitting).
CONTRA-INDICATIONS	<p>Patients with:</p> <ul style="list-style-type: none"> • known esophageal varices • caustic ingestion • obvious skull fracture • severe head/facial injuries • suspected skull fracture
PROCEDURE	<ol style="list-style-type: none"> 1. Assemble equipment: <ul style="list-style-type: none"> • Proper size gastric tubes (12 or 18 Fr), lubricant, 30 or 60 cc syringe, tape and suction unit. 2. Measure tube length from mouth to earlobe, then down to tip of xiphoid process. 3. Lubricate end of tube. 4. Slightly flex head if not in spinal precautions. 5. In intubated patient: <ul style="list-style-type: none"> • Have partner manually stabilize ET tube • Gently insert laryngoscope to move tongue out of the way. • Insert gastric tube gently and advance toward stomach to premeasured depth. 6. In patient with King Airway: <ul style="list-style-type: none"> • Have partner manually stabilize King Airway, • Gently advance the gastric tube through the accessory port adjacent to the ventilation port. 7. Confirm placement by: <ul style="list-style-type: none"> • Aspirating gastric contents and by auscultation over the epigastrium while injecting 20-30 cc of air into the tube. 8. Secure the tube. 9. Mark and document tube size and depth.
PRECAUTIONS	<ol style="list-style-type: none"> 1. Never forcefully advance gastric tubes. They should advance easily and with minimal resistance. 2. Monitor oxygen saturation carefully to ensure gastric tube was not passed into the trachea.

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GCS**09/10/2013****[EMR, EMT, A-EMT, EMT-I, PARAMEDIC]**

Glasgow Coma Score (GCS) should be evaluated on all patients

Activity	Score	Infants	Children & Adults
Eye Opening	4	Spontaneous	Spontaneous
	3	To Speech	To Verbal Stimuli
	2	To Pain	To Pain
Total_____	1	No Response	No Response
Best Verbal Response	5	Coos, babbles	Oriented
	4	Irritable, cries	Confused
	3	Cries to pain	Inappropriate words
	2	Moans to pain	Incomprehensible sounds
Total_____	1	No Response	No Response
Best Motor Response	6	Normal Movement	Obeys commands
	5	Withdraws to touch	Localizes pain
	4	Withdraws from pain	Withdraws from pain
	3	Abnormal Flexion	Abnormal Flexion
	2	Abnormal Extension	Abnormal Extension
Total_____	1	No response	No response

Total GCS is the three categories added together. The best possible is 4/5/6=15, the lowest possible is 1/1/1=3.

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IMMUNIZATION ADMINISTRATION 06/09/2015 [EMT-I,PARAMEDIC]	
INDICATIONS	<ol style="list-style-type: none"> 1. Prepare and administer immunizations in the event of an outbreak or epidemic as declared by the Governor of the State of Oregon, the State Public Health Officer or a county health officer, as part of an emergency immunization program. 2. Prepare and administer immunizations for seasonal and pandemic influenza according to the CDC Advisory Committee on Immunization Practices (ACIP), and/or the Oregon State Public Health Officer’s recommended immunization guidelines. 3. Prepare and administer routine or emergency immunizations and tuberculosis skin testing, as part of an EMS Agency’s occupational health program, to EMS agency personnel.
PROCEDURE	<p>IM VACCINE ADMINISTRATION</p> <ol style="list-style-type: none"> 1. Draw the vaccine into a syringe. 2. Attach a 21 – 23 gauge needle to the syringe. 3. Select an appropriate site(s) based on access, muscle mass and volume: <ul style="list-style-type: none"> • Deltoid - 0.5 -2.0 ml • Quadricep - 0.5 -5.0 ml • Gluteal - 0.5 -5.0 ml • For infants and toddlers, IM vaccine administration is only recommended in the quadriceps 0.5-3.0 ml 4. Prep site and administer the medication. <p>SUB-DERMAL SKIN TESTING</p> <ol style="list-style-type: none"> 1. Draw the vaccine into a syringe. 2. Attach a 25-27 gauge needle to the syringe. 3. Select an appropriate site – Typically volar forearm 4. Prep site and administer the test solution
SPECIAL CONSIDERATIONS	<p>All personnel who are administering vaccinations should receive additional training.</p> <p>Vaccine information should be made available to anyone who receives vaccinations.</p>

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INTRAMUSCULAR MEDICATION ADMINISTRATION
05/14/2014 [EMT, A-EMT, EMT-I, PARAMEDIC]

INDICATIONS	Intramuscular administration of medication is indicated in patients where an IV is unable to be initiated or where in medic judgment it is in the best interest of the patient. See medication protocols for reference of which medications may be administered IM.
PROCEDURE	<ol style="list-style-type: none">1. Draw the medication into a syringe.2. Attach a 21 – 23 gauge needle to the syringe.3. Select an appropriate site(s) based on access, muscle mass and volume:<ul style="list-style-type: none">• Deltoid - 0.5 -2.0 ml• Quadriцеп - 0.5 -5.0 ml• Gluteal - 0.5 -5.0 ml• For infants and toddlers, IM medication administration is only recommended in the quadriceps 0.5 -3.0 ml4. Prep site and administer the medication.

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INTRANASAL MEDICATION ADMINISTRATION

05/14/2014

[A-EMT, EMT-I, PARAMEDIC]

Intra-nasal (IN) medications may be administered with a Mucosal Atomizer Device (MAD). Intranasal medications are absorbed through the nasal mucosa.

INDICATIONS

Patients in whom the intranasal route of administration is preferred.
Unable to obtain intravenous (IV) access and the medication is authorized to be administered IN.
Any of the following medications may be given IN

- Fentanyl
- Midazolam
- Narcan

CONTRAINDICATIONS

- Epistaxis (nose bleed)
- Nasal trauma
- Nasal septal abnormalities
- Nasal congestion or discharge

PROCEDURE

1. Patient should blow their nose if possible to clear the nares
2. The dose of the medication should be drawn into a syringe with a MAD device attached.
3. One half (1/2) the total dose is administered in each nare.
4. Administer medication by briskly compressing the plunger to expel and atomize the medication.

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INTUBATION 09/13/2016		[PARAMEDIC]
INDICATIONS	Endotracheal Intubation is indicated in the following: <ol style="list-style-type: none"> 1. Inadequate oxygenation (persistent O₂ sat < 85% despite maximal assistance with adjuncts/CPAP) 2. Inadequate ventilation (respiratory rate <8 or ETCO₂ >50) despite maximal assistance with adjuncts/CPAP 3. Patient expected to deteriorate, i.e. airway burns, etc. 4. Inability to maintain adequate airway, i.e. clenched jaw with airway obstruction, copious blood/emesis with evidence of aspiration despite maximal suctioning/positioning efforts, etc. 	
CONTRA-INDICATION	<ol style="list-style-type: none"> 1. Any patient under the age of 8 y.o. If the paramedic has concern about impending airway loss, contact medical control for direction. 2. Airway can be adequately maintained by alternative means. 3. Any situation in which the paramedic feels that a King Airway would be a safer alternative for the patient, i.e., unstable c-spine injury 	
PROCEDURE	<ol style="list-style-type: none"> 1. Assess for difficult intubation and have a fallback plan 2. Open airway and place oral/nasal airway 3. Pre-oxygenate with NRM or BVM with cricoid pressure 4. Suction if necessary – See Suctioning Protocol 5. Assemble equipment including: monitor, suction, pulse ox, and ETCO₂ 6. Consider RSI - See RSI Protocol 7. Intubate using controlled but timely technique 8. Maximum tube depths are 23 cm for men, 21 cm for women 9. Verify placement with ETCO₂ device, chest rise, and auscultation of epigastrium and lung fields. 10. Secure tube, consider cervical collar 11. Document the following: <ol style="list-style-type: none"> a. Pre-oxygenation/adjuncts used b. Number of attempts/operator(s) c. SaO₂ before, during, and post intubation d. ETCO₂ post intubation e. Visualization of cords f. Tube size and depth g. Method of confirmation (primary and secondary) 	

INTUBATION

09/13/2016

[PARAMEDIC]

- h. Medications used if RSI
- i. Any patient changes during contact
- j. Reconfirmation of tube placement after movements
- 12. **If continuous ETCO₂ is unable to be monitored and there are indications that the tube has become dislodged, the tube should be removed and BLS airway interventions should be used.**

IV THERAPY
05/05/2015

[A-EMT, EMT-I, PARAMEDIC]

Patients showing signs of distress or with an appropriate mechanism of injury should have IV access initiated as a precautionary measure.

With the exception of hyperthermia patients, use warmed fluid if available.

INDICATIONS

Fluid replacement

1. 16-18 gauge preferred in trauma or hypotensive adult
2. Use a standard drip set with 10-15 gtts/ml
3. Initiate a second IV line during transport if the patient is exhibiting obvious signs of volume loss
4. If the patient is showing signs of **shock** give a fluid challenge of up to 20 ml/kg except neonates (< 1 month of age), give 10 ml/kg

Medication line (Patient not suspected of having fluid loss)

1. 18-20 gauge preferred in adult
2. Use a standard set with 10-15 gtts/ml with a TKO (to keep open) rate or establish a saline lock

SPECIAL INFORMATION

Crews may respond to assist nursing staff in the establishment of an IV. In these cases, as long as there is staff present that is qualified to monitor the IV, the crew may establish the IV and leave the patient at the scene. Crews should use their equipment to start the IV and should document the call as a patient/facility assist or aid call.

If there is not qualified staff or enough appropriate staff at the scene to monitor the IV, the patient should be transported to the hospital. In these cases the facility should be reported to Senior and Disabled Services for potential improper patient placement.

If an IV can't be established, the patient may be transported to the hospital.

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KING AIRWAY 12/13/2013

[EMT, A-EMT, EMT-I, PARAMEDIC]

INDICATIONS	<ol style="list-style-type: none"> 1. Acute airway compromise 2. First line advanced airway in medical cardiac arrest patient ≥ 15 years of age 3. Second line advanced airway in medical cardiac arrest patients < 15 years of age and meets size appropriate criteria 4. May be used as part of a plan post intubation failure. 																		
CONTRA-INDICATIONS	<ol style="list-style-type: none"> 1. Patients with an intact gag reflex 2. Patients with a known esophageal disease 3. Patients who have ingested caustic substances 4. Patients less than 35 inches tall 																		
PROCEDURE	<ol style="list-style-type: none"> 1. Choose the Correct Size <table border="1" data-bbox="548 825 1110 1083"> <thead> <tr> <th>Size</th> <th>Height</th> <th>Cuff Volume</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>35-45 Inches</td> <td>25-35 cc</td> </tr> <tr> <td>2.5</td> <td>41-51 Inches</td> <td>30-40 cc</td> </tr> <tr> <td>3</td> <td>4-5 Feet</td> <td>60 cc</td> </tr> <tr> <td>4</td> <td>5-6 Feet</td> <td>80 cc</td> </tr> <tr> <td>5</td> <td>6+ Feet</td> <td>90 cc</td> </tr> </tbody> </table> 2. Pre-oxygenate with NRB Mask for 1-2 min. when conditions permit. 3. Test cuffs for leaks. 4. Lubricate using water soluble lubricant. 5. Pull tongue and jaw forward using gloved hand. 6. Suction if necessary – See Suctioning Protocol 7. Insert with blue orientation line touching corner of mouth. 8. Advance past base of the tongue. 9. As tip passes tongue, rotate tube to midline (blue orientation line faces chin). 10. Do not force tube. If the tube does not advance easily, redirect it or withdraw and reinsert. 11. Advance until base of connector is aligned with teeth or gums. 12. Inflate cuffs. 13. Ventilate, verify placement with ETCO₂ device, chest rise, and auscultation of epigastrium and lung fields 14. Document method of confirmation. 15. Consider insertion of a Gastric Decompression Tube. – See Gastric Decompression Protocol 	Size	Height	Cuff Volume	2	35-45 Inches	25-35 cc	2.5	41-51 Inches	30-40 cc	3	4-5 Feet	60 cc	4	5-6 Feet	80 cc	5	6+ Feet	90 cc
Size	Height	Cuff Volume																	
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5	6+ Feet	90 cc																	

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MEDICATION ADMINISTRATION

05/03/2016

[EMT, A-EMT, EMT-I, PARAMEDIC]

Administration of medication is indicated in patients where there is an identified medical emergency.

Medications come packaged in multiple ways, crews should always reference medication by name and not by color or shape of packaging.

Medications are often stored together in close proximity to one another in kits or in the same compartment on the medic unit. It is recommended that medications that look similar not be stored next to one another.

Medications will be administered with the Five Rights –

- Right Patient
- Right Drug
- Right Dose
- Right Route
- Right Time

See medication protocols for specifics on each medication.

Medications ideally will be drawn up and administered by the same person. In emergency medicine, it is recognized that this may not always be possible. In an effort to reduce the potential for medication errors, the following should be done.

- The person drawing up the medication should tape the empty vial to the syringe for identification by the person administering the medication.
- The person drawing up the medication should verbalize visual identification of the drug and confirmation of the order.
- In the event of a second crew present during medication administration, verbalize the 5 rights to the second crew member.

INTRANASAL ADMINISTRATION

INDICATIONS	<p>Unable to obtain intravenous (IV) access and the medication is authorized to be administered IN.</p> <p>Any of the following medications may be given IN</p> <ul style="list-style-type: none"> • Fentanyl • Midazolam • Narcan
CONTRA-INDICATIONS	<ul style="list-style-type: none"> • Epistaxis (nose bleed) • Nasal trauma • Nasal septal abnormalities • Nasal congestion or discharge

MEDICATION ADMINISTRATION	
05/03/2016 [EMT, A-EMT, EMT-I, PARAMEDIC]	
PROCEDURE	<ol style="list-style-type: none"> 1. Patient should blow their nose if possible to clear the nares 2. The dose of the medication should be drawn into a syringe with a MAD device attached. 3. One half (1/2) the total dose is administered in each nare. 4. Administer medication by briskly compressing the plunger to expel and atomize the medication.
INTRAMUSCULAR ADMINISTRATION	
INDICATIONS	Intramuscular administration of medication is indicated in patients where an IV is unable to be initiated or where in medic judgment it is in the best interest of the patient. See medication protocols for reference of which medications may be administered IM.
PROCEDURE	<ol style="list-style-type: none"> 1. Draw the medication into a syringe. 2. Attach a 21 – 23 gauge needle to the syringe. 3. Select an appropriate site(s) based on access, muscle mass and volume: <ul style="list-style-type: none"> • Deltoid - 0.5 -2.0 ml • Quadriacep - 0.5 -5.0 ml • Gluteal - 0.5 -5.0 ml • For infants and toddlers, IM medication administration is only recommended in the quadriceps 0.5 -3.0 ml 4. Prep site and administer the medication.

MORGAN LENS**09/10/2013****[PARAMEDIC]**

INDICATIONS	Removal of chemical splash from the eye, especially when the agent is caustic.
PRECAUTIONS	Use only on an intact globe
PROCEDURE	Follow directions included with the Morgan Lens for Insertion and removal.
SPECIAL INFORMATION	<ol style="list-style-type: none"> 1. To help prevent corneal abrasions, change IV solution bag or DC lens as soon as bag runs dry 2. Coach patient to avoid blinking with lens in place 3. If only one eye is being irrigated, tilt head to keep from contaminating other eye
KEY POINTS	Rapid initiation of eye irrigation is the most important aspect of chemical eye injury care.

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NEUROLOGIC ASSESSMENT

02/03/2015

All patients presenting with stroke-like symptoms shall receive a complete neurologic assessment.

A complete neurologic assessment requires assessment of the following:

- Level of Consciousness (Glasgow Coma Score)
- Cranial Nerves (Eye/facial movement and sensation)
- Cerebral Function (Cincinnati Stroke Score; sensation/movement of extremities, speech)
- Cerebellar Function (Finger to Nose, Heel to Shin)

Remember that brainstem and cerebellar strokes may present with atypical stroke symptoms: nausea/vomiting, vertigo, abnormal eye movements or double vision, swallowing difficulties, decreased LOC, or crossed (bilateral) neurologic findings.

Level of Consciousness	<p>See Glasgow Coma Score Procedure</p> <ul style="list-style-type: none"> • Remember that GCS is based on patient's BEST neuro response. • If patient does not respond to voice commands, deep painful stimulus must be employed to adequately assess LOC
Cranial Nerve Assessment	<p>The cranial nerves control the movement and sensation from the neck up.</p> <ul style="list-style-type: none"> • Ask the patient to do the following: <ul style="list-style-type: none"> - Raise their eyebrows - Close their eyes tightly - Follow your finger with their eyes (should travel symmetrically; watch for nystagmus) - Show you all their teeth (or smile) - Stick their tongue straight out (should not deviate from midline) - Say "ahhhh" (palate/uvula should elevate symmetrically) - Shrug their shoulders • Touch the patient's face on both sides in 3 places: forehead, cheek, jaw. The sensation should feel equal on both sides as described by the patient.
Cerebral Function	<p>Use Cincinnati Stroke Score. (Facial Droop, Arm Drift, Speech), add lower extremity movement as well. (eg, have patient lift leg off of bed)</p>

NEUROLOGIC ASSESSMENT

02/03/2015

Cerebellar Function

Have patient perform Finger to Nose, and/or Heel to Shin testing:

- **Finger to Nose:** Hold your finger out in front of patient, at full arm's length. Ask them to touch their nose, then your finger. Move your finger slowly back and forth in front of them, and have them repeat at least 3 times each arm. **Test both sides!** Movements should be smooth, not jerky, and symmetrical on both sides.
- **Heel to Shin:** Have patient pick up one leg, touch a heel to the opposite knee, and then scrape that heel **straight** down the top of their shin to the ankle. Tell them to go slow, and to be as precise as possible. **Test both sides.** Movements should be smooth and reasonably straight, not jerky.

****Be mindful that the elderly, or those with underlying neurologic disability (eg, prior stroke), may have difficulty performing these tests. If difficulties are symmetrical, this *does not* constitute a positive test.**

For patients that have been administered tPA at the hospital and are being transferred to another hospital, the abbreviated National Institute of Health Stroke Scale (NIHSS) should be completed every 15 minutes along with a complete set of vitals. This information should be documented on the transfer paperwork as well as in the ePCR documentation.

This is an abbreviated NIHSS for use by Pre-hospital providers during the transfer:

	Scale Definition / Function
LOC: <i>level of consciousness</i>	0 = Alert, keenly responsive; 1 = Not alert, arousable; 2 = Not alert, requires stimulation; 3 = Reflex or no response
LOC Questions: <i>Ask patient the month and their age</i>	0 = Answers both correctly; 1 = Answers one correctly; 2 = Performs no task correctly;
LOC Commands <i>Open & close eyes, make fist- let-go</i>	0 = Performs both tasks correctly; 1 = Performs one task correctly; 2 = Performs no task correctly
Right Arm Motor	0 = No drift; 1 = Drift down before 10 sec; 2 = Drifts to bed; 3 = No effort against gravity; 4 = No movement; UN = Amp or fusion

NEUROLOGIC ASSESSMENT

02/03/2015

Left Arm Motor	0 = No drift; 1 = Drift down before 10 sec; 2 = Drifts to bed; 3 = No effort against gravity; 4 = No movement; UN = Amp or fusion
Right Leg Motor	0 = No drift; 1 = Drift down by end 5 sec; 2 = Drifts to bed; 3 = No effort against gravity; 4 = No movement; UN = Amp or fusion
Left Leg Motor	0 = No drift; 1 = Drift down by end 5 sec; 2 = Drifts to bed; 3 = No effort against gravity; 4 = No movement; UN = Amp or fusion

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OXYGEN THERAPY 01/05/2016		[EMR, EMT, A-EMT, EMT-I, PARAMEDIC]
INDICATIONS	<ol style="list-style-type: none"> 1. Suspected hypoxemia 2. Respiratory distress 3. Shock 4. Major trauma 5. Acute chest pain 6. Carbon monoxide poisoning 	
SPECIAL INFORMATION	<ol style="list-style-type: none"> 1. COPD patients use low flow oxygen initially (2L/min-3L/min) by nasal cannula but do not withhold additional oxygen from a patient who needs it. If possible, use capnography to guide ventilatory rates. 2. Maintain spinal precautions during airway maneuver in trauma patients. 3. Assist ventilations as needed. 4. Suction as necessary – See Suctioning Protocol 5. Monitor pulse oximeter if available. 6. Do not hyperventilate the head injured patient, if possible, use capnography to guide ventilatory rates. 	
OXYGEN DELIVERY DEVICE		
PASSIVE VENTILATION EMR, EMT, A-EMT, EMT-I, PARAMEDIC	Passive ventilation is used in CCR during the initial phase of resuscitation. Passive ventilation is defined by the Medical Control Board as a NRB with O ₂ flow set at 15LPM.	
NASAL CANNULA EMR, EMT, A-EMT, EMT-I, PARAMEDIC	<ol style="list-style-type: none"> 1. Used with O₂ flow of 2-6 liters/min. 2. Patients who would benefit from a cannula may include <ol style="list-style-type: none"> a. CVA b. Mild to moderate chest pain or respiratory distress c. Postictal or post syncope d. Minor trauma 	
NON-REBREATHER (NRB) MASK EMR, EMT, A-EMT, EMT-I, PARAMEDIC	<ol style="list-style-type: none"> 1. Used with O₂ flow of 10-15 liters/min. 2. NRB Masks are for severely ill patients with suspected hypoxemia who have adequate respiratory effort and can protect their own airway. <ol style="list-style-type: none"> a. Major trauma b. Shock c. Inhalation injury d. Exposure to toxins e. Altered consciousness 	

OXYGEN THERAPY

01/05/2016

[EMR, EMT, A-EMT, EMT-I, PARAMEDIC]

	f. Severe respiratory distress
BAG VALVE MASK (BVM) EMR, EMT, A-EMT, EMT-I, PARAMEDIC	<ol style="list-style-type: none"> 1. Patients needing ventilatory support (for rate or volume) 2. Used with O₂ flow of 10-15 liters/min. 3. Requires secure face to mask seal. 4. Use of oropharyngeal or nasopharyngeal and/or chin tilt, jaw thrust maneuvers may be required.
CPAP EMT, A-EMT, EMT-I, PARAMEDIC	Refer to CPAP Protocol
KING AIRWAY EMT, A-EMT, EMT-I, PARAMEDIC	Refer to King Airway Protocol
ENDOTRACHEAL INTUBATION PARAMEDIC	Refer to Endotracheal Intubation Protocol

PACING, EXTERNAL TRANSCUTANEOUS	
09/10/2013	[PARAMEDIC]
INDICATION	Symptomatic bradyarrhythmia
CONTRA-INDICATIONS	<ol style="list-style-type: none"> 1. Weight under 25 kg (55 lbs.) 2. Patients with penetrating or blunt thoracic trauma 3. Severe hypothermia
PROCEDURE	<ol style="list-style-type: none"> 1. Attach cardiac monitor leads 2. Place defib pads on patient as recommended by manufacturer 3. Set monitor to PACER 4. Increase pacer output (mA) until capture is obtained. 5. Once capture is obtained, adjust pacer output to ensure capture is not lost. 6. When capture is obtained, check for pulse with each beat. 7. On Zoll Monitor, use 4:1 button to view underlying rhythm. 8. If patient is uncomfortable during pacing consider midazolam for sedation or consider fentanyl for pain analgesic. 9. If capture is not obtained with increased current, replace pads and place anterior posterior. 10. If no response to pacing and ACLS drugs, consult MD. 11. No capture and no pulse, follow Cardiac Pulseless Arrest CCR Protocol. 12. Monitor and document vital signs every 5 minutes. 13. Document ECG rhythm pre and post pacing.



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PHYSICAL / CHEMICAL RESTRAINT

02/03/201*

[EMR, EMT, AEMT, EMT-I, PARAMEDIC]

****EMS personnel should withdraw to a safe location immediately if the patient has any type of weapon or potential weapon and await law enforcement to secure the scene.**

<p>INDICATIONS</p>	<p>Combative or disoriented patients who present a physical danger to themselves or the crew.</p>
<p>EQUIPMENT/ PROCEDURE</p>	<ol style="list-style-type: none"> 1. Gurney/backboard straps: The patient may be placed in standard full C-spine precautions. 2. Commercial restraints: Roll gauze, soft-restraints, or leather restraints may be utilized on patients who are mildly combative or disoriented. 3. Flexi-cuffs: Offer a quick and effective restraint for more combative or strong patients. Flexi-cuffs should not be used on patients with fragile skin conditions (e.g., elderly or patients on prednisone). 4. Sheets or blankets may be used to restrain a patient's torso or legs. 5. Law enforcement applied handcuffs: are acceptable as long as a police officer accompanies the patient to the hospital. When handcuffed, the patient should be positioned to be able to easily treat the patient. Consider securing the patient to a LBB. 6. To prevent a patient from spitting, oxygen, surgical masks or spit sock may be used; but the patient's airway must be constantly and carefully monitored. 7. Adhesive tape will not be used to restrain patients except as part of cervical immobilization. 8. If a patient becomes violent while being transported and ambulance personnel are unable to restrain the patient, the driver should immediately stop the ambulance, notify dispatch of the situation and location, and all EMS personnel should leave the vehicle. When leaving the vehicle under such circumstances, personnel should attempt to take the ignition keys and portable radio(s). 9. Immediately following any use of physical restraints, monitor airway status, vital signs, and neurocirculatory status distal to restraints frequently and document every 15 minutes.

PHYSICAL / CHEMICAL RESTRAINT

02/03/2015

[EMR, EMT, AEMT, EMT-I, PARAMEDIC]

	<p>10. If verbal defusing and physical restraint fails to achieve the goal of patient and care giver safety, sedative medications may be utilized.</p>
<p>CHEMICAL RESTRAINT (Paramedic Only)</p>	<p>Chemical Restraint</p> <ul style="list-style-type: none"> • May be used to restrain the agitated or violently combative patient who presents a danger to themselves or others. • Once the treatable causes are ruled out, follow necessary chemical restraint. <p>Pharmacological agents:</p> <ul style="list-style-type: none"> • Ketamine (1st Line) • Midazolam (2nd Line as needed) • Once a patient is in the process of being chemically restrained, the medics must continually monitor the patient for respiratory depression. Pulse oximeter and ETCO₂ monitoring should be done along with vitals, including level of consciousness every 5 minutes.
<p>KEY POINTS</p>	<ol style="list-style-type: none"> 1. Law Enforcement should be requested and present if possible prior to restraining patient. 2. When approaching these patients and attempting to gain voluntary compliance, the following standard shall be utilized and clearly documented: <ol style="list-style-type: none"> a. Request for compliance b. Explanation of why compliance is necessary c. Actions taken: <ul style="list-style-type: none"> - Voluntary Compliance - Chemical/Physical restraint - Retreat and wait until law enforcement arrives to place patient on a police officer hold. 3. The patient shall not be restrained in a face-down or prone position, nor shall a backboard or scoop stretcher be placed on top of him/her.

PLEURAL DECOMPRESSION
09/10/2013

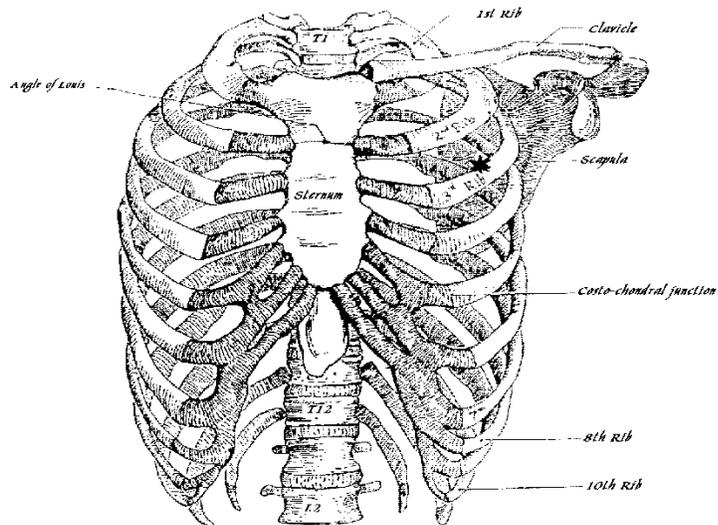
[PARAMEDIC]

INDICATIONS

Known or suspected tension pneumothorax

PLACEMENT
PARAMEDIC

1. Second intercostal space, mid-clavicular line on the side of the tension pneumothorax
2. Insert just over third rib
3. Use 10 or 14 gauge over-the-needle catheter (2-6 inches long)
4. Use 18 gauge for young child and infants
5. Secure catheter
6. Reassess patient status



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RSI (Rapid Sequence Intubation)**04/05/2016****[PARAMEDIC]**

INDICATIONS	Rapid Sequence Intubation (RSI) is used for facilitation of endotracheal intubation or advanced airway placement that cannot be accomplished without the use of paralytics.
KEY POINTS 	<ol style="list-style-type: none"> 1. Trauma Patient by standing order 2. Medical Patient by MD Order (excluding cardiac/respiratory arrest)
PROCEDURE	<ol style="list-style-type: none"> 1. PRE-OXYGENATE with 100% FiO₂ 2. PRE-TREATMENT FOR PEDIATRIC PATIENTS <10yo <ol style="list-style-type: none"> a. Atropine (give 3 min before intubation) 3. PRE-TREATMENT FOR HEAD INJURY/SUSPECTED INCREASED ICP: <ol style="list-style-type: none"> a. ADULT: <ul style="list-style-type: none"> • Lidocaine (give 3-5 min before intubation) • Fentanyl (give immediately prior to intubation) b. PEDIATRIC: <ul style="list-style-type: none"> • Lidocaine (give 3-5 min before intubation) • Atropine (give 3 min before intubation) • Fentanyl (give immediately prior to intubation) 4. INDUCTION/ PARALYSIS For All RSI patients: <ul style="list-style-type: none"> • Induction Agent - Etomidate or Ketamine (First line for Hypotension, Severe Respiratory Disease process, and Pediatrics). • Paralytic –Succinylcholine/Rocuronium <ul style="list-style-type: none"> • Rocuronium is first line for patients suspected of hyperkalemia or any other time succinylcholine is contra-indicated. 5. TUBE PLACEMENT – See Endotracheal Intubation Protocol 6. POST INTUBATION MANAGEMENT <ol style="list-style-type: none"> a. Post intubation continued sedation <ul style="list-style-type: none"> • Midazolam • Fentanyl b. Post intubation continued paralysis: <ul style="list-style-type: none"> • Rocuronium c. Post intubation hypotension: <ul style="list-style-type: none"> • Normal Saline: 500 ml bolus

RSI (Rapid Sequence Intubation)**04/05/2016****[PARAMEDIC]*****RSI Medication Doses by volume***

	10kg	20kg	30kg	40kg	50kg	60kg	70kg	80kg	90kg	100kg
Lidocaine (20mg/ml) (1.5mg/kg)	0.75ml	1.5ml	2.25ml	3.0ml	3.75ml	4.5ml	5.25ml	6.0ml	6.75ml	7.5ml
Fentanyl (50mcg/ml) (3mcg/kg)	0.6ml	1.2ml	1.8ml	2.4ml	3.0ml	3.6ml	4.2ml	4.8ml	5.4ml	6.0ml
Ketamine (100mg/ml) (2mg/kg)	0.2ml	0.4ml	0.6ml	0.8ml	1.0ml	1.2ml	1.4ml	1.6ml	1.8ml	2.0ml
Etomidate (2mg/ml) (0.3mg/kg)	1.5ml	3.0ml	4.5ml	6.0ml	7.5ml	9.0ml	10.5ml	12.0 ml	13.5ml	15.0ml
Succinylcholine (2mg/kg) (20mg/ml)	1.0ml	2.0ml	3.0ml	4.0ml	5.0ml	6.0ml	7.0ml	8.0ml	9.0ml	10.0ml
Versed (1mg/ml) (0.1mg/kg)	1.0ml	2.0ml	3.0ml	4.0ml	5.0ml	6.0ml max dose	6.0ml	6.0ml	6.0ml	6.0ml
Atropine (0.1mg/ml) (0.02mg/kg)	2.0ml	4.0ml	6.0ml	8.0ml	10.0ml					
Rocuronium Paralyzing dose: (10mg/ml) (1 mg/kg)	1.0ml	2.0ml	3.0ml	4.0ml	5.0ml	6.0ml	7.0ml	8.0ml	9.0ml	10.0ml
Rocuronium Maintenance dose: 0.2 mg/kg bolus	0.2 ml	0.4ml	0.6ml	0.8ml	1.0ml	1.2ml	1.4ml	1.6ml	1.8ml	2.0ml

RSI (Rapid Sequence Intubation)**04/05/2016****[PARAMEDIC]*****RSI Medication Doses (in mgs or mcgs)***

	10kg	20kg	30kg	40kg	50kg	60kg	70kg	80kg	90kg	100kg
Lidocaine (20mg/ml) (1.5mg/kg)	15 mg	30 mg	45 mg	60 mg	75 mg	90 mg	105 mg	120 mg	135 mg	150 mg
Fentanyl (50mcg/ml) (3mcg/kg)	30mcg	60mcg	90mcg	120mcg	150mcg	180mcg	210mcg	240mcg	270mcg	300mcg
Ketamine (100mg/ml) (2mg/kg)	20 mg	40 mg	60 mg	80 mg	100 mg	120 mg	140 mg	160 mg	180 mg	200 mg
Etomidate (2mg/ml) (0.3mg/kg)	3 mg	6 mg	9 mg	12 mg	15 mg	18 mg	21 mg	24 mg	27 mg	30 mg
Succinylcholine (2mg/kg) (20mg/ml)	20 mg	40 mg	60 mg	80 mg	100 mg	120 mg	140 mg	160 mg	180 mg	200 mg
Versed (1mg/ml) (0.1mg/kg)	1 mg	2 mg	3 mg	4 mg	5 mg	6 mg (max dose)	6 mg	6 mg	6 mg	6 mg
Atropine (0.1mg/ml) (0.02mg/kg)	0.2 mg	0.4 mg	0.6 mg	0.8 mg	1 mg					
Rocuronium Paralyzing dose: (10mg/ml) (1 mg/kg)	10mg	20mg	30mg	40mg	50mg	60mg	70mg	80mg	90mg	100mg
Rocuronium Maintenance dose: 0.2 mg/kg bolus	2 mg	4 mg	6 mg	8 mg	10 mg	12 mg	14 mg	16 mg	18 mg	20 mg

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SPINE TRAUMA

02/03/2014

[EMT, AEMT, EMT-I, PARAMEDIC]

Immobilize using a Long Backboard (LBB) if the patient has a mechanism with the potential for causing spinal injury and meets ANY of the following clinical criteria:

- Altered mental status.
- Evidence of intoxication. – **See Intoxicated Patient Protocol**
- Distracting pain/injury (extremity fracture, drowning, etc.).
- Neurologic deficit (numbness, tingling, paralysis).
- Spinal pain or tenderness.
- Comorbid age factors (< 12 or > 65 yrs) may impact the EMS Provider's ability to assess the patient's perception and communication of pain. A conservative approach to immobilizing these patients is strongly recommended.
- Distracting situation (communication barrier, emotional distress, etc.).
- Inability to communicate.
- For isolated penetrating head/neck trauma when there is neurologic deficit or an adequate physical exam cannot be performed, e.g., the unconscious patient.

Special Considerations

- If the patient is complaining of neck pain and is ambulatory on scene, a C-Collar alone is adequate.
- If extricating a patient using a LBB would cause excess spine manipulation, possibly causing more harm, consider having patient self-extricate with C-Collar in place to gurney.
- If any immobilization techniques cause an increase in pain or neurologic deficits, immobilize patient in the position found or position of greatest comfort.
- Stabilize C-Spine manually until the patient is fully immobilized on a LBB.
- Carefully assess the patient's respiratory status during transport. Loosen straps as needed to avoid respiratory compromise.
- Patients in the third trimester of pregnancy should have the right side of the backboard elevated six inches.
- Obese patients should have the head of the LBB elevated to decrease respiratory compromise.
- Pad backboards for all inter-facility transports. If feasible, especially in prolonged scene transports, pad backboards.
- Patients felt at low risk for spinal injuries but meeting above criteria, may be transported with C-Collar only.

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SPLINTING**1/11/2014****[EMR, EMT, A-EMT, EMT-I, PARAMEDIC]**

INDICATIONS	Immobilization due to suspected fracture, sprain, or injury
SPECIAL INFORMATION	<p>Splint the following injuries as directed:</p> <ul style="list-style-type: none"> • Poor neurovascular status – make one attempt to realign to anatomical position and improve circulation. Splint in anatomical position • Joint injury – splint in position found

SPLINTING DEVICES

EXTREMITY SPLINT EMR, EMT, A-EMT, EMT-I, PARAMEDIC	<ol style="list-style-type: none"> 1. Used for suspected limb injuries 2. Traction splint – EMT, A-EMT, EMT-I, PARAMEDIC <ol style="list-style-type: none"> a. Suspected closed femur fracture with no evidence of pelvic fracture b. Traction is to be no more than 15lbs or 10% of the patient's body weight whichever comes first
PELVIC SPLINT EMR, EMT, A-EMT, EMT-I, PARAMEDIC	<ol style="list-style-type: none"> 1. Used for suspected pelvic fracture <ol style="list-style-type: none"> a. Splint with sheet or pelvic sling
KED EMR, EMT, A-EMT, EMT-I, PARAMEDIC	<ol style="list-style-type: none"> 1. Used for suspected spinal injury in stable seated patients <ol style="list-style-type: none"> a. Can be used in place of LBB – See Spine Trauma Protocol
FULL BODY SPLINT EMR, EMT, A-EMT, EMT-I, PARAMEDIC	<ol style="list-style-type: none"> 1. Used for suspected spinal injury as an alternative to LBB – See Spine Trauma Protocol <ol style="list-style-type: none"> a. Patients who would benefit from a full body splint: <ul style="list-style-type: none"> • Elderly • Kyphosis • Extended transport 2. Used for suspected hip fracture/dislocation

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SUCTIONING 12/03/2013 [EMR, EMT, A-EMT, EMT-I, PARAMEDIC]	
INDICATIONS	Patients that have signs of respiratory distress or hypoxia due to secretions or blood in the airway, or when there is concern for aspiration.
SPECIAL INFORMATION	Suctioning of the oropharynx and tracheal suctioning are crucial skills in maintaining a patient's airway and optimizing ventilatory status. When possible, suctioning should be performed prior to initiating positive pressure ventilation (i.e. bag-valve-mask ventilation) to minimize the risk of aspiration.
ORAL SUCTIONING [EMR, EMT, A-EMT, EMT-I, PARAMEDIC]	<ol style="list-style-type: none"> 1. Pre-oxygenate patient with high-flow O₂. 2. Attach pulse oximeter and establish baseline. 3. Don appropriate PPE. 4. Prepare and assemble suction equipment: <ul style="list-style-type: none"> • Check suction unit for mechanical suction. • Tonsil tip or soft catheter in place. 5. Suction: <ul style="list-style-type: none"> • Insert tip without suction. • Cover aperture to begin suctioning. • Apply suctioning for <15 seconds. • Stop immediately if significant desaturation event occurs (O₂ sat <90% or drop >5% from baseline during suctioning) or significant increase in respiratory distress. 6. Re-oxygenate patient for at least 2-3 minutes between suction attempts.
TRACHAEL SUCTIONING [EMT, AEMT, EMT-I, PARAMEDIC]	<p>Tracheal suctioning may be achieved via oral, nasal, endotracheal or tracheostomy routes.</p> <ol style="list-style-type: none"> 1. Pre-oxygenate patient with high-flow O₂ for at least 3 minutes (or 5 tidal-volume breaths with BVM). 2. Attach pulse oximeter, ECG and establish baseline 3. Don appropriate PPE. 4. Prepare and assemble suction equipment <ul style="list-style-type: none"> • Check suction unit for mechanical suction. • Measure for correct size suction catheter. • Open sterile rinse. 5. If patient is being ventilated prior to suctioning, have partner remove BVM or ventilator tubing prior to suction attempt

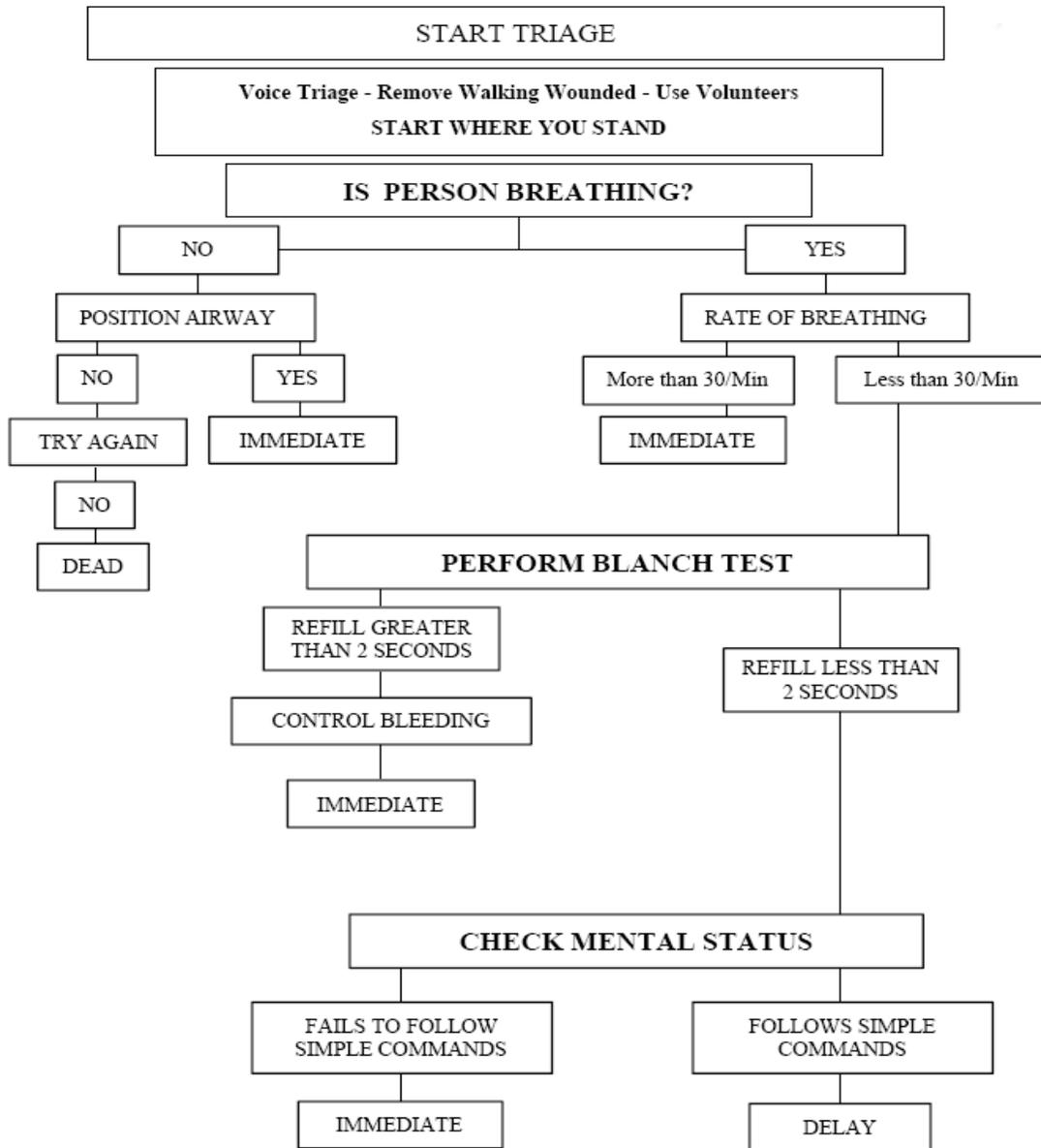
SUCTIONING
12/03/2013

[EMR,EMT,A-EMT,EMT-I,PARAMEDIC]

	<ol style="list-style-type: none"> 6. Insert catheter maximally without applying suction. 7. Withdraw catheter slowly using intermittent suction while rotating catheter. 8. Limit suctioning for no more than 15 seconds. Stop if a significant desaturation event occurs or significant dyspnea. 9. Rinse catheter in sterile rinse. 10. Re-oxygenate patient for at least 2-3 minutes between suction attempts.
<p>MECONIUM SUCTIONING [PARAMEDIC]</p>	<p>Suctioning with meconium aspirator is only indicated if there is thick meconium and the infant is in extremis (ie. hypoxic, bradycardic, or under CPR). A trial of oral suctioning may be attempted first. However, if meconium is light and newborn is vigorous do not suction infant.</p> <ol style="list-style-type: none"> 1. Don appropriate PPE. 2. Prepare and assemble equipment: <ul style="list-style-type: none"> • Check suction unit for mechanical suction, • Gather appropriate size ET tube(s) • Gather meconium aspirator. 3. Intubate infant with a non-cuffed ET tube, or do not inflate if cuffed. 4. Attach meconium aspirator to the ET tube and immediately begin suctioning by covering the thumb hole. 5. Suction while slowly withdrawing the ET tube. 6. Do not suction for more than 3-5 seconds. 7. Re-oxygenate patient for at least 2-3 minutes with BVM and high-flow O₂. 8. Attach full monitoring equipment. 9. Repeat procedure if O₂ sat is persistently low and/or if patient remains under CPR. 10. If patient stabilizes, consider simply assisting ventilation with BVM (intubation not necessary for ventilation).

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[EMR, EMT, AEMT, EMT-I, PARAMEDIC]



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