

Seaside Fire & Rescue Medical Protocols

General Considerations

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Introduction & General Information

These protocols are intended as the offline medical control treatment guidelines for all pre-hospital medical providers working under the Medical Director for Seaside Fire & Rescue. All providers must have a thorough knowledge of the applicable State of Oregon scope of practice. Under no circumstances will patient care exceed the scope of practice, training, or competency of an individual.

Situations will arise which are not covered within these guidelines or mitigate their usefulness so use them in conjunction with your training, experience, and expertise. In such instances, you should function within your scope of practice and consider when time and circumstances permit, the use of other available resources, including on-line medical control.

EMS is a stressful, dynamic, and constantly changing environment. These guidelines cannot cover every type of injury, illness, and complicating circumstance which may be encountered. These Protocols are not absolute treatment doctrines.

These protocols are intended to:

- Standardize and provide a framework for pre-hospital care for all providers.
- Provide hospital physicians and nurses with an understanding of what aspects of patient care have been stressed to the Pre-hospital Care Providers and what their treatment capabilities may be.
- Provide the basic framework on which the Medical Director can audit the performance of pre-hospital providers.

Online Medical Control:

- Providers are encouraged to consult online medical control in all situations that fall outside the normal protocols, in instances of extended scene times or when the provider feels it necessary to contact the Emergency Department. Coordination with the transporting ambulance paramedic is recommended.
- When consulting Online medical control have the following information ready:
 - Unit identification
 - Age gender of patient
 - Chief complaint and reason for medical response
 - Brief pertinent medical history
 - Vital signs and treatments rendered
 - Reason why you have contacted Online Medical Control

Introduction & General Information

Responsibilities, Receipt, and Addendums:

- The Medical Director will review and update a signed list of all personnel with their current standing orders at least once per year or as necessary.
- New personal or personal changing EMS status shall complete a protocols review and a written test up to the level of their care before performing care at that level.
- All providers will sign a receipt acknowledging they have received a copy of the protocols.
- Addendums to the current protocols will be signed by the medical director and be effective immediately.

Infection Control:

- All members of the department working in the pre-hospital care environment shall abide by the department's current policies and procedures regarding infection control and prevention.

Hazardous Materials:

- All members of the department working in the pre-hospital care environment shall abide by the department's current policies and procedures regarding a response to hazardous materials. Patients may need to be triaged and care deferred until DECON can be initiated. Should care providers find themselves contaminated they are to wait for DECON and cleared by Command (or their designee) before leaving the hot zone.

Relevant Contact Phone Numbers:

503-717-7000	Providence Seaside Hospital:
503-338-7508	Columbia Memorial Hospital
800-232-0911	Lifelight Dispatch
800-222-1222	Poison Control
503-861-6211	USCG Astoria
503-738-6311	Seaside Dispatch
503-325-2061	Clatsop County Dispatch
1-877-367-7657	Oregon POLST Registry
503-4947333	Medical Resource Hospital

Documentation

The State of Oregon requires a “complete, clear and accurate pre-hospital emergency care report form on all patient contacts”; therefore, on all patient contacts a report shall be completed by a qualified Emergency Medical Responder (or higher) with current signed Standing Orders. The report should be written or reviewed by the SF&R medical provider who performed the highest level of care. In all incidents where a patient care report is not required the department Incident Record or “run sheet” shall have documentation stating that there was no care and the reason why (i.e. cancelled, no patient, etc.)

PATIENT CARE REPORTS:

- Patient Care Reports (PCRs) shall be done on every patient who receives interventions and/or treatments by Seaside Fire & Rescue personnel.
- All patient care reports shall have a narrative written in the SOAP format, and shall include all pertinent medical information regarding patient condition, care and outcome of the incident.

REFUSAL OF CARE / TRANSPORT

- A competent person must be oriented and understand the potential consequences of refusing treatments and transport. If a patient is not competent (i.e. confused, or obviously drug/substance altered) then Medical Control and/or law enforcement should be involved in patient disposition.
- Patients refusing EMS care or transport represent a significant medical-legal risk for EMS agencies and their personnel. Adherence to medical release principles will minimize liability and maximize patient care.
- To refuse care the person:
 1. Has been fully informed of their condition.
AND
 2. Understands the information provided on their condition and the potential consequences of refusing treatment or care.
AND
 3. The release form has been read to, understood by, and signed by the patient.
- Refusals should be signed by a competent third party (not a member of Seaside Fire & Rescue) witness if available on scene.

NO PATIENT, NO NEED FOR SERVICE FORM

- Seaside Fire & Rescue responds to many *Good Intent* incidents or motor vehicle collisions that often may have a number of persons who are not patients or absolutely refuse any type of care, treatment or intervention.
- The *No patient, No need for Service* form is to be used to collect information related to an incident where NO care of any kind (treatments, interventions, vitals, etc.) was provided.
- Any person who receives patient care, treatments, or intervention and then refuses further care or treatment shall be documented and sign a *REFUSAL OF TREATMENT AGAINST MEDICAL ADVICE* on the *Patient Care Worksheet*
- The *No patient, No need for Service* form shall be attached to the incident record
- Medical providers always have the option to write a report regarding a potential patient

Patient Treatment Rights

MEDICATIONS AND ALLERGIES

- All medications are to be administered only after ascertaining that the patient is NOT allergic to them, that the patient is receiving the correct medication and dosage, the medication is not expired, and the right route is being used for administration.
- In situations when the patient is unable to speak responders should question family/people on scene and attempt to find information regarding their medications and allergies.

PATIENT TREATMENT RIGHTS:

- These protocols are intended for use with conscious and consenting patients, or unconscious patients (by means of implied consent). Every patient is entitled to the following rights:
 - Every patient has the right to be treated equally and with courtesy, regardless of race, gender, social, or economic status.
 - Every patient (if conscious and of reasonable judgment) has the right to refuse care.
 - Every patient shall be treated in accordance with established Medical Protocols and shall receive the benefit of being treated to the maximum ability of the medical providers on scene.
 - Every patient has the right to be treated and transported to the hospital via ambulance if they desire; as such their decision regarding their treatment or transport (or their refusal of said treatment or transport) shall be respected.
 - Every patient shall expect a reasonable amount of privacy regarding the care they have received and the medical information they provide to us, in accordance with these Protocols and established HIPPA laws.

Helicopter Transport

CONSIDERATIONS

- All helicopter requests will initially be made through Dispatch.
- Consider US Coast Guard for rescue in terrain or areas with limited access.
- Lifeflight may be placed on standby by dispatch or responding personnel prior to reaching the scene. The first EMS person(s) on scene will perform a rapid triage of the patient to ascertain the need to either activate Life Flight or stand them down.

Indications for Air transport for trauma patient:

- Consider air transport from scene when extrication time combined with total ground transport time to the nearest appropriate hospital will be > 60 minutes **AND** the patient meets one or more of the following criteria:

Vital Signs / Level of Consciousness

1. Shock: Systolic Blood Pressure < 90; or
2. Respiratory Distress: Respiratory Rate <10 or >20
3. Altered Mentation: Glasgow Coma Score <13

Anatomy of Injury

1. Penetrating injury of head, neck, torso, or groin; or
2. Combination of burns >20% of total body surface or involving face, airway, hands, feet, and genitalia; or
3. Amputation above wrist or ankle; or
4. Spinal cord injury; or
5. Flail chest; or
6. Two or more obvious proximal long bone fractures

Multiple Risk Factors Apply.

Consider the Following Conditions

1. Death of same car occupant; or
2. Ejection of patient from enclosed vehicle; or
3. Ejection of patient from enclosed vehicle; or
4. Falls > 20 feet; or
5. Pedestrian hit at > 20 mph
6. Rollover; or
7. Motorcycle, ATV, or bicycle accident; or
8. Extrication time > 20 minutes; or
9. Significant intrusion

Co-morbid Factors:

1. Extremes of age (< 12 years or > 60 years).
2. Hostile environment (extremes of heat or cold).
3. Medical (such as COPD, CHF, renal failure, etc.)
4. Presence of intoxicants.
5. Second/third trimester pregnancy.

Medications

All providers with current signed standing orders are authorized to administer the following medications for their intended treatments and routes.

- It is the intent of these protocols to allow each level of provider to use the full scope of their practice set forth by the state. Not all medications or procedures listed in these protocols may be stocked in department inventories but may be available on scene through other agencies or responders.
- Providers are responsible for staying current on their knowledge of medications.
- Providers are responsible not to deviate outside their scope of practice in medication administration

Emergency Medical Responder			
Aspirin	Via mouth for suspected myocardial infarctions		
Epinephrine	Via Automation Injection device for Anaphylaxis		
Oral Glucose	For suspected hypoglycemia		
Oxygen			
Naloxone	Via intranasal devise for suspected opioid overdose		
Emergency Medical Technician		<i>Same medications as above and in addition:</i>	
Activated Charcoal	For poisoning		
Albuterol	For suspected bronchospasm		
Sublingual nitroglycerine	Assist ONLY with medication prescribed to patient by their physician		
Metered dose inhalers	Assist ONLY with medication prescribed to patient by their physician		
Epinephrine	For anaphylaxis		
Advanced Emergency Medical Technician		<i>Same medications as above and in addition:</i>	
Albuterol	Hypertonic Glucose (Dextrose)	Naloxone	
Epinephrine for Anaphylaxis	Ipratropium bromide (Atrovent)	Nitroglycerine	
Glucagon	Physiologic isotonic crystalloid solutions		
Emergency Medical Technician Intermediate		<i>Same medications as above and in addition:</i>	
Amiodarone	Diphenhydramine	Furosemide	Morphine
Ammonia Inhalant	Epinephrine	Ondansetron	Fentanyl
Atropine Sulfate	Lidocaine	Vasopressin	
Paramedic		<i>Same medications as above and in addition:</i>	
Adenosine	Dopamine	Phenergan	Solu-Medrol
Ativan (Lorazepam)	Etomidate	Racemic Epinephrine	Succinylcholine
Calcium chloride	Haldol (haloperidol)	Rocuronium	Thiamine
Dilaudid	Magnesium sulfate	Sodium bicarbonate	Vasopressin
Diltiazem (Cardizem)	Midazolam	Solu-Corref	Vecuronium
*Paramedics may receive additional medication orders in writing signed by the medical director			

Mass Casualty Incidents (MCI)

- A mass casualty incident often overwhelms initial and available on-scene resources.
- All personnel must understand and stay with their assignments until relieved.

Trauma System.

Entry of patients into the trauma system is suspended during an MCI.

Triage:

All patients shall be triaged and tagged using the START triage system.

Triage teams perform no treatment except: Repositioning airways & controlling external bleeding.

Walking Wounded

Inform: "Those who can walk, please do so and move to "this" location." These patients are categorized **GREEN**. These patients need to be evaluated after all **Yellows** and **Reds** have adequate resources for patient care.

Respiratory Effort

No breathing: Reposition the airway and check:

Patient doesn't start breathing:

Categorize: DEAD **(BLACK)**

Breathing and the respiratory rate is above 30:

Categorize IMMEDIATE **(RED)**

Respiratory rate is less than 30:

Go to next assessment:

Pulse/Capillary Refill

Capillary refill greater than two (2) seconds OR the patient does not have a radial pulse:

Categorize: IMMEDIATE **(RED)**

Capillary refill less than two (2) seconds or the patient has a radial pulse: Next assessment

Neurological Status

Patient is unconscious ~or~ altered level of consciousness

Categorize IMMEDIATE **(RED)**

If patient can respond to commands appropriately,

Categorize: DELAYED **(YELLOW)**

Simple Triage And Rapid Treatment (S.T.A.R.T.)

- Able to Walk? If yes, **GREEN** or **YELLOW** tag
- If not able to walk, assess Respirations, if Respirations Absent, Open Airway
If still absent, Tag **BLACK**
If breathing begins or >30, Tag **RED**. Keep airway open
- Assess Circulation, Control Bleeding
If Capillary Refill > 2 sec., Tag **RED**
- Assess Mental Status
Does not obey simple commands, Tag **RED**
Obeys simple commands, Tag **YELLOW**

Medical Procedure: EZ-IO (Intraosseous Access)

EMT-Advanced (Pediatrics)

EMT-Intermediate

Paramedic

CONTRAINDICATIONS

In ALL below cases, consider/look for alternate site

- Fracture of the bone selected for IO infusion
- Excessive tissue at insertion site with the absence of anatomical landmarks
- Previous significant orthopedic procedures (10 within 24 hours, prosthesis)
- Infection at the site selected for insertion

INDICATIONS

- Immediate vascular access in emergencies
- Intravenous fluids or medications are urgently needed and a peripheral IV cannot be established in two (2) attempts or 90 seconds, **AND** the patient exhibits one or more of the following:
 - An altered mental status (GCS of 8 or less)
 - Respiratory compromise (SaO₂ 90% after oxygen therapy, respiratory rate < 10 or > 40 min)
 - Hemodynamic instability (Systolic BP of < 90)
- EZ-IO should be considered **PRIOR** to peripheral IV attempts in the following situations:
 - Cardiac arrest (medical or traumatic)
 - Profound hypovolemia with altered mental status
 - Patient in grave condition with immediate need for delivery of medication/ fluids

CONSIDERATIONS

- EZ-IO Needle Sizes: Large(bariatric) – **yellow**, Adult (over40 kg) –**blue**, & PED (3-39 kg or 6.5-85lbs)-**red** Certain patients may require a needle set outside of their ideal weight range "One size needle set does not fit all.
- Flow rates may appear to be slower than those achieved with an IV catheter
- **"NO FLUSH = NO FLOW"**: Administer rapid **SYRINGE BOLUS (flush)** prior to infusion
 - Rapid syringe bolus (flush) the EZ-IO® Large or Adult with 10 ml of normal saline
 - Rapid syringe bolus (flush) the EZ-IO® Ped with 5 ml of normal saline
 - Repeat syringe bolus (flush) as needed

Medical Procedure: EZ-IO Procedure

EMT-Advanced (Pediatrics)


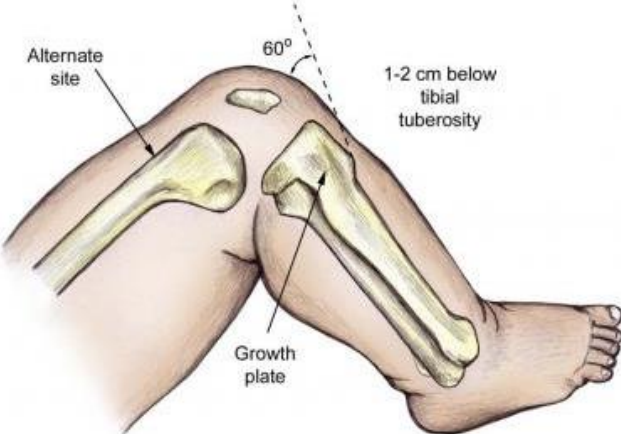
EMT-Intermediate

Paramedic

PROCEDURE


- If the patient is conscious: Advise of the Emergent Need for procedure and obtain consent
1. Locate appropriate insertion site
 2. Prepare the EZ-IO driver and appropriate needle set
 3. Prepare insertion site using aseptic technique. At least one of the 5mm black line indicators must be visible above the skin, after the needle has entered the skin and contacted the bone; but prior to engaging the driver
 4. Stabilize site and insert appropriate needle set perpendicular to insertion site. Avoid rocking the needle, advance until a “pop” or loss of resistance is felt
 5. Remove EZ-IO driver from needle set while stabilizing catheter hub
 6. Remove stylet from catheter, place stylet in shuttle and approved sharps container
 7. Confirm placement by aspiration of marrow or air
- Conscious patients: **Lidocaine 2% 0.5 mg/kg slow push. max 40mg**
8. Syringe bolus (flush) the EZ-IO catheter with the appropriate amount of normal saline
 9. Attach IV lines and begin infusion (To sustain adequate flow consider pressure infusion)
 10. Dress site, secure tubing, and monitor site

EZ-IO Sites

<p style="text-align: center;"><u>Proximal Tibia – Adult</u></p> <p>Extend the leg, insertion site is approximately 2cm MEDIAL to the Tibial tuberosity, or approximately 3cm (2 finger widths) below the patella and approximately 2cm medial, along the flat aspect of the tibia</p>	
<p style="text-align: center;"><u>Proximal Tibia – Infant/ Child</u></p> <p>Extend the leg, insertion site is approximately 1cm MEDIAL to the Tibial tuberosity, or just below the patella (approximately 1cm or 1 finger width) and slightly medial (approximately 1cm or 1 finger width) along the flat aspect of the tibia. Pinch the tibia between your fingers to identify the center of the medial and lateral borders</p>	

Medical Procedure: EZ-IO Procedure

EMT-Advanced (Pediatrics) EMT-Intermediate Paramedic

<p style="text-align: center;"><u>Distal Tibia – Adult</u></p> <p>Insertion site is located approximately 3cm (2 finger widths) proximal to the most prominent aspect of the medial malleolus. Palpate the anterior and posterior borders of the tibia to assure that your insertion site is the flat center aspect of the bone</p> <p style="text-align: center;"><u>Distal Tibia – Infant/ Child</u></p> <p>Insertion site is located approximately 1-2cm (1 finger width) proximal to the most prominent aspect of the medial malleolus. Palpate the anterior and posterior borders of the tibia to assure that your insertion site is the flat center aspect of the bone</p>	
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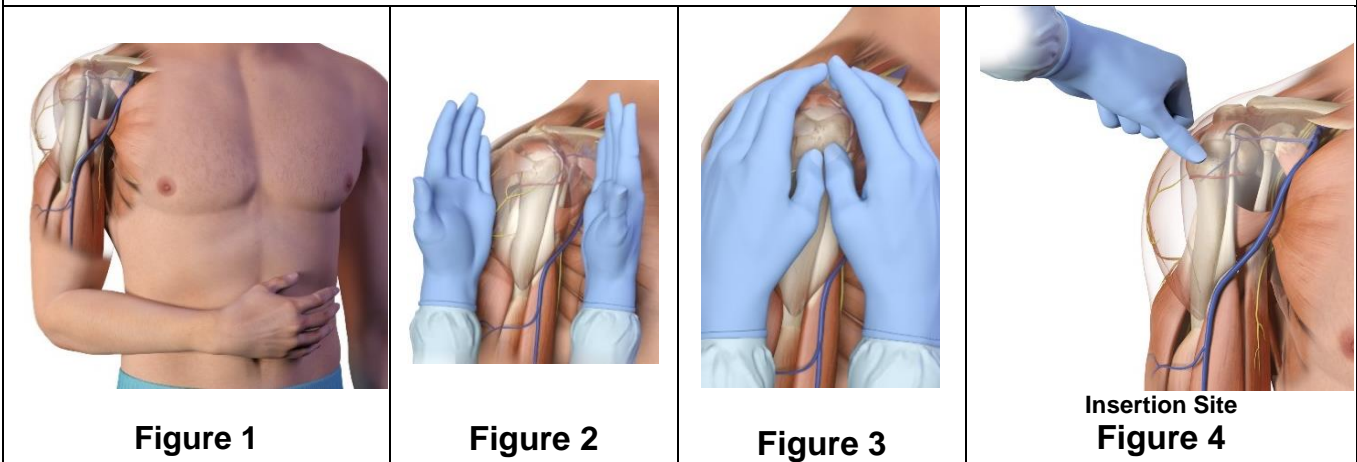
Proximal Humerus – Adult & Pediatric

(Fig 1) Place patient’s hand over their abdomen (elbow adducted and humerus internally rotated)
Place your palm on the patient’s shoulder anteriorly
The area that feels like a “ball” under your palm is the general target area
You should be able to feel this ball even on obese patients by pushing firmly

(Fig 2) Place the ulnar aspect of one hand vertically over the axilla

(Fig 2) Place the ulnar aspect of your opposite hand along the midline of the upper arm laterally

(Fig 3) Place thumbs together over the arm, palpate deeply as you climb up the humerus to the surgical neck. – It will feel like a golf ball on a tee where the ball meets the tee is the surgical neck
Insertion site is 1 to 2cm above the surgical neck, the most prominent aspect of the greater tubercle



Medical Procedure: Intravenous Lines & Solutions

EMT-Advanced
EMT-Intermediate
Paramedic

PRECAUTIONS

- Fluid overload in the CHF &/or Pulmonary edema patient
- Fluid overload in the Pediatric Patient
- Necrosis as a result of extravasation from medication(s)
- Allergic reaction to fluids, medication, and/or equipment
- Air Embolism
- Catheter Shear
- Accidental arterial puncture
- Clot formation

EXTERNAL JUGULAR (EJ) & FOOT ACCESS

Should only be attempted if no other IV site is possible for life saving treatments

No more than 1 attempt per patient for External Jugular (EJ) IVs

Consider IO access before use of an EJ or foot.

INDICATIONS

- Fluid replacement for the volume depleted patient (Medical and/ or Trauma)
- Medication Administration

CONSIDERATIONS

- EZ-IO IV Fluid
 - Always check expiration date, fluid clarity, and packaging is intact
- IV Lock
 - Can be used on any patient instead or before a fluid bag is administered
 - Useful for medication or planned medication administration

PROCEDURE

1. Prepare all needed IV equipment first
2. Select appropriate venipuncture site
3. Apply constricting band proximal to site
4. Clean site with alcohol swab, working in an outward circle from the center of the site
5. Apply traction to patient's skin distal to venipuncture site to stabilize the vein
6. Insert IV cannula at a 10⁰- 30⁰ angle into the vein until flashback occurs in the chamber
7. Advance the cannula another 0.5cm past this point, then slide catheter into the vein
8. Apply pressure at the tip of the catheter to occlude blood flow while removing the needle
9. Dispose of the used needle in an approved site
10. Attach administration set (IV bag or/ Lock), secure, assure flow
11. Apply bioclusive to IV site, secure tubing as necessary to prevent dislodgement
12. Monitor site for swelling, redness, or other complications. Monitor patient for fluid overload

Pain Control

EMT-Intermediate

MORPHINE

Routes: IV/IM/IO

- Indications:
 - Chest pain
 - Pain Control
- Contraindications:
 - Known allergy
 - Hypotension <100 systolic
 - Respiratory depression or rate <14

Dosage:

2.0 -4.0 mg slow IV/IO/IM. May repeat as needed up to 20 mg.

PEDS: 0.1mg/kg

FENTANYL

Routes: IV/IM/IO

- Indications:
 - Pain Control
 - Suspected ischemic chest pain
- Contraindications:
 - Known allergy
 - Hypotension <80 systolic
 - Respiratory depression or rate <14
 - Trauma or head pain

Dosage:

50 -100mcg (1mcg/kg) IVP/IO/IM. May repeat every 3-5minutes up to 200mcg/2mcg/kg

PEDS: <3 years: 2-3mcg/kg 3-12years: 1-2mcg/kg ≥ 12 years: Adult dosage

Paramedic

DILAUDID

Routes: IV/IM

- Indications:
 - Severe Pain Control
- Contraindications:
 - Allergy to opiates
 - Hypersensitivity to drug

Dosage:

Dilaudid 1.0-2.0 mg IV/IO/IM. May repeat every 2-5minutes up to 5.0mg

Consider: Midazolam 2.5-5.0mg IV x1 for Adults to augment pain control and control muscle spasm

Pediatric General Considerations

AGE DEFINITIONS

Premature: Born prior to expected delivery day / full gestation

Newborn: Birth to 28 days old

Pediatric: Considered 14 years and younger

American Heart Association (AHA) ages for CPR / Defibrillation:

Infant: Birth to 1 year old

Child: 1 year to 8 years old

Adult: 8 years or showing signs of puberty (breast development / underarm hair)

- Brouslow tape/ pediatric wheel is to be used if available for verification purposes any time a child requires ALS medications or procedures

AVERAGE VITAL SIGNS FOR PEDEATRICS BY AGE

	Pulse	Systolic BP	Respirations	Weight (Kg)
Premature	140	50 – 60	Less than 60	1 – 2
Newborn	110 - 150	60 – 90	30 – 60	3 – 4
1 year	100 - 140	75 – 100	25 – 40	10
2 years	90 - 100	75 – 100	25 – 40	16
6 years	80 – 100	85 – 100	20 – 30	20
10 years	70 – 110	90 – 110	14 – 22	40
Adolescent	60 - 100	100 - 120	12 - 20	50 - 70

ET TUBE AVERAGES

Age:	Premature	Newborn	6 Month	18 Month	3 Years	5 Year	6 Year	12 year
Size	2.5	3	3.5	4	4.5	5	5.5	6.5
Length	6 + wt (kg)	6 + wt (kg)	11	11	13	14	15	19

IGEL SUPRAGLOTIC AIRWAY SIZING

Age	Neonate	Infant	Small Pediatric	Large Pediatric
Size:	1	1.5	2	2.5
Weight in kg:	2 -5 kg	5 – 12 kg	10 – 25kg	25 – 35 kg

Calculations

CALCULATIONS

Pounds & Kilograms: 1kilogram is 2.2 pounds

Formula #1	Divide the patient's weight in pounds by 2.2 (1kg= 2.2lb)
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Formula #2	Divide the patient's weight in pounds by 2 and then subtract 10%
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Drip rate Calculation: Number of Drops in a minute

$(\text{Volume in mL}) \times (\text{drip set}) = \underline{\hspace{1cm}} \text{gtt}$
$(\text{time in minutes}) \quad \quad \quad \text{min}$

Drug concentration

Total weight of drug / total volume in milliliters = weight per millimeter
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Volume to be Administered

Desired Dose (mg) / Dose on Hand (mg/ml) = Volume to be administered (ml)

Weight Based Drug Dosage

Step 1: Convert patients weight from pounds to kilograms

Step 2: Determine the desired dose --mg/kg x weight in kg = mg (desired dose)

Step 3: Determine concentration mg/ ml = mg/ml (dose on hand)

Step 4: Determine how much volume to administer:

$\text{mg (desired dose)} / \text{mg/ml (dose on hand)} = \text{ml to administer}$

Seaside Fire & Rescue Medical Protocols

Respiratory

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B – 7	Procedure: Flex-Guide ET Tube Introducer
B – 8	Procedure: Advanced Airway (RSI) Cricothyrotomy
B – 9	Procedure: King Airway
B – 10	I-gel Supraglottic Airway
B – 12	Procedure: Nebulizer
B – 13	Procedure: In-Line Nebulizer
B – 14	Asthma
B – 15	Chronic Obstructive Pulmonary Disease (COPD)
B – 16	Obstructed Airway (Adult and Child Choking)
B – 17	Obstructed Airway (Infant Choking)
B – 18	Respiratory Distress
B – 19	Pediatric: Respiratory Distress with Stridor
B – 20	Respiratory Arrest
B – 21	Toxic Inhalation with Respiratory Compromise

Airway Management

INDICATIONS

- Almost all medical and trauma patients benefit from the administration of oxygen. The flow rate and method of delivery is dependent upon the patient's condition.

METHODS OF ASSESSMENT:

Patient's use of accessory muscles, changes in pulse rate, ECG & respiratory rate can all be used as assessment tools.

- Pulse oximeter should be used to evaluate all patients but never delay Oxygen administration.
- End-tidal CO₂ detection is useful for evaluating the perfusion of patients with an advanced airway.
- Mentation changes and agitation are early signs of hypoxia.

DELIVERY SYSTEMS:

Nasal Cannula

- Used when small amounts of oxygen are desired. Flow rates should not exceed 6 LPM.

Non-Rebreather (NRB) Mask

- Used when high concentrations of oxygen are needed and in patients. Flow rates 12-15 LPM

Nebulizer

- For patients in bronchospasm. Flow rates are 4 to 6 LPM Handheld, 6-10 LPM mask

CPR Pocket Mask

- For patients in respiratory arrest until BVM can be administered.

Bag/Valve/Mask (BVM) Device

- Used when respiratory drive is compromised and needs ventilatory assistance.
- Must be equipped with an oxygen reservoir and capable of delivering at 15 LPM.
- Proper facial seal and head positioning is required.
- Auscultate lungs and observe chest rise and fall to ensure proper ventilation.

MAINTENANCE DEVICES:

Nasopharyngeal Airway (NPA)

- Used on unconscious or have an altered LOC patient unable to maintain their airway
- NPA must be lubricated with water-soluble lubricant prior to insertion.
- May be used with NRB mask or with BVM.
- Assess respiratory status.

Oropharyngeal Airway (OPA)

- Used on patients unable to maintain their airway and **Do Not** have a gag reflex.
- Can also be used as a block to keep patients from biting down.
- OPAs must be used with high-flow oxygen delivery devices such as a BVM.

Capnography

SPECIAL NOTES

- Approximately 5% of the exhaled air of a healthy patient is carbon dioxide.
- The Easy Cap CO₂ Detector is an easy to use, visual indicator of CO₂ production and therefore, is a good indicator of tube placement.
- The patient must be circulating blood for the CO₂ detector to work. Effective CPR will produce a sufficient pulse for Easy Cap to gain a reading.
- In low perfusion states, production of CO₂ is diminished and color change may not be profound.
- If the color change does not occur, reassessment by 5-point check is mandatory.
- Capnography should always be used in conjunction with other assessments of proper airway placement such as: 5-point check, tube fogging, pulse oximetry, and direct visualization of intubation.
- Never rely entirely on ETCO₂ detection as the sole method of assessment for tube placement.
- The device must be changed if it becomes contaminated with bodily fluids.

INDICATIONS

To assist in determining correct ET tube or King Airway placement.

Capnography with the Easy Cap CO₂TM Detector

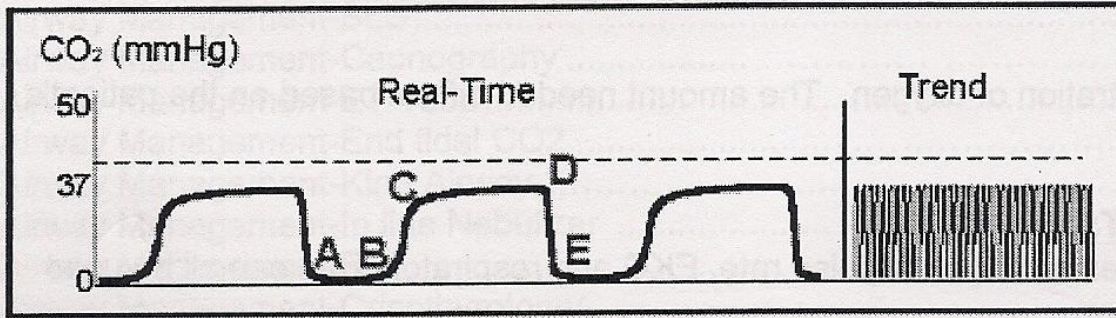
The Easy Cap CO₂TM detector is a disposable chemical indicator that can be used for up to three hours. It works by detecting ETCO₂ on the following color scale:

- Range A (purple): < 0.5% ETCO₂
- Range B (tan): 0.5-2.0% ETCO₂
- Range C (yellow): >2.0% ETCO₂

PROCEDURE

1. Intubate or place King Airway.
2. Assess tube placement by using visualization, 5-point check, and looking for chest rise.
3. Ventilate 4-5 times then place Easy CapTM device on the ET tube or the ventilation port of the King Airway.
4. Continue ventilating the patient.
5. If placement is correct: Color will change from purple to tan or yellow with each ventilation. Color change is positive indication of correct tube placement.
6. If the color does not change, **immediately determine tube position.**
7. Remove any tube whose position cannot be confirmed.
8. Document results (color change) of ETCO₂ detection on run report form.

Capnography (Cont.)

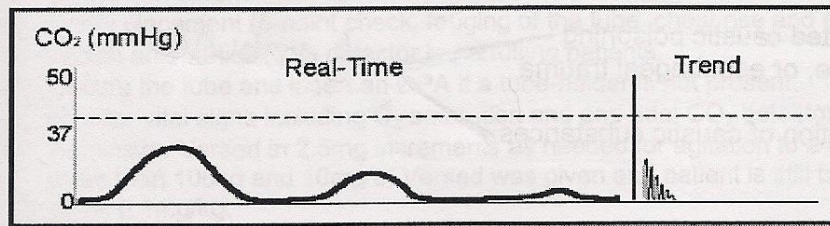


- A – B Baseline
- B – C Expiratory Upstroke
- C – D Expiratory Plateau
- D – C 0₂ Value
- D – E Inspiration Begins

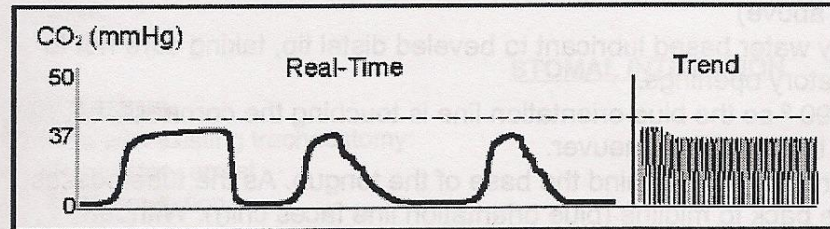
Normal ETCO₂ values at maximum exhalation:

- 30 – 43 mmHg
- 4.0 – 5.7 kPa
- 4.0 – 5.6%

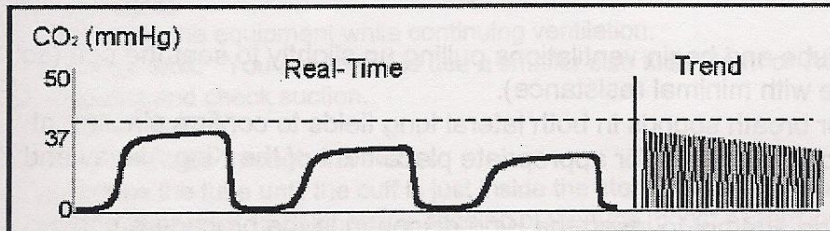
ET Tube in Esophagus



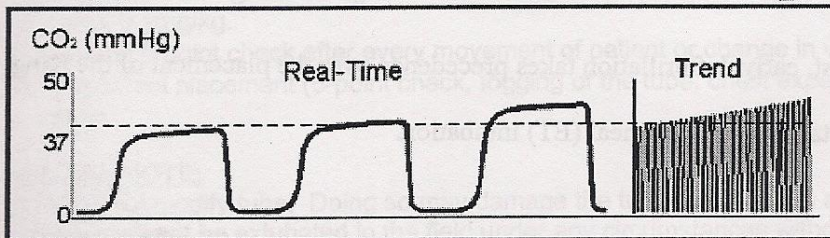
Inadequate Seal Around ET Tube



Hyperventilation (Decrease in ETCO₂)



Hypoventilation (Increase in ETCO₂)



Pulse Oximeter

EMR EMT Advanced EMT EMT-Intermediate Paramedic

PRECAUTIONS

- Never delay administration of Oxygen to a patient in need to attach a pulse oximeter.
 - Carbon monoxide poisoning may alter the ability of the SpO₂ to accurately reflect SpO₂ and may indicate a false high SpO₂ in a patient who actually needs oxygen.
 - Regardless of what pulse oximetry indicates always treat the patient and not the machine.
-
- Continuous noninvasive monitoring of peripheral arterial hemoglobin oxygen saturation (SpO₂).
 - As a standard of care, a pulse oximeter shall be applied to all patients as soon as basic stabilization (ABCs) has been concluded.
 - Pulse oximetry has both physiologic and technical limitations. Because the technique uses light absorbency, pulsation changes in a vascular bed, any event that decreases those pulsation (hypotension, hypothermia, and vasoconstriction), will decrease the ability of the pulse oximeter to obtain and process a signal and calculate the SpO₂
 - It may be necessary to change sensor sites (finger, ear) to obtain an optimal signal. Motion artifact (as evidenced by a heart rate discrepancy between the ECG and pulse oximeter) may interfere with accurate calculation of SpO₂ in awake, agitated, or shivering patients. Ambient light as well as other light sources (radiant warmers, fluorescent bulbs) contaminates light-emitting diode signals. Nail polish can alter the spectra of emitted light.
 - Neonates: SaO₂ must be monitored on the right (preductal) hand.

<u>SpO₂ Reading</u>	<u>Status</u>	<u>Treatment Indicated</u>
95-100%	Normal SpO ₂	None
91-94%	Mild Hypoxia	Low-flow oxygen therapy
86-91%	Moderate Hypoxia	High-flow oxygen therapy
< 85%	Severe hypoxia	Aggressive oxygen therapy. Intubation indicated.

Targeted SpO₂ Readings after birth for Neonates

1 min: 60-65% 2 min: 65-70% 3 min: 70-75% 4 min: 75-80% 5 min: 80-85% 10 min: 85-85%

AIRWAY Procedure: Continuous Positive Airway Pressure

EMT Advanced EMT EMT-Intermediate Paramedic

<p><u>INDICATIONS</u></p> <ol style="list-style-type: none"> 1. Moderate to severe respiratory distress secondary: <ol style="list-style-type: none"> A. Congestive heart failure (CHF) with pulmonary edema B. Acute respiratory failure C. Acute exacerbation of COPD D. Asthma E. Toxic inhalation F. Near drowning 2. Patient is able to fit the CPAP mask appropriately 3. Any two of the following: <ol style="list-style-type: none"> A. SpO2 is <93% B. Respiratory rate >25 bpm C. Accessory muscles are being used D. Responsive and able to follow directions 	<p><u>CONTRAINDICATIONS</u></p> <ol style="list-style-type: none"> 1. Inability to understand and follow directions or tolerate mask 2. Respiratory or cardiac arrest 3. Pneumothorax 4. Tracheostomy 5. Inability to maintain patent airway 6. Head, facial, or chest trauma 7. Systolic blood pressure <90 8. Vomiting or excess oral secretions 9. Moderate to severe epistaxis 10. Inability to obtain mask seal
<p><u>SPECIAL NOTES</u></p> <ul style="list-style-type: none"> • Within 5 minutes patient should improve: Decreased BP, Heart rate, and respirations Increased SPO2 • Paramedic: Consider mild sedation with Ativan or Versed if needed 	

PROCEDURES

- Place patient in the seated position, set-up system, verify O2 cylinder level is adequate
- Explain procedure to patient- Instruct them to inhale through nose, out through mouth
- Allow oxygen to flow through mask before placing on patient
- Place mask on patient – Continue to offer assurance as they may not at first tolerate mask
 - For CHF with pulmonary edema: Start at 10cmH2O
 - For Asthma, acute exacerbation of COPD, toxic inhalation, and/or respiratory Failure: Start with 5cmH2O Increase 2-3cm H2O increments to a max of 10 (based on tolerance and vital signs (Decrease if necessary
- Recheck vital signs as close to every 5 minutes as possible, recheck seal often

Liter Flow +cmH2O		Minutes of O2 based on "D" cylinder	
Flow	CPAP	Based on full 2200 PSI cylinder	
10 LPM	2.5 - 3.0 cmH2O	Flow	"D" Cylinder
15 LPM	4.5 – 5.0 cmH2O	6 LPM	58 min
20 LPM	7.0 – 8.0 cmH2O	8 LPM	44 min
25 LPM	08/05/10 cmH2O	12 LPM	29 min
>25 LPM	>10 cmH2O	15 LPM	23 min

AIRWAY Procedure: Intubation

Paramedic

SPECIAL NOTES

- A patient should never be extubated in the field without approval from Online Medical Control
- Prior to Intubation ensure Patient: Is on the Cardiac Monitor and Pulse oximeter

INDICATIONS

- Respiratory insufficiency (less than 8 BPM) or arrest.
- Airway obstruction.
- Brain injury (GCS \leq 8).
- Unconsciousness or altered mental status with airway compromise.
- Situations that require positive pressure ventilation.

PROCEDURES

- Prepare the ET tube by checking the cuff
 - STOMAL INTUBATION: A smaller size tube (6mm or 7mm) may be needed
- Apply a water-soluble lubrication jelly to the distal tip and cuff
- Have suction ready
- Preoxygenate the patient
- Position the patient
- ORAL INTUBATION:
 - Open airway and apply cricoid pressure
 - Intubate in a controlled, but timely manner
- STOMAL INTUBATION
 - Insert the tube through the stoma
 - Advance the tube until the cuff is just inside the stoma. Inflate the cuff to prevent an air leak
- Verify placement (5-point check, fogging of the tube, chest expansion & CO₂ detector.)
- Secure Tube
- Consider a C-collar to maintain tube position
- Monitor vital signs including O₂ saturation and end-tidal CO₂ detector
- Administer Versed in 2.5 mg increments as needed for agitation to a maximum of 10 mg.
- Repeat 5-point check after every movement of patient or change in vital signs

AIRWAY Procedure: Flex-Guide ET Tube Introducer

Paramedic

INDICATIONS

To be used during both routine and difficult orotracheal intubations when unfavorable anatomy or need to limit neck motion is present.

CONTRAINDICATIONS

- Nasal Intubation
- ET Tube smaller than 6mm

PROCEDURE

- Begin intubation as normal with insertion of the laryngoscope blade
- Insert the Flex-Guide with the angled end facing up
- Pass the Flex-Guide Introducer through the cords (visually or by feeling the end of the Introducer) vibrate over the tracheal rings as it passes through the trachea) until resistance is felt or the thick black line reaches the corner of the patients' lips.
- While holding the Introducer in place slide the ET tube backwards (Murphy eye facing left and the beveled end facing right) down the introducer (may be done by EMT as paramedic holds in place and maintains visualization)
- Pass ET tube to the cords and while advancing through rotate the ET tube 90° COUNTERCLOCKWISE (if resistance is felt pull tube back and re-advance while continuing to turn counterclockwise to spread the arytenoid cartilage)
- Hold ET tube firmly in place and remove the Flex-Guide Introducer (the curved end will produce resistance as it passes through the tube, failure to hold tube will result in tube being dislodged)
- Continue as normal with intubation protocol

AIRWAY Procedure: Cricothyrotomy

Paramedic

INDICATION

- **This technique is used ONLY when other attempts to establish an airway have been unsuccessful and respiratory obstruction exists.**
- Such conditions are most likely to be found with:

○ Foreign-body obstruction	○ Facial and laryngeal trauma
○ Inhalation of thermal gases	○ Caustic injury to the upper airway
○ Angioneurotic edema	○ Upper airway bleeding
○ Epiglottitis	○ Severe croup

PROCEDURES

1. See separate memorandum regarding specific procedures

AIRWAY Procedure: Rapid Sequence Induction (RSI)

Paramedic

INDICATIONS

If necessary to gain immediate control of the airway in the critically ill patient who may be hypoxic, hemodynamically unstable, agitated, or uncooperative and at risk of further deterioration.

PROCEDURE

1. Pre-oxygenate for at least 5 minutes with NRB at 15LPM or at least 8 vital capacity breaths.
This helps facilitate nitrogen washout and maximizes the oxygen reserve
2. Assemble required equipment:

BVM	Suction with Yankauer tip
ETT securing device	Laryngoscope and blades
Endotracheal tube with intact cuff, stylet, syringe	
Cricothyrotomy kit	
3. Ensure a functioning, secure IV /IO is in place
4. Continuously monitor the cardiac rhythm and oxygen saturation
5. Pre-medicate as appropriate
 - **Etomidate 0.3 mg/kg** no > 20mg for adults and children > 10 years old
 - **Pediatric: Midazolam 0.1- 0.2 mg/kg** for children ≤ 10 years old. ~or~ **Lorazepam 0.1 mg/kg** no > 4.0 mg single dose. **May repeat 2nd dose of Lorazepam 0.05 mg/kg** after 10-15 minutes prn. Dilute Lorazepam with an equal volume of Normal Saline when administered IV or IO.
6. **Succinylcholine 1.5 mg/kg** IVP/IO
 - Apnea, jaw relaxation, and decreased resistance to BVM indicates the patient is sufficiently relaxed to proceed with intubation
7. During intubation attempt place patient on 15Lpm nasal cannula to facilitate oxygenation
8. Intubate. If unable to intubate during the first attempt, stop and ventilate the patient with BVM for 30 – 60 seconds
9. Treat bradycardia occurring during intubation with oxygenation and hyperventilation first. If no improvement, **Atropine 0.5 mg**
10. Complete intubation, inflate the cuff and continue as normal with intubation protocol
 - Etomidate duration is only 3-5 minutes. After intubation patient should be sedated with: **Midazolam 2.0-5.0 mg** IVP/IO/IM ~or~ **Lorazepam – 4.0-8.0 mg** IV/IM/IO. Dilute Lorazepam with equal volume Normal Saline when administered IV/IO
11. **Rocuronium 0.6 mg/kg** or **Vecuronium 0.1mg/kg** to maintain intubation.
Note: CHF, ARDS, or pneumonia patients: Consider disposable PEEP valve on BVM exhaust port. Begin at 5cm H₂O and titrate in 2cm increments
12. If unable to intubate, bag the patient until spontaneous respiration returns or proceed with Eschmann catheter, consider or surgical cricothyrotomy

AIRWAY Procedure: KING Airway

EMT

Advanced EMT

EMT-Intermediate Paramedic

PRECAUTIONS

- The KING LTS-D does not protect the airway from the effects of regurgitation and aspiration.
- High airway pressures may divert gas either to the stomach or to the atmosphere.
- Placement into the trachea cannot be ruled out as a potential complication of the insertion of the King Airway.
- For Patients in Cardiac Arrest quality compressions and defibrillation take precedent over the placement of an advanced airway.

INDICATIONS

- Management of the airway in the respiratory and/or cardiac arrest for patients without spontaneous respirations.
- Second line airway (after failed ET attempt) for Paramedics.

CONTRAINDICATIONS

- Patients who are conscious or who have an intact gag reflex
- Patients under four (4) feet in height
- Known esophageal disease or esophageal trauma
- Obstructed Airway
- Known or suspected ingestion of caustic substances

PROCEDURE

1. Position head in a neutral position and hyper-oxygenate for 30-60 seconds prior to insertion.
2. Select correct size based on the patient's height, and using the package insert
3. Prepare the King Airway: apply water based lubricant to beveled distal tip, taking care not to get lubricant on or near ventilatory openings.
4. Hold the King Airway at a 45-90 degree angle so the blue orientation line is touching the corner of the mouth; hold mouth open with the chin lift maneuver.
5. Introduce tip into the mouth and advance behind the base of the tongue. As the tube passes behind the tongue, rotate tube back to midline (blue orientation line faces chin). Without exerting excessive force, advance tube until connector is aligned with teeth or gums.
6. Inflate cuff (s) per manufacturer's recommendations and adjust cuff volumes as needed to achieve and maintain seal.
7. Attach a BVM and Co2 detector to the tube and begin ventilations pulling up slightly to seat the cuff (so that there is large tidal volume with minimal resistance).
8. Confirm correct placement. Listen for breath sounds in both lateral lung fields and lack of sounds in epigastrium. Ease of bagging is not a reliable indicator of correct placement.
9. Secure Airway in place. Perform placement checks anytime patient is moved
10. If unsuccessful after the second attempt to insert the King discontinue the procedure and continue ventilations via a bag-valve-mask or pocket mask.

AIRWAY Procedure: i-gel Supraglottic Airway

EMT

Advanced EMT

EMT-Intermediate Paramedic

INDICATIONS

- Although indicated for all patients Seaside Fire & Rescue carries i-gel for pediatric patients too small (<12kg / 26lbs) to accept a king airway as an airway device.
- The i-gel is an acceptable alternative primary airway device over the endotracheal tube in cardiac arrest.

CONTRAINDICATIONS

- Awake or responsive patient
- Intact gag reflex
- Severe maxillofacial trauma
- Trismus or limited mouth opening
- Non-fasting of full stomach (relative contraindication)

PROCEDURE

a) Preparation

1. Choose the correct i-gel Supraglottic Airway

Size 1: Neonate	Weight 2-5kg (4.4 -11 lbs)
Size 1.5: Infant	Weight 5-12kg (11 – 26.5lbs)

2. Wearing gloves, open the cage pack and transfer the device into the lid. Place a small bolus of water-based lubricant onto the smooth inner surface of the cage (hard plastic cover)



3. Grasp the i-gel along the integral bite block and lubricate the back, sides, and front of the cuff with a thin layer of lubricant

Ensure NO lubricant remains in the bowl of the cuff or elsewhere on the device, avoid touching the cuff of the device with your hands



4. Place the i-gel back into the cage if insertion is not immediate

AIRWAY Procedure: i-Gel Supraglottic Airway

a) Insertion

1. Grasp the lubricated i-gel firmly along the integral bite block. Position the device so the i-gel cuff outlet is facing towards the chin of the patient
2. The patient should be in the sniffing position with head extended and the neck flexed. The chin should be gently pressed down before insertion



Do not apply excessive force on the device during insertion. It is not necessary to insert your fingers into the patient's mouth during insertion

3. If there is early resistance during insertion, perform a jaw thrust and insert the i-gel with a deep rotation



4. If ventilation is inadequate, remove the i-gel and re-insert. Re-oxygenate via BVM between insertion attempts as necessary

5. At this point the tip for the airway should be located in the upper esophageal opening, the cuff should be located against the laryngeal framework, and the incisors should be resting on the integral bite-block



6. Tape the i-gel from the maxilla to maxilla

PRECAUTIONS

- Sometimes a feel of give-way is felt before the end point resistance is met. This is due to the passage of the bowl of the i-gel through the pharyngo-epiglottic folds.
 - Once resistance is met and teeth are on the bite block, do not repeatedly push i-gel down or apply excessive force
 - A small air leak through the gastric channel may happen, an excessive leak indicate incorrect insertion, remove and reinsert with gentle jaw thrust and deep rotation
- If an excessive air leak during intermittent PPV is notice use 1 or all of the following:
- Hand ventilate with slow gentle squeezing
 - Limit tidal volume to 5ml/kg
 - Limit peak airway pressure to 15-20 cm of H₂O
 - When using the i-gel, the risk of regurgitation and aspiration must be weighed again the benefit of establishing an airway

AIRWAY Procedure:**Nebulizer****EMT****Advanced EMT****EMT-Intermediate Paramedic****INDICATIONS**

- Used to treat bronchospasm and patients in respiratory distress
- May be administered through a mask or handheld (T-piece)

Aerosol Medications**Albuterol**

Action: Relaxes bronchial smooth muscle

Dose: Solution of 2.5mg of medication mixed with 3 cc of normal saline

Xopenex (levalbuterol)

Action: Relaxes bronchial smooth muscle, induces bronchial dilation.

Dose: Solution of 1.25mg of medication mixed with 3cc of normal saline

Atrovent (Ipratropium Bromide)

Action: Inhibits interactions of cholinergic receptors in bronchial smooth muscle

Contraindicated: Allergy to Soy beans or peanuts

Dose: Solution of (500mcg)0.5mg of medication mixed with 2.5ml Normal Saline

Notes: Only one nebulizer treatment in a patient treatment series is to be mixed with atrovent
EMTs are not authorized to use Atrovent in a breathing treatment they are administering

PROCEDURE

1. Select the correct medication(s) ensuring they are not expired
2. Select the most appropriate delivery device (either handheld pipe or mask)
3. Pour the medication(s) into the nebulizer.
4. Assemble the nebulizer and components
5. Connect the unit to oxygen.
6. Place unit to patient
 - a.) Place mouthpiece in the patient's mouth with the lips sealed around the mouthpiece.
 - b.) Place the mask over the patient's mouth and nose and secure drawstring
7. Adjust Oxygen flow until you produce a visible steady mist
 - a.) 4-6LPM mouthpiece
 - b.) 6-10 LPM mask
8. Instruct the patient to inhale slowly and deeply through the mouth and hold breaths 3 to 5 seconds before exhaling. Mist should disappear with each breath.

AIRWAY Procedure: In-Line Nebulizer

EMT

Advanced EMT

EMT-Intermediate Paramedic

PRECAUTIONS

- Do not interrupt ventilation of the patient while assembling in-line nebulizer

INDICATION

Administration of Albuterol/ Levalbuterol (xopenex) and Atrovent while providing ventilatory support to a patient utilizing a Bag Valve Mask (BVM).

PROCEDURE

1. Assure that adequate ventilations are being performed while nebulizer is assembled
2. Remove Nebulizer “acorn” and attach setup between the BVM and Mask (or tube end)
 - a. Use the 15/22mm adapter to attach to the Mask/ tube end
3. Place selected airway medication in the “acorn” and attach secondary O2 (= or > 6 LPM)
4. Insert Nebulizer ‘acorn” securely into the Tee
5. Continue ventilations of the patient, ensuring nebulizer is working



Diagram of a BVM attached to a king with the hand-held nebulizer and adapter in place

Asthma

- Indications: Shortness of Breath with wheezing (not cardiac related) or poor air movement upon auscultation

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Allow patient to assume a position of comfort
3. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
4. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
5. Obtain baseline vital signs: Reassess Vitals as Needed
6. Obtain SAMPLE history
7. Assist the patient with self-administration of Metered Dose Inhaler only if medication is prescribed for the patient and is not expired

EMT

Follow above protocols and in addition:

8. Administer nebulizer treatment: **Albuterol** 2.5mg/3cc ~or~ **Levalbuterol** 1.25mg/3cc

Advanced EMT Intermediate

Follow above protocols and in addition:

9. If EMT has not administered nebulizer, or patient's condition has not improved after first dose:
Administer: Nebulizer (**Albuterol** ~or~ **Levalbuterol**) mixed w/ **Atrovent** 500mcg /2.5ml
10. Establish IV access *with* Balanced Salt Solution @TKO ~or~ Saline Lock
11. No change in condition: Administer additional nebulizer dose *without* Atrovent
12. ECG monitor

Paramedic

Follow above protocols and in addition:

13. Dysrhythmias: *Treat* per appropriate protocol
14. If SPO2 is <92% CPAP at 5cm H2O (*Per* CPAP Procedures)
15. Administer **Solu-Medrol 125mg** Slow IVP (1-2 minutes) if no response to Levalbuterol
16. If patient cannot protect their own airway or respirations are <8 BPM: Consider Intubation
17. If unable to ventilate, **dilute Albuterol/ Levalbuterol** mixed in **5-10 ml NS via ET Tube**
18. *Consider Epinephrine 0.3 mg 1:1,000 SQ* if Patient is not responding to albuterol, and:
Patient: has severe symptoms; is <40 years old; is not hypertensive; has no cardiac history

Chronic Obstructive Pulmonary Disease (COPD)

- COPD: May be result of Chronic bronchitis (excess mucus) or Emphysema (Alveoli destruction)
- Major causes of COPD is long term smoking or inhalation of industrial pollutants
- Signs of a priority COPD patient:
 - Altered LOC • Silent chest • Cyanosis • Diaphoresis • Cyanosis
- In addition you should assess for signs of congestive heart failure (CHF):
 - Crackles • JVD • Chest Pain

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Have patient sit down or assume position of comfort
3. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
4. **Oxygen** if needed to maintain O₂ sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
5. Obtain baseline vital signs: Reassess Vitals as Needed
6. Obtain SAMPLE History
7. Assist the patient with self-administration of Metered Dose Inhaler only if medication is prescribed for the patient and is not expired

EMT

Follow above protocols and in addition:

8. Administer nebulizer treatment: **Albuterol 2.5mg/3cc ~or~ Levalbuterol 1.25mg/3cc**

Advanced EMT Intermediate

Follow above protocols and in addition:

9. If EMT has not administered nebulizer, or patient's condition has not improved after first dose:
Administer: Nebulizer (**Albuterol ~or~ Levalbuterol**) mixed w/ **Atrovent 500mcg /2.5ml**
10. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock
11. No change in condition: Administer additional nebulizer dose *without* Atrovent
12. ECG monitor

Paramedic

Follow above protocols and in addition:

13. Dysrhythmias: *Treat* per appropriate protocol
14. If SPO₂ is <92% CPAP at 5cm H₂O (Per CPAP Procedures)
15. **Solu-Medrol 125mg** Slow IVP (1-2 minutes) if no response to albuterol/Levalbuterol
16. **Magnesium Sulfate 2.0gms in 50 to 100cc NS, IV** over 4-5 minutes
17. If patient cannot protect their airway or respirations are <8 BPM: Consider Intubation

Obstructed Airway (ADULT AND CHILD CHOKING)

EMR

Initial Considerations

EMT

Advanced EMT

Intermediate

- **If Patient is Conscious**

1. Ask “Are you Choking?”
2. If patient can answer or is moving air, reassure them, have them cough
3. If patient is unable to speak or take in air: Initiate abdominal thrusts (chest thrusts for pregnant or obese) Continue thrusts until patient becomes unresponsive or obstruction is cleared
Each thrust is an individual attempt with force to dislodge the object

- **If Patient becomes unconscious ~or~ is found unconscious**

1. Position patient flat on back
2. Determine breathlessness
3. Start CPR in accordance with AHA guidelines and *per* Cardiac Arrest Protocol
4. Each time you open the airway for ventilation look for the object in the back of the throat
If you see the object and think you can remove it, remove it.

- **If patient becomes responsive:**

1. Assess responsiveness and ABCs
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
4. Obtain baseline vital signs: Reassess Vitals as Needed
5. Obtain SAMPLE history
6. Assess lung sounds
7. Treat per Respiratory Distress Protocol
8. Investigate and treat other illness or injuries *per* appropriate protocol(s)

Paramedic

Follow above protocols and in addition:

1. If unsuccessful, visualize larynx with laryngoscope and remove with forceps
2. If unable to remove obstruction with direct laryngoscopy, perform cricothyrotomy if necessary

Obstructed Airway (INFANT CHOKING)

EMR

Initial Considerations

EMT

Advanced EMT

Intermediate

- **Choking relief for a responsive Infant**

1. Kneel or sit with the infant in your lap, Remove their clothing if easy to do
2. Hold infant facedown with the head slightly lower than the chest, resting on your forearms
3. Support the head and jaw with one hand -Avoid compressing the soft tissues of the throat.
4. Rest your forearm on your lap to support the infant
5. Deliver 5 back slaps forcefully between the infant's shoulder blades using the heel of your hand
6. Place your top hand along the baby's back and cradle the head, sandwich the infant between both arms and roll Infant as one unit onto its back keeping the head lower than the trunk.
7. Provide 5 quick downward thrusts in the middle of the chest with two fingers
8. Repeat sequence as needed until the object is dislodged or the patient becomes unresponsive

- **If Patient becomes unconscious ~or~ is found unconscious**

1. Begin CPR in accordance with current AHA guidelines (starting with compressions)
2. Each time you open the airway for ventilation look for the object in the back of the throat, if you see the object and think you can remove it, remove it.

- **If object is removed / patient becomes responsive (due to your efforts or prior to arrival):**

1. Assess responsiveness and ABCs
2. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
3. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
4. Obtain baseline vital signs: Reassess Vitals as Needed
5. Obtain SAMPLE history
6. Assess lung sounds
7. Treat per PEDIATIC Respiratory Distress Protocol
8. Investigate and treat other illness or injuries *per* appropriate protocol(s)

Paramedic

Follow above protocols and in addition:

1. If unsuccessful and necessary, visualize larynx with laryngoscope and remove with forceps
2. If unable to remove obstruction with direct laryngoscopy, consider Needle Cricothyotomy

Respiratory Distress

EMR

Initial Considerations

1. Assess responsiveness and ABCs
2. Have patient sit down or assume position of comfort
3. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
4. **Oxygen** if needed to maintain O₂ sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
5. Obtain baseline vital signs; Reassess Vitals as Needed
6. Obtain SAMPLE history
7. Assist the patient with self-administration of Metered Dose Inhaler only if medication is prescribed for the patient and is not expired

EMT

Follow above protocols and in addition:

8. Known Asthmatic patient with Bronchospasm:
 - a.) Administer nebulizer treatment: **Albuterol** 2.5mg/3cc ~or~ **Levalbuterol** 1.25mg/3cc

Advanced EMT Intermediate

Follow above protocols and in addition:

9. Establish IV access *with* Balanced Salt Solution @TKO ~or~ Saline Lock
10. If EMT has not administered nebulizer, or patient's condition has not improved after first dose:
Administer: Nebulizer (**Albuterol** ~or~ **Levalbuterol**) mixed w/ **Atrovent** 500mcg /2.5ml
Pediatric patients under 1 year old: DO NOT add Atrovent
11. No change in condition: Administer additional nebulizer dose *without* Atrovent
12. ECG monitor

Paramedic

Follow above protocols and in addition:

13. Dysrhythmias: *Treat* per appropriate protocol
14. May repeat additional nebulizer doses *without* Atrovent until improved:
15. If patient cannot protect their airway or respirations are <8 BPM: Consider Intubation

Pediatric: Respiratory Distress with Stridor

- Stridor is a high-pitched wheezing sound resulting from a narrowed or constricted Airway.
- Stridor is often associated with Croup, Respiratory Infections, and Airway Obstructions
- It is a **sign of a life threatening** respiratory emergency

EMR
EMT

Initial Considerations

DO NOT AGITATE PATIENT OR ATTEMPT TO VISUALIZE THE PHARYNX

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Have patient sit down or assume position of comfort, may be best left with parents
4. **Oxygen** if needed to maintain O₂ sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
Consider blow-by oxygen administration at 10LPM via tubing
5. Obtain baseline vital signs: Reassess Vitals as Needed
6. Obtain SAMPLE history
7. Assess rate and quality of respirations, note retractions
 - a.) For respiratory arrest or cyanosis with loss of consciousness
 - I.) Place patient in a sniffing position
 - II.) Attempt positive pressure ventilation with Bag Valve Mask

Advanced EMT
Intermediate

Follow above protocols and in addition:

IV ACCESS IS NOT INDICATED IN THESE PATIENTS

8. ECG monitor
9. Assess rate and quality of respirations, note retractions
 - a.) For mild Stridor: **Normal Saline by nebulizer**
 - b.) For respiratory arrest: Treat *per* Respiratory Arrest protocol

Paramedic

Follow above protocols and in addition:

10. Assess rate and quality of respirations, note retractions
 - a.) For cyanosis or severe stridor:
 - I.) **Racemic Epinephrine 2.25% via nebulizer**
Patient >2 years old 0.5ml in 3ml Normal Saline
Patient <2 years old 0.25ml in 3ml Normal Saline
 - b.) For respiratory arrest: Treat *per* Respiratory arrest protocol

Respiratory Arrest

EMR & EMT

Initial Considerations

1. Open Airway and check for spontaneous ventilations
2. If **NO spontaneous ventilations**:
 - IF no BVM: Ventilate with Pocket mask until BVM is available
 - Ventilate with Bag Valve Mask 15 LPM: 1 Breath every 5 to 6 seconds
 - Children/Infants: 1 Breath every 3 to 5 seconds
3. **EMR:** Place OPA (if no gag reflex) or NPA as soon as available
4. **EMT:** Place King Airway (if no gag reflex) or NPA as soon as available
4. Assess lung sounds and chest rise and fall for adequate ventilations.
5. Every 2 minutes reassess for Pulse and Breathing. **IF no pulse** treat *per* Cardiac Arrest protocol
6. Pulse oximeter *if* available
7. Suction Airway as needed
8. Obtain vital signs (BP & Pulse)
9. Obtain SAMPLE History

Advanced EMT

Follow above protocols and in addition:

10. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock
11. PEDIATRIC: Establish IO Access if unable to obtain IV site
11. *Consider Naloxone 0.5 – 2.0mg IVP/ IO/ IM/ SQ (0.1mg /kg Pediatric)*
12. ECG monitor

Intermediate

Follow above protocols and in addition:

13. Establish IO Access if unable to obtain IV site

Paramedic

Follow above protocols and in addition:

14. Dysrhythmias: Treat per appropriate protocol
15. *Consider Intubation*

Toxic Inhalation with Respiratory Compromise

EMR & EMT

Initial Considerations

1. Assess responsiveness and ABCs
2. Have patient sit down or assume position of comfort, avoid further strenuous activity on the heart
3. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
4. **Oxygen** if needed to maintain O₂ sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
5. Obtain baseline vital signs: Reassess Vitals as Needed
6. Obtain SAMPLE history
7. Assess lung sounds (posterior if able), if crackles heard sit patient and dangle legs (if able)
8. Obtain SAMPLE History

Advanced EMT Intermediate

Follow above protocols and in addition:

9. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock
10. Patient with wheezing: **Administer** nebulizer:
Albuterol 2.5mg/3cc *~or~* **Levalbuterol** 1.25mg/3cc mixed w/ **Atrovent** 500mcg /2.5ml
11. ECG monitor
12. If SPO₂ is <92% Administer **CPAP** at 5cm H₂O *per* CPAP Procedures

Paramedic

Follow above protocols and in addition:

13. Dysrhythmias: *Treat* per appropriate protocol
14. If pulmonary edema is evident treat *per* CHF Protocol
15. If patient cannot protect their airway or respirations are <8 BPM: Consider Intubation

Seaside Fire & Rescue Medical Protocols

Cardiac

<i>Page</i>	<i>Protocol</i>
C – 1	Field Resuscitation Guidelines
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C – 7	Chest Pain
C – 9	Cardiac Arrest
C – 10	Pediatric Cardiac Arrest
C – 11	Bradycardia
C – 12	Pediatric Bradycardia
C – 13	Congestive Heart Failure with Pulmonary Edema
C – 14	Tachycardia
C – 16	Pediatric: Tachycardia

Field Resuscitation Guidelines

- All field resuscitation incidents shall have documentation on the incident events, if CPR was withheld or discontinued and the name of OLMC if contacted.
- Law enforcement shall be notified anytime CPR is withheld and/or discontinued.
- In any event related to cardiac arrest (whether or not the patient is transported) consider the emotional support of the family and find out if you can contact assistance for them.

WITHHOLDING OF CPR

- CPR may be withheld on **Adult** and **Pediatric** patients presenting with any of the following:
 - a. Decapitation
 - b. Incineration
 - c. Decomposition
 - d. Dependent lividity
 - e. Rigor mortis without vital signs
 - f. Apnea in conjunction with separation from the body of either the brain, liver or heart
 - g. Mass casualty incidents where triage precludes CPR from being initiated on every victim
 - h. Documentation of valid Do Not Resuscitate Orders (DNR) or POLST form is presented
- CPR may be withheld on **ADULT** victims of **unwitnessed medical arrest** presenting with **ALL** of the following:
 - a. No CPR in progress **and**
 - b. No vital signs **and**
 - c. Asystole on the cardiac monitor
 - d. No evidence of hypothermia, drug Ingestion, or poisoning
- CPR may be withheld on victims of a **traumatic** cardiac arrest if they meet the above criteria for withholding CPR or the patient presents with **ALL** of the following:
 - a. Patient never had any sign of life (pulseless, apneic, fixed pupils, no movement) upon initial assessment **and**
 - b. If opening the airway does not restore vital signs **and**
 - c. They continue to have no signs of life and asystole on the cardiac monitor.

DISCONTINUING CPR / RESUSCITATION

- Seaside Fire & Rescue will generally not terminate resuscitation efforts once started unless:
 - a. CPR is initiated and follow-up assessments note criteria for withholding CPR.
- For other circumstances that suggest a need for termination of resuscitative efforts OLMC shall be contacted for direction. Resuscitative efforts will continue until the order to stop is received.
- If CPR is discontinued an ECG strip documenting asystole will be obtained *if* possible.

Do Not Resuscitate Orders

Contact patient's physician or on-line Medical Control any time if questions or problems arise related to Do Not Resuscitate orders

DEFINITION of DNR

- A DNR (Do Not Resuscitate) Order is an order issued by a physician directing that CPR and resuscitation efforts WILL NOT be administered in the event of cardiac arrest.
- A Living Will is a legally executed document expressing the patient's wish to not undergo ALS resuscitation.
- Resuscitation includes attempts to restore failed cardiac and/or ventilator function by procedures such as CPR, endotracheal intubation, mechanical ventilation, defibrillation, and use of cardiac medications.
- The Oregon State Department of Health POLST (**P**hysician **O**rders for **L**ife-**S**ustaining **T**reatment) form has been developed for all medical technicians and practitioners. **POLST** outlines the specific care a patient wishes to receive. The form must include: patients name, date of birth, physician's name, signature and phone number and the signature of the patient or patient's surrogate. Follow all instructions on the form carefully. Any section of the form not completed implies full treatment for that section.
- Responders may encounter DNR orders from a healthcare system other than Department of Health POLST Directive. Should this happen personnel should do the following:
 - Verify that the order has a physician signature requesting "Do Not Resuscitate"
 - Ensure the patient's name on the order
 - Contact on-line Medical Control for further consultation

CONFIRMING DNR ORDERS

- If valid DNR/POLST directives are presented prior to starting interventions on the patient:
 - a. Open the airway and assess for spontaneous breathing
 - i. Clear the airway (including stoma) of secretions with suction if needed
 - ii. If patient is spontaneously breathing and has a pulse after repositioning of airway, refer to the Comfort Measures section of the DNR/POLST form
 - b. Check for a carotid pulse
 - c. If no pulse/no breathing, do not start interventions
- If valid DNR/POLST directives are presented during resuscitation efforts:
 - a. Stop CPR, Intubation / Positive pressure ventilation , medication administration, cardiac monitoring and defibrillation
 - b. All invasive and attached supplies / equipment shall be left in place on the patient (tubes, IVs, IOs, Pads, Electrodes, etc.)
 - c. Leave as scene and patient as is and await law enforcement of a representative of the Medical Examiner to take over control of the scene.

Do Not Resuscitate Orders (cont.)

REVOKING THE DNR/POLST DIRECTIVE

- The following people can inform the EMS system that the Directive has been revoked:
 - a. The patient (by destroying the directive or verbally revoking the directive)
 - b. The physician expressing the patient's revocation of the directive
 - c. The legal surrogate for the patient expressing the patient's revocation of the directive

COMFORT CARE MEASURES

- The DNR/POLST directive DOES NOT mean Do Not Treat. Providing comfort care measures is an important responsibility and service you provide to patients
- Comfort measures may include:
 - a. Suctioning the airway
 - b. Administering oxygen
 - c. Positioning for comfort Splinting
 - d. Controlling bleeding
 - e. Providing emotional support
 - f. Contacting patient's physician or OLMC if questions or problems arise

SPECIAL SITUATIONS

- The patient's wishes in regard to resuscitation should always be respected. Sometimes, however, the family may vigorously and persistently insist on CPR even if a valid DNR/POLST Directive is located. These verbal requests are not consistent with the patient's directive. However in such circumstances:
 - a. Attempt to convince family to honor the patient's decision , if they persists, then;
 - i. Consider resuscitation efforts
 - ii. Consult Online Medical Control
 - b. Remember: Once death has occurred, the family and relatives are your patient(s)

DOCUMENTATION

1. The Patient Care Report (PCR) on all incidents involving DNR's should contain:
 - a. The name of the patient's physician and if you contacted the physician
 - b. Record the reason why the EMS system was activated
 - c. Record law enforcement agency notified
 - d. If efforts were started, what equipment was left on the patient
 - e. Any other pertinent information relating to the patient and/or call

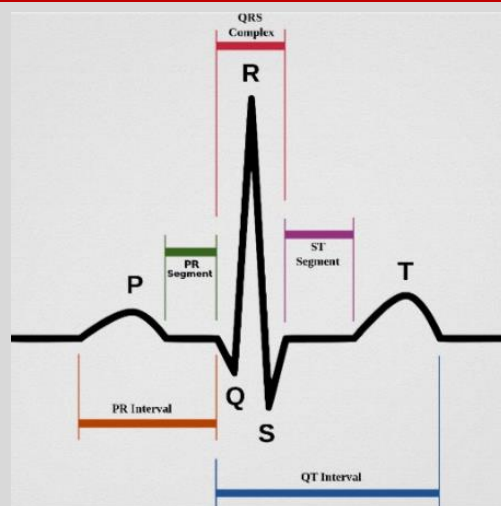
CONTACTING OREGON POLST REGISTRY

1. The POLST Registry can do nothing more than verify that the patient has a POLST order and relate the information from the form. If you contact them for verification provide:
Full Name, DOB, Address, Gender, last 4 of SSN, Registry ID number
Oregon POLST Registry: 1-877-367-7657

ECG Reading & Samples

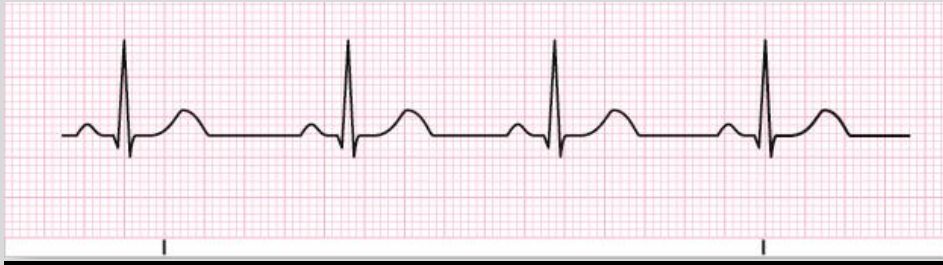
- Always remember to treat the patient not the ECG machine
 - Common 9 step method for evaluating 3 and 4 lead ECG printouts
1. **Calculate heart rate.** ECG large boxes (.2 seconds), inside are the smaller boxes (0.04 seconds) One method for heart rate evaluation: Identify 6 second interval, count the number of QRS complexes and/or P waves. Multiply x 10. The sum is your estimated heart rate
 2. **Evaluate rhythm.** Measure the R-R intervals and P-P intervals to determine if rhythm is regular or irregular. It is regular when both intervals match; Irregular if R-R and P-P intervals differ
 3. **Evaluate P waves.** Is there one P wave before every QRS complex, are they upright? Do they all look the same? A normal rounded P wave indicates the impulse has originated in the SA node.
 4. **Evaluate QRS complex.** Do all complexes look alike? Measure the width of the QRS complex. Normal width is 0.12 seconds or less in duration consistently.
 5. **Evaluate PR interval.** Measure the PR interval; is it within range of 0.12 and 0.20 seconds? Is the interval constant? Prolonged PR intervals is abnormal.
 6. **Evaluate ST segment.** Normal ST segments should be isoelectric (same baseline level) with the PR segment. Higher or lower may indicate cardiac ischemia or AMI.
 7. **Evaluate QT interval.** As a rough field guide the normal QT interval is usually less than one half of the R-R interval.
 8. **Evaluate T waves.** T waves should be upright and asymmetrical. T waves that are unusually tall or inverted are abnormal.
 9. **Look for U waves.** U waves may be normal variants.

Normal Sinus Rhythm



ECG Reading & Samples

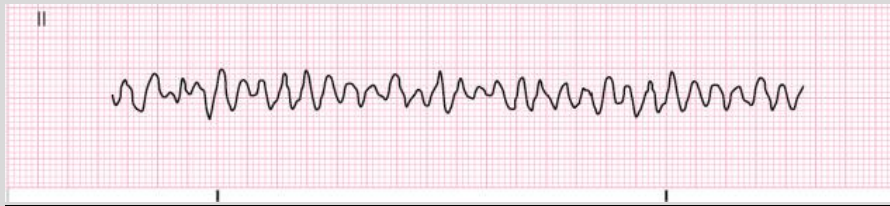
Sample: Sinus Bradycardia 100 BPM or more



Sample: Sinus Tachycardia 100 BPM or more



Sample: Ventricular Fibrillation (VF) Disoriented & quivering



Sample: Ventricular Tachycardia Very Rapid, usually 150 -200 BPM



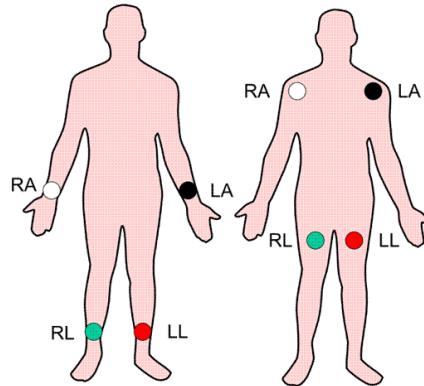
Sample: Asystole Absence of Electrical Activity



ECG Monitor Information

4 Lead Monitor

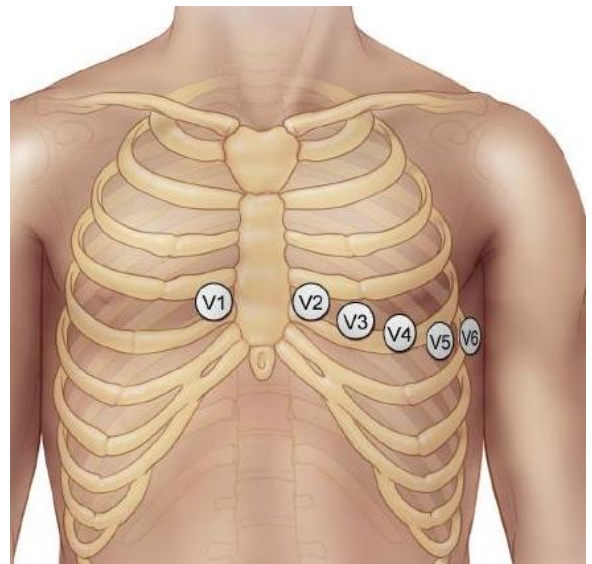
RA	On Right arm, avoid thick muscle
LA	On Left Arm, avoid thick muscle
RL	Right leg, Lateral calf muscle
LL	Left Leg, Lateral Calf muscle



12 Lead

In addition to the 4 leads, attach the following:

V1	Between the 4 th and 5 th ribs, right of sternum
V2	Between the 4 th and 5 th ribs, left of sternum
V3	Between leads V2 and V4
V4	Between 5 th and 6 th ribs, mid-clavicular line
V5	Horizontally even with V4, in left axillary line
V6	Horizontally even with V4, in midaxillary line



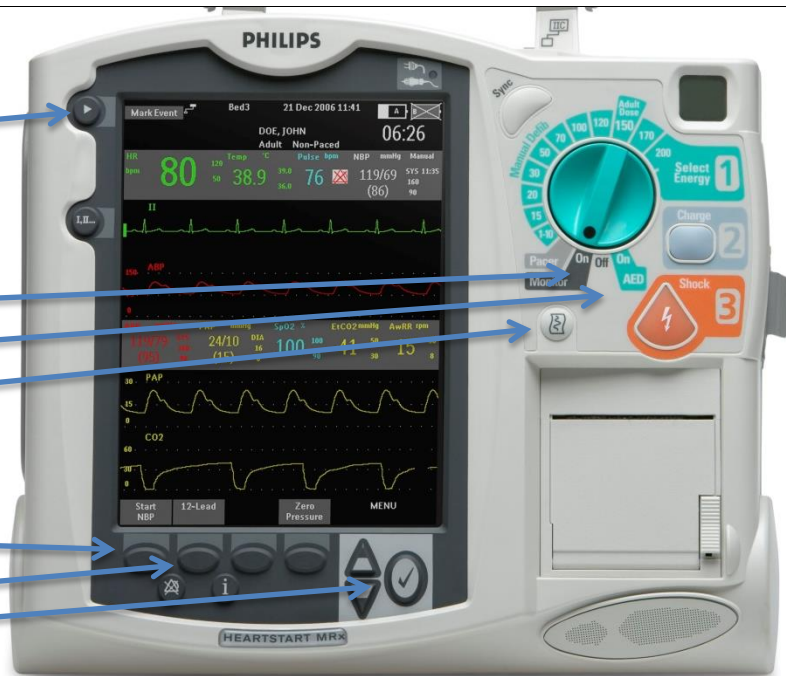
Philips Heartstart MRx

- Mark Event →

Touch once for time mark
Or select procedure using arrows

- ON →
- AED Mode →
- Print ECG →

- Start Blood Pressure →
- Start 12 lead →
- √ Menu →



Chest Pain

INDICATIONS

- Signs and symptoms may include nausea, shortness of breath, weakness, dizziness, and /or sweating

MEDICATION PRECAUTIONS

- Aspirin: Do not administer if patient has allergy aspirin or has active ulcer
- Nitroglycerin administration
 - Prior to nitro confirm patient has not taken Viagra or a like medication within the last 24 hours, if patient has taken medication withhold unless directed to by OLMC
 - Systolic BP must be greater than 90 prior to administration of nitroglycerin
- Morphine: If patient has a suspected right sided AMI Use caution if administering or for pain relief

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Have patient sit down or assume position of comfort, avoid further strenuous activity on the heart
3. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
4. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
5. Obtain baseline vital signs: Reassess Vitals as Needed
6. Administer (4 chewable baby) **Aspirin** 324mg
7. Obtain SAMPLE history
8. Be Prepared for Patient's condition to deteriorate and Cardiac Arrest occur

EMT

Follow above protocols and in addition:

9. *Confirm* medication precaution and if able **Assist** patient with their prescribed nitroglycerin 0.4mg (if systolic BP greater than 90)

Advanced EMT

Follow above protocols and in addition:

10. Administer **Nitroglycerin** 0.4 mg; *Confirm* medication precaution
11. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock
12. ECG monitor

Chest Pain (Cont.)

Intermediate

Follow above protocols and in addition:

16. If pain is severe or unrelieved with Nitroglycerin and BP remains above 90 systolic:
Morphine sulfate 2-5 mg Repeat PRN every 3-5 minutes Max: 10mg per 30 minutes
 ~or~ **Fentanyl** 50mcg , Repeat PRN every 3-5 minutes Max: 150mcg per 30 minutes
17. **Repeat nitroglycerin** administration every 3-5 minutes (no more than 3 doses total)
18. If systolic Blood pressure is less than 90 and lungs are clear:
 Administer a 250-500ml Normal Saline Bolus

Paramedic

Follow above protocols and in addition:

19. Dysrhythmias: Treat per appropriate protocol
20. If 12 lead indicates ST elevation in lead II, III, or AVF obtain V4R.
 ST elevation in V4R may indicate Right-sided AMI – DO NOT ADMINISTER NITRATES
21. Consider if necessary for anxiety:
Lorazepam (Ativan) 1-2mg. May repeat every 30 minutes PRN
 ~or~ **Midazolam** (Versed) 2-5mg IV or IM. Repeat PRN every 15-20 minutes
Caution using Versed in a hypotensive patient
22. If patient is unresponsive to fluid bolus or shows signs of CHF consider Dopamine
 Administer Dopamine 5-20 mcg/kg/min IV to maintain SBVP above 90

Cardiac Arrest

This protocol is a guide for Cardiac arrest management, follow current AHA standards

EMR

Initial Considerations

1. Assess pulse/ breathing: Limit Check for no more than 10 seconds
2. Initiate CPR per current AHA Guidelines
3. Insert appropriate airway device as available: (OPA / NPA / Pocket Mask / BVM)
4. Ventilate patient with BVM on **O2** @ 15 LPM as soon as available
5. **Attach AED** as soon as it is available, ensure patient is clear and “analyze”:
SHOCK advised: a.) Clear Patient, b.) Press Shock, c.) Continue CPR for 2 minutes unless patient becomes responsive
NO SHOCK advised: a.) Continue CPR, b.) Reanalyze patient at 2 minute
6. Continue CPR /AED use until vital signs are restored (ROSC) or resuscitation is terminated
7. Obtain SAMPLE history from bystander/witnesses/ family
8. Package patient, prepare for transport, Consider: Mega-mover/ Scoop/ Backboard/etc.

EMT

Follow above protocols and in addition:

9. Establish King Airway; a.) Secure device, b.) Auscultate lungs & epigastric sounds
10. Establish ETCO2 Monitoring immediately. *Note:* A sudden rise in ETCO2 can indicate ROSC

Advanced EMT

Follow above protocols and in addition:

11. Establish IV access *with* Balanced Salt Solution. Bolus 500-1000ml. Repeat as needed
12. Consider second access when available

Intermediate

Follow above protocols and in addition:

13. Secure IO access immediately if unable to establish IV; Consider as secondary access to IV
14. **Administer Epinephrine** 1.0mg 1:10,000 every 3 to 5 minutes
Continue until vital signs are restored (ROSC) or resuscitation is terminated
15. **If pulseless V-tac or V-fib is identified:** Administer **Amiodarone** 300mg
Second Amiodarone dose 150mg 3 - 5 minutes after first dose
If Amiodarone contraindicated: Administer **Lidocaine** 1.5mg/kg
Repeat at .75 mg/kg (half 1st dose) 3-5 minutes after first dose
16. Search and treat for additional causes

Paramedic

Follow above protocols and in addition:

17. Intubation *if indicated*
18. Continue to treat patient per current AHA / ACLS / PALS guidelines

PEDIATRIC**Cardiac Arrest**

This protocol is a guide for Cardiac arrest management, follow current AHA standards

EMR***Initial Considerations***

1. Assess pulse/ breathing: Limit Check for no more than 10 seconds
2. Initiate CPR per current AHA Guidelines
3. Insert appropriate airway device as available: (OPA / NPA / Pocket Mask / BVM)
4. Ventilate patient with BVM on **O2** @ 15 LPM as soon as available
5. **Attach AED** as soon as it is available, ensure patient is clear and “analyze”:
SHOCK advised: a.) Clear Patient, b.) Press Shock, c.) Continue CPR for 2 minutes unless patient becomes responsive
NO SHOCK advised: a.) Continue CPR, b.) Reanalyze patient at 2 minutes
6. Continue CPR /AED use until vital signs are restored (ROSC) or resuscitation is terminated
7. Obtain SAMPLE history from bystander/witnesses/ family
8. Package patient, prepare for transport, Consider: Mega-mover/ Scoop/ Backboard/etc.

EMT***Follow above protocols and in addition:***

9. Establish King Airway; a.) Secure device, b.) Auscultate lungs & epigastric sounds
10. Establish ETCO2 Monitoring immediately. *Note:* A sudden rise in ETCO2 can indicate ROSC

Advanced EMT***Follow above protocols and in addition:***

11. Establish IV access *with* Balanced Salt Solution. Bolus 500-1000ml. Repeat PRN
12. Consider second IV access when available
13. Secure IO access immediately if unable to readily establish IV ~or~ as secondary access

Intermediate***Follow above protocols and in addition:***

14. Administer **Epinephrine** 0.01mg/kg 1.0mg 1:10,000 every 3 to 5 minutes
Continue until vital signs are restored or resuscitation is terminated
15. **If pulseless V-tac or V-fib is identified:** Administer **Amiodarone** 5 mg/kg.
Repeat second dose after 3 to 5 minutes to a maximum of 300 mg
If Amiodarone Contraindicated: **Lidocaine** 1.0mg/kg. Repeat as needed, Max total: 3.0mg/kg
16. Search and treat for additional causes

Paramedic***Follow above protocols and in addition:***

17. Intubation *if indicated*
18. Continue to treat patient per current AHA / ACLS / PALS guidelines

Bradycardia

This protocol is a guide for Cardiac arrest management, follow current AHA standards

EMR & EMT

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. If pulse less than 50bpm and unconscious and/or BP less than 40 systolic: *Initiate* CPR Protocol
3. Protect airway as needed, *Consider*: BVM, Suction, OPA, or NPA
4. **Oxygen** as needed to maintain O2 sats between 94% & 99% (2-6 LPM NC / 12-15 LPM NRB)
5. Let patient rest in position of comfort
6. Obtain baseline vital signs; Reassess Vitals as Needed
7. Obtain SAMPLE history

Advanced EMT

Follow above protocols and in addition:

8. Establish IV access *with* Balanced Salt Solution @TKO
9. ECG monitor

Intermediate

Follow above protocols and in addition:

10. Consider IO access if unable to secure IV *if necessary*
11. If patient has heart rate less than 60 bpm AND any of the following: Cardiac chest pain, difficulty breathing, decreased LOC, hypotension, shock, pulmonary edema, CHF
 - a.) Administer **Atropine** 0.5mg every 3-5 minutes; Max total of 3 mg.

4 Lead ECG monitor must be available prior to medication administration

Paramedic

Follow above protocols and in addition:

12a. **Unstable patient:**

DO NOT delay transcutaneous pacing while awaiting IV access or for atropine to take effect
Consider sedation with Versed 2.5-5mg before pacing (Time permitting)

12b. **Stable Patient:**

Patient with HR <60bpm without serious signs or symptoms

Asymptomatic bradycardia with type II 2nd or 3rd degree AV heart block

a) Prepare for transcutaneous Pacing incase patient becomes unstable / symptomatic

b) If patient is asymptomatic with bradycardia, not type II 2nd or 3rd degree AV heart block:

I. Observe and re-assess

II. If patient becomes symptomatic, treat as: Unstable patient

PEDIATRIC Bradycardia

- This protocol is a guide for Cardiac arrest management, follow current AHA standards
- Consider blow-by Oxygen administration (10 LPM) for a pediatric patient that may not tolerate a mask

EMR & EMT

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, *Consider:* BVM, Suction, OPA, or NPA
3. **Oxygen** as needed to maintain O2 sats between 94% & 99% (2-6 LPM NC / 12-15 LPM NRB)
4. Consider Ventilation with BVM and O2 @15LPM if spontaneous ventilations are not adequate
5. If poor perfusion and/or hypotension still exists despite oxygenation and ventilations:
 Perform Chest compressions & *Initiate CPR Protocol*
 Infant with heart rate less than 80 per minute
 Child with heart rate less than 60 per minute
6. Obtain baseline vital signs: Reassess Vitals as Needed
7. Obtain SAMPLE history

Advanced EMT

Follow above protocols and in addition:

8. Establish IV access: *with* Balanced Salt Solution @TKO
9. Consider IO access if unable to readily secure IV or patient is in severe symptoms:
 (Shock, changes in mentation, hypotension)

Intermediate

Follow above protocols and in addition:

10. ECG monitor *4 lead heart monitor must be available prior to medication administration
11. Bradycardic: Administer Atropine 0.02mg/kg. May repeat once. Maximum dose: 0.5mg

Paramedic

Follow above protocols and in addition:

12. Dysrhythmias: Treat *per* protocol
13. Consider Intubation to control airway and respiratory rate
14. Administer Epinephrine 0.01mg/kg 1:10,000 ~or~ Epi 0.1mg/kg 1:10,000 ET tube
 Repeat Epinephrine dose every 3-5 minutes as needed
15. Consider Transcutaneous Pacing

Congestive Heart Failure with Pulmonary Edema

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, *Consider:* BVM, Suction, OPA, or NPA
3. **Oxygen** as needed to maintain O2 sats between 94% & 99% (2-6 LPM NC / 12-15 LPM NRB)
4. Obtain baseline vital signs; Reassess Vitals as Needed
5. Assess lung sounds, if crackles are heard & able: Have patient sit upright and dangle legs
6. Obtain SAMPLE history

EMT

Follow above protocols and in addition:

7. If patient is in respiratory distress: Consider **CPAP** starting at 10cm H2O

Advanced EMT

Follow above protocols and in addition:

8. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock
9. ECG monitor

Intermediate

Follow above protocols and in addition:

10. Administer **Lasix** 20mg *~or~* patient's daily dose, whichever is higher
Systolic BP must be >100

Paramedic

Follow above protocols and in addition:

11. Confirm patient has not taken Viagra or Cialis
Administer **Nitroglycerin** 0.4mg spray if systolic BP remains ≥ 100
12. If BP remains >100 and pulmonary edema persists, Continue Nitroglycerin 0.4mg every 5 minutes
13. If patient cannot protect their airway or respirations are <8 BPM: Consider Intubation

Adult Tachycardia

MEDICATION PRECAUTIONS

- Diltiazem contraindicated in patients with WPW
- Use caution if administering Diltiazem on patients taking beta blockers
- Any patient with wide complex tachycardia who converted (either chemically or by electricity) needs an antiarrhythmic bolus and a drip

EMR & EMT

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, *Consider:* BVM, Suction, OPA, or NPA
3. **Oxygen** as needed to maintain O2 sats between 94% & 99% (2-6 LPM NC / 12-15 LPM NRB)
4. Obtain baseline vital signs; Reassess Vitals as Needed
5. Obtain SAMPLE history

Advanced EMT Intermediate

Follow above protocols and in addition:

6. Establish IV (*Consider* large bore) access *with* Balanced Salt Solution @TKO
Consider: fluid bolus of 500ml
7. Direct patient to perform **Vagal** (Valsalva) Maneuvers
8. ECG monitor

Adult Tachycardia

Paramedic

Follow above protocols and in addition:

10a. UNSTABLE PATIENT

Patient with Ventricular rate >150: Patients with any of all of the following:

Chest pain, SOB, Decreased LOC, SBP<90, shock, pulmonary edema, CHF, ischemia, AMI

a.) *Consider* sedation **Administer Versed 2.5-5mg** ~or~ **Etomidate 0.3mg/kg** no >40mg

DO NOT delay cardioversion for sedation

	QRS Complex	Rhythm	Cardioversion	Joules
→	Regular, Narrow	SVT, Atrial Flutter	Synchronized (biphasic)	50 -100 J
→	Irregular, Narrow	Atrial Fibrillation	Synchronized (biphasic)	120 - 200J
→	Regular, Wide	Monomorphic VT	Synchronized (biphasic)	100J
→	Irregular, Wide	Polymorphic VT	Unsynchronized (biphasic)	120 - 200J

b.) If Tachycardia persists/recurs, continue to stable treatments

10b. STABLE PATIENT

a.) **Wide Complex Tachycardia, Ventricular rate >150, QRS>0.12 seconds**

I) Wide Complex: Administer Amiodarone 150mg over 10 minutes

If Wide Complex tachycardia persists after 10 minutes: Repeat dose once

If amiodarone contradicted: Lidocaine 1.0-1.5mg/kg

If Wide Complex tachycardia persists after 10 minutes: Repeat dose once

If patient converts after bolus start Lidocaine infusion 2-4mg per min

II) Monitor patient. If tachycardia persists/recurs: Magnesium Sulfate 2.0 gms slow push

b.) **Narrow Complex Tachycardia, Ventricular rate >150, QRS<0.12 seconds**

I) Direct patient to perform Valsalva maneuver

a) If VT persists: Adenosine 6.0mg rapid Push over 1-3 seconds

Follow immediately with NS 20ml rapid Push, using the 2 syringe method

b) If VT persists after 2 minutes: Adenosine 12mg rapid Push over 1-3 seconds

Follow immediately with NS 20ml rapid push using 2 syringe method, may repeat once

c) If SVT persists: Diltiazem 0.25mg/kg slow push over 2 minutes

d) If SVT persists after 15 minutes: Diltiazem 0.35mg/kg slow push over 2 minutes:

If hypotension occurs after administration of Diltiazem:

Administer Fluids and Calcium Chloride 250mg

e) If SVT persists: Synchronized Cardioversion as for unstable patients

f) Wait 15 – 30 minutes and if atrial fibrillation/flutter persists: Contact OLMC

PEDIATRIC Tachycardia

EMR & EMT

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, *Consider:* BVM, Suction, OPA, or NPA
3. **Oxygen** as needed to maintain O2 sats between 94% & 99% (2-6 LPM NC / 12-15 LPM NRB)
4. Obtain baseline vital signs: Reassess Vitals as Needed
5. Obtain SAMPLE history

Advanced EMT

Follow above protocols and in addition:

6. Establish IV (*Consider* large bore) access *with* Balanced Salt Solution @TKO
 Consider fluid bolus of 20mg/kg

Intermediate

Follow above protocols and in addition:

7. ECG monitor
8. Direct patient to perform Vagal (Valsalva) Maneuvers If able to do so

Paramedic

Follow above protocols and in addition:

9. **Treatments:**

Unstable Child with Ventricular Rate >180 / /Infant >220

Wide complex:

- a) Synchronized cardioversion 0.5 -1J/kg (biphasic or monophasic)
- b) Repeat 2J/kg as needed. Consider Amiodarone 5mg/kg over 20-60 minutes
- c) Contact OLMC for advice (If time permits)

Narrow complex and probably SVT:

- a) Synchronized Cardioversion 0.5 -1J/kg
- b) Biphasic or monophasic) repeat 2J/kg as needed
- c) Otherwise, search and treat for causes
- d) Contact OLMC for advice (If time permits)

Stable Child:

- a) Monitor and search for causes
- b) Contact OLMC (If time permits)

Seaside Fire & Rescue Medical Protocols

Medical Emergencies

Page	Protocol
D – 1	Procedure: Intramuscular Injection
D – 2	Acute Abdomen
D – 3	Allergic Reaction
D – 4	Anaphylaxis
D – 5	PEDIATRIC: Anaphylaxis
D – 6	Epistaxis
D – 7	PEDIATRIC: Fever
D – 8	Hyperglycemia
D – 9	Diabetic Ketoacidosis (DKA)
D – 10	Hypoglycemia
D – 11	PEDIATRIC: Hypoglycemia
D – 12	Poisoning / Overdose
D – 13	PEDIATRIC: Poisoning
D – 16	Sepsis
D – 17	Sexual Assault
D – 18	Shock
D – 19	Vomiting

Medical Procedure: Intramuscular Injection

EMT

Advanced EMT

EMT-Intermediate

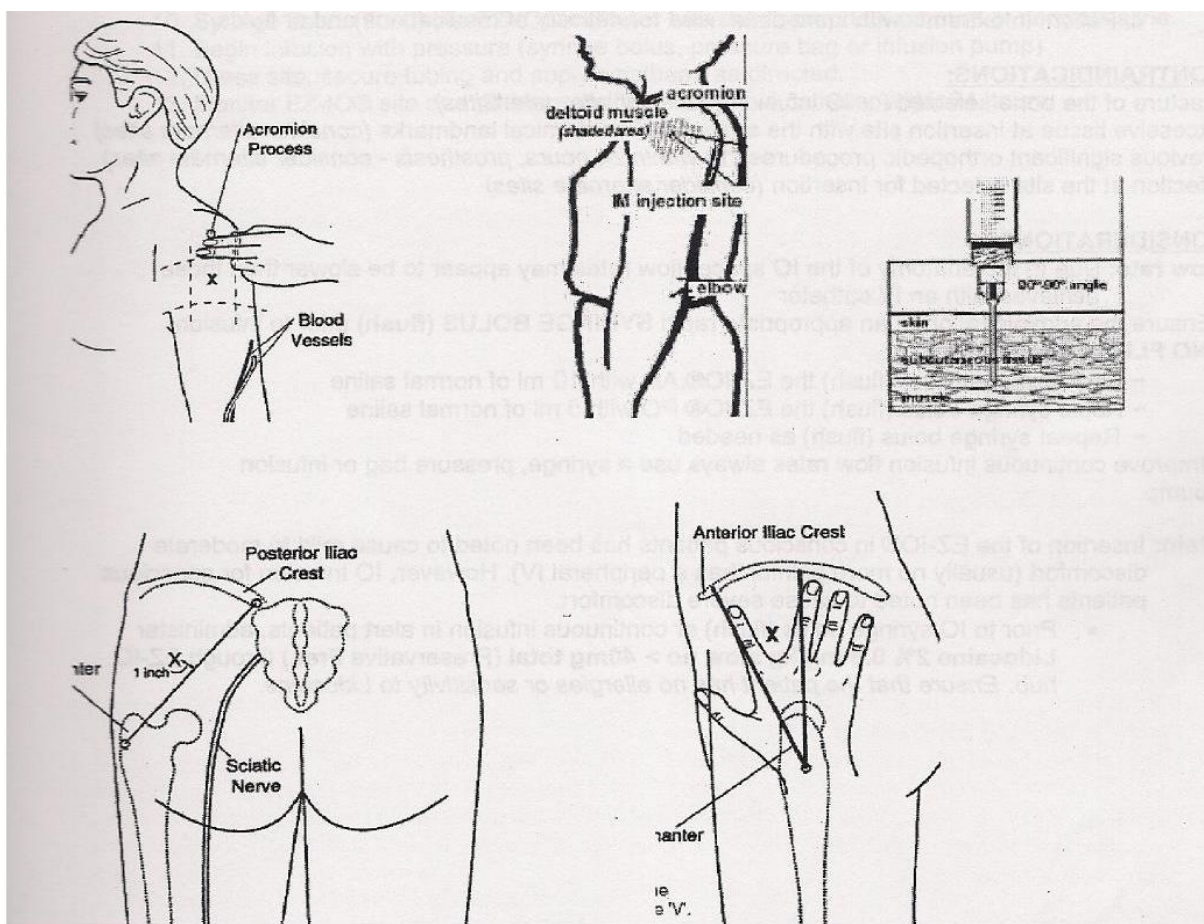
Paramedic

CONSIDERATIONS

- Medications administered IM must be rotated among the major muscles.
- There is no need to change the needle between injections (on the same person) as long as the skin is adequately swabbed with alcohol.

PROCEDURE

1. Use a needle long enough to reach deep into the muscle.
2. Pinch the skin with your thumb and index finger (see illustrations for puncture sites)
3. Insert needle at an 80° - 90° angle to the skin with a quick thrust.
4. Retain pressure on skin around injection site and slowly administer medication.
 - If blood enters the syringe, remove the needle and choose a new injection site.
 - Multiple injections can be administered in the same extremity however they should be spaced as far apart as possible (minimum of 1 inch)



Acute Abdomen

CONSIDERATIONS

- Acute Abdomen refers to pain not caused by injury/ trauma
- Anticipate vomiting in these patients
- Common causes may include:
 - Bacterial Contamination
 - Peritonea inflammation
 - Obstruction
 - Bleeding
- Common diseases than may be life threatening
 - Acute Myocardial Infarction (AMI)
 - Ruptured organ
 - Ruptured ectopic pregnancy
 - Ruptured Abdominal aortic aneurysm
- Common causes that are not typically life threatening
 - Peptic ulcer disease
 - Gastritis
 - Pneumonia
 - Pancreatitis
 - Diverticulitis
 - Kidney Stones or infection
 - Pelvic inflammatory disease
 - Appendicitis
 - Cholecystitis
 - Abdominal wall hernia

EMR and EMT

Initial Considerations

Caution: DO not allow the patient to eat or drink (NPO)

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
4. Obtain baseline vital signs: Reassess Vitals as Needed
5. Treat *per* Shock protocol as needed
6. Obtain SAMPLE History
7. Carefully evaluate the abdomen (focused physical exam)
8. Investigate and treat other illness or injuries *per* appropriate protocol(s)

Advanced EMT Intermediate

Follow above protocols and in addition:

9. Establish IV access *with* Balanced Salt Solution. Titrate to systolic BP of 90 mmHg
10. Administer a blood draw *if able* and send samples with transporting ambulance
11. Consider 2nd IV
12. ECG monitor

Paramedic

Follow above protocols and in addition:

13. Consider Pain management

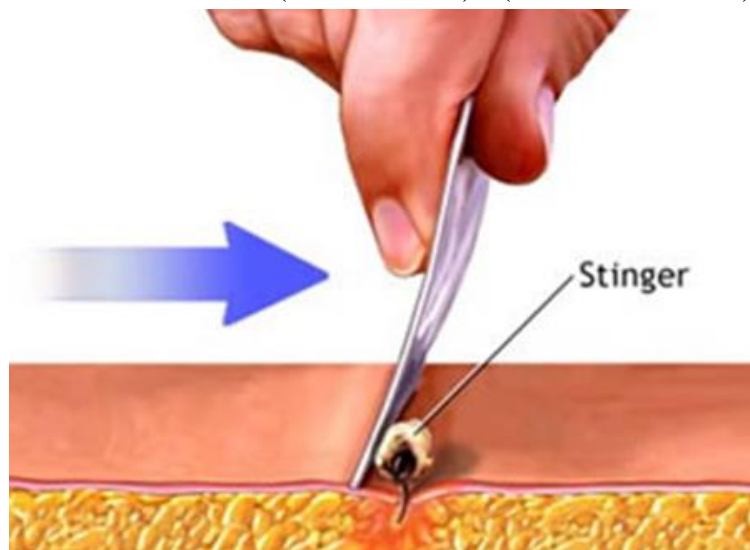
Allergic Reaction

- **Mild Reaction:** Red itchy skin, hives; and if insect sting present, localized swelling around sting site, with stable vital signs
- Monitor Patient condition for developing anaphylaxis

EMR & EMT

Initial Considerations

1. Assess responsiveness and ABCs. Ensure patient is removed from environment causing allergy
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
4. Scrape stinger off stinger if present



5. Obtain baseline vital signs: Reassess Vitals as Needed
6. Treat *per* Shock protocol as needed
7. Obtain SAMPLE history
8. Monitor Patient for anaphylaxis and treat *per* protocol *if* necessary

Advanced EMT

Follow above protocols and in addition:

9. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock

Intermediate

Follow above protocols and in addition:

10. **Benadryl 25-50mg** IVP/IO/IM *if* urticaria (hives) or edema is present
PEDIATRIC: **Benadryl 1.0mg/kg**. No more than 50 mg total IVP/IO/IM

Paramedic

Follow above protocols and in addition:

11. Dysrhythmias: *Treat* per appropriate protocol

Anaphylaxis

- **Severe Reaction (Anaphylaxis):** Increasing respiratory distress, swelling or constriction of the airway, decreasing blood pressure, profound hives over a large portion of body

EMR

Initial Considerations

1. Treat Patient *per* Allergic Reaction protocol and in addition:
2. Patient in respiratory distress or BP <90 Systolic Administer **Auto Epinephrine** pen *if available*

EMT

Follow above protocols and in addition:

3. Patient in respiratory distress or BP <90 Systolic: **Epinephrine** 1:1,000 0.3mg-0.5mg IM
Repeat as needed every 3-5 mins
4. Monitor lung sounds for pulmonary edema

Advanced EMT

Follow above protocols and in addition:

5. Titrate established IV to a systolic BP of 90 mmHg.
6. Consider 2nd (Large bore) IV access *with* Balanced Salt Solution
7. Administer: Nebulizer (**Albuterol** ~or~ **Levalbuterol**) mixed w/ **Atrovent** 500mcg /2.5ml
8. No change in condition: Administer **additional nebulizer** dose *without* Atrovent
9. ECG Monitor

Intermediate

Follow above protocols and in addition:

10. If unable to obtain IV establish IO Access

Paramedic

Follow above protocols and in addition:

11. If patient cannot protect their airway or respirations are <8 BPM: Consider Intubation
12. Administer:
 - Epinephrine** 1:10,000, 0.1mg (1ml) slow IVP/IO. Repeat as needed every 3-5 mins
No >0.5mg. Monitor Heart Rate and for Ventricular ectopy
 - ~or~ **Epinephrine** 1:1,000 0.3mg SQ / IM. Repeat as needed every 3-5 mins
13. If no response to levalbuterol: **Solu-medrol** 125mg IV over 1-2 minutes *If available*
14. If hypotension persists: **Dopamine** 5-20 mcg /kg /min IVP / IO by micro drip or IV pump

PEDIATRIC Anaphylaxis

- **Severe Reaction (Anaphylaxis):** Increasing respiratory distress, swelling or constriction of the airway, decreasing blood pressure, profound hives over a large portion of body

EMR

Initial Considerations

1. Treat Patient *per* Allergic Reaction protocol and addition:
2. Patient in respiratory distress or BP <90 Systolic Administer **Auto Epinephrine** pen *if available*

EMT

Follow above protocols and in addition:

3. Patient in respiratory distress or BP <90 Systolic: **Epinephrine** 1:1,000 0.1mg/kg IM
No more than 0.3mg total SQ or IM injection.
4. Monitor lung sounds for pulmonary edema

Advanced EMT

Follow above protocols and in addition:

5. Titrate established IV to a systolic BP of 90 mmHg.
6. Consider 2nd (Large bore) IV access *with* Balanced Salt Solution
7. Administer: Nebulizer (**Albuterol** ~or~ **Levalbuterol**) mixed w/ **Atrovent** 500mcg /2.5ml
Pediatric patients under 1 year old: DO NOT add Atrovent
8. No change in condition: Administer additional nebulizer dose *without* Atrovent
9. If unable to obtain IV establish IO Access
10. ECG Monitor

Paramedic

Follow above protocols and in addition:

11. If patient cannot protect their airway or respirations are <8 BPM: Consider Intubation
12. Administer:
 - Epinephrine** 1:1,000, 1.0 mg/250ml D5W (4.0 µgm/ml), 0.1 µgm/kg/min. IV/IO drip, titrate to effect, and increase every 1 minute, prn. (Titrate to HR, BP, Ventricular Ectopy)
 - ~or~ **Epi, 1:1,000**, 0.01 mg/kg no > 0.3 mg total, SQ or IM. Repeat q 5 min prn.
 - ~or~ **Epi, 1:10,000**, 0.01 mg/kg no > 0.3 mg total IVP/IO. Repeat q 5 min prn.
 - ~or~ **Epi, 1:1,000**, 0.01 mg/kg no > 0.03 mg total diluted in 2 ml NS. ETT if intubated.
13. If hypertension persists **Dopamine** 5-20mcg/kg/min IV/IO drip *If available*
14. Additional for Insect Stings: **Epi, 1:1,000** 0.2 mg injected at sting site
Contraindicated for fingers, toes, penis, nose, ears

Epistaxis

CONSIDERATIONS

- Anticipate Vomiting
- Use Eye Protection as patient may inadvertently spit blood when speaking

EMR & EMT

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Have patient sit up and lean forward slightly. DO NOT allow blood to drain into stomach
3. Protect airway. **Suction mouth and oropharynx as needed**
4. Have Patient pinch anterior cartilaginous portion of the nose firmly, and
 - a.) DO NOT RELEASE PRESSURE FOR AT LEAST 10 MINUTES
 - b.) DO NOT ALLOW PATIENT TO BLOW THEIR NOSE
5. Obtain baseline vital signs: Reassess Vitals as Needed
6. **Oxygen** if needed. Consider blow-by oxygen 10 LPM directed into patient's mouth
7. Treat *per* Shock protocol as needed
8. Obtain SAMPLE History
9. Investigate and treat for any other injuries or illnesses *per* appropriate protocol(s)

Advanced EMT / Intermediate / Paramedic

in addition:

10. Prolonged bleeding or hypotensive: Establish IV access *with* Balanced Salt Solution @TKO



PEDIATRIC Fever

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Anticipate Vomiting
3. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
4. **Oxygen** if needed to maintain O₂ sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
5. Obtain baseline vital signs: Reassess Vitals as Needed
6. Obtain SAMPLE history. Investigate recent illnesses, doctor visits, vaccinations
7. If Rectal temperature is >100°F, or sings of febrile seizure:
 - a. Remove clothing / blankets and bring to room temperature
 - b. Do not allow child to become cold. Protect from chills /shivering
8. Investigate and treat for any other injuries or illnesses *per* appropriate protocol(s)

EMT

Follow above protocols and in addition:

9. **Determine Blood Glucose** ASAP. If indicated treat *per* Hypoglycemia protocol

Advanced EMT

Follow above protocols and in addition:

10. Establish IV access *with* Balanced Salt Solution @TKO
- Warning:** Do not attempt IV if it raises patient's anxiety and is counterproductive to patient care
11. Establish IO *if* necessary and unable to secure IV access
12. ECG Monitor

Paramedic

Follow above protocols and in addition:

13. If patient is or has seizure: **Midazolm** 0.1-0.2 mg/kg IVP/ IM/IO. Repeat as needed

Hyperglycemia

- Common Symptoms: Frequent urination coupled with intense thirst and drinking.
- Blurred vision may be symptom due to osmotic changes in the fluid of the eye.
- Hyperglycemia tends to progress rapidly (from minutes to hours).

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. **Oxygen** if needed to maintain O₂ sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
3. Obtain baseline vital signs: Reassess Vitals as Needed
4. Obtain SAMPLE history:
 - a.) Inquire History of: Diabetes, last meal, last intake of medication
 - b.) Known diabetics: consider DKA should associated signs and symptoms be presented
5. Other signs and symptoms: *Treat* per appropriate protocol

EMT

Follow above protocols and in addition:

6. **Determine Blood Glucose** ASAP. Readings of “high” typically equate to BGL >500 mg/dL

Advanced EMT Intermediate

Follow above protocols and in addition:

7. Establish IV access *with* Balanced Salt Solution @TKO
8. If Blood Glucose >300 mg/dL: Administer 250ml – 500ml saline bolus. May repeat Bolus x2
9. Recheck Blood glucose levels after 5 minutes.
10. If no response to treatments: *Consider* Altered Mental Status protocol
11. ECG Monitor

Paramedic

Follow above protocols and in addition:

12. Dysrhythmias; *Treat* per appropriate protocol

Diabetic Ketoacidosis (DKA)

CONSIDERATIONS

- DKA is a metabolic condition consisting of: hyperglycemia, dehydration, and the accumulation of ketones and ketoacids in the body.
- Usually a relatively slow onset, symptoms may become worse over a matter of hours to days.
- DKA has been mistaken for Alcohol intoxication
- Distinguishing DKA in the field is difficult

SIGNS AND SYMPTOMS OF DKA

- | | |
|-----------------------|--|
| ○ Weakness | ○ Frequent Urination |
| ○ Abdominal Pain | ○ Rapid, deep, sighing respirations (Kussmaul) |
| ○ Thirst | ○ Alterations in the level of consciousness |
| ○ Rapid, weak pulse | ○ Fruity, acetone like odor to the breath |
| ○ Nausea and Vomiting | ○ Normal or mildly decreased blood pressure |

EMR & EMT

Initial Considerations

1. Treat patient per HYPERGLUCEMIA protocol and in addition:
2. Treat *per* Shock protocol as needed, expect patient to be altered from normal mentation
3. Investigate and treat for any other injuries or illnesses *per* appropriate protocol(s)

Advanced EMT

Follow above protocols and in addition:

Intermediate

Paramedic

8. Established IV; Administer 500ml saline bolus
9. Consider second (large bore) IV access *with* Balanced Salt Solution
10. Administer a blood draw *if able* and send samples with transporting ambulance

Hypoglycemia

- Patients who refuse transport to the hospital should be encouraged to ingest “long term” carbohydrates, as the interventions provided by EMS are usually short acting and hypoglycemia may recur rapidly.

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
4. Obtain baseline vital signs: Reassess Vitals as Needed
5. Obtain SAMPLE history: Inquire History of: Diabetes, last meal, last intake of medication
6. If patient has altered mental status and is able to swallow and can protect their own airway; and if Hypoglycemia is suspected: **Administer Oral Glucose 30 gm by mouth.**
It is recommended to first obtain a Blood Glucose reading

EMT

Follow above protocols and in addition:

7. Determine Blood Glucose ASAP
8. If Blood Glucose < 60 mg/d: If patient is able to swallow and can protect their own airway:
Administer Oral Glucose 30gm by mouth.
9. Recheck Blood Glucose every 5 minutes after treatment.

Advanced EMT

Follow above protocols and in addition:

10. Establish IV access *with* Balanced Salt Solution @TKO
11. If Blood Glucose < 60 mg/dL: **Administer D50W 25 gm** slow IV
12. If IV cannot be established: **Administer Glucagon 1.0mg** IM or SQ *If available*. Continue to attempt IV after glucagon and if able: **Administer D50W 25 gm**
13. ECG Monitor
14. No response to treatments; *Consider* Altered Mental Status protocol

Intermediate

Follow above protocols and in addition:

15. If unable to obtain IV *and if needed* establish IO Access: **Administer D50W 25 gm**

Paramedic

Follow above protocols and in addition:

16. Suspected chronic alcohol abuse: **Administer Thiamine 100mg** IVP directly after D50W

PEDIATRIC Hypoglycemia

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
4. Obtain baseline vital signs: Reassess Vitals as Needed
5. Obtain SAMPLE history: Inquire History of: Diabetes, last meal, last intake of medication
6. If patient has altered mental status and is able to swallow and can protect their own airway; and if Hypoglycemia is suspected: Administer **Oral Glucose** 30 gm by mouth
It is recommended to first obtain a Blood Glucose

EMT

Follow above protocols and in addition:

7. Determine Blood Glucose ASAP
8. If patient has altered mental status and is able to swallow and can protect their own airway:
If Blood Glucose < 60 mg/dL Administer **Oral Glucose** 30gm by mouth
9. Recheck Blood Glucose every 5 minutes after treatment

Advanced EMT Intermediate Paramedic

Follow above protocols and in addition:

10. Establish IV access *with* Balanced Salt Solution @TKO
*If patient >20kg (44 lbs.) & IV cannot be established: **Glucagon** 0.5-1.0mg IM or SQ
11. If unable to obtain IV *and if needed* establish IO Access. Continue to try for IV Access
12. Dextrose administration, slow push IV/IO
 - a. Infant: BGL less than 60: **D25** (Mix D50 1:1 with NS) 2 ml/kg
 - a. Neonate: BGL less than 40: **D10** (Mix D50 1:4 with NS) 2ml/kg
13. Recheck Blood Glucose every 5 minutes after treatment.
14. No response to treatments; *Consider* Altered Mental Status protocol

Poisonings and Overdoses

EMR

Initial Considerations

- **Scene Safety is the number 1 priority.**
- Protect rescue personnel and bystanders
- Anticipate vomiting!
- Narcotic OD: Consider IM first if IV access is dangerous or unable

Utilize Poison Control: 1-800-222-1222

OHSU: 1(800) 222-1222

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
4. Obtain baseline vital signs; Reassess Vitals as Needed
5. Treat *per* Shock protocol as needed
6. Determine: A) **Product and route**, B) **Time of incident**, C) **Amount taken**
7. Suspected opioid overdose: **Narcan** 0.5-2.0 mg Intranasal ½ dose per nare
8. Obtain SAMPLE history
9. Transport any and all medication bottles and/or the original containers of poisonous substance(s) that the patient may have taken with them to hospital

EMT

Follow above protocols and in addition:

10. Determine Blood Glucose; *Treat* per Hypoglycemia protocol if required

Advanced EMT

Follow above protocols and in addition:

11. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock
12. Administer a blood draw *if able* and send samples with transporting ambulance
13. If ingestion is unknown: *Treat* as Altered Mental status protocol
14. ECG Monitor

Intermediate

Follow above protocols and in addition:

15. If unable to obtain IV *and if needed* establish IO Access
16. *Treat per* specific poison therapies

Paramedic

Follow above protocols and in addition:

17. Dysrhythmias: *Treat* per appropriate protocol
18. If patient cannot protect their own airway or respirations are <8 BPM: Consider Intubation

Poisonings and Overdoses (Cont.)

Specific Poison Therapies

EMT-I & Paramedic **Narcotic/Opioid** Morphine, Demerol, Fentanyl, Heroine, etc.
S/S: Decreased LOC, decreased respirations, constricted/pinpoint pupils

1. **Administer Narcan 0.5-2 mg IV/IO/IM**

AEMT / EMT-I / Medic **Alcohol/ETOH**

1. If no signs of CHF, administer fluid challenge 500-1000ml Sodium Chloride 0.9%

EMT-I / Paramedic **Organophosphates**

1. **Administer Atropine 2 mg IV/IO/ETT** every 5 minutes as needed until “SLUDGE” symptoms diminish
2. Suction as needed
3. Treat seizures per protocol

Paramedic **Beta Blockers OD with bradycardia**

1. **Administer Atropine 0.5-1.0 mg IV/IO/ETT.** Repeat as needed up to 3 mg
2. Fluid Bolus 500 ml Sodium Chloride 0.9% to maintain systolic BP of 90
3. Transcutaneous pacing as needed

Paramedic **Dystonic (Phenothiazine) Reaction**

Reaction to certain antipsychotics and antiemetics, such as:

Inapsine, Haldol, Compazine, Phenergan, Reglan, Prolixin, Stelazine, Navane, Trilafon, Moban, Loxitane.

Signs & symptoms: Contractions of muscles of the face, neck or back, protrusion/fasciculation of the tongue (common), oculogyric crisis (eyes looking upward), laryngospasm sometimes present, patient seems to get better with voluntary activity, emotional or frightened patient

1. Administer Diphenhydramine (Benadryl) 25-50 mg IV/IO/IM

Paramedic **Calcium Channel Blockers with bradycardia**

1. Administer Atropine 0.5-1.0 mg IV/IO/ETT
2. Fluid Bolus 500 ml Sodium Chloride 0.9% to maintain systolic BP of 90
3. Transcutaneous Pacing as needed

Paramedic **CNS Stimulants - Cocaine, Methamphetamine, MDMA (Ecstasy)**

1. Administer Midazolam 2.5-10 mg IV/IO up to 10mg
2. Treat stable V-Tach with Amiodarone 150 mg IV/IO
3. Treat V-Fib per protocol, but limit Epinephrine to 1.0 mg of 1:10,000 q 5 mins

“Sludge” Symptoms associated with organophosphate poisoning

Salivation	Lacrimation	Urination	Defecation	GI Cramping	Emesis
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PEDIATRIC**Poisoning and Overdoses****EMR*****Initial Considerations*****Anticipate vomiting!****Utilize Poison Control: 1-800-222-1222****OHSU: 1(800) 222-1222**

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
4. Obtain baseline vital signs: Reassess Vitals as Needed
5. Treat *per* Shock protocol as needed
6. **Determine:** a.) **Product and route** b.) **Time of incident** c.) **Amount taken**
7. Suspected opioid overdose: **Narcan** 0.5-2.0 mg Intranasal ½ dose per nare
8. Obtain SAMPLE history
9. Transport any and all medication bottles and/or the original containers of poisonous substance(s) that the patient may have taken with them to hospital

EMT***Follow above protocols and in addition:***

10. Determine Blood Glucose; *Treat* per Hypoglycemia protocol if required

**Advanced EMT
Intermediate*****Follow above protocols and in addition:***

11. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock
12. Administer a blood draw *if able* and send samples with transporting ambulance
13. Consider IO if unable to secure IV access and needed
14. If ingestion is unknown treat as Altered Mental status protocol
15. ECG Monitor
16. Treat *per* specific poison therapies

Paramedic***Follow above protocols and in addition:***

17. Dysrhythmias: *Treat* per appropriate protocol
18. If patient cannot protect their own airway or respirations are <8 BPM: Consider Intubation

PEDIATRIC Specific Poison Therapies

EMT-I & Paramedic Narcotic/Opioid Morphine, Demerol, Fentanyl, Heroine, etc.
S/S: Decreased LOC, decreased respirations, constricted/pinpoint pupils

1. Administer Narcan **0.1 mg/kg** IV/IO.

EMT-I / Paramedic Organophosphates

1. **Atropine 0.02 mg/kg** IV/IO/ETT every 5 minutes as needed until “SLUDGE” symptoms diminish.

2. Suction as needed.
3. Treat seizures per protocol.

Paramedic Beta Blockers OD with bradycardia

1. **Atropine 0.02 mg/kg** no>3mg IVP/ IO/ ETT. May repeat to total of 3mg
2. **Glucagon 0.1 mg/kg** (units) IVP/ IO
3. Fluid Bolus 20 ml/kg balanced Salt Solution
4. Transcutaneous pacing as needed
5. **Dopamine 5.0-20 µg/kg / min** to systolic BP 100mmHg

~or~

Epinephrine Infusion. Start 0.1 µg/kg / min and increase as needed

Paramedic CNS Stimulants Cocaine, Methamphetamine, MDMA (Ecstasy)

1. **Oxygen 12-15 LPM** via NRB
2. **Midazolam 0.1-0.2 mg/kg** IVP/IO/IM Not to exceed 10mg
3. Treat V-Fib per protocol, but limit Epinephrine to 0.1mg/kg of 1:10,000 q 5 mins

Paramedic Calcium Channel Blockers with bradycardia

1. **Atropine 0.02 mg/kg** no>3mg IVP/ IO/ ETT
2. Calcium Chloride 20mg/kg no >500mg total. Slow IVP /IO
2. **Glucagon 0.1 mg/kg** (units) no > 5mg (units) total IVP/ IO
3. Fluid Bolus 20 ml/kg balanced Salt Solution
4. Transcutaneous pacing as needed
5. **Dopamine 5.0-20 µg/kg / min** to systolic BP 100mmHg

~or~

Epinephrine Infusion. Start 0.1 µg/kg / min and increase as needed

Paramedic Tricyclic Anti-Depressants
(With Tachycardia >110/mi Widening QRS or Seizures)

1. **Sodium Bicarbonate 1.0mEq/kg** IVP/ IO followed by
Sodium Bicarbonate 50mEq in 250ml NS and run at 250 ml/hr.
Magnesium Sulfate 25-50mg/kg max 2gm Slow IVP/ IO (5-10 minutes) for wide QRS

“Sludge” Symptoms associated with organophosphate poisoning

Salivation	Lacrimation	Urination	Defecation	GI Cramping	Emesis
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Sepsis (Septic Shock)

- **Sepsis** is an infection coupled with System Inflammatory Response Syndrome (SIRS), a highly dangerous condition with a mortality rate of over 30%.
- Suspect sepsis if:
 1. Suspected infection
 2. Two or more of the following:
 - a. Temperature greater than 100.4 or less than 96.8°F
 - b. Respiratory rate greater than 20
 - c. Heart rate greater than 90
 3. ETCO₂ equal or less than 25mmHg

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. **Oxygen** if needed to maintain O₂ sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
4. Obtain baseline vital signs; Reassess Vitals as Needed
5. Take Oral or Tympanic Temperature (if able)
6. Obtain SAMPLE History, including recent illness/infection, recent trauma, surgeries, etc.
7. Treat *per* Shock protocol as needed
8. Other signs and symptoms, *Treat per* appropriate protocol(s)

EMT

Follow above protocols and in addition:

9. **Determine Blood Glucose**; *Treat per* Hypoglycemia protocol if indicated

Advanced EMT & Intermediate

Follow above protocols and in addition:

10. Establish IV *with* Balanced Salt Solution 500-100ml bolus to maintain systolic BP of 90
Give boluses in rapid succession if needed. Caution when exceeding 2000ml total.
11. Consider second IV *with* Balanced Salt Solution
12. Administer a blood draw *if able* and send samples with transporting ambulance
13. If signs of shock (hypotension, poor perfusion, changes in mentation), or clinical indicators of sepsis, **administer 500-1000 ml of Sodium Chloride 0.9% rapidly**
14. ECG Monitor

Paramedic

Follow above protocols and in addition:

15. If BP remains <90 despite adequate fluid resuscitation:
Administer dopamine 5- 20mcg/kg/min if available. Target SBP>90

Sexual Assault

CONSIDERATIONS

- **Warning:** Patient may be very apprehensive about treatments / procedures. Do not press them for answers or treatments if they are unwilling.
- Partners/ chaperone/ police shall be in the same room during all patient contacts
- If able a provider of the same sex should take primary patient care

All Providers

1. Ensure Law Enforcement is contacted and arriving on scene
2. Assess: Airway, Breathing, Circulation & Neurologic status
3. Obtain baseline vital signs: Reassess Vitals as Needed
4. Treat *per* Shock protocol as needed
5. Other injuries, signs and symptoms: *Treat* per appropriate protocol(s)
6. Obtain SAMPLE history
 - ❖ If Patient is embarrassed or unwilling to answer questions regarding assault
Restrict questioning to past medical history, medications, etc.
 - ❖ Patient may be unwilling to answer any questions – Do Not press for Answers
7. Provide emotional support for patient. Consider asking patient if they would like someone contacted: chaplain, family, religious contacts patient may have, etc.
8. Maintain chain of evidence
 - a.) Advise patient to not bathe, clean, change clothing, etc.
 - b.) Work with Law Enforcement to ensure any clothing involved in the incident already removed is collected in a paper bag

Shock / Hypotension

CONSIDERATIONS

- Shock is the body's response to inadequate delivery of oxygen (poor perfusion) to body tissue.
- **5 major types of shock**
 - Hypovolemic shock: Loss of blood or fluid volume from the body
 - Cardiogenic Shock: failure of the heart
 - Neurogenic shock: Nervous system is no longer able to control blood vessel diameter
 - Anaphylactic Shock: Interaction of an allergen, called an antigen with one kind of antibody.
 - Septic Shock: An infection that results in massive vasodilation of the circulatory system

Considerations for All Providers

- **Shock is usually is usually caused by one or more of the 3 primary mechanisms:**
 - a.) Fluid loss b.) Significant vasodilation c.) Pump failure
 - **Shock is defined in the field by a combination of:**
 - Altered Level of Consciousness
 - Capillary refill greater than 2 seconds
 - Weak or absent distal pulses
 - Rapid Pulse
 - Cool Extremities
 - Hypotension
1. Shock can result from any illness or injury. Investigate and treat per the appropriate protocol(s)
 2. After initial assessment treat early; Monitor mental status, respiratory effort and skin color
 3. Secure and maintain a patient airway and provide adequate oxygenation and ventilation
Administer **Oxygen** to maintain O₂ saturations between 94% & 99%
 4. Control external bleeding
 5. Obtain vitals frequently (attempt every 5 minutes); pulse, respirations, BP, and capillary refill
 6. Provide warming for the patient
 7. Place patient supine. If BP less than 90mm Hg systolic and no trauma mechanism:
Position patient supine with legs elevated 8-12 inches (not Trendelenburg)
 8. IV or IO fluids maintain blood pressure. Titrate 90mmHg Systolic
Adult: Fluid bolus 250-500 ml NaCl 0.9%. Repeat If no change
Pediatrics: Fluid bolus 20ml/kg (10mL/KG for neonates). Repeat as needed
 9. Monitor Lung sounds frequently for developing pulmonary edema

Vomiting

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. Consider and Treat *per* Shock protocol as needed
 - **Non traumatic patient:** Position patient to protect from aspiration (lateral recumbent or sitting position and able to lean forward)
 - **Trauma Patient/ suspected spinal injury:** Log roll patient while maintaining manual, in-line c-spine immobilization or if patient is secured to a backboard tilt the board to protect airway.
4. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
5. Obtain baseline vital signs: Reassess Vitals as Needed
6. Obtain a SAMPLE History
7. Other signs and symptoms; *Treat* per appropriate protocol

EMT

Follow above protocols and in addition:

8. Determine Blood Glucose; *Treat* per Hypoglycemia protocol if indicated

Advanced EMT

Follow above protocols and in addition:

9. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock
10. ECG monitor

Intermediate

Follow above protocols and in addition:

11. Active or anticipated vomiting / dizziness: **Ondansetron** 4mg Slow IVP, IM, or PO
May Repeat every 5 minutes to a maximum 16mg

Paramedic

Follow above protocols and in addition:

12. If nausea is persistent: **Phenergan** 12.5 – 25mg diluted with 20 cc saline *sow* IV/ IO
Frail & elderly patients: **Reduce dosage** to 6.25mg
 - Monitor patient and record vital signs every 5 minutes after administration
 - If dystonic reaction occurs: Administer **diphenhydramine** 25 – 50mg IV or IM
 - If patient becomes hypotensive: Administer **fluid challenge** 200 – 500ml Saline

Seaside Fire & Rescue Medical Protocols

Environmental Emergencies

<i>Page</i>	<i>Protocol</i>
E - 1	Frostbite
E - 2	Heat Cramps / Heat Exhaustion
E - 3	Heat Stroke
E - 4	Hypothermia

Frostbite

Superficial Frostbite

- Burning, numbness, tingling, itching or cold sensation. The skin may appear white and frozen, but on palpation it has some resistance.
- There is significant pain as the areas are rewarmed and blood flow reestablished.
- Tissue may initially appear deceptively healthy. Significant pain and final tissue damage evolve over time

Deep Frostbite

- Sensation is initially decreased then completely lost. Tissue may have swelling and blood-filled blisters over white or yellowish skin that looks waxy and turns a purplish blue as it rewarms. The area has no resistance when pressed on, and may appear blackened or dead
- Final amount of tissue damage is proportional to the time it remains frozen, not to the absolute temperature to which it was exposed

- Do not de-thaw / rewarm frostbitten areas if there is a chance for refreezing.
- Typically rewarming frostbitten areas **will not be** done by Pre-hospital providers.
- The most effective method is to rewarm the area quickly in a tub of 104°F water.
- Avoid gradual thaw, keep frostbitten tissue away from heat sources.

EMR & EMT

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
4. Obtain baseline vital signs: Reassess Vitals as Needed
5. Obtain SAMPLE history
5. Treat *per* Shock & Hypothermia protocols as needed
6. Cover involved areas with dry sterile dressings; place gauze between involved fingers or toes
7. Do not attempt rewarming if there is a possibility of refreezing
8. Do not rub the frozen tissue. Friction causes further damage to tissue
9. Leave blisters intact

EMT Advanced

Follow above protocols and in addition:

10. Establish IV access *with* Balanced Salt Solution

Intermediate & Paramedic

Follow above protocols and in addition:

11. ECG Monitor
12. Consider Pain management

Heat Cramps / Heat Exhaustion

INDICATIONS

Heavy sweating, paleness, muscle cramps, tiredness, weakness, dizziness, headache, nausea or vomiting, fainting, rapid breathing, tachycardia

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. **Move patient** to cooler environment and remove excess clothing
4. *Consider* applying lukewarm compresses or rags to forehead, neck and extremities
5. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
6. Obtain baseline vital signs: Reassess Vitals as Needed
7. Take Oral or Tympanic Temperature. Repeat every 15 minutes
8. If patient is conscious and able to control their airway:
 - Administer Oral Fluids** (water) 12oz. for first dose. *If sports drink*: mix 1:1 ratio
9. Obtain SAMPLE History

EMT

Follow above protocols and in addition:

10. Obtain Blood Glucose; *Treat* per Hypoglycemia protocol if indicated

EMT Advanced Intermediate Paramedic

Follow above protocols and in addition:

11. If symptomatic: Establish IV access *with* Balanced Salt Solution 250-500ml bolus. PRN
12. ECG monitor
13. If patient unable to take oral fluids, is hypotensive; Fluid Bolus 250-500 ml

Heat Stroke

CONSIDERATIONS

- These Patients may have signs and symptoms of: Altered level of consciousness, increased body temperature, no sweating, hot red or flushed dry skin, may collapse or fade in and out of consciousness, show signs of shock, have SOB, and be nauseated or vomiting
- Heat Stroke is an extreme medical emergency. The body is failing to regulate temperature and without rapid cooling the threat brain damage is high

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. **Move patient** to cooler environment and remove excess clothing
4. High flow **Oxygen** at 12-15 LPM *via* NRB
5. Obtain baseline vital signs, DO NOT delaying cooling patient; Reassess Vitals as Needed
6. Rapid cooling is vital for the patient
 - a.) Remove Clothing and place in a cool environment (consider a place with air conditioning)
 - b.) Cool patient to at least 102°F by misting and fanning with lukewarm(tepid) water.
Consider covering patient with sheet soaked in tepid water.
 - c. *Consider coldpacks in armpits and groin; but do not allow for rebound hypothermia*
7. Take Oral or Tympanic Temperature. Repeat every 15 minutes
8. Obtain SAMPLE History
9. Investigate and treat other illness or injuries *per* appropriate protocol(s)

EMT

Follow above protocols and in addition:

10. Obtain Blood Glucose; *Treat* per Hypoglycemia protocol if indicated

Advanced EMT Intermediate

Follow above protocols and in addition:

11. Establish IV access *with* Balanced Salt Solution. Administer 500 -1000ml. Repeat as needed
12. ECG monitor

Paramedic

Follow above protocols and in addition:

13. Administer **Midazolam** 2.5mg slow IVP/IM/IO to control shivering while cooling
14. If patient cannot protect their own airway or respirations are <8 BPM; Consider Intubation

Hypothermia

- | | |
|---|---|
| <ul style="list-style-type: none"> • Handle hypothermic patients gently at all times to minimize tissue damage and cardiac arrhythmias. • Cut clothing instead of pulling it off • Causes include environmental exposure, sepsis, and intracranial hemorrhage. • Consider placing heat pack in groin and axilla, place in heated vehicle. • Use Warm, Humidified O2 if Available | <ul style="list-style-type: none"> • Mild Hypothermia (93°F-97°F)
Usually awake, shivering, altered judgment, apathy, dysarthria, ataxia • Moderate Hypothermia (86°F-93°F), • Sever Hypothermia (< 86°F)
Unresponsive, no shivering, significant respiratory depression/apnea, extreme bradycardia, rigidity, dilated/unresponsive pupils |
|---|---|

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status Consider 30 second pulse check
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. Remove patient from cold and wet clothing and rewarm patient (Blankets, hotpacks, etc.)
4. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
5. Obtain baseline vital signs; Reassess Vitals as Needed
6. Check Temperature if able
7. Obtain SAMPLE history; Check and treat **frostbite** *per* protocol if found
8. **IF PATIENT IS IN CARDIAC ARREST:**
Begin CPR per current AHA guidelines and treat *per* cardiac arrest protocols.
Defibrillate only once when indicated. If no response, hold further defibrillation attempts until core body temperature is greater than 86⁰F

EMT

Follow above protocols and in addition:

9. Obtain Blood Glucose; *Treat* per Hypoglycemia protocol if indicated

Advanced EMT

Follow above protocols and in addition:

10. Establish IV access *with* (Warmed if able) Balanced Salt Solution
Adult: Bolus 250 -500 ml normal saline, then TKO, monitor for fluid overload
11. ECG Monitor

Intermediate Paramedic

Follow above protocols and in addition:

12. **If in cardiac arrest:** Delay medications to longer than normal intervals if temperature < 86⁰F

Seaside Fire & Rescue Medical Protocols

Neurological

<i>Page</i>	<i>Protocol</i>
F – 1	Altered Mental Status
F – 2	PEDIATRIC: Altered Mental Status
F – 3	Anxiety
F – 4	Mental Health Emergencies
F – 6	Seizure
F – 7	PEDIATRIC: Seizure
F – 8	Stroke

Altered Mental Status

<p>Indications</p> <ul style="list-style-type: none"> • Any patient with an alteration in their level of consciousness • There are many causes of an altered mental status • AMS patients may become combative 	<p>• Common causes of AMS:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">○ Alcohol, Acidosis</td> <td style="padding: 2px;">○ Trauma</td> </tr> <tr> <td style="padding: 2px;">○ Epilepsy</td> <td style="padding: 2px;">○ Insulin</td> </tr> <tr> <td style="padding: 2px;">○ Infection</td> <td style="padding: 2px;">○ Psychosis</td> </tr> <tr> <td style="padding: 2px;">○ Uremia</td> <td style="padding: 2px;">○ Stroke</td> </tr> <tr> <td colspan="2" style="padding: 2px;">○ Overdose/ Poisoning</td> </tr> </table>	○ Alcohol, Acidosis	○ Trauma	○ Epilepsy	○ Insulin	○ Infection	○ Psychosis	○ Uremia	○ Stroke	○ Overdose/ Poisoning	
○ Alcohol, Acidosis	○ Trauma										
○ Epilepsy	○ Insulin										
○ Infection	○ Psychosis										
○ Uremia	○ Stroke										
○ Overdose/ Poisoning											

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. *If indicated treat per trauma protocols: General Guidelines and Spinal and in addition:*
3. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
4. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
5. Obtain baseline vital signs; Reassess Vitals as Needed
6. Obtain SAMPLE history; *Consider Common AMS Causes*
7. Treat *per Shock protocol* as needed
8. Investigate and treat other illness or injuries *per appropriate protocol(s)*
9. If suspected opioid overdose; **Narcan** 0.5-2.0 mg Intranasal ½ dose per nare

EMT

Follow above protocols and in addition:

10. Determine Blood Glucose; *Treat per Hypoglycemia protocol* if required

Advanced EMT

Follow above protocols and in addition:

11. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock
12. **Naloxone** 0.5 – 2.0mg IVP / IM / Intranasal.
Narcan max dose: 10mg. Repeat as needed titrated to patient's respiratory status
13. ECG Monitor

Intermediate

Follow above protocols and in addition:

14. If unable to obtain IV *and if needed* establish IO Access

Paramedic

Follow above protocols and in addition:

15. If patient cannot protect their own airway or respirations are <8 BPM; Consider Intubation

PEDIATRIC**Altered Mental Status****Indications**

- Any patient with an alteration in their level of consciousness
- There are many causes of an altered mental status
- AMS patients may become combative

- **Common causes of AMS:**

- | | |
|-----------------------|-------------|
| ○ Alcohol, Acidosis | ○ Trauma |
| ○ Epilepsy | ○ Insulin |
| ○ Infection | ○ Psychosis |
| ○ Uremia | ○ Stroke |
| ○ Overdose/ Poisoning | |

EMR**Initial Considerations**

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. *If indicated treat per* trauma protocols: General Guidelines and Spinal and in addition:
3. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
4. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
5. Obtain baseline vital signs; Reassess Vitals as Needed
6. Obtain SAMPLE history; *Consider* Common AMS Causes
7. Treat *per* Shock protocol as needed
8. Investigate and treat other illness or injuries *per* appropriate protocol(s)
In the Pediatric Patient with AMS consider poisoning/overdose

EMT**Follow above protocols and in addition:**

7. Determine Blood Glucose; *Treat* per Hypoglycemia protocol if required

**Advanced EMT
Intermediate****Follow above protocols and in addition:**

8. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock
9. If Hypoglycemic patient and unable to get IV *Treat* per PEDIATRIC Hypoglycemia Protocol
10. If unable to obtain IV *and if needed* establish IO Access
11. **Naloxone** 0.1mg/kg IVP / IO / IM/ Slow Push Child 5yrs or 20kg (44 lbs.)
12. ECG Monitor

Paramedic**Follow above protocols and in addition:**

13. Dysrhythmias; *Treat* per appropriate protocol
14. If patient cannot protect their own airway or respirations are <8 BPM; Consider Intubation

Anxiety / Stress

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
4. Reassure patient and speak calmly
5. Obtain baseline vital signs; Reassess Vitals as Needed
6. *Treat* for Shock as needed
7. Obtain SAMPLE History
8. Investigate and treat other illness or injuries and treat *per* appropriate protocol(s)

EMT

Follow above protocols and in addition:

9. Obtain Blood Glucose; *Treat* per Hypoglycemia protocol if required

Advanced EMT Intermediate

Follow above protocols and in addition:

10. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock
11. ECG monitor

Paramedic

Follow above protocols and in addition:

12. Dysrhythmias; *Treat* per appropriate protocol
13. Consider: **Ativan** 0.5 -2mg IV, *~or~* 2-4mg IM. Dilute in an equal volume of normal saline.
~or~ **Midazolam** 2.5mg IV or 5mg IM

Mental Health Emergencies

Precautions

1. Scene safety. Protect yourself and your crew. Assess for potential hazards.
2. Request Law Enforcement early if you think they are needed.
3. Consider possible medical causes of mental health symptoms (head, injuries, trauma, hypoglycemia, drugs, severe infection, hypothermia, hypoxia, etc.).
4. If no threat or immediate danger from patient:
 - a. Approach in a calm manner. Do not display an aggressive stance/ posture.
 - b. Show self-confidence and concern for the patient.
 - c. Reassure the patient. Explain that you are there to take care of them and they should be transported to the hospital where there are people interested in helping them.
5. Limit the number of providers asking the patient questions.
6. Never be alone with a patient having a mental health emergency.
7. Always maintain an “escape route”. DO NOT let the patient come between you and your exit.
8. If Patient is threatening, violent, or appears armed, wait for law enforcement.

Restraining a violent Patient

- Purpose is to prevent further harm to a patient and others when all other means have been exhausted.
- Request law enforcement whenever a patient is to be restrained.
- Restraint method used should be quickly reversible and allows for complete access to the patient. The restraint method should not compromise the airway or impede IV access.
- Utilizing five persons for the take down is preferred; one person for each extremity and one person to control the head.
- If no c-spine injury suspected: One arm secured above the patient’s head and the other at his side. Secure the ankles with soft restraints to the gurney/ backboard/ stokes/ frame.
- Patients will not be placed prone for an extended time due to the risk of positional asphyxiation
- If handcuffed: *Consider* having them cuffed in front (with separate cuffs) for patient access.
- A restrained patient will still receive a medical treatment and all appropriate care.

Continue protocol next page

Mental Health Emergencies (cont.)

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
3. Obtain baseline vital signs; Reassess Vitals as Needed
4. Obtain SAMPLE history
5. Investigate and treat other illness or injuries and treat *per* appropriate protocol(s)

EMT

Follow above protocols and in addition:

6. Determine Blood Glucose; *Treat* per Hypoglycemia protocol if indicated

Advanced EMT Intermediate

Follow above protocols and in addition:

7. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock
8. ECG Monitor

Paramedic

Follow above protocols and in addition:

9. **Chemical restraint of the violent patient is indicated only after a medical or traumatic cause has been ruled out.**

Administer **Midazolam** 5 mg IM, 2.5 mg IV

10. If prolonged agitation continues, consider additional **Midazolam** 2.5-10 mg IV/IO/IM
 - Prepare to assist with ventilations
 - ECG monitor for any patient under chemical sedation/restraint

Seizure

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Active seizure: Protect them from further injury: pad under head, remove surrounding objects and loosen restrictive clothing. Place NOTHING in mouth, DO NOT hold down patient
3. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
4. Protect airway. Suction as needed after tonic/clonic activity. Consider: BVM, OPA, or NPA
5. Obtain baseline vital signs; Reassess Vitals as Needed
6. Obtain SAMPLE history
7. Investigate and treat other illness or injuries (including trauma) *per* appropriate protocol(s)

EMT

Follow above protocols and in addition:

8. Determine Blood Glucose; *Treat* per Hypoglycemia protocol if indicated

Advanced EMT

Follow above protocols and in addition:

9. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock
10. If BP < 90 systolic, **Fluid Bolus** to systolic BP of 100
11. ECG Monitor

Intermediate

Follow above protocols and in addition:

12. If unable to obtain IV *and if needed* establish IO Access

Paramedic

Follow above protocols and in addition:

13. If seizure is greater than 5 minutes in duration or recurrent:
Administer **Midazolam** 2.5-5mg IVP/IO/IM Repeat as every 5 minutes. Max 10mg total.
14. If patient is pregnant with no history of seizures; treat *per* toxemia of pregnancy protocol
15. Suspected chronic alcohol abuse: Administer **Thiamine** 100mg IVP/IO (If Available)
16. Alcohol withdrawal seizure: Administer **Magnesium Sulfate** 2.0gm over 5 to 10 minutes
17. If patient cannot protect their own airway or respirations are <8 BPM: Consider Intubation
18. If hypertension persists after fluid challenge, or pulmonary edema develops:
Administer **Dopamine** 5.0 -20mcg /kg / min by infusion. Titrate to BP > 90mmHg Systolic

PEDIATRIC Seizure

EMR

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Active seizure: Protect them from further injury: pad under head, remove surrounding objects and loosen restrictive clothing. Place NOTHING in mouth, DO NOT hold down patient
3. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
4. Protect airway. Suction as needed after tonic/clonic activity. Consider: BVM, OPA, or NPA
5. Obtain baseline vital signs; Reassess Vitals as Needed
6. Obtain SAMPLE history
7. Investigate and treat other illness or injuries (including trauma) *per* appropriate protocol(s)

EMT

Follow above protocols and in addition:

8. Determine Blood Glucose; *Treat* per Hypoglycemia protocol if indicated

Advanced EMT Intermediate

Follow above protocols and in addition:

9. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock
10. Consider IO if unable to obtain IV access and necessary
11. ECG Monitor

Paramedic

Follow above protocols and in addition:

12. Dysrhythmias; *Treat* per appropriate protocol
13. If BP < 90 systolic, **Fluid Bolus** 20ml/kg to BP of 100 systolic
14. If seizures are >5 min duration or recurrent:
 - a.) Administer **Ativan** 0.1 mg/kg IV/ IO/ IM *~or~* **Midazolam** 0.1 – 0.2mg/kg IVP/IO/IM
 - b.) May repeat x 2 q 5 min prn
15. If patient cannot protect their own airway or respirations are <10 BPM: Consider Intubation
16. If hypotension persists after fluid challenges, or pulmonary edema has developed:

Administer **Dopamine** 5.0 – 20.0 mcg/KG/ Min by infusion. Titrate to BP >90 mmHg Systolic

Stroke

Cincinnati Stroke Scale

- a. **Facial Droop:** Have the patient show their teeth and/or smile
 - Normal: Both sides of the face move equally well
 - Abnormal: One side of the face does not move as well as the other
- b. **Arm Drift:** Patient closes eyes, holds both arms out straight out
 - Normal: Both arms move the same direction or no movement at all
 - Abnormal: One arm does not move or one arm drifts down compared to the other
- c. **Speech:** Have patient say “You can’t teach an old dog new tricks”
 - Normal: Patient comprehends and repeats statement with no slurring
 - Abnormal: patient unable to speak, slurs or uses inappropriate words

EMR & EMT

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect paralyzed extremities.
3. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
4. Obtain baseline vital signs; Reassess as Needed; Reassure patient, explain what you are doing
5. Obtain SAMPLE history, including:
 - a. Onset time of stroke symptoms. If unknown: When last seen without current symptoms
 - b. History of previous strokes, Including: Dates, type, and residual symptoms
6. Administer **Cincinnati Stroke Test**
If symptom onset time is greater than 4.5 hours, Cincinnati Stroke test is positive and transporting ambulance is delayed *consider* Emergency Department of possible stroke patient
Provide at least: DOB, symptoms and last time scene normal
7. Investigate and treat other illness or injuries *per* appropriate protocol(s)

Advanced EMT Intermediate

Follow above protocols and in addition:

8. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock
9. ECG monitor

Paramedic

Follow above protocols and in addition:

10. Dysrhythmias; *Treat* per appropriate protocol
11. If patient cannot protect their own airway or respirations are <8 BPM: Consider Intubation

Seaside Fire & Rescue Medical Protocols

Obstetrics

<i>Page</i>	<i>Protocol</i>
G – 1	General Considerations
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G – 3	Delivery Complications
	Breech or Limb Presentation
	Prolapsed Cord
	Cord Wrapped around neck
G – 4	Postpartum Hemorrhage
G – 5	Spontaneous Abortion
G – 6	Toxemia of Pregnancy
G – 7	Neonatal Resuscitation

General Considerations

- Most deliveries proceed without complication
- Allow pregnant patients to rest in best position of comfort.
- Hypotensive pregnant patients should be placed in the Left lateral Recumbent Position
- Following a delivery the baby is the primary consideration for care

- If immanent delivery is suspected, prepare for it and anticipate completion for delivery
- This may delay the transporting unit from departing
- Immanent Deliver Signs and symptoms:
 - Contractions occurring typically less than 2 minutes apart and lasting up to 60 seconds
 - Sensation of impending defecation
 - Urge to push
 - Crowning

Intermediate & Paramdic

In all obstetric emergencies consider IV access for mother (if time permits) for fluid replacement and medication administration

Average Neonate Vital signs:

Pulse 100-180 Respirations: 30-60 BP: 50-70mm Hg Temp: 98-100°F

APGAR Score

- An objective method of quantifying the newborn's condition and assessing a response
- The APGAR is performed at 1 and 5 minutes following birth
- If needed, resuscitation must be before assigning the first score
- Each sign is given a value of 2, 1, or 0. The five values are added up and the sum is the score
- Most newborns will have a score of 7 or 8 at 1 minute. 8 to 10 at 5 minutes
- Additional scores may be given at 5 minute intervals if stimulation/ resuscitation is needed

	2	1	0
Appearance	Entire newborn is pink	Body pink, hands/feet blue	Entire baby is blue/pale
Pulse	Greater than 100 BPM	Less than 100 BPM	Absent Pulse
Grimace / Irritability	Newborn cries / tries to move away from finger flick on the sole	Gives weak cry in response to stimulus	No crying / No reaction to stimulus
Activity / Muscle Tone	Newborn resists attempts to straighten out hips and knees	Newborn makes weak attempts to resist straightening	Newborn is completely limp with no muscle tone
Respiration	Rapid	Slow	Absent

Emergency Delivery

All Providers

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status of mother
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. **Oxygen** if needed to maintain O₂ sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
4. Obtain baseline vital signs: Reassess Vitals as Needed
6. Obtain SAMPLE history; establish last Menstrual period
7. Assess and treat for hypertension *as* needed
8. Determine number of pregnancies (Gravida), number of deliveries (Para) & due date
9. Time the contractions and how far apart they are; when and if bag of waters has ruptured
10. Place mother in supine position with knees elevated
11. Ensure your PPE is on, blankets ready, sanitary pads under mother
12. **Delivery:**
 - a.) When baby crowns apply gentle counter pressure to baby's head
 - *If delivery is rapid: Coach mother to pant during contraction and not push to slow delivery
 - b.) Manually rupture amniotic sac if it is still intact
 - c.) When head is delivered, gently wipe clean. If suction is needed:
 - I.) Mouth first, then Nose with bulb syringe
 - d.) Assist delivery of shoulders (anterior (upper) shoulder first) and rest of body
 - e.) Keep both hands on the baby at all times – The baby will be slippery.
 - f.) Keep baby below maternal vaginal opening before clamping cord.
 - I.) Use two clamps first clamp 6 to 8 inches from baby, second clamp 4 inches further
 - II.) Cut between clamps
 - III.) NOTE the time of delivery
13. Give **newborn attention:**
 - a) Clear airway and suction mouth and nose with bulb syringe only *if necessary*
 - b) If baby is not breathing:
 - I.) Stimulate by rubbing gently with a towel, or lightly flicking sole of feet
 - II.) **If no response within 30 seconds: Treat *per* Neonatal Resuscitation protocol**
 - c) Dry baby. Continue to wipe baby and replace with clean towels
 - I.) Keep baby warm, wrap in blankets, do not let baby become hypothermic
 - d) Assess **APGAR** scores at intervals of: 1 and 5 minutes after delivery
 - I.) If 5 minute APGAR score is < 7 continue scores every 5 minutes up to 3 more
14. Place infant in mother's arms if possible
 - If needed: Place infant in sniffing position and provide blow-by oxygen until baby is pink
15. Allow placenta to delivery normally; DO NOT pull cord, transport placenta with patient(s)
16. Apply gauze/ pads for any bleeding/tears. DO NOT pack vagina
17. If bleeding is significant treat *per* Postpartum Hemorrhage protocol

Complications of Delivery

All Providers

Initial Considerations

1. Treat per Emergency Delivery protocols and in addition:

➤ **BREECH / LIMB PRESENTATION**

If single foot or hand presentation, DO NOT attempt delivery, transport ASAP

1. If Breech /Limb presentation is obvious and transport is available; Transport ASAP
2. Place mother in supine or Trendelenburg position
3. Monitor vital signs every (5) five minutes
4. Allow mother to push
5. Gently extract baby (Do not pull on baby)
6. Support delivered body and extremities
7. If head does not deliver:
 - a.) Place gloved hand in vagina and form a “V” with index and middle finger around baby’s mouth and nose to allow breathing

➤ **PROLAPSED CORD**

1. Place mother in Knee-to-chest or Extreme Trendelenburg position
2. Insert gloved hand into vagina and gently lift head /body off of cord
Maintain that position until relieved at hospital
3. Observe cord for pulsations, wrap cord in sterile dressings and keep warm

➤ **CORD WRAPPED AROUND NECK**

1. Gently attempt to loosen cord
2. With 2 fingers behind baby’s neck:
 - a.) Try to slip forward over baby’s upper(anterior) shoulder and head.
 - b.) If unsuccessful attempt to slip lower shoulder an over head
 - c.) If unsuccessful: Clamp the cord and cut between clamps
 - d.) Unwrap cord from baby’s neck
3. Continue care for baby and mother *per* Emergency Delivery protocols

➤ **PLACENTA PREVIA / ABRUPTIO (Pre-birth hemorrhage)**

Previa: Usually painless with rapid blood loss to the point of exsanguinations

Abrupto: Usually extremely painful/ crampy and visible blood loss does not match the degree of shock, signs, and symptoms observed

1. Transport immediately and provide care for mother

Paramedic

Follow above protocols and in addition:

For any mother with complications: Treat dysrhythmias per appropriate protocol

Postpartum Hemorrhage

CONSIDERATIONS

- The average blood loss during the third stage of labor is about 150 mL
- Exceeding 500 mL in the first 24 hours is considered postpartum hemorrhage

- **Massaging the uterine fundus**
 - The abdominal skin will be wrinkled and very soft.
 - You should be able to feel a firm grape-fruit sized mass in the lower abdomen- this is the fundus.
 - As you massage it the uterus will contract and become firmer.



EMR & EMT

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. **Oxygen** if needed to maintain O₂ sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
3. Obtain baseline vital signs: Reassess Vitals as Needed
4. Obtain SAMPLE history; Treat for mother Shock
5. Place dressings externally over vagina. **DO NOT** pack vaginal opening
6. Perform firm external uterine massage to control bleeding
 - ~This may be uncomfortable for mother. Reassure mother and explain that it is necessary
7. Breast feeding should help to stimulate contraction of the uterus if this is an option

EMT Advanced Intermediate

Follow above protocols and in addition:

8. Establish IV access *with* Balanced Salt Solution
9. Consider second (large bore) IV access *with* Balanced Salt Solution
10. ECG Monitor

Paramedic

Follow above protocols and in addition:

11. Treat dysrhythmias or other signs and symptoms *per* appropriate protocol

Spontaneous Abortion

SIGNS & SYMPTOMS

- **First half of pregnancy:** Generally characterized by vaginal bleeding and abdominal cramping. Severe pain is rarely a presenting symptom.
- **Second half of pregnancy:** Patient may present with severe abdominal pain, significant vaginal bleeding, and cervical dilation.

EMR & EMT

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
3. Obtain baseline vital signs: Reassess Vitals as Needed
4. Obtain SAMPLE history; Including last menstrual period
5. Treat *per* Shock protocol
6. Place absorbent dressing externally over perineum. Do Not pack vaginal opening
7. Collect any tissue passed and transport it with patient *If* able
8. Provide emotional support for patient;
 - a.) *Consider* contacting: chaplain, family, religious contacts patient may have, etc.

EMT Advanced Intermediate

Follow above protocols and in addition:

9. Establish IV access *with* Balanced Salt Solution. Titrate to a systolic BP of 90mm Hg
10. ECG Monitor

Paramedic

Follow above protocols and in addition:

13. Treat dysrhythmias or other signs and symptoms *per* appropriate protocol

Toxemia of Pregnancy (Pre-Eclampsia / Eclampsia)

Signs and Symptoms. May be any or all of the following:

Mild Pre-Eclampsia:

1. Moderate Hypertension;
2. Edema;
3. Excessive Prenatal Weight Gain;

Moderate to Severe Pre-Eclampsia:

1. Hypertension > 160 mmHg systolic and > 110 mmHg diastolic;
2. Headache;
3. Cerebral Disturbances (changes in behavior);
4. Visual Disturbances (flashes of light or black spots);
5. Epigastric Pain;
6. Dyspnea / Cyanosis

Eclampsia:

1. Seizure
2. Postictal

EMR & EMT

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
4. Obtain baseline vital signs: Reassess Vitals as Needed
5. Obtain SAMPLE history; including last menstrual period
6. Calm and Reassure Patient
7. Other injuries, signs and symptoms: treat *per* appropriate protocol(s)
8. Anticipate possibility of seizures- treat *per* seizure protocol
9. Prepare patient for transporting unit ASAP

EMT Advanced Intermediate

Follow above protocols and in addition:

10. Establish IV access *with* Balanced Salt Solution @TKO *~or~* Saline Lock
11. ECG Monitor

Paramedic

Follow above protocols and in addition:

12. Treat dysthymias per protocol
13. Consider Magnesium Sulfate 1-2gms slow IVP over 15 -20 minutes
14. If Patient is in Seizure: Administer **Midazolam** 0.1mg/kg IVP
May repeat every 5 -15 minutes no more than 10mg total.

Neonatal Resuscitation

CONSIDERATIONS

- In newborns bradycardia (<100beats/min) is usually the result of hypoxia
- Neonates in distress commonly respond to O₂ and PPV when necessary. Titrate to expected SaO₂ reading after birth. Too much O₂ is harmful to neonates
- SaO₂ must be monitored on the right (preductal) hand.

Targeted SpO₂ Readings after birth

1 min: 60-65% 2 min: 65-70% 3 min: 70-75% 4 min: 75-80% 5 min: 80-85% 10 min: 85-85%

EMR & EMT

Initial Considerations

- BIRTH** 1. Treat mother and baby *per* Emergency Delivery protocols and in addition:
 ---- 2. **Ask:** Is the baby full term (36 weeks & heavier than 5 lbs.)
 ---- Is the baby crying and breathing? Is there good muscle tone?
- 30 SEC** 3. Evaluate neonate's **Heart Rate, Respirations & Color:**
 ---- → HR >100, Spontaneous Breathing: Keep warm, clear airway as needed, monitor
 ---- → HR <100, Gaspings or agonal: PPV with BVM **40 to 60 breaths/min**, SaO₂
- 60 SEC** → HR >100, Gradually decrease PPV until baby adequately breathing on its own
 ---- → HR < 60, Continue PPV; Initiate chest compressions (compression to ventilation 3:1)
 ---- Continue cycle of 30 second evaluations with the appropriate treatments until HR is
 ---- above 100 and baby is breathing on its own

EMT Advanced

Follow above protocols and in addition:

4. HR <60 after initial 60seconds of treatment: Establish IV access
5. Consider IO if unable to secure IV access

EMT Intermediate

Follow above protocols and in addition:

6. HR <60 after 60 seconds of effective ventilation and compressions:
Administer 0.1 to 0.3ml/kg Epinephrine 1:10,000

Paramedic

Follow above protocols and in addition:

7. Continue neonatal resuscitation per current NRP / PALS standards

Seaside Fire & Rescue Medical Protocols

Trauma

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H – 8	Fractures / Dislocations
H – 9	Amputation/ Soft Tissue Avulsion
H – 10	PEDIATRIC: Trauma Considerations
H – 11	Spinal Trauma
H – 12	Head Trauma
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H – 14	Abdominal Trauma
H – 15	Pelvic Fracture
H – 16	Crush Injuries
H – 17	Suspension Trauma
H – 18	Taser Patient

Trauma System Criteria

1

Measure Vital Signs and Level of Consciousness

Glasgow Coma Scale ≤ 13; or
 Systolic Blood Pressure < 90mmHg; or
 Respiratory Rate <10 or >29 breaths per minute
 (<20 in infants < 1 year) or
 Needs Ventilatory support

YES Trauma Patient

NO Move to Step #2

2

Assess Anatomy of Injury

- All penetrating injuries to head, neck, torso, and extremities proximal to elbow or knee; or
- Chest wall instability or deformity (e.g., flail chest); or
- Two or more proximal long bone fractures; or
- Crushed, de-gloved, mangled, or pulseless extremity; or
- Amputation above wrist or ankle; or
- Suspected pelvic fractures; or
- Open or depressed skull fracture; or
- Motor sensory deficit

YES Trauma Patient

NO Move to Step #3

3

Assess Mechanism of Injury & high energy impacts

Falls

- Adults: > 20 feet (one story is equal to 10 feet); or
- Children: > 10feet or 2-3 times the child's height

High-risk Auto Crash

- Intrusion (including roof) >12in. occupant site; 18in. any site; or
- Ejection (partial or complete) from automobile; or
- Death in same passenger compartment; or
- Vehicle telemetry data consistent with high risk injury; or

>20mph Motorcycle /ATV ~or~ Auto vs. Ped/Bicycle thrown, run over, impacted

YES Trauma Patient

NO Move to Step #4

4

Assess Special Patient or System Considerations

<p>Older Adults</p> <ul style="list-style-type: none"> Risk of injury/death increase after 55year; or SBP <110 may represent shock after 65year; or <p>Low impact MOI resulting in severe injury; or</p>	<p>Anticoagulants</p> <ul style="list-style-type: none"> Head injury is high risk; or <p>Burns (with trauma mechanism)</p> <p>Pregnancy: >20 weeks</p> <p>Children</p>
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Just doesn't feel right? EMS Provider judgment

YES Trauma Patient

NO. Patient is not Trauma System

General Trauma Guidelines

Initiate this protocol during the evaluation and management of ALL TRAUMA patients

- Safety of rescuers, the patient and bystanders shall be the priority at trauma incidents
- Use the START Triage system for incidents involving 4 or more patients as appropriate
- Treat life threatening injuries first or as you find them
- Protect C-Spine as appropriate
- All Trauma Patients shall be continually evaluated and managed for the following:
 - Airway (include cervical spine control)
 - Evaluate patency; remove blood/ objects from mouth, position for clear airway
 - Assess for potential airway problems and manage as needed
 - Most trauma patients will benefit to receive oxygen via a NRB mask
 - Breathing:
 - Expose neck/chest if possible
 - Rate/depth of respirations
 - Assess for signs of tension pneumothorax
 - Auscultate lung fields
 - Seal open pneumothorax with 3 sided dressing
 - Circulation
 - Assess for pulses
 - Evaluate perfusion / capillary refill
 - Apply direct pressure to control active bleeding
 - If unable to control bleeding with direct pressure: Apply a tourniquet (appendages)
 - Neurological exam with GCS, pupils.
 - Assess Pulse, Motor Response and Sensory Functions
 - Any time before and after splinting and after splinting/ moving
- Conduct a primary survey (Rapid Trauma Assessment) on suspected trauma patients
 - Throughout the head to toe examination provider should consider the following:

D- Deformities	C- Contusions	A- Abrasions	P- Punctures/Penetrations
B- Burns	T- Tenderness	L- Lacerations	S- Swelling
- In addition to DCAP-BTLS your Trauma assessment should also consider:
 - Head
 - Assess for signs of trauma/ lacerations/ bleeding / skull deformities
 - Assess pupillary size and reactivity
 - Assess for instability of facial bones
 - Assess for nasal, eye, and oral injuries

General Trauma Guidelines (cont.)

- Neck
 - Assess for wounds, swelling, deformity, subcutaneous emphysema tracheal deviation, and JVD, if accessible
 - Assess quality of carotid pulses, if applicable.
 - Apply cervical collar and maintain cervical immobilization
- Chest
 - Assess/palpate chest wall for wounds and deformities
 - Auscultate breath sounds
- Abdomen
 - Assess for contusions, wounds or eviscerated tissues
 - Gently palpate to assess tenderness, rigidity, guarding
- Pelvis/GU
 - Assess for instability (unless previous instability reported), DCAPBTLs
 - Apply pelvic wrap or Sam Sling if indicated
- Extremities
 - Assess for bleeding, contusions, deformities, and swelling
 - Assess neurovascular status of all extremities by noting presence of pulses, skin color and gross motor and sensory
- Neurologic
 - Assess mental status and note GCS.
- Conduct a follow-up secondary survey if time permits and treat secondary injuries
- For a patient with minor injuries where there is no significant mechanism of injury
 - Consider limiting your exam to the injury site

<u>Glasgow Coma Scale</u>	<u>Eye Opening</u>	<u>Verbal Response</u>	<u>Motor Response</u>			
Evaluate each section based on the patient's best response and add up the 3 sections for a total score	Spontaneous	4	Orients	5	Obeys Commands	6
	To Voice	3	Confused	4	Localizes Pain	5
	To Pain	2	To Voice	3	Withdraws Pain	4
	None	1	Incomprehensible	2	Flexion (Pain)	3
			None	1	Extension (Pain)	2
				None	1	

Required Criteria for entering a patient into the trauma system:

1. Gender
2. Age
3. Reason for entering patient into the trauma system

Bleeding

EMR & EMT

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
3. **Oxygen** if needed to maintain O₂ sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
4. Specific treatments:
 - **Controlled Bleeding:**
 - a.) Apply band aid, dressings, bandages etc. as needed
 - **Uncontrolled Bleeding:**
 - a.) Apply direct pressure with dressings
 - b.) If bleeding continues /soaks through dressings:
 - I.) Apply more dressings, **DO NOT REMOVE** original dressings
 - II.) Apply bulking dressings with bandages after bleeding has been controlled
 - **Extremity Bleeding remains uncontrolled by any other means:**
 - a.) Apply a tourniquet approximately 2 inches proximal to the injury
 - I.) Only tighten tourniquet until bright red bleeding stops
 - II.) Secure rod in place to avoid tourniquet loosening.
 - b.) Minimize extremity movement
 - c.) Note time tourniquet was placed, mark patient or tourniquet with time/date
 - d.) If bleeding not controlled with single tourniquet: Apply additional tourniquet
5. If Mechanism of Injury indicates: *treat per* Trauma Protocols: General Guidelines & Spinal
6. Obtain baseline vital signs: Reassess Vitals as Needed
7. Treat *per* Shock protocol as needed
8. Manage other illnesses and injuries *per* appropriate protocols
9. Obtain SAMPLE history

Advanced EMT Intermediate

Follow above protocols and in addition:

10. Establish IV access *with* Balanced Salt Solution. Titrate to systolic BP of 90 mmHg
11. Consider second IV in cases of uncontrolled bleeding or when a tourniquet is applied
12. ECG Monitor
13. Pain Control as indicated

Paramedic

Follow above protocols and in addition:

14. Dysrhythmias; Treat per appropriate protocol

Burns

EMR & EMT

Initial Considerations

1. Scene safety and PPE. Only trained and equipped personnel enter an IDLH environment
2. Ensure patient has been removed from burning source
 - Extinguish smoldering or burning clothing and remove
 - For semi-solid substances (grease, tar, wax, etc.) cool with water, do not remove substance
3. Obtain pertinent history *including*: Mechanism injury (MIO) & Time of incident
4. Assess: Airway, Breathing, Circulation & Neurologic status
 - *If respiratory system has been compromised be prepared for rapid deterioration of patient
5. Protect and monitor airway, consider: BVM, Suction, OPA, or NPA. Auscultate Lungs often
6. **Oxygen** if needed to maintain O₂ sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
8. Remove rings, bracelets, watches and other constricting items ASAP
9. Specific treatments:
 - **Thermal Burn:** a.) Cover burned area with dry, sterile dressing or dry sheet
 - **Chemical Burn:**
 - a.) Brush chemicals off skin, avoid contaminating eyes or airway
 - b.) Irrigate with large quantities of water
 - c.) Chemical Identification if able, contact poison Control/ Hazmat 11
 - **Electrical Burn:**
 - a.) Often may be worse than initially appears
 - b.) Check for exit wound where current grounded from patient
 - c.) Cover burned area with dry sterile dressings
5. If Mechanism of Injury indicates: *treat per* Trauma Protocols: General Guidelines and Spinal
6. Obtain baseline vital signs: Reassess Vitals as Needed (Severe burns: Every 5 minutes)
7. Treat *per* Shock protocol as needed
8. Manage other illnesses and injuries *per* appropriate protocols
9. Obtain SAMPLE history

Advanced EMT

Follow above protocols and in addition:

14. Establish (consider large bore) IV access *with* Balanced Salt Solution
15. Consider 2nd (Large bore) IV access *with* Balanced Salt Solution ~or~ Saline Lock
 - **Thermal Burn:** Parkland formula for fluid resuscitation: 4ml x BSA x Weight (kg)
This is total fluid goal in 24 hours, with half given in the first 8 hours

Intermediate

Follow above protocols and in addition:

16. ECG Monitor; Monitor for Dysrhythmias or other changes in cardiac system
17. **Consider Nebulizer treatment** for assistance in maintaining Airway until RSI is available
18. If unable to obtain IV *and if needed* establish IO Access
19. Severe Pain. *Consider* using narcotics *if available per* Pain Control protocol

Burns (Cont.)

INDICATIONS OF SMOKE INHALATION

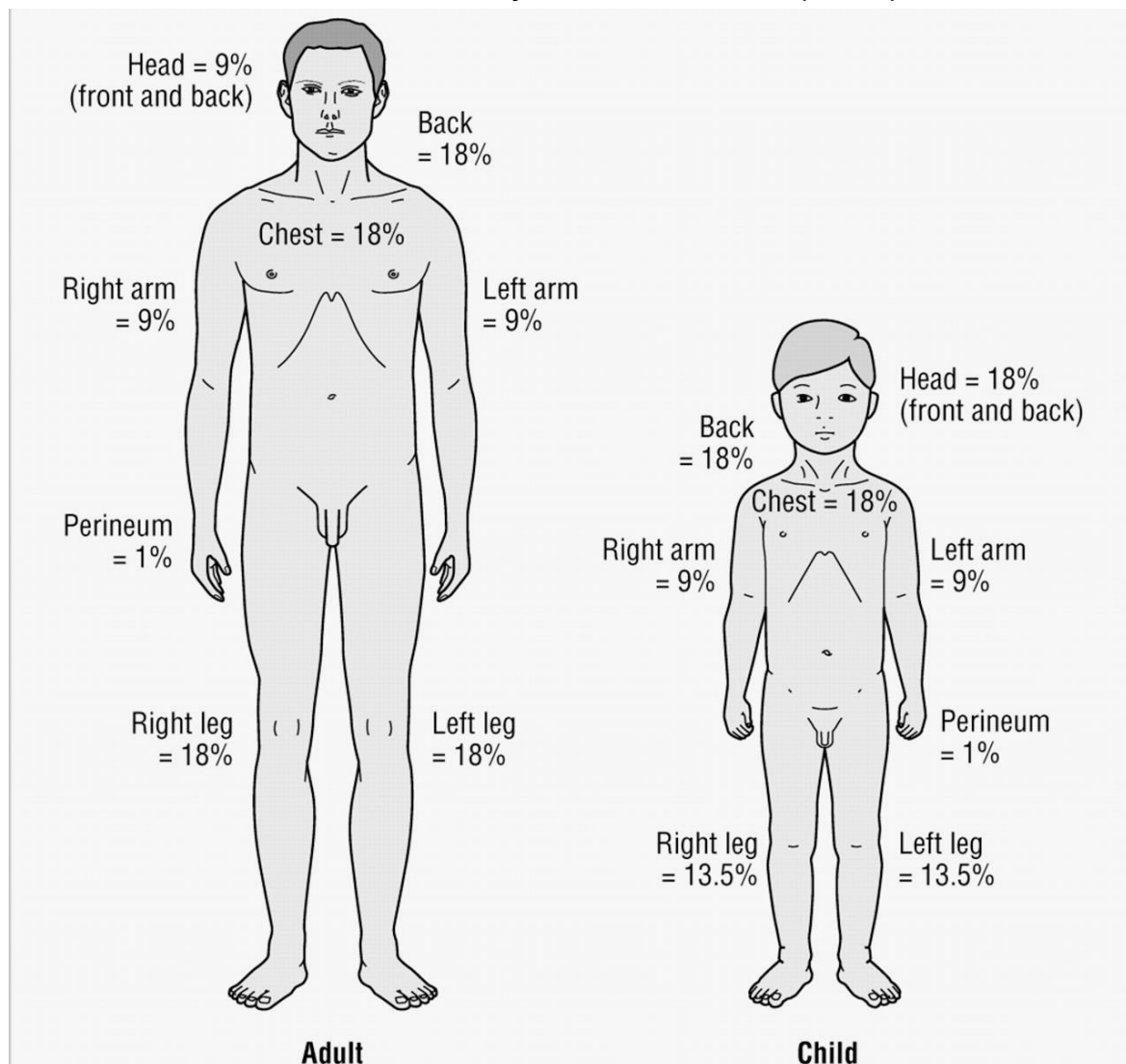
- Facial burns or singed nasal hairs
- Carbonaceous sputum
- Carbon deposits in oropharynx
- Known thermal, chemical or inhalation exposure
- Altered mental status
- Shortness of breath
- Burns

Paramedic

Follow above protocols and in addition:

20. **Intubation** if airway is compromised
21. **Cricothyrotomy** if intubation is inhibited by trauma or oropharyngeal edema
22. **Pain Control** as patients with large burns often require narcotics. Consider starting with **10mg Morphine** ~or~ **2mg hydromorphone**

Rule of Nines Chart for Body Surface Area (BSA) for burns



Drowning

CONSIDERATIONS

- Assume all unconscious drowning patients have associated blunt trauma. Protect cervical spine.
- Near drowning patients should not be allowed to walk unassisted. Patients should be back-boarded or transferred in a stokes basket if available/ appropriate.
- Freshwater: water enters the blood through lungs. Bronchia and alveoli may become unstable Spasm and/or constriction may lead to collapse.
- Any patient resuscitated from drowning or presenting with respiratory symptoms after submersion (cough, shortness of breath, hypoxia) should be transported. There is a potential for delayed respiratory distress / arrest of ensuing hours to days.
- Assume patient has pulmonary edema
- Saltwater: Aspirated fluid is hypertonic and draws fluid from the bloodstream into the lungs.

SECONDARY DROWNING (or Delayed Drowning)

- Small amount of water enters the lungs, causing inflammation or swelling, later causing difficulties or making it impossible to transfer oxygen and carbon dioxide. This can have a delay of up to 24 hours before a patient may show signs of distress.
- Children are the most susceptible.
- Look for: Coughing, increased work of breathing, sudden fatigue, change in behavior or forgetfulness, throwing up – with or without blood.

EMR & EMT

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. **Treat for Shock and hypothermia** in all drowning and submersion patients
3. Protect airway and anticipate vomiting, consider: Suction, Pocket Mask, BVM, OPA, or NPA
4. If pulseless, start CPR- treat *per* Cardiac Arrest protocols
5. If Mechanism of Injury indicates: *treat per* Trauma Protocols: General Guidelines and Spinal
6. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
7. Obtain baseline vital signs *including* respirations and lung sounds; Reassess Vitals as Needed.
8. Obtain SAMPLE/ MOI history; investigate for other illnesses, injuries & causes for submersion
9. *Consider* transferring patient to a suitable environment for treatment as soon as possible

Advanced EMT Intermediate

Follow above protocols and in addition:

10. Establish IV access *with* Balanced Salt Solution @TKO
11. ECG Monitor

Paramedic

Follow above protocols and in addition:

12. Treat dysrhythmias *per* appropriate protocol
13. Intubation as necessary to control airway

Fractures / Dislocations

EMR & EMT

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
3. Specific treatments:
 - Perform Rapid Trauma Assessment and/or focused physical exam of injury site as required
 - **Joint dislocations and bone fractures**
 - a.) Check distal motor/sensory/vascular function before and after splinting
 - b.) Should be splinted in position found, except in the event of vascular compromise
 - I.) For vascular compromise one attempt at realignment may be made
 - II.) If realignment procedure is met with resistance STOP and splint in place
 - III.) Realignment is best attempted with ALS available for pain control
 - **Long bone Fractures**
 - a.) Check distal motor/sensory/vascular function before and after splinting
 - b.) Splint in anatomical position at the joints above and below injury
 - c.) If resistance is met or bone looks like it may pierce skin: Stop and splint in place
 - **Closed Femur Fracture.**
 - a.) Apply traction splint for suspected mid shaft or proximal femur fracture
4. If Mechanism of Injury indicates: *treat per* Trauma Protocols: General Guidelines and Spinal
5. Obtain baseline vital signs: Reassess Vitals as Needed
6. Treat *per* Shock protocol as needed
7. Manage other illnesses and injuries *per* appropriate protocols
8. Obtain SAMPLE history

Advanced EMT

Follow above protocols and in addition:

9. Establish large bore IV access, Balanced Salt Solution; titrate to a systolic BP of 90 mmHG
10. ECG Monitor

Intermediate Paramedic

Follow above protocols and in addition:

11. Severe Pain. *Consider* using narcotics *if* available *per* Pain Control protocol

Amputation / Soft Tissue Avulsion

EMR & EMT

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
3. Treat all bleeding per protocol considering: direct pressure, dressings, bandages, tourniquets
4. Specific treatments:
 - Perform Rapid Trauma Assessment and/or focused physical exam of injury site as required
 - **Partial amputation / Stump**
 - a.) Splint in anatomical position
 - b.) Cover with sterile dressing
 - c.) Moisten with sterile Saline
 - d.) Cover with Dry dressing
 - **Severed part / Tissue**
 - a.) Collect all tissue that can be found and transport to hospital
 - b.) If part is grossly covered in debris gently rinse with sterile saline
 - c.) Wrap severed part in moistened dressings, placed in a plastic bag
 - ❖ Never allowed severed parts to be immersed in water or in direct contact with ice
5. If Mechanism of Injury indicates: *treat per* Trauma Protocols: General Guidelines and Spinal
6. Obtain baseline vital signs: Reassess Vitals as Needed (Severe burns: Every 5 minutes)
7. Treat *per* Shock protocol as needed
8. Manage other illnesses and injuries *per* appropriate protocols
9. Obtain SAMPLE history

Advanced EMT Intermediate

Follow above protocols and in addition:

10. Establish large bore IV access, Balanced Salt Solution; titrate to a systolic BP of 90 mmHG
11. ECG Monitor

Intermediate Paramedic

Follow above protocols and in addition:

12. Severe Pain. *Consider* using narcotics *if* available *per* Pain Control protocol

PEDIATRIC**Trauma****EMR & EMT*****Initial Considerations***

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Provide manual cervical spine stabilization *per* trauma protocols: General Guidelines
 - a.) Head is not in the neutral in-line position but patient's airway is patent
 - I.) *Consider* stabilizing in position found
 - b.) Head is not in the neutral in-line position but patient's airway is inadequate
 - II.) Straighten using inline axial support just enough to establish a patent airway
3. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
4. **Oxygen** if needed to maintain O2 sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
5. Perform Rapid Trauma Assessment of Patient
6. Place appropriate sized Cervical Collar on patient
7. Assess Pulse, Motor Response and Sensory functions before moving /splinting/ immobilization
8. Immobilize patient:
 - a.) Consider backboard, KED, scoop stretcher, Car Seat or other immobilization device
 - b.) Assess posterior of patient during transfer
9. Assess Pulse, Motor Response and Sensory functions after moving /splinting/ immobilization
10. Obtain baseline vital signs: Reassess Vitals as Needed
11. Treat *per* Shock protocol
12. Obtain SAMPLE history
13. Perform secondary assessment / detailed physical exam
14. Manage other illnesses and injuries *per* appropriate protocols

**Advanced EMT
Intermediate*****Follow above protocols and in addition:***

15. Establish IV access *with* Balanced Salt Solution. Bolus 20ml/ kg (10cc/ kg for Neonate)
 - a.) Give fluids to maintain a systolic BP of 70 + (2x age in years)
 - b.) Administer fluid challenge if signs of shock. Repeat if needed
16. Consider second (large bore) IV access *with* Balanced Salt Solution ~or~ Saline Lock
17. If unable to obtain IV *and if needed* establish IO Access
18. ECG Monitor

Paramedic***Follow above protocols and in addition:***

20. Dysrhythmias; *Treat* per appropriate protocol
21. If patient cannot protect their own airway or respirations are <8 BPM; Consider Intubation

Spinal Trauma

EMR & EMT

Initial Considerations

1. Assess: Airway, Breathing, Circulation & Neurologic status
2. Provide manual cervical spine stabilization *per* trauma protocols: General Guidelines
 - a.) Head is not in the neutral in-line position but patient's airway is patent
 - I.) *Consider* stabilizing in position found
 - b.) Head is not in the neutral in-line position but patient's airway is inadequate
 - II.) Straighten using inline axial support just enough to establish a patent airway
3. Protect airway as needed, consider: BVM, Suction, OPA, or NPA
4. **Oxygen** if needed to maintain O₂ sats between 94% & 99% (2-6 LPM NC) / (12-15 LPM NRB)
5. Perform Rapid Trauma Assessment of Patient
6. Place appropriate sized Cervical Collar on patient
7. Assess Pulse, Motor Response and Sensory functions before moving /splinting/ immobilization
8. Immobilize patient:
 - a.) Consider long board, KED, scoop stretcher, or other immobilization device
 - I.) Provide back-raft if indicated and available
 - c.) Assess posterior of patient during transfer
9. Assess Pulse, Motor Response and Sensory functions after moving /splinting/ immobilization
10. Obtain baseline vital signs: Reassess Vitals as Needed
11. Treat *per* Shock protocol
12. Obtain SAMPLE history
13. Perform secondary assessment / detailed physical exam
14. Manage other illnesses and injuries *per* appropriate protocol(s)

EMT Advanced

Follow above protocols and in addition:

15. Establish IV access *with* Balanced Salt Solution. Titrate to a systolic BP of 90mmHG
16. Consider second (large bore) IV access *with* Balanced Salt Solution ~or~ Saline Lock
17. ECG Monitor

Intermediate

Follow above protocols and in addition:

18. If unable to obtain IV *and if needed* establish IO Access

Paramedic

Follow above protocols and in addition:

19. May elect to forgo full spinal precautions
20. Dysrhythmias; *Treat* per appropriate protocol
21. If patient cannot protect their own airway or respirations are <8 BPM; Consider Intubation

Head Trauma

EMR & EMT

Initial Considerations

1. Head Trauma has an associated cervical spine injury until proven otherwise
Treat per trauma protocols: General Guidelines and Spinal and in addition:
2. Obtain baseline level of consciousness (LOC) and monitor/reevaluate often for changes
3. Use direct pressure for open head wounds if no underlying fractures or depressions are found
4. Stabilize but DO NOT remove impaled objects unless they are compromising airway /breathing
5. Specific injuries and treatments:
 - **Eye: Chemicals/ Particulates**
 - a.) Avoid contaminating unaffected eye
 - b.) Consult Poison Control if able for specific treatment
 - c.) If you are unable to contact Poison control consider the general rules:
 - I.) Dry chemical: Brush off as much chemical as able, then flush
 - II.) Liquid chemical: Flush with copious amounts of water / saline
 - **Eye: Penetrating**
 - a.) Stabilize impaled objects (without moving them) carefully. Do not allow gauze to touch exposed vitreous humor (Jellylike substance inside an eye)
 - b.) Cover both eyes to reduce sympathetic eye movement
 - **Eye: Blunt Force /Eye damage without penetrating object**
 - a.) Perform examination and note injury, reactivity, and damage
 - b.) Cover injured eye – Do not allow gauze to touch exposed vitreous humor (Jellylike substance inside an eye). Use eye shield or cup to keep gauze off eye
 - c.) Cover both eyes to reduce sympathetic eye movement
 - d.) Avoid causing additional pressure on eye or head
 - **Ear Injuries**
 - a.) Use direct pressure to control bleeding, do not pack ear canal
 - **Nose Injuries**
 - a.) Suction only if necessary, maintain airway and apply direct pressure
 - b.) Treat *per* Epistaxis protocol

EMT Advanced Intermediate

Follow above protocols and in addition:

6. For unconscious patients with respirations <12 BPM, Administer **Narcan** 0.4 -2 mg
7. If patient is hypotensive Fluid Challenge to maintain systolic BP 90mm Hg

Paramedic

Follow above protocols and in addition:

8. If intubation is indicated: Pre-medicate with **Lidocaine** 1.5 mg/kg
9. Consider Cricothyrotomy if intubation is indicated but inhibited by mandibular trauma

Chest Trauma

EMR & EMT

Advanced EMT

Intermediate

Initial Considerations

1. *Treat per* Trauma Protocols: General Guidelines and Spinal and in addition:
2. Specific injuries:
 - **Flail Chest**
 - a.) Stabilize section; consider pillow, IV bag, hand, etc.
 - **Open or Penetrating chest wounds**
 - a.) Stabilize, DO NOT remove penetrating objects unless compromising airway
 - b.) Place 3 sided occlusive dressing over wound(s)
 - c.) Relieve pressure as needed
 - d.) Monitor closely and remove if Tension pneumothorax develops

INDICATIONS OF TENSION PNEUMOTHORAX

Signs of a tension pneumothorax

- Hypertension
- Unilateral or bilateral decreased breath sounds
- Tracheal deviation
- JVD
- Respiratory distress

Consider in:

- Blunt or penetrating trauma patients
- Intubated patients who become suddenly unstable or difficult to bag despite suction
- Patients with known rib fractures and SQ emphysema
- Other chest injuries including open chest wound(s), simple pneumothorax, pulmonary contusion, & flail chest

Paramedic

Follow above protocols and in addition:

3. Respirations <8 or >30 or unable to protect airway: Consider Intubation
4. **Needle decompression** (Indicated only for tension pneumothorax)
 - a.) Expose the entire chest
 - b.) Clean chest vigorously with alcohol, Betadine, or soap
 - c.) Locate the mid-clavicular line
 - d.) Insert a large IV catheter (10-14 gauge) over the superior margin of the third rib
 - e.) Hit the rib, then slide over it
 - f.) If air is under tension the barrel will pull easily and "pop" out the back of the syringe
 - g.) Remove syringe, advance catheter, and remove needle
 - h.) Attach Heimlich type valve
 - h.) Be sure closed end is away from the patient
 - j.). Tape outlet securely to the patient's chest

Abdominal Trauma

All Providers

Initial Considerations

1. Abdominal Trauma has an associated cervical spine injury until proven otherwise
Treat per trauma protocols: General Guidelines and Spinal and in addition:
2. Assess Pulse, Motor Response and Sensory functions
3. Specific injuries / treatments:
 - **Impaled objects:**
 - a.) Stabilize carefully, DO NOT remove object
 - Package patient in a “Knees Up” position if possible
 - **Evisceration**
 - a.) DO NOT try to replace eviscerated organs
 - b.) Cover with saline (warmed if able) moistened dressings
 - c.) Place large occlusive dressing over saline dressing
 - d.) Prevent heat loss at wound site
 - e.) Package patient in a “knees up” position if indicated

PELVIC FRACTURE

ALL PROVIDERS

Initial Considerations

INDICATIONS

- Consider the risk of pelvic instability in all blunt trauma patients with appropriate mechanism of injury, or patients with pelvic pain
- Sling or Sheet is used in the initial reduction of an unstable pelvic fracture to lessen ongoing internal bleeding and ease pain by splinting.
- Pelvic wraps is not indicated for suspected isolated hip fractures

1. *Treat per* trauma protocols: General Guidelines and Spinal and in addition:

If patient has pelvic pain, or pelvic instability during exam:

2. If pelvis is unstable on the initial exam, DO NOT repeat exam

○ **SAM SLING PELVIC WRAP**

1. Unfold sling with white surface facing up, place beneath patient at buttocks level
2. Close sling by placing black Velcro side of flap down on the blue side.
3. Fold back material as needed. Place buckle close to midline
4. Grab orange handle on outer surface or flap and releases from flap by pulling upward
5. Pull both handles in opposite directions to tighten sling until you hear or feel buckle lock
6. As soon as it locks, maintain tension and firmly press orange handle against blue side

REMOVAL –ONLY with OLMC approval

1. Lift orange handle and release Velcro by pulling upward
2. Maintain tension and slowly allow sling to loosen

○ **BED SHEET (used when pelvic wrap is absolutely unavailable by all assets on scene)**

1. Consider placement of the sheet on a backboard in advance of patient
2. Fold (Do Not Roll) the sheet smoothly several times lengthwise until it is about nine 9 inches wide and place underneath the pelvis, centered on the upper part of the thigh even with the level of the patient's wrists, when in supine position with arms down at the side.
3. Before tightening the sheet around the pelvis remove objects from patient's pockets so the pressure of the sheet does not cause additional pain
4. Tighten the sheet and adjust the tension to try to return the pelvis to the normal anatomic position based on the initial assessment of instability.
5. Cross the sheet around the pelvis and adjust the tension to keep pelvis position
6. Secure it laterally with a knot or clamp.
7. The sheet should feel tightly wrapped around the pelvis allowing for 2 fingers to be inserted between the sheet and pelvis.
8. Always recheck position of sling/ sheet to ensure it hasn't rode up higher on the patient

Crush Injuries

INDICATIONS

- Compression in excess of 60 minutes
- Involvement of a large muscle mass
- Arrhythmias including peaked T waves and widening QRS complexes
- Rapid deterioration of patient after entrapment release

EMR & EMT

Initial Considerations

1. *Treat per* Trauma Protocols: General Guidelines and Spinal *if* indicated and in addition
2. Perform Rapid Trauma Assessment and/or focused physical exam of injury site as required
3. Provide wound care *per* appropriate protocol
4. Remove all restrictive dressings
5. Continually monitor distal pulse, motor, and sensation in involved extremity
6. *Treat per* Shock protocol

Advanced EMT

Follow above protocols and in addition:

7. Administer Balanced Salt Solution:
 - ADULTS: 100-200ml bolus, maintain at 500 ml per hour
 - PEDIATRIC: 20 -40 ml/kg bolus, maintain at 20 ml/kg per hour
8. ECG Monitor

EMT Intermediate

Follow above protocols and in addition:

9. Severe Pain. *Consider* using narcotics *if* available *per* Pain Control protocol

Paramedic

Follow above protocols and in addition:

10. Administer Sodium Bicarbonate
 - ADULTS: 25meq (1/2 amp) over 10 minutes. Repeat every 30 minutes x3
 - PEDIATRIC: 0.5mEq/kg over 10 minutes. Repeat every 30 minutes x3

Suspension Trauma

INDICATIONS

- Trauma sustained during or after a fall while utilizing a fall arrest system resulting in prolonged suspension
- Except these incidents to be long in duration and manpower intensive for stabilization and rescue operations
- Consider usage of air transport early

Pathophysiology:

- a. Pooling of blood in lower extremities causes a decrease in the amount of blood circulating to vital organs
- b. Factors worsening the suspension trauma: inability to move legs, fatigue, other injuries, dehydration, hypothermia, and cardiac disease
- c. Suspension trauma just by itself or subsequent reperfusion of the lower extremities may lead to loss of consciousness, renal failure, pulmonary embolus, or cardiac arrest.

Theories of death:

- a. Blood pooled in legs is lacking oxygen causing heart failure upon returning.
- b. Large volume of blood returns and overloads the right ventricle
- c. Reperfusion injury of the vital organs that became hypoxic during vertical immobility
- d. Injury caused by toxins that accumulated in the blood pooled in the legs similar to crush injury

Critical Thinking

- Some authorities suggest positioning patient in a sitting position for at least 30 minutes before repositioning patient horizontally for treatment, others recommend immediate supine positioning
- Treat patient based on MOI and condition, if other injuries required immediate supine positioning do not delay.

All Providers

Initial Considerations

1. Immediately after Patient contact and throughout rescue:
 - a.) Advise the patient (suspended worker) to pump legs if possible
2. *Treat per* Trauma Protocols: General Guidelines and Spinal *if* indicated and in addition:
3. Consider elevation of the head of the backboard to keep patient's head higher than the feet.
4. Consider management per Crush injuries protocol for prolonged suspension
5. Investigate and treat other illness or injuries *per* appropriate protocol(s)

Taser Patient

CONSIDERATIONS

- The Taser is a less than lethal law enforcement device designed to temporarily subdue and incapacitate a combative subject. Two darts deliver 19 short pulses per second to a typical peak voltage of 1300V.
- The pulse is designed to cause neuromuscular incapacitation with minimal cardiac effects
- Special consideration should be given to patients with cardiac history, respiratory history, and those under the influence of drugs or alcohol.
- Every patient shall receive thorough (as possible) medical exam without prejudice.
- Patients who have been tasered may be combative and uncooperative. If a provider deviates from protocols it is critical to document why.

Documentation

- In addition to patient's Name, Date of birth, address:
- Attempt: Pain level, Chief Complaint, Medications, Allergies.
- Record all vital signs taken, location of probes, any treatments/ procedures you performed.
- The arresting officer's name shall be recorded in the PCR.
- Signed Refusals of care or transport are not indicated in these patients. They are either transported to a hospital or remain in police custody

EXERT FROM TASER.COM SAFETY BULLETIN M,ARCH 1, 2013

Physiologic and Metabolic Effects. CEW (Conducted Electrical Weapons) use causes physiologic and/or metabolic effects that may increase the risk of death or serious injury. These effects include changes in blood chemistry, blood pressure, respiration, heart rate and rhythm, and adrenaline and stress hormones, among others. In human studies of electrical discharge from a single CEW of up to 15 seconds, the effects on acid/base balance, creatine kinase, electrolytes, stress hormones, and vital signs were comparable to or less than changes expected from physical exertion similar to struggling, resistance, fighting, fleeing, or from the application of some other force tools or techniques.

Some individuals may be particularly susceptible to the effects of CEW use. These susceptible individuals include the elderly, those with heart conditions, asthma or other pulmonary conditions, and people suffering from excited delirium, profound agitation, severe exhaustion, drug intoxication or chronic drug abuse, and/or over-exertion from physical struggle. In a physiologically or metabolically compromised person, any physiologic or metabolic change may cause or contribute to sudden death.

Stress and Pain. CEW use, anticipation of use, or response to use can cause startle, panic, fear, anger, rage, temporary discomfort, pain, or stress which may be injurious or fatal to some people.

Loss of control associated with CEW use can have several causes:

Seizure. Repetitive stimuli (e.g., flashing light or electrical stimuli) can induce seizure in some people, which may result in death or serious injury. This risk may be increased in a person with epilepsy, a seizure history, or if electrical stimuli pass through the head. Emotional stress and physical exertion, both likely in incidents involving CEW and other uses of force, are reported as seizure-precipitating factors.

Fainting. A person may experience an exaggerated response to a CEW exposure, or threatened exposure, which may result in fainting or falling.

Muscle contraction, incapacitation, or startle response. CEW use may cause loss of control from muscle contraction, incapacitation, or startle response.

Taser Patient (Barb Removal)

CONTRAINDICATIONS

Taser barbs are not to be removed if:

- Barbs have penetrated:
 - Face/Eye
 - Neck
 - Groin
 - Spinal Column
- Patient's GCS <15
- Patient has abnormal vital signs:
 - Heart rate ,< 60 or >120
 - Systolic BP <90 or >180 mmHg
 - Respirations <12 or >30
 - Patient is less than 16years old

EMR

Initial Considerations

1. Ensure Body Substance Isolation precautions are taken, and that Police have secured the scene
 - a.) *Consider* discussing with police about moving the patient if crowd control is an issue
2. Interview Police officer regarding patient's condition and any changes in behavior or responsiveness since the Taser incident
3. Identify locations, ensure barbs are disconnected from gun, and account for all Taser barbs
4. Obtain baseline vital signs; Blood pressure pulse, respirations, SpO2
5. Assess and treat patient for other illnesses and injuries *per* appropriate protocols

EMT

Follow above protocols and in addition:

6. Cut wires at the base of the barb
7. Remove barb:
 - a.) With one hand: Apply counter pressure on the skin near the impact site
 - b.) With your other hand and a pair of pliers; In a single, quick motion perpendicular (90°) to the skin surface pull the barb straight out
 - c.) Place barb in supplied Taser Cartridge or SHARPS
8. Swab each impact sight with an alcohol swab and apply a Band-Aid (or necessary dressings)
9. Repeat for all impaled barbs

If Patient Is Not Being Transported By Ambulance To Hospital:

10. Obtain second set of vitals 15 minutes after baseline set *if* able
11. Remind Police Officer the patient needs monitoring for possible physiologic changes that may occur in the following hours after the incident.

Advanced EMT

EMT Intermediate

Paramedic

In addition:

12. Obtain ECG strip *if* able

**Seaside
Fire & Rescue**

**Emergency
Medical Care
Protocols**

Edition: 2016

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Changes, Addendums & Authorization

Changes and addendums shall be recorded and updated in the master copy of the standing orders until the next complete manual is placed into service

Record of Changes

Protocol	Page	Date effective

In accordance with Oregon Administrative Rule 847-035-002 as the Supervising Physician for Seaside Fire & Rescue I authorize the use of the 2016 Edition Medical Protocols (Standing Orders) as the Offline Medical Direction for all Emergency Medical Providers.

In the event that these orders become contrary to the provisions of Administrative Rules of the Oregon Health Authority, the Administrative Rules shall supersede these Standing Orders.

Dr. Matthew Barrett
Seaside Fire & Rescue Supervising Physician

Date