

TREATMENT PROTOCOLS

Seaside Fire & Rescue



2010-2012

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Section 1:
General Considerations

Contact Phone Numbers

Medic Ambulance503-861-1990
Providence Seaside Hospital503-717-7000
Columbia Memorial Hospital503-325-4321
Poison Control1-800-222-1222
Oregon POLST Registry1-877-367-7657

Introduction

The following pre-hospital care guidelines are intended as treatment guidelines for both Basic Life Support (BLS) and Advanced Life Support (ALS) technicians working under the direction of the Medical Director Dr. Sue Heineick.

They are intended to:

1. Standardize, as much as possible, pre-hospital care for Seaside Fire & Rescue
2. Provide the Emergency Medical Technician with a framework for pre-hospital care.
3. Provide the basic framework on which the Medical Director can audit the performance of both basic and advanced life support personnel.

They are not intended to:

1. Be absolute treatment doctrines, but rather guidelines with the understanding of sufficient flexibility to meet the needs of complex or atypical cases.
2. Be a teaching manual for First Responders, EMTs, or Paramedics; it is assumed that all pre-hospital care providers are trained to his/her level of certification and that he/she will continue to meet the requirements of the State for continuing education for re-certification.
3. Withhold life saving treatments in circumstances where on-line medical control is unable to be established.
4. Interfere with the wishes of the patient or family, or the wishes of the patient's physician(s).
5. Dictate details of care to advising physicians.
6. Warrant the pre-hospital care provider as an independent field practitioner.

It is expected that all pre-hospital care providers at Seaside Fire & Rescue will be familiar with that portion of the “**Pre-hospital Care Protocols/Guidelines**” appropriate to their certification level. **Written** acknowledgment of the receipt of this document will be required.

Introduction (Continued)

These standing orders have been approved by Seaside Fire & Rescue physician advisor Dr. Sue Heineck. Oregon statutes require that First Responders and EMTs provide care under direction through standing orders or verbal communications of a physician.

This format recognizes that pre-hospital care is part of a continuum of care, which begins with access to the system and ends with the return of the patient to our community. No phase of this continuum can function ideally without communication between all the steps of the system. A seamless transfer of care between providers is the goal. Please remember to contact the receiving hospital as soon as possible in every acute situation.

These protocols represent a dynamic medical system and it is hoped that all providers will continue to be actively involved in their formulation and revision. Questions regarding the development, revision and implementation of these protocols should be directed to the Seaside Fire & Rescue Training Officer.

Sue Heineck, M.D.
Seaside Fire Rescue
Medical Director

Medical Control & Communications

Medical Control

PROTOCOL	LEVEL	REQUIREMENT OR SUGGESTION
Burn	P, I	More than 1000cc of NS if BP remains <90.
Chest Pain	P, I	Prior to giving Nitroglycerine if taken Viagra in last 24 hours
Cardiac Dysrhythmia – Tachycardia	P	In unstable tachycardia if cardioversion is not effective.
Cardiac Dysrhythmia – VT with Pulse	P	Unstable, if cardioversion and Lidocaine are not effective. Stable, if Lidocaine is not effective.
Physician on Scene	P, I, B	For assistance if Physician is on scene.
	All	Termination of resuscitation efforts under <u>specific</u> circumstances.

Communications

1. H.E.A.R. Radio System:

The nationwide HEAR (Hospital Emergency Ambulance Radio) frequency allows for communication of essential information between responders in the field and base station physicians. For the purposes of Seaside Fire & Recue, the HEAR system is used for:

- a. Communicating with an ER physician, to consult, request orders, or instructions
- b. Communicating with a responding LifeFlight or Reach aircraft

Consider that the HEAR system is used to for the transmitting of essential information only. When making a report, include the following information:

- a. Unit identification
- b. Age and gender of patient
- c. Chief complaint and condition of patient
- d. Vital signs
- e. Pertinent treatment rendered
- f. Request for additional information or treatment

Consider that communication with the responding Medix unit should be done on the Medix frequency or Channel 14(A Bank), utilizing the above guidelines.

Medical Control & Communications (continued)

2. Verbal Report to Receiving Paramedic:

The verbal report to the receiving Paramedic or Flight Nurse should contain more detail than the radio report. Personnel now have the time to present a thorough description of the scene, complete assessment of the patient, and complete report on patient care and the result of care efforts.

- a. Name, age, gender and patient's physician
- b. Chief complaint or injuries
- c. If trauma, describe the trauma scene; i.e.; estimated blood loss, damage to vehicle, number of gun shots, etc.
- d. Pertinent medical history
- e. Vital signs and level of consciousness
- f. Physical examination findings
- g. Condition changes or trends in vital signs or level of consciousness during time with the patient
- h. Explain patient treatments and results of such

3. Documentation/Written Reports:

Documentation of Patient Care Reports (PCRs) shall be done on every patient as soon as possible (or within 24 hours of the call). These reports shall be done using Seaside Fire & Rescue software or paper PCR, and shall include all pertinent medical information regarding patient condition, care and outcome.

General Guidelines For All Patients

Field Treatment for the Medical Patient

1. Scene Size-up/Assessment;

- A. Body substance isolation per Seaside Fire & Rescue exposure control program;
- B. Scene safety;

2. Initial Patient Assessment;

- A. Airway - Breathing - Circulation;
 - a. If **EMS NO-CPR/DNR/POLST** form intact, follow protocol for **EMS NO-CPR/DNR protocol**
- B. Consider ALS response if available

3. Focused History and Physical Exam;

- A. Assess complaints and signs/symptoms, responsive patient;
 - a. **O-P-Q-R-S-T** assessment guidelines;
 - 1) Onset, Provocation, Quality, Radiation, Severity, Time
 - b. Obtain **SAMPLE** history;
 - c. Conduct **AVPU** mental status exam as needed;
 - d. Intervention

4. Perform ongoing and/or detailed assessment as needed

5. Transport

Field Treatment for the Trauma Patient

1. Scene Size-up;

- A. Body substance isolation per Seaside Fire & Rescue exposure control program
- B. Scene safety
- C. Assess for number of multiple patients
- D. Activate MCI protocol if needed

2. Initial Patient Assessment

- A. Airway - Breathing - Circulation
- B. Establish patient care priorities as soon as possible
 - a. Follow Trauma Triage procedures
 - i. Notify Medix dispatch as soon as possible of Trauma System Activation
 - b. Triage multiple patients (See Mass/Multi-casualty Section)
 - i. Notify Medix dispatch as soon as possible of MCI activation
- C. Consider spinal precautions as appropriate per mechanism of injury

3. Rapid or Focused History and Physical Exam

- A. **DCAP-BTLS**;
 - a. Deformities, Contusions, Abrasions, Punctures, Burns, Tenderness, Lacerations, Swelling
- B. Pulse/Circulation, Movement, Sensation (**PMS/CMS**)
- C. Vital signs
- D. Obtain **SAMPLE** history
- E. Glasgow Coma scale (GCS score)

- Continued on Next Page -

General Guidelines For All Patients (continued)

4. Ongoing Assessment

- A. Re-evaluate initial patient assessment items
 - a. Unstable patient a maximum of every 5 minutes
 - b. Stable patient every 15 minutes

On-Scene Medical Authority:

1. Patient care at an incident is subject to the following ascending order of authority:
 - A. First Responder (first-arriving, on duty)
 - B. Emergency Medical Technician (first-arriving, on duty)
 - C. Paramedic or Flight Nurse (first-arriving, on duty)
 - D. Physician
 - E. Medical Control Physician

Non-Transport of Patients

The decision to seek emergency medical services usually resides with the patient, family, or, in certain instances, with legal custodians. Similarly, the decision to transport or not transport should reside with the patient, family, or legal custodian. In general, the only reasons for non-transport are:

1. Signed refusal for transport completed by competent patient, family, or custodian. The patient must be of 18 years of age, be competent*, and have been informed of the refusal process.
2. A DNR or termination of resuscitation efforts.
3. Any situation where no patient is found.

The medical provider may be of the judgment that the patient need not be transported by ambulance, but unless the patient and/or custodian agree with this judgment, transport will be accomplished. Every patient has the right to be transported to the hospital if they desire.

***Note:** A competent patient must be oriented and understand the potential consequences of refusal. 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.

Medical Release Principles:

The foundation principle for medical release is informed consent by the patient. The patient cannot legally refuse treatment or transportation until the following conditions are satisfied:

1. The patient has been fully informed of their condition.
AND
2. The patient understands the information provided on their condition and the potential consequences of refusing treatment or care.
AND
3. A medical release form has been read to, understood by, and signed by the patient.

** If a conscious patient who is irrational (or impaired by alcohol or drugs) or may harm themselves refuses treatment, the emergency care provider should contact law enforcement.

Notes and Precautions:

The more urgent the need for care, the higher the standard must be for refusal.

Patient Treatment Rights

Seaside Fire & Rescue EMS guidelines and protocols are intended for use with a conscious and consenting patient, or an unconscious patient (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 Standing Orders and department SOGs.
- Every patient shall receive the benefit of being treated to the maximum ability of the medical providers on scene.
- A patient's 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 Standing Orders, department SOGs, and established HIPPA laws.

Minimum Patient Care Report (PCR) Documentation Standards

A PCR shall be completed within 24 hours of the incident for every patient contact. If in doubt regarding if a PCR should be completed for a particular call, fill out a PCR in detail. Each PCR shall be written in the SOAP format and contain the following minimum information:

1. Location and date of the call
2. Patient's name, date of birth, address of incident
3. Patient's history
4. Vital signs
5. Physical examination appropriate for the complaint.
6. Care rendered to the patient and patient's response to the care.
7. Patient's disposition upon transfer to Medix.

For patient refusals, complete a "short" PCR form, signed by the patient and a competent witness. The patient does not receive a copy of the refusal form. They must submit a written request to the Fire Department if they would like a copy.

Field Resuscitation Guidelines

Withholding of CPR

1. CPR must be initiated on all cardiac arrest victims, unless a condition exists which warrants the withholding of CPR.
 - A. CPR may be withheld on **ADULT** or **PEDIATRIC** victims who present with any one of the following:
 - a. Decapitation
 - b. Total 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 principles preclude CPR from being initiated on every victim
 - h. Documentation of valid Do Not Resuscitate Orders (DNR) or POLST form.
 - B. CPR may be withheld on **ADULT** victims of unwitnessed medical cardiac arrest or witnessed/unwitnessed trauma arrest who present with **ALL** of the following:
 - a. No CPR in progress **and**
 - b. No vital signs **and**
 - c. Documented electrical asystole with documented evidence that monitor is functioning properly. (Asystolic patients with non-capturing pacemakers and conditions a and b meet this criteria.)
 - d. No evidence of hypothermia, drug ingestion, or poisoning.**
2. Notify appropriate law enforcement agency as soon as possible.
3. Complete a pre-hospital care record, documenting clinical conditions which warranted not initiating CPR and law enforcement agency notification.

Discontinuing CPR

1. Generally speaking, once resuscitation of a cardiac arrest patient has begun, such resuscitative efforts shall continue until the patient is turned over to a Medix Paramedic, Flight Nurse, or the receiving hospital staff. Termination of CPR/resuscitation efforts shall not be a regular practice of Seaside Fire & Rescue. However, given specific circumstances, termination of CPR/resuscitation efforts may be deemed necessary and/or appropriate. Examples of such conditions include:
 - A. CPR initiated on a patient (by bystanders or other responders) and it is found during later assessment, the patient has an injury/condition that is incompatible with life, such that CPR should not have been initially started. (See withholding CPR, above)
 - B. CPR initiated on a patient in an MCI setting (by bystanders or other responders) when resources are best used for the care of the maximum number of survivable patients. (See withholding CPR, above)
 - C. CPR initiated on a patient (by bystanders or other responders) and a valid No CPR/DNR/POLST order is presented. (See Do Not Resuscitate Orders,

below)

2. Circumstances may also present outside of those listed in these protocols that would suggest a Termination of Resuscitative Efforts. In these circumstances, the senior on-scene medical provider should consult OLMC for direction.
3. In any circumstance regarding Termination of Resuscitative Efforts, the senior on-scene medical provider will consult with OLMC for direction to do so. Resuscitative efforts will not stop until this has been accomplished.
4. When CPR has been discontinued, perform the following:
 - A. If possible, obtain an EKG strip documenting asystole.
 - B. Notify the appropriate law enforcement agency.
 - C. Complete all appropriate documentation, including name of the physician contacted and a detailed explanation why resuscitation efforts were halted.

Do Not Resuscitate Orders

1. Definitions:
 - A. A DNR (Do Not Resuscitate) Order is an order issued by a physician directing that in the event the patient experiences a cardiac arrest, cardiopulmonary resuscitation (CPR) will not be administered.
 - B. A Living Will is a legally executed document expressing the patient's wish to not undergo ALS resuscitation.
 - C. Resuscitation includes attempts to restore failed cardiac and/or ventilatory function by procedures such as CPR, endotracheal intubation, mechanical ventilation, defibrillation, and use of ACLS cardiac medications.
 - D. The Oregon State Department of Health POLST (Physician Orders for Life-Sustaining Treatment) form has been developed for all medical technicians and practitioners. **POLST** outlines the specific care a patient wishes to receive. The form must include the patient's 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.
2. The responding EMS provider should perform routine patient assessment and resuscitation or interventions until they confirm the DNR status in one of the following ways:
 - A. Locate the **original** DNR/POLST directive at the bedside, on the back of the bedroom door, or on the refrigerator. In extended or intermediate care facilities, look for the directive with the patient's chart.
 - B. Begin resuscitation if the DNR/POLST form is not immediately found, or if in your judgment, the form is invalid.
 - C. Begin resuscitation if, in your medical judgment, your patient has attempted suicide or is a victim of attempted homicide.
3. After confirming that the patient has a valid DNR/POLST directive, the EMS provider should carry out these standard orders:
 - A. Open the airway and assess for spontaneous breathing (do not provide positive pressure ventilation with a bag valve mask, pocket mask or endotracheal tube).
 - B. Clear the airway (including stoma) of secretions with appropriate suction device. Check for spontaneous breathing.
 - i. If patient is spontaneously breathing and has a pulse after repositioning of airway, refer to the Comfort Measures section of the DNR/POLST

- form.
 - C. Check for a carotid pulse.
 - D. If no pulse/no breathing, contact a Deputy Medical Examiner (DME)
 - E. Provide emotional support to the family.
 - F. Contact patient's physician or on-line Medical Control if questions or problems arise.
4. If resuscitative efforts have been started before learning of a valid DNR/POLST directive, then the EMS provider should continue resuscitative efforts until the form is verified. After which, the provider shall stop:
 - A. CPR
 - B. Intubation (leave the endotracheal tube in place, but stop any positive pressure ventilations).
 - C. Cardiac monitoring and defibrillation.
 - D. Administration of resuscitation medication.
 - E. Any positive pressure ventilation (through bag valve masks, pocket masks, endotracheal tubes).
 5. Other DNR Orders: Seaside Fire & Rescue continues to encourage medical facilities to use the Department of Health POLST Directive. However, health care facilities may prefer to use their own health care DNR orders. When EMS providers see other DNR orders, they should do the following:
 - A. Verify that the order has a physician signature requesting "Do Not Resuscitate".
 - B. Verify the presence of the patient's name on the order.
 - C. Contact on-line Medical Control for further consultation. In most cases, on-line Medical Control will advise to withhold CPR following verification of a valid physician signed DNR order.
 6. Revoking the DNR/POLST Directive: The following people can inform the EMS system that the EMS-No CPR 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.
 7. Documentation:
 - A. Complete the Patient Care Report (PCR)
 - B. Record the name of the patient's physician, and state whether you contacted the physician.
 - C. Record the reason why the EMS system was activated.
 - D. Record law enforcement agency notified
 8. Comfort Care Measures:
 - A. The DNR/POLST directive does not mean Do Not Treat. Providing comfort care measures is an important responsibility and service you provide to patients and their families at a crucial moment in their lives.
 9. Comfort care measures for the dying patient may include:
 - A. Suctioning the airway
 - B. Administering oxygen
 - C. Positioning for comfort
 - D. Splinting
 - E. Controlling bleeding
 - F. Providing emotional support

G. Contacting patient's physician or on-line Medical Control if questions or problems arise.

10. Special Situations:

A. 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:

- i. Attempt to convince family to honor the patient's decision to withhold CPR. If family persists, then;
- ii. Initiate resuscitation efforts until relieved by paramedics.
- iii. Advanced Life Support personnel should continue treatment and consult Medical Control.

11. Remember: Once death has occurred, the family and relatives become your patient(s).

Oregon POLST Registry

The Oregon POLST Registry is an electronic record of POLST forms designed to provide POLST orders to Emergency Medical Services (EMS) if the POLST form cannot be immediately found.

The Registry is housed at OHSU behind a protective firewall keeping this health information secure and confidential. All patients with Oregon POLST forms are encouraged to submit both sides of their completed and signed form to the Registry. Unless the patient opts out of the Registry, forms can be faxed or mailed by the patient, surrogate or health care professional directly to the Registry office.

Use:

1. When told that a patient in cardiac arrest has a DNR/POLST form, but the form cannot be located, contacting the Oregon POLST registry is an acceptable alternative. The original form is still preferable.
2. The POLST Registry can do nothing more than verify that the patient has a POLST order and can relate specific information from the form. The POLST registry cannot approve a termination of resuscitation, interpret the POLST orders, or provide other treatment advice. The on-scene medical provider must still contact OLMC to terminate resuscitative efforts.
3. When contacting the POLST registry, have the following information available.
 - A. Full name
 - B. Date of birth
 - C. Street address
 - D. County/city
 - E. Gender
 - F. Registry ID number
 - G. Last 4 digits of SSN
 - H. Age
4. The registry staff can verbally relate sections A and B of the POLST form. A copy of the POLST form can also be faxed to a nearby hospital

Infectious Disease Precautions

1. Precautions to prevent transmission of infectious disease are especially important in the emergency care setting, where the risk of blood exposure is increased and the infection status of patients is usually unknown. Standard (Universal) blood and body fluid precautions shall be consistently used for all patients to prevent skin and mucous membrane exposure. All EMS personnel must remain current with Infectious Disease Continuing Medical Education according to the standards set forth by the Oregon State Department of Health Office of Emergency Medical and Trauma Prevention.
2. General Recommendations
 - A. Gloves shall be worn for:
 - a. All patient contacts
 - b. Touching blood and body fluids, mucous membranes, or non-intact skin.
 - c. Handling items or surfaces soiled with blood or body fluids.
 - d. Performing venipuncture, other vascular access, or any other invasive procedure. Change gloves after contact with each patient. Wash hands immediately after removing gloves.
 - B. Protective eyewear shall be worn during all patient contacts.
 - C. Masks and gowns shall be worn during procedures that are likely to generate droplets or splashes of blood or other body fluids.
 - D. Wash hands and other skin surfaces immediately if contaminated with blood or other body fluids.
 - E. Use mouth pieces, resuscitation bags, or other ventilation devices to avoid mouth-to-mouth contact.
 - F. Sharp instruments, needles, and scalpels shall be handled carefully during procedures, cleaning, and disposal. Needles shall not be re-capped, bent, broken, or removed from disposable syringes. Place used disposable syringes, needles, scalpels, and other sharp items in puncture-resistant containers for disposal. These precautions will afford protection to pregnant emergency care providers to **minimize** risk of prenatal transmission of infectious disease.
3. Emergency care providers who have open lesions, or weeping dermatitis shall refrain from direct patient care and from handling patient care equipment.
4. Personnel suspecting exposure to an infectious disease must inform their supervisor immediately.
 - A. If mouth, eyes, or an unprotected cut are directly exposed to blood or body fluids, or in the event of a needle stick injury, affected personnel should wash the area thoroughly and immediately seek medical attention.
5. After each patient contact clean all equipment used and vehicles according to the manufacturer recommendations or according to the most recent Department of Health or OSHA standards and guidelines.



Section 2:
Cardiac Emergencies

Chest Pain (Suspected Angina/AMI)

BLS:

1. Assess **responsiveness** and **ABCs**.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask.
4. **Vital signs** (BP, Pulse, Respiration Rate).
5. Get **SAMPLE history**.

EMT-B:

6. Administer **Nitroglycerin 0.4 mg SL** only if:
 - a. Physician prescribed and
 - b. Patient has no Viagra (or like medication) use in last 24 hours and
 - c. BP > 90 mmHg systolic. Repeat every 5 minutes as needed.
7. Administer **Aspirin 324 mg**.

ILS:

As above:

8. Administer Nitroglycerin 0.4 mg SL if blood pressure > 90 mmHg systolic. Repeat every 5 minutes.
9. Establish an IV of Sodium Chloride 0.9% at TKO rate.
10. ECG monitor.
11. Contact receiving ambulance and advise them of strong suspicion of AMI and/or STEMI.

ALS:

As above:

Asystole

BLS

1. Assess Responsiveness and **ABCs**. **Suction** as needed.
2. **Begin CPR** for 2 minutes (5 cycles of 30:2 at a rate of 100 bpm).
3. Attach **AED or SAED** if available, press “**analyze**.”
4. If no shocks advised or AED is not immediately available, **continue CPR**.
5. Insert appropriate **Airway Adjunct (OPA or NPA)** and ventilate with **BVM and supplemental O₂ @ 15 LPM** OR if qualified EMT-Basic, place a **King Airway**.
6. Get **SAMPLE History** from family, friends or bystanders.
7. Continue CPR, package patient to a long board or scoop and prepare for transport.

ILS:

As above:

8. Place a **King Airway**.
9. Establish an **IV of Sodium Chloride 0.9% at a rapid rate**. Consider placing a second IV.
10. **ECG monitor**, confirm asystole in two leads.
11. Administer **Epinephrine 1.0 mg of 1:10,000 IV/IO every 3 to 5 minutes**. Continue until vital signs restored or resuscitation terminated.
12. Administer **Atropine 1.0 mg IV/IO every 3 to 5 minutes (between doses of Epinephrine) up to a total of 3 mg**.

ALS:

As above:

14. Place an **Endotracheal Tube** if airway not currently secured by a patent King Airway.
15. Consider **Transcutaneous Pacing** if asystole was witnessed to follow any other cardiac rhythm.

Ventricular Fibrillation / Pulseless Ventricular Tachycardia

BLS:

1. Assess **responsiveness** and **ABCs**. **Suction** as needed.
2. **Begin CPR** for 2 minutes (5 cycles of 30:2 at a rate of 100 bpm).
3. Attach **AED** or **SAED**, press “**analyze**.”
4. **Defibrillate as indicated**.
5. Immediately after shock, resume **CPR for 5 cycles**.
6. Obtain **SAMPLE History** from family, friends or bystanders.
7. Insert appropriate **Airway Adjunct (OPA or NPA)** and ventilate with **BVM and supplemental O₂ @ 15 LPM** **OR** if a qualified EMT-Basic, place a **King Airway**.
8. Press “**analyze**” and if indicated Defibrillate. Continue cycles of CPR and defibrillation.
9. Package patient to a long board or scoop and prepare for transport.

ILS:

As above:

10. Place a **King Airway**
11. Establish an **IV of Sodium Chloride 0.9% at a rapid rate**. Consider placing a second IV.
12. **ECG monitor**
13. Administer **Epinephrine 1.0 mg of 1:10,000 IV/IO every 3 to 5 min**. Repeat between doses of antiarrhythmics until vital signs restored or resuscitation terminated
14. Administer **Lidocain 1.5 mg/kg IV/IO**. Repeat every 3 to 5 minutes (between doses of Epinephrine) to a maximum of 3.0 mg/kg.

ALS:

As above:

15. If arrest is witnessed, consider **Defibrillation before starting CPR**.
16. Confirm pulseless VT/VF, manually **Defibrillate at 200J (Biphasic), 360J (Monophasic)**.
17. Continue CPR, ACLS drugs, and defibrillation as above.
18. Place an **Endotracheal Tube** if airway not currently secured with a patent King Airway.

Pulseless Electrical Activity (P.E.A.)

BLS:

1. Assess **responsiveness** and **ABCs**. **Suction** as needed.
2. **Begin CPR** for 2 minutes (5 cycles of 30:2 at a rate of 100 bpm).
3. Attach **AED or SAED** if available, press “**analyze**.”
4. If no shocks advised or AED is not immediately available **continue CPR**.
5. Insert appropriate **Airway Adjunct** (OPA or NPA) and ventilate with **BVM and supplemental O₂ @ 15 LPM OR** if qualified EMT-Basic, place a **King Airway**.
6. Obtain **SAMPLE history** from family, friends or bystanders.
7. Continue CPR, package patient on long board or scoop and prepare for transport.
8. Search for a treat causes, if reversible*.

ILS:

As above:

9. Place a **King Airway**.
10. Establish an **IV of Sodium Chloride 0.9% at a rapid rate**. Consider placing a second IV.
11. **ECG monitor**.
12. Administer **Epinephrine 1 mg of 1:10,000 IV/IO every 3- 5 min**. Continue until vital signs restored or resuscitation terminated.
13. If P.E.A. rhythm is < 60/minute, administer **Atropine 1 mg IV/IO every 3- 5 minutes up to a total of 3 mg**.
14. Search for a treat causes, if reversible*.

ALS:

As above:

15. Place an **Endotracheal Tube** is airway not currently secured with a King Airway.
16. Search for and treat causes, if reversible*.

* **Common Causes of PEA**

Hypovolemia: Rapid bolus of NS 500 ml

Acidosis: Ventilation, Sodium Bicarbonate

Hypoglycemia: IV D₅₀W

Tension pneumothorax: Needle decompression

Hypoxia: Ventilation

Hypo/hyperkalemia: See protocol

Toxins (OD): See protocol

Trauma: See protocol

Ventricular Tachycardia (VT) With Pulses Wide Complex Tachycardia (WCT) of Unknown Type

BLS:

1. Assess **responsiveness** and **ABCs**. **Suction** as needed.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask.
4. **Vital signs** (BP, Pulse, Respiration Rate).
5. Get **SAMPLE history** from family, friends or bystanders.

ILS:

As above:

6. Establish an **IV of Sodium Chloride 0.9%** large bore catheter if possible at a **TKO rate**.
7. **ECG monitor**.

ALS:

As above:

Unstable Patient with Ventricular Rate ≥ 150 : Patients with any or all of the following: chest pain, SOB, decreased LOC, hypotension, shock, pulmonary edema, CHF, ischemia or AMI.

1. Consider sedation: **Versed 2.5-5 mg IV/IO**. **Do not delay cardioversion in the unstable patient.**
2. Perform **Synchronized Cardioversion** with at (**Biphasic**) **75J, 120J, 150J, 170J** (**Monophasic**) **100J, 200J, 300J, 360J**.
3. If V-Tach persists/recurs: **Lidocaine 1.0-1.5 mg/kg IV/IO/ET**. If VT persists after 10 minutes, repeat **Lidocaine 1-1.5 mg/kg up to 3 mg/kg**.
4. If V-Tach persists/recurs; **Synchronized Cardioversion** start with energy dose previously used.

Stable Patient:

1. Administer **Lidocaine, 1- 1.5 mg/kg IVP/IO/ET**. If VT persists, repeat **Lidocaine, 1.0-1.5 mg/kg up to 3 mg/kg**.
2. If VT persists/recurs perform **Synchronized Cardioversion** as in the unstable patient.

Supraventricular Tachycardia Heart Rate \geq 150

BLS:

1. Assess **responsiveness** and **ABCs**.
2. **Pulse oximeter**, if available (**Do not delay O₂**).
3. **O₂ 12-15 LPM**, non-rebreather mask.
4. **Vital signs** (BP, pulse rate, respiration rate).
5. Obtain **SAMPLE history**.

ILS:

As above:

7. Establish an **IV of Sodium Chloride 0.9%**, large bore catheter if possible at a TKO rate.
8. **ECG monitor**.
9. Direct patient to perform **Vagal (Valsalva) Maneuvers**.

ALS:

As above:

Unstable Patient: Patients with any or all of the following: chest pain, difficulty breathing, decreased LOC, hypotension (systolic < 90), shock, pulmonary edema, CHF, ischemia or AMI.

9. Consider sedation **Versed 2.5-5mg IV/IO**, **Do not delay cardioversion in the unstable patient.**
10. **Synchronized Cardioversion** with (**Biphasic**) 30J, 50J, 75J, 120J, (**Monophasic**) 50J, 100J, 200J, 300J, 360J prn.

Stable Patient:

1. Monitor patient.
2. If SVT persists consider **Synchronized Cardioversion**, as for unstable patients.

Atrial Fibrillation/Atrial Flutter

BLS:

1. Assess **responsiveness** and **ABCs**.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask.
4. **Vital Signs** (BP, Pulse, Respiration Rate).
5. Get **SAMPLE** history.

ILS:

As above:

7. Establish an **IV of Sodium Chloride 0.9%**, large bore catheter if possible, at a **TKO rate**.
8. **ECG monitor**.

ALS:

As above:

Unstable Patient: Patients with a heart rate ≥ 150 /min. and any or all of the following: chest pain, difficulty breathing, decreased LOC, hypotension, shock, CHF, pulmonary edema, ischemia, or AMI;

9. Consider sedation: **Versed 2.5-5 mg IV/IO**. **Do not delay cardioversion in the unstable patient.**
10. **Synchronized Cardioversion** with: **(Biphasic) 30J, 50J, 75J, 120J, (Monophasic) 50J, 100J, 200J, 300J, 360J prn** (If A-Fib. begin at 100J initially).

Stable Patient: Patients with heart rate ≥ 150 /min. without serious signs/symptoms;

13. Monitor patient.

Bradycardia

BLS:

1. Assess **responsiveness** and **ABCs**.
2. If pulse rate < 50/min. **and** unconscious **and/or** systolic BP is < 40 **start CPR**.
3. **Pulse oximeter**, if available (**Do Not Delay O₂**).
4. **O₂ 12-15 LPM** non-rebreather mask. Assist respirations with **BVM** if needed.
5. **Vital Signs** (BP, Pulse, Respiration Rate).
6. Get **SAMPLE** history.

ILS:

As above:

7. Establish an **IV of Sodium Chloride 0.9% at a TKO rate**.
8. **ECG monitor**

If Unstable Patient: Heart rate < 60/min. and any of the following: chest pain, difficulty breathing, decreased LOC, hypotension, shock, pulmonary edema, CHF, ischemia or AMI.
9. Administer **Atropine 0.5 mg IV** every 3-5 minutes up to a **total of 3 mg**.

ALS:

As above:

Unstable Patient:

1. Do not delay **Transcutaneous Pacing (TCP)** while awaiting IV access or for Atropine to take effect if patient is symptomatic.
2. Consider sedation with **Versed 2.5-5 mg IV/IO** before pacing if time permits.

Stable Patient: Patient with heart rate < 60/min. without serious signs/symptoms;

Asymptomatic Bradycardia with Type II 2nd degree, or 3rd degree AV Heart Block:

1. Prepare for **Transcutaneous Pacing**.
2. If patient becomes symptomatic, **begin Transcutaneous Pacing**.

If asymptomatic patient with bradycardia, not Type II 2nd degree, or 3rd degree AV Heart Block:

1. Observe and re-assess.
2. If patient becomes symptomatic treat as unstable patient.

Note: Bradycardia in the setting of acute MI can be beneficial.

Cardiogenic Shock

BLS:

1. Assess **responsiveness** and **ABCs**.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask. Assist respirations with **BVM** if needed.
4. **Vital Signs** (BP, Pulse, Respiration Rate).
5. If BP < 90 mm Hg systolic, position patient **supine with legs only elevated 8 - 12 inches..**
6. Get **SAMPLE** history.

ILS:

As above:

7. Establish an **IV of Sodium Chloride 0.9%**, large bore catheter if possible. **Bolus 200-300 ml** if no pulmonary edema.
8. Re-assess BP and lungs, if BP < 90 and lungs are clear, give **2nd Fluid bolus**.
9. Monitor lung sounds carefully, if pulmonary edema develops at any time during fluid challenge discontinue bolus and reset IV to **TKO**.
10. **ECG monitor**.

ALS:

As above:

11. Treat any dysrhythmias as per protocols.

Congestive Heart Failure with Pulmonary Edema

BLS:

1. Assess **responsiveness** and **ABCs**.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask, assist respirations with **BVM** if needed.
4. Suction airway as needed.
5. **Vital Signs** (BP, Pulse, Respiration Rate).
6. Assess lung sounds (posterior if possible), if crackles are heard, sit patient upright and dangle legs, if possible.
7. Get **SAMPLE history**.

ILS:

As above;

8. Establish an **IV Saline Lock**, or **Sodium Chloride 0.9% drip at a TKO rate**.
9. **ECG monitor**.

ALS:

As above:

10. Confirm patient has not taken Viagra or Cialis, administer **Nitroglycerin 0.4 mg Spray** if BP \geq 90 mm Hg systolic.
12. If BP remains $>$ 90 mm Hg and Pulmonary Edema persists, continue **Nitroglycerin 0.4 mg Spray every 5 mins**.

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Section 3:
Respiratory Emergencies

Chronic Obstructive Pulmonary Disease (COPD)

BLS:

1. Assess **responsiveness** and **ABCs**.
2. Allow patient to assume position of comfort.
3. **Pulse oximeter**, if available (**Do Not Delay O₂**).
4. **O₂ 12-15 LPM** non-rebreather mask, assist respirations with **BVM** if needed.
5. Suction airway as needed.
6. **Vital signs** (BP, Pulse, Respiration Rate).
7. Get **SAMPLE history**.

EMT-Basics:

8. Assist patient with self administration of **Metered Dose Inhaler** only if medication was prescribed for patient by physician.

ILS:

As above:

9. **IV Saline Lock**, or **Sodium Chloride 0.9%** at a **TKO rate**.
10. **ECG monitor**.
11. **Xopenex (Levalbuterol) 1.25 mg/3cc** with **Atrovent 500 µgms** per nebulizer or nebulizer to BVM.
12. Repeat **Xopenex (Levalbuterol) 1.25 mg/3cc** *without* Atrovent per nebulizer until improvement.

ALS:

As Above:

Asthma

BLS:

1. Assess **responsiveness** and **ABCs**.
2. Allow patient to assume position of comfort.
3. **Pulse oximeter**, if available (**Do Not Delay O₂**);.
4. **O₂ 12-15 LPM** non-rebreather mask. Assist respirations with **BVM** if needed.
5. Suction airway as needed.
6. **Vital signs** (BP, Pulse, Respiration Rate);.
7. Obtain **SAMPLE history**.

EMT-Basics:

8. Assist patient with self administration of **Metered Dose Inhaler** only if medication was prescribed for patient by physician.

ILS:

As above:

9. Establish an **IV Saline Lock**, or **Sodium Chloride 0.9% at a TKO rate**.
10. **ECG monitor**.
11. **Xopenex (Levalbuterol) 1.25 mg/3cc with Atrovent 500 µgm** per nebulizer or nebulizer to BVM.
12. Repeat **Xopenex (Levalbuterol)** *without* Atrovent per nebulizer may repeat as needed until improved.

ALS:

As Above:

13. If patient is not responding to **Xopenex**, AND
 - a. Patient has severe symptoms
 - b. Patient is < 40 years old
 - c. Patient is not hypertensive
 - d. Patient has no cardiac history
 - e. Consider **Epinephrine 0.3 mg 1:1,000 SQ**.

Toxic Inhalation with Respiratory Compromise

BLS:

1. Assess **responsiveness** and **ABCs**.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask. Assist respirations with **BVM** if needed.
4. Suction airway as needed.
5. **Vital signs** (BP, Pulse, Respiration Rate).
6. Assess lung sounds (posterior if possible), if crackles heard sit patient upright and dangle legs, if possible.
7. Obtain **SAMPLE history**.
8. Early contact with the receiving ambulance advising of the toxic substance inhaled (if known) is strongly encouraged.

ILS:

As above:

9. Establish an **IV of Sodium Chloride 0.9% at a TKO rate**.
10. **ECG monitor**.
11. Administer **Xopenex (Levalbuterol) 1.25 mg/3cc with Atrovent 500 µgms** per nebulizer or nebulizer to BVM for wheezes.

ALS:

As Above:

Obstructed Airway: Conscious and Unconscious Adult

BLS:

1. Assess **responsiveness**.
2. Assess **ABCs**.
3. Ask, "Are you choking?"
4. If patient can answer verbally or is getting any air, reassure them, and have them cough, if possible.
5. If patient is not able to speak or take in any air, initiate **Heimlich Maneuver** (chest thrusts for pregnant or obese victim). Continue until obstruction is cleared or patient becomes unconscious.
6. If patient becomes unconscious:
 - a. Position the patient supine
 - b. Open the airway
 - c. Remove any foreign objects if visible
 - d. Attempt two ventilations
 - e. Perform chest compressions (30:2)
 - f. Continue steps from b

ILS:

As above:

ALS:

As above:

7. Attempt removal of obstruction with **Laryngoscope and McGill forceps**.
8. If unable to remove obstruction with direct laryngoscopy, perform **Cricothyrotomy using a Pertrach Device (See Procedures)**.

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Section 4:
Medical Emergencies

Acute Abdomen

BLS:

1. Assess **responsiveness** and **ABCs**. Protect the airway. Anticipate vomiting.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask.
4. Monitor **vital signs** frequently (BP, Pulse, Respiration Rate).
5. Treat for **Shock** as needed.
6. Get **SAMPLE History**.
7. Carefully evaluate the abdomen

ILS:

As above:

8. Establish a **large bore IV of Sodium Chloride 0.9%**. Titrate to systolic BP of 90 mmHg;
9. Consider 2nd **Large Bore IV Sodium Chloride 0.9%**.
10. **ECG monitor**.
11. Keep patient **NPO** (nothing by mouth, no food or water).

Special Consideration

Acute abdominal pain can be an indicator of AMI in women, the elderly, and diabetics.

ALS:

As above:

Acute Stroke

BLS:

1. Assess **responsiveness** and **ABCs**.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask.
4. If patient is unconscious, consider a **NPA/OPA**.
5. Protect paralyzed extremities.
6. Reassure patient, explain what you are doing.
7. **Vital signs** (BP, Pulse, Respiration Rate).
8. Obtain a **SAMPLE History**. The following Patient History is **VERY IMPORTANT**:
 - a. Onset time of stroke symptoms (if known). If not known, determine when patient was last seen without current symptoms.
 - b. History of previous strokes, (Dates, type, and residual symptoms from previous strokes)
9. Determine neurological deficits according to **Cincinnati Stroke Scale (See Procedures)**.

EMT-Basics:

10. Determine **Blood Glucose**. Treat per **Hypoglycemia** protocol.

ILS:

As above:

11. Establish an **IV Saline Lock**, or **Sodium Chloride 0.9%** at a **TKO** rate.
12. **ECG monitor**.
13. If BGL < 60, treat as per **Hypoglycemia** protocol.
14. Consider **Altered Mental Status** protocol.

ALS:

As above:

Altered Mental Status or Coma of Unknown Origin

BLS:

1. Take spinal precautions, if indicated.
2. Assess **responsiveness** and **ABCs**.
3. **Pulse oximeter**, if available (**Do Not Delay O₂**).
4. **O₂ 12-15 LPM** non-rebreather Mask. Assist ventilation with **BVM** if needed.
5. Protect airway as needed consider **suction, oropharyngeal** or **nasopharyngeal airway**.
6. **Vital Signs** (BP, Pulse, Respiration Rate).
7. Get **SAMPLE history**.
8. Consider causes of coma: **AEIOU-TIPS***

EMT-Basics:

9. Determine **Blood Glucose**. Treat per **Hypoglycemia** protocol.

ILS:

As above:

10. Establish an **IV Saline Lock**, or **Sodium Chloride 0.9%** at **TKO rate**.
11. **ECG Monitor**.
12. If blood glucose < 60 mg/dl, administer **D₅₀W 25 gm slow IV**.
13. Administer **Narcan, 0.5-2.0 mg IV/IO/IM**.
14. If unable to gain IV access, administer **Narcan 0.5-1.0 mg per nare with nasal atomizer**.

ALS:

As above:

- | | |
|--------------------------------|----------------------|
| * A - Alcohol, Acidosis | T - Trauma |
| E - Epilepsy | I - Insulin |
| I - Infection | P - Psychosis |
| O - Overdose/Poisoning | S - Stroke |
| U - Uremia | |

Allergic Reaction

Mild Reaction: Red itchy skin, hives; and if insect sting present, localized swelling around sting site; with stable vital signs.

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

BLS:

1. Assess **responsiveness** and **ABCs**, protect airway.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask.
4. If stinger present, *scrape* stinger off.
5. Monitor **vital signs** frequently (BP, Pulse, Respiration Rate).
6. Treat for **shock** as needed.
7. Get **SAMPLE** history.

EMT-Basics:

8. If in **severe respiratory distress** or **BP < 90 mmHg systolic**, administer **0.3-0.5 mg Epinephrine 1:1000 SQ**.

ILS:

As above:

9. **IV Saline Lock**, or **Sodium Chloride 0.9%** at a **TKO**.
10. **ECG monitor**.
11. Administer **Benadryl 25-50 mg IV/IO/IM** if hives or edema is present.
12. Administer **Xopenex (Levalbuterol) 1.25 mg/3cc** with **Atrovent 500 µgm** per nebulizer or nebulizer to BVM.

ALS:

As above:

13. If in **severe respiratory distress** or **BP < 90 mmHg systolic**, administer **Epinephrine 1:10,000 0.1 mg (1 ml) slow IV/IO (0.3 mg in 2 ml saline ET)**. Monitor ECG carefully for heart rate and ventricular ectopy. May repeat as needed every 3 to 5 minutes up to 0.5 mg.

Hypoglycemia

BLS:

1. Assess **responsiveness** and **ABCs**.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask.
4. **Vital Signs** (BP, Pulse, Respiration Rate).
5. Get **SAMPLE history**.
6. Assure history of diabetes, last meal, last medication.
7. If patient has altered mental status *and* is conscious and able to swallow *and* can protect their own airway, administer **Oral Glucose 30gm (1 tube)** by mouth.

EMT-Basics:

8. Determine **Blood Glucose**.
9. Treat as above. Recheck Blood Glucose every 5 minutes after treatment.

ILS:

As above:

10. Establish an **IV of Sodium Chloride 0.9%** at **TKO rate**.
11. **ECG monitor**.
12. If Blood Glucose < 60 mg/dL administer **D₅₀W 25 gm slow IV**.
13. Recheck **Blood Glucose** after 5 minutes.
14. If no response to treatment, consider **Altered Mental Status** protocol.

ALS:

As above:

Patient Refusals:

1. Patients who refuse transport to the hospital should be encouraged to ingest “long term” carbohydrates, as the above interventions are usually short acting and hypoglycemia may recur rapidly.
2. For patients using oral medications and/or for diabetes, **every effort** should be made to convince them to be transported to the hospital by ambulance, up to and including contacting **Medical Control** in the patient’s presence so that the physician can discuss the importance of transport with the patient.

Seizure

BLS:

1. Assess **responsiveness** and **ABCs**.
2. If patient still in seizure protect them from injury from fall, striking head on floor or surrounding objects or tight, restrictive clothing. **Place NOTHING in patient's mouth.**
3. **O₂ 12-15 LPM** non-rebreather mask, assist respirations with **BVM** if needed.
4. When tonic/clonic activity subsides **Suction** as needed.
5. Obtain **vital signs**.
6. Obtain **SAMPLE** history.

EMT-Basics:

7. Determine **Blood Glucose**.
8. If Blood Glucose < 60 mg/dL, treat as per **Hypoglycemia** protocol.

ILS:

As above:

9. Establish an **IV Saline Lock** or **Sodium Chloride 0.9%** at a **TKO** rate.
10. **ECG monitor**.
11. If Blood Glucose < 60 mg/dL, treat as per **Hypoglycemia** protocol.
12. If BP < 90 mmHg systolic administer a **Fluid Challenge**. Titrate to systolic BP of 90 mmHg.

ALS:

As above:

13. If seizures are > 5 minutes duration or recurrent, administer **Versed 2.5-5 mg IV/IO/IM**.
May repeat every 5 minutes up to 10 mg.
14. If patient is pregnant (especially 3rd trimester) and has no previous history of seizure, treat per **Toxemia of Pregnancy** protocol.

Hypotension/Shock

BLS:

1. Assess **responsiveness** and **ABCs**.
2. If trauma mechanism, protect c-spine and backboard patient.
3. **Pulse oximeter**, if available (**Do Not Delay O₂**).
4. **O₂ 12-15 LPM** non-rebreather mask, assist respirations with **BVM** if needed.
5. **Vital signs** (BP, Pulse, Respiration Rate).
6. If BP less than 90 mm Hg systolic and there is no trauma mechanism, position patient **supine with legs only elevated 8 - 12 inches**.
7. Obtain **SAMPLE** history.

ILS:

As above:

8. Establish a **large bore IV of Sodium Chloride 0.9%**. Titrate to a systolic BP of 90 mmHg.
9. Consider a 2nd **Large Bore IV Sodium Chloride 0.9%**.
10. Monitor lung sounds frequently for developing pulmonary edema.
11. **ECG monitor**.
12. **Bolus 250-500 ml Sodium Chloride 0.9%**. Reassess BP and lung sounds.
13. If no change, **Bolus an additional 250-500 ml Sodium Chloride 0.9%**. Reassess BP and lung sounds.
14. If hypovolemia suspected, continue **Fluid Therapy**.

ALS:

As above:

Poisonings and Overdoses

BLS:

1. **Scene Safety**. Protect rescue personnel and bystanders.
2. Assess **responsiveness** and **ABCs**. Protect the airway. Anticipate vomiting.
3. **Pulse oximeter**, if available (**Do Not Delay O₂**).
4. **O₂ 12-15 LPM** non-rebreather mask. Assist ventilation with **BVM** if needed.
5. Monitor **Vital Signs** frequently (BP, Pulse, Respiration Rate).
6. Treat for **shock** as needed.
7. Determine:
 - A) Product and route
 - B) Time of incident
 - C) Amount taken
8. Obtain **SAMPLE history**.
9. Transport immediately, with any and all medication bottles and/or the original containers of poisonous substance(s) that the patient may have taken

EMT-Basics:

10. Determine **Blood Glucose**. Treat per **Hypoglycemia** protocol.

ILS:

As above:

11. **Large bore IV, Sodium Chloride 0.9% at TKO rate.**
12. **ECG monitor.**
13. Treat per **Altered Mental Status or Coma of Unknown Origin** if product of ingestion is unknown.

Specific Poison Therapies

Narcotic/Opioid

S/S: Decreased LOC, decreased respirations, constricted/pinpoint pupils

1. Administer **Narcan 0.5-2 mg IV/IO**. If unable to obtain IV access, administer **Narcan 1.0 mg per nare with nasal atomizer**.

Alcohol/ETOH

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

- Continued on Next Page -

Poisonings and Overdoses (Continued)

ILS (continued):

Dystonic (Phenothiazine) Reaction

Reaction to certain antipsychotics and antiemetics, such as Inapsine, Haldol, Compazine, Phenergan, Reglan, Inapsine, Prolixin, Stelazine, Haldol, Navane, Trilafon, Moban, Loxitane.

S/S: 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.**

ALS:

As Above:

Specific Poison Therapies

Calcium Channel Blockers with bradycardia

1. Administer **Atropine 0.5-1.0 mg IV/IO/ETT.**
2. **Fluid Challenge 200-300 ml Sodium Chloride 0.9%.**
3. **Transcutaneous Pacing** as needed.

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 200-300 ml Sodium Chloride 0.9%.**
3. **Transcutaneous pacing** as needed.

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.

CNS Stimulants - Cocaine, Methamphetamine, MDMA (Ecstasy)

1. Administer **Versed 2.5-10 mg IV/IO up to 10mg.**
2. Treat stable V-Tach with **Lidocaine 1.5 mg/kg IV/IO.**
3. Treat V-Fib per protocol, but limit **Epinephrine to 1.0 mg of 1:10,000 q 5 mins.**

For poisons not listed **Contact Poison Control.**

1. Oregon Health Sciences University 1(800) 222-1222

Mental Health Emergencies

BLS:

1. **Scene safety.** Protect yourself and your crew.
2. Assess **responsiveness** and **ABCs**.
3. Assess the scene for potential hazards. Consider other causes of mental health symptoms (trauma, hypoglycemia, drugs, etc.)
4. Request **Law Enforcement** as needed.
5. Reassure the patient.
 - A) Explain that you are there to take care of them.
 - B) Explain that they should be transported to the hospital where there are people interested in helping them.
6. Obtain **vital signs**.
7. Obtain **SAMPLE history**.

Safety Considerations

8. Never be alone with a psychiatric patient
9. Always maintain an escape route. Do not allow your escape route to be cut off.
10. Never confront an armed patient. Protect yourself and your crew. Request law enforcement.

Restraining A Violent Patient

Purpose: To prevent further harm to a patient and others when all other means have been exhausted.

11. Request law enforcement whenever a patient is to be restrained
12. 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.
13. Utilizing five persons for the take down; one person for each extremity and one person to control the head.
14. If no c-spine injury suspected, secure to cot with 5-point gurney straps with one arm secured above the patient's head and the other at his side. Secure the ankles with soft restraints to the gurney frame.
15. Patient's will not be transported prone due to the risk of positional asphyxiation
16. Patient's placed in handcuffs should be cuffed in front unless doing so puts the EMT at risk. A police officer will be in attendance whenever a patient is in handcuffs.
17. A restrained patient will still receive a medical treatment and all appropriate care.

ILS:

As above:

18. Establish an **IV of Sodium Chloride 0.9%** as needed at a TKO rate.

- Continued Next Page -

Mental Health Emergencies (Continued)

ALS:

As above:

19. Chemical restraint of the violent patient is indicated only after a medical or traumatic cause has been ruled out.
20. Administer **Versed 5 mg IM, 2.5 mg IV.**
21. If prolonged transport and agitation continues, consider **Versed 2.5-10 mg IV/IO/IM.**
22. **ECG monitor** for any patient under chemical sedation/restraint.
23. Treat associated hypotension per shock protocol.

Hypertensive Emergencies

BLS:

1. Assess **responsiveness** and **ABCs**. Protect the airway. Anticipate vomiting.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask.
4. Monitor **vital signs** every 5 minutes. (BP, Pulse, Respiration Rate).
5. Get **SAMPLE history**.

ILS:

As above:

6. Establish an **IV Saline Lock**, or **Sodium Chloride 0.9%** at **TKO rate**.
7. **ECG monitor**.

ALS:

Considerations: Sudden headache followed by acute CVA symptoms with focal neurologic signs or patient is comatose in the presence of hypertension, slow pulse with or without PVC's is an intracranial bleed until proven otherwise. **Do not attempt to lower blood pressure in the field.**

If diastolic BP is >130 mmHg with:

- a. Acute pulmonary edema
- b. Angina
- c. Hypertensive encephalopathy.
 - I. Headache (not sudden onset)
 - II. Nausea and vomiting
 - III. Blurred vision
 - IV. Confusion

As above:

8. Administer **Nitroglycerine 0.4 mg SL** spray. May repeat every 3-5 minutes up to three doses (1.2mg).
9. Administer **Versed** for seizures per **Seizure Protocol**. Give **Versed** early if hypertension due to cocaine use.
10. Treat until diastolic pressure 110-120 and/or improvement of symptoms.

Hypothermia

BLS:

1. Assess **responsiveness** and **ABCs**. Assess the pulse for at least 30-60 seconds. Protect the airway.
2. Hypothermic patients should be handled gently at all times as tactile stimulation may precipitate cardiac arrhythmias and or cause tissue damage.
3. Remove the patient from cold environment and maintain heat.
4. Remove wet clothing by cutting (not pulling off) and wrap patient in a dry, warm blanket.
5. **O₂ 12-15 LPM** non-rebreather mask. Assist ventilations with BVM as needed.
6. Monitor **Vital Signs** frequently (BP, Pulse, Respiration Rate).
7. Rewarm patient:
 - A) If body temperature is > 90 degrees, and patient is conscious, re-warm with passive external heat.
 - B) If body temperature is < 90 degrees, and patient is unconscious, re-warm with core re-warming only.
8. Get **SAMPLE history**.
9. If frostbite is present, protect with dry dressings. Do not rub frostbitten areas. Permit gradual warming by room temperature.

Mild Hypothermia (93°F-97°F) Moderate Hypothermia (86°F-93°F)

10. Institute re-warming procedures (warmed and humidified oxygen, heat packs, blankets, heated ambulance).

Moderate Hypothermia (86°F-93°F), Sever Hypothermia (< 86°F)

11. Heat packs to inguinal creases and axillae (armpits, groin, neck).

If pulse/breathing absent:

12. Begin CPR (30:2 at a rate of 100) and refer to **cardiac arrest protocols**.
13. **Defibrillate only once when indicated**. If no response, defer further defibrillation until core body temperature > 86°F. Continue defibrillation above this temperature per the **V-Fib/V-Tach protocol**.

ILS:

As above:

14. Establish **large bore IV of Sodium Chloride 0.9% at a TKO rate, warmed (if available)**.
15. **ECG monitor**.
16. Bolus 200-300 ml warm saline, then TKO. Monitor for fluid overload.
17. Medications for VF/VT are to be given greater than 3 to 5 minute intervals.

ALS:

As above:

Heat Exhaustion/Heat Stroke

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

Heat Stroke: High body temperature, the absence of sweating, hot red or flushed dry skin, rapid pulse, difficulty breathing, altered mental status, seizure.

BLS:

1. Assess **responsiveness** and **ABCs**. Protect the airway.
2. Remove patient to cooler environment and remove excess clothing.
3. Apply tepid, wet compress to forehead, neck and extremities.
4. If **Heat Stroke**, cool patient aggressively. Spray with water, air convection, wet sheets, cold packs to head, neck, axillae and groin
5. **Pulse oximeter**, if available (**Do Not Delay O₂**).
6. **O₂ 12-15 LPM** non-rebreather mask.
7. Monitor **vital signs** frequently (BP, Pulse, Respiration Rate).
8. Take **Oral or Tympanic Temperature**.
9. May give oral fluids (water, Gatorade etc.) if patient is conscious and able to control their airway.
10. Get **SAMPLE History**.

EMT-Basics:

10. Determine **Blood Glucose**.

ILS:

As above:

11. Establish an **IV of Sodium Chloride 0.9% at a TKO rate**.
12. **ECG monitor**.
13. If patient unable to take oral fluids, is hypotensive or has signs of **Heat Stroke**, administer **Fluid Bolus 250-500 ml**.

ALS:

As above:

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Section 5:
Trauma Emergencies

General Considerations for Trauma

1. **Scene Safety** should be the primary consideration at all trauma scenes. EMS personnel must protect themselves and bystanders from becoming patients. Each scene must be evaluated, and the appropriate level of **PPE** employed for that scene.
2. Time is an important consideration when caring for trauma victims. Trauma life support requires transport to a designated Trauma Center as quickly as possible. Essentially, a patient should be extricated and readied for transport by Medix prior to completing advanced interventions. However, establishing and ensuring ABCs is of primary concern for every patient.
3. Use a high index of suspicion for trauma related incidents. Consider the following:
 - A. The Mechanism of Injury (MOI);
 - B. Time lapsed since the injury event;
 - C. The Age of the patient;
 - D. Pain from one injury may mask the pain from another injury;
 - E. Transport Time.
4. Use **S**imple **T**riage **A**nd **R**apid **T**reatment (**S.T.A.R.T.**)
 - A. Able to Walk?
 - I. If yes, green or yellow tag
 - B. If not able to walk, assess Respirations
 - I. If Respirations Absent, Open Airway
 1. If still absent, Tag Black
 2. If breathing begins, Tag Red. Keep airway open.
 - II. If Respirations > 30/min., Tag Red
 - C. Assess Circulation, Control Bleeding
 - I. If Capillary Refill > 2 sec., Tag Red
 - D. Assess Mental Status
 - I. Does not obey simple commands, Red Tag
 - II. Obeys simple commands, Yellow Tag
5. Protect C-Spine as appropriate.

Oregon Trauma Protocol

Patient Entry

On scene Fire units must notify responding Medix unit or Medix Dispatch (MedComm) of the criteria for Trauma Activation as soon possible. The following patient information shall be provided to the receiving ambulance or MedComm.

- Age
- Sex
- Mechanism of injury
- Pulse
- Blood pressure
- Respirations
- Glasgow Coma Scale (GCS)
- Fire unit identification
- Patient status
-

MANDATORY ENTRY CRITERIA

<p><u>Physiological Criteria</u> SBP < 90 mm/Hg RR < 10 or > 29 or managed airway GCS ≤ 13</p> <p><u>Anatomical Criteria</u> Flail chest Two or more obvious long bone fractures (femur or humerus.) Penetrating injury of head, neck, torso, or groin Amputation above wrist or ankle Spinal cord injury with limb paralysis</p>	<p><u>Mechanism of Injury</u></p> <ul style="list-style-type: none"> • Heavy extrication > 20 minutes • Death of same car occupant • Patient ejected from enclosed vehicle
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DISCRETIONARY BUT HIGH INDEX OF SUSPICION

<p><u>High-Energy Transfer Situation</u> Fall > 20 feet Person hit at 20mph or thrown 15 feet</p> <p>Rollover Motorcycle, ATV or Bicycle Crash Impact/Significant Intrusion</p>	<p><u>Co-Morbid Factors</u> Age (< 5 or > 55 years) Presence of intoxicants Hostile environment Pregnancy Medical Illness (Cardiac, respiratory, diabetic, cirrhosis) Bleeding disorder or on anticoagulants Immunosuppressed pt.</p>
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Trauma Center Destination

- **Columbia Memorial Hospital:** All trauma patients within the Seaside response area.

Spinal Trauma

BLS:

1. Take **manual, in-line, C-spine stabilization**.
2. Assess **responsiveness** and **ABCs**. Protect the airway.
3. **Pulse oximeter**, if available (**Do Not Delay O₂**).
4. **O₂ 12-15 LPM** non-rebreather mask. Assist ventilation with **BVM** if needed.
5. Maintain patent airway while observing spinal precautions.
6. Maintain in-line C-spine stabilization when inserting airway adjuncts.
7. If head is fixed in other than neutral position and airway is patent, stabilize head in that position.
8. If airway is inadequate, straighten C-spine using in-line axial support, move just enough to establish a patent airway.
9. Place appropriately sized **Cervical Collar**.
10. **Immobilize** patient on a **Long Backboard (LBB)**, **Scoop Stretcher**, or **KED** use padding to prevent lateral movement. **Assess CMS** before and after immobilizing.
11. Monitor **Vital Signs** frequently (BP, Pulse, Respiration Rate).
12. Assess and frequently reassess airway, motor response and sensory status.
13. Treat for **Shock** as needed.
14. Get **SAMPLE history**.

ILS:

As above:

16. **Large Bore IV Sodium Chloride 0.9%** titrate to a systolic **BP of 90 mmHg** as needed.
17. Consider 2nd **Large Bore IV Sodium Chloride 0.9%** as needed.

ALS:

As above:

19. The prehospital **Paramedic** may elect to forgo full spinal.

Drowning/Near Drowning

BLS:

1. **Scene Safety. Do Not** attempt water rescue unless specifically trained in water rescue.
2. Assess **responsiveness** and **ABCs**. Protect the airway. **Suction** as needed.
3. If pulseless and apneic, begin **CPR and attach AED per Cardiac Arrest** protocol.
4. Provide **C-Spine Control** if indicated (diving accident, boating accident, unknown mechanism, patient in surf or rough water, etc.). **Consider Trauma System** entry for above mechanisms.
5. **Pulse oximeter**, if available (**Do Not Delay O₂**).
6. **O₂ 12-15 LPM** non-rebreather mask. Assist ventilations with **BVM** if needed.
7. Remove wet clothing, treat per **Hypothermia Protocol**.
8. Monitor **Vital Signs** frequently (BP, Pulse, Respiration Rate).
9. Treat for **Shock** as needed.
10. Get **SAMPLE History**.

ILS:

As above:

11. **IV Sodium Chloride 0.9% @ TKO rate.**
12. **ECG monitor.**
13. Monitor respiratory status and lung sounds.

ALS:

As above:

Head and Neck Trauma

BLS:

1. **Scene Safety**, head injured patients may be combative or violent.
2. Take **Spinal Precautions**. Head and neck trauma is a C-Spine injury until proven otherwise by X-ray.
3. Assess **responsiveness** and **ABCs**. Protect the airway. **For patients with facial trauma, avoid use of an NPA to control the airway**. Open the airway using the **Jaw Thrust maneuver**.
4. Monitor patient closely for **Changes in LOC**.
5. **Pulse oximeter**, if available (**Do Not Delay O₂**).
6. **O₂ 12-15 LPM** non-rebreather mask. Assist ventilation with **BVM** as needed.
7. Monitor **Vital Signs** frequently (BP, Pulse, Respiration Rate).
8. Treat for **Shock** as needed.
9. Use direct pressure to stem bleeding of open head wounds if there are no underlying fractures or depressions.
10. Stabilize, but do not remove, impaled objects **unless** they are through the cheek and present an airway problem.
11. Treat injuries per appropriate protocol, (splinting, dressings, bandaging, etc.).

Specific Treatments for Head Injuries:

I. **Eye Injuries:**

- A. Check vision in each eye separately.
- B. Look for leakage of intraocular fluid.
- C. Protect injured eye with metal eye shield or inverted paper cup. **Do Not** allow anything to touch exposed vitreous humor (the jellylike substance from inside the eye).
- D. Avoid pressure dressings.
- E. Stabilize impaled objects very carefully.
- F. Cover uninjured eye to reduce sympathetic eye movement.
- G. For chemical(s) in the eyes, **Flush Eye(s)** ASAP with **Tap Water or Saline**, continue until you reach the hospital.

II. **Ear Injuries:**

- A. Use direct pressure to control bleeding of external ear.
- B. **Do Not** pack or probe the ear canal.
- C. Watch for blood or fluid drainage from ear canal.

III. **Nose Injuries:**

- A. Establish a patent airway. **Suction** oropharynx as needed.
- B. Control anterior bleed with direct pressure.

Specific Treatments for Neck Injuries:

I. **Open/Penetrating Wounds:**

- A. For open or penetrating injuries that may involve the large blood vessels in the neck, place an **Occlusive Dressing** over the wound.

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Head and Neck Trauma (Continued)

BLS (Continued):

Specific Treatments for Neck Injuries (Continued)

I. **Open/Penetrating Wounds (Continued):**

B. Place an appropriate dressing over the occlusive dressing and apply direct pressure (**Do Not** restrict the airway, or blood vessels on both sides of the neck).

C. If bleeding stops, bandage dressings in place.

II. **Impaled Objects:**

A. Stabilize, but do not remove, impaled objects.

12. Get **SAMPLE History** from family or bystanders if patient is unconscious or obtunded.

13. Consider other causes of altered mental status and treat per protocol.

EMT-Basics:

14. Determine **Blood Glucose**.

ILS:

As above:

15. **IV Sodium Chloride 0.9%** at a **TKO rate**.

16. **ECG monitor**.

17. If hypotensive, administer a **Fluid Challenge to maintain a systolic BP of 90 mmHg**.

18. For unconscious patients with respirations < 12/minute, consider **Narcan 1-2mg IV/IO**.

ALS:

As above:

19. Consider **Needle Cricothyrotomy** if oral or nasal airways are not possible or not indicated.

Thoracic Trauma

BLS:

1. Take **manual, in-line, C-spine stabilization**.
2. Assess **responsiveness** and **ABCs**. Protect the airway.
3. For open or penetrating chest wounds, place an **Occlusive Dressing**. Monitor closely for tension pneumothorax. **Relieve Pressure** as needed.
4. Stabilize, but do not remove, impaled objects.
5. Stabilize flail segments with bulky dressings.
6. **Pulse oximeter**, if available (**Do Not Delay O₂**).
7. **O₂ 12-15 LPM** non-rebreather mask. Assist ventilation with **BVM** if needed.
8. Maintain in-line C-spine stabilization when inserting airway adjuncts.
9. Place appropriately sized **Cervical Collar**.
10. **Immobilize** patient on a **Long Backboard (LBB), Scoop Stretcher, or KED**.
11. Monitor **Vital Signs** frequently (BP, Pulse, Respiration Rate).
12. Assess and frequently reassess airway and breathing status, motor response and sensory status.
13. Treat for **Shock** as needed.
14. Get **SAMPLE History**.

ILS:

As above:

15. **Large Bore IV Sodium Chloride 0.9%**. Titrate to a systolic BP of 90 mm Hg.
16. Consider 2nd **Large Bore IV Sodium Chloride 0.9%** as needed.
17. **ECG monitor**.

ALS:

As above:

18. Treat tension pneumothorax by **Chest Decompressions** (See **Procedures**).

Abdominal Trauma

BLS:

1. Take **manual, in-line, C-spine stabilization**.
2. Assess **responsiveness** and **ABCs**. Protect the airway. Expect vomiting.
3. **Pulse oximeter**, if available (**Do Not Delay O₂**).
4. **O₂ 12-15 LPM** non-rebreather mask. Assist ventilation with **BVM** if needed.
5. Place appropriately sized **Cervical Collar**.
6. **Immobilize** patient on a **Long Backboard (LBB), KED, or Scoop Stretcher**.
7. Treat injuries per appropriate protocol, (splinting, dressings, bandaging, etc.).

Specific Treatments:

I. **Impaled Objects:**

- A. Stabilize but do not remove object.
- B. Package patient in knees up position if possible.

II. **Evisceration:**

- A. Do not try to replace eviscerated organs.
- B. Cover with saline (warmed if possible) moistened dressing.
- C. Place large occlusive dressing (Saran wrap, clean plastic bag) over saline dressing.
- D. Prevent heat loss from wound site.
- E. Package patient in knees up position if possible.

8. Monitor **Vital Signs** frequently (BP, Pulse, Respiration Rate).
9. Frequently reassess airway and breathing status.
10. Treat for **Shock** as needed.
11. Get **SAMPLE History**.

ILS:

As above:

12. **Large Bore IV Sodium Chloride 0.9%** titrate to a systolic BP of 90 mmHg.
13. Consider 2nd **Large Bore IV Sodium Chloride 0.9%** as needed.
14. **ECG Monitor**.

ALS:

As above:

Fractures/ Dislocations

BLS:

1. Assess **responsiveness** and **ABCs**. Protect the airway.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask.
4. Place appropriately sized **Cervical Collar** if indicated by mechanism of injury.
5. **Immobilize** patient on a **Long Backboard (LBB) KED, or Scoop Stretcher** if indicated by mechanism of injury.
6. Treat injuries per appropriate protocol, (dressings, bandaging, etc.).

Specific Treatments:

I. **Dislocations and Fractures Involving Joints:**

- A. Check distal motor/sensory/vascular function before and after splinting. Record findings.
- B. Should be splinted in position found, except in the event of circulatory compromise.
- C. For circulatory compromise only, one attempt at realignment of the limb may be made. If realignment procedure is met with resistance (limb is "locked" in position) **STOP PROCEDURE** and splint in the position found. Realignment is best attempted in presence of ALS so that pain control procedures can be implemented.

II. **Fractured Long Bones:**

- A. Check distal motor/sensory/vascular function before and after splinting. Record findings.
- B. Align fracture and splint in anatomical position. If resistance is met during alignment procedure or fractured bone ends appear that they will pierce the skin, **Stop Procedure** and splint in position.

7. Monitor **Vital Signs** frequently (BP, Pulse, Respiration Rate).
8. Treat for **Shock** as needed.
9. Get **SAMPLE History**.

ILS:

As above:

10. **Large Bore IV Sodium Chloride 0.9%** titrate to a systolic BP of 90 mmHg.
11. Consider 2nd **Large Bore IV Sodium Chloride 0.9%** as needed.
12. **ECG Monitor**.

ALS:

As above:

13. Consider **Versed 2.0 mg IVP x 1** for **Adults Only** to augment pain control and control muscle spasm.

Amputations/Soft Tissue Avulsions

BLS:

1. Assess **responsiveness** and **ABCs**. Protect the airway.
2. Control serious bleeding with **Direct Pressure** then **Mechanical Tourniquet**.
2. Pulse Oximeter, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask. Assist ventilation with **BVM** if needed.
4. Treat injuries per appropriate protocol, (splinting, dressings, bandaging, etc.).

Specific Treatments:

I. Complete Amputation:

A. Stump:

1. Rinse gently with **Sterile Saline** to remove debris.
2. Cover with **Sterile Dressing**.
3. Moisten with **Sterile Saline**.
4. Cover with **Dry Dressing** and **Bandage** in place.

B. Severed Part or Tissue:

1. Collect any and all tissue that can be found at scene and transport to hospital (Do not delay transport of patient to search for tissue, a second unit may be Employed for this task.).
2. Rinse gently with **Sterile Saline** to remove debris.
3. Wrap severed part in **Sterile Dressing** moistened with **Sterile Saline**, and place in **Sealed Ziploc Bag**. **DO NOT** immerse any part in any solution.
4. Place sealed Ziploc bag in **Ice Water** if available. Label with **Patient's Name, Date, and Time**.

II. Partial Amputations:

- A. **Splint** in anatomical position.
- B. Cover with **Sterile Dressing**.
- C. Moisten with **Sterile Saline**.
- D. Cover with **Dry Dressing**.

5. Place appropriately sized **Cervical Collar** if indicated by mechanism of injury.
6. **Immobilize** patient on a **Long Backboard (LBB), KED, or Scoop Stretcher** if indicated by mechanism of injury (See **Procedures**).
7. Monitor **Vital Signs** frequently (BP, Pulse, Respiration Rate).
8. Frequently reassess airway and breathing status.
9. Treat for **Shock** as needed.
10. Get **SAMPLE** history.

ILS:

As above:

11. **Large bore IV Sodium Chloride 0.9%** titrate to a systolic BP of 90 mmHg.
12. Consider 2nd **Large bore IV** as needed.
13. **ECG Monitor**.

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Amputations/Soft Tissue Avulsions (Continued)

ALS:

As above:

Amputation Considerations

1. **Do not** neglect total patient care in favor of caring for the amputation.
2. Time is of great importance to assure viability of severed part.

Burns

BLS:

1. **Scene Safety. Do Not** attempt rescue from burn source unless specifically trained to do so. Employ appropriate **PPE**. Consider: airborne contaminants, live electrical sources, live or smoldering fire, and potential for explosion.
2. Remove patient from burning source.
 - A. Extinguish smoldering or burning clothes with water then remove.
 - B. For semi-solid substances (grease, tar, wax etc.) cool with water. **Do not** attempt to remove substance.
3. Assess **responsiveness** and **ABCs**. Protect the airway.
4. **Pulse oximeter**, if available (**Do Not Delay O₂**).
5. **O₂ 12-15 LPM** non-rebreather mask. Assist ventilation with **BVM** if needed.
6. Remove rings, bracelets, wrist watches and other constricting items.
7. Prevent hypothermia. Burn patients lose fluid and body heat rapidly.
8. Treat other associated injuries per appropriate protocol, (splinting, dressings, bandaging, etc.).

Specific Treatments:

I. Thermal Burns:

- A. Cover burned area with **Dry, Sterile Dressing**.

II. Chemical Burns:

- A. Brush dry chemicals off skin, avoid contaminating airway or eyes.
- B. Irrigate with large quantities of water.
- C. Attempt to identify chemical if it can be done safely.

III. Electrical Burns:

- A. Are often worse than they appear.
- B. May have an exit wound where electrical current passing through body went to ground.
- C. Cover burned area(s) with **Dry, Sterile Dressing**.
- D. Be alert for and treat any Cardiac Symptoms.

9. Monitor **Vital Signs** frequently (BP, Pulse, Respiration Rate).
10. Frequently reassess airway and breathing status.
11. Treat for **Shock** as needed.
12. Get **SAMPLE History**.

ILS:

As above:

13. **Large Bore IV Sodium Chloride 0.9%** titrate to a systolic BP of 90 mmHg.
14. Consider 2nd **Large Bore IV Sodium Chloride 0.9%** as needed.
15. **ECG Monitor**.

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Burns (Continued)

ALS:

As above:

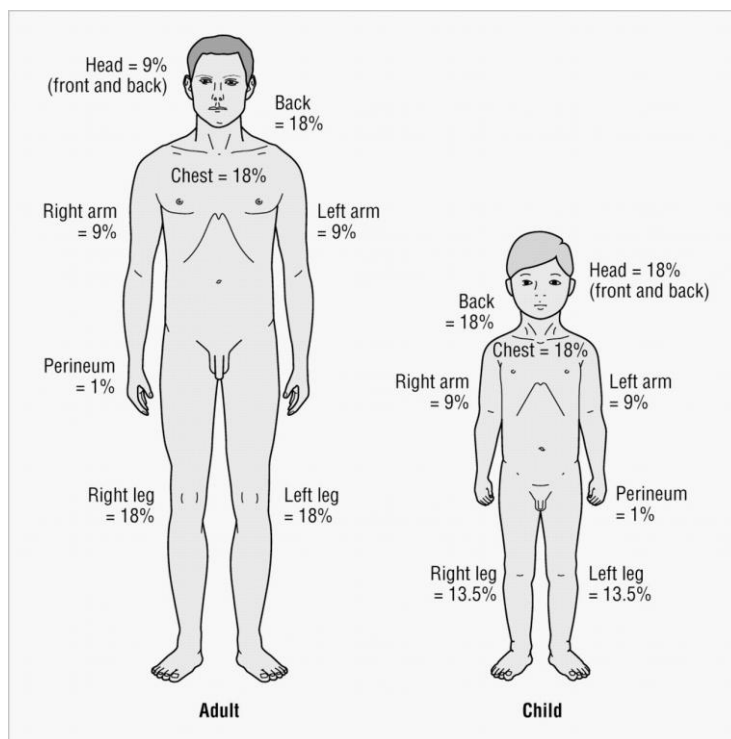
16. Maintain the airway.

17. If oropharyngeal edema or trauma prevents oral endotracheal intubation, perform **Cricothyrotomy** using a **Pertrach Device** (see **Procedures**).

Criteria for Critical Burns:

Consider Trauma System Activation

1. Full thickness burn(s) > 10% BSA.
2. Partial thickness burn(s) > 30% BSA.
3. Concomitant illness or injuries.
4. Airway complications.
5. Electrical burns.
6. Caustic burns.
7. Deep acid burns.
8. Burns involving:
 - A. Hands
 - B. Feet
 - C. Face
 - D. Genitalia



Parkland Formula (fluid resuscitation for burns)

Fluids (N) to be administered within the first 24-hours. Half of this volume is to be administered in the first 8-hours.

$$N = 4 \times (\text{patient's weight in kg}) \times (\% \text{ of surface area burned})$$

Bleeding and Shock

BLS:

1. Assess **responsiveness** and **ABCs**.
2. Place appropriately sized **Cervical Collar** if indicated by mechanism of injury.
3. **Immobilize** patient on a **Long Backboard (LBB), KED, or Scoop Stretcher** if indicated by mechanism of injury.
4. Control bleeding with **Direct Pressure**.
5. If life threatening bleeding, or bleeding uncontrolled with direct pressure, apply a **Mechanical Tourniquet or improvised tourniquet**.
6. **Pulse oximeter**, if available (**Do Not Delay O₂**).
7. **O₂ 12-15 LPM** non-rebreather mask, assist respirations with **BVM** if needed.
8. **Vital signs** (BP, Pulse, Respiration Rate).
9. If BP less than 90 mm Hg systolic and there is no trauma mechanism, position patient **supine with legs only elevated 8 - 12 inches**, (not trendelenburg).
10. Obtain **SAMPLE history**.

ILS:

As above:

11. Establish a **large bore (16g or 18g) IV of Sodium Chloride 0.9%**.
12. Consider a 2nd **Large Bore IV Sodium Chloride 0.9%**.
13. Monitor lung sounds frequently for developing pulmonary edema.
14. **ECG monitor**.
15. **Bolus 250 ml Sodium Chloride 0.9%**. Reassess BP and lung sounds.
16. If no change, **bolus an additional 250 ml Sodium Chloride 0.9%**. Reassess BP and lung sounds.
17. Continue fluid therapy to maintain systolic BP of 90 mmHg. Discontinue if patient develops signs of pulmonary edema or difficulty breathing.

ALS:

As above:

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Section 6:
Obstetric Emergencies

OB/GYN General Considerations

BLS:

1. Most deliveries proceed without complication.
2. Transport most pregnant patients in position of comfort. If patient is hypotense, transport on **Left Side**.
3. If possible transport unconscious or traumatized third trimester pregnant patients on **Left Side** (if on backboard, tilt board to patient left).
4. Following delivery, the baby is a primary consideration.
5. Hospital delivery is always more preferable than scene delivery.

ILS:

As Above:

6. Treat hypotension in the pregnant patient aggressively.
7. ECG monitor.

ALS:

As above:

Emergency Delivery

BLS:

1. Assess **responsiveness** and **ABCs**.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask.
4. Monitor **Vital Signs** frequently (BP, Pulse, Respiration Rate).
5. Get **SAMPLE History**. Establish **Last Menstrual Period**.
6. Treat for maternal **Hypotension** as needed.
7. Determine: number of pregnancies, due date, time contractions started and how far apart they are now, if and when the bag of waters has ruptured.
8. Place mother **supine** with knees elevated.
9. When baby crowns apply gentle counter pressure to baby's head.
10. If delivery appears to be too rapid, coach mother to pant during contraction (not push) to slow delivery.
11. When head is delivered **suction** mouth first and then nose with a bulb syringe.
12. Assist delivery of shoulders (anterior shoulder first) and rest of body, keeping both hands on the baby at all times during delivery, as the **baby is very slippery**.
13. Keep baby below maternal vaginal opening before clamping cord. Clamp or tie cord using two clamps or ties approximately 4 inches apart and 6-8 inches from the baby. Cut cord between clamps.
14. Give newborn primary attention.
 - A. Clear **Airway**, re-suction mouth and nose with bulb syringe.
 - B. If baby not breathing:
 - I. Stimulate by rubbing gently with a towel, or lightly flicking soles of feet.
 - II. If no response in 60 seconds, **ventilate** per neonatal resuscitation protocol.
 - C. Dry baby quickly.
 - D. Keep baby warm, wrap in blanket(s).
 - E. Assess **APGAR** scores at one, five, and ten minutes after delivery.
15. Allow placenta to deliver normally.
 - A. Do not pull cord.
 - B. Transport placenta to hospital with the patient.
16. After delivery of placenta massage uterus firmly to reduce bleeding.
17. Examine perineum for tears. Apply direct pressure with gauze pad to any bleeding tears. **Do not** pack vaginal opening.
18. Treat for shock as needed.
19. **Newborns easily become hypothermic (have heat on in back of ambulance), wrap in blankets with head covered as soon after delivery as possible. Transport in mothers arms if at all possible.**

- Continued on Next Page -

BLS:

Specific Complications of Delivery

I. Breech or Limb Presentation:

- A. If breech/limb presentation is obvious. **Begin transport immediately.**
- B. Place mother **supine or trendelenburg.**
- C. Monitor **vital signs** frequently (BP, Pulse, Respiration Rate).
- D. If delivery occurs during transport:
 1. Allow mother to push.
 2. Gently extract baby. **Do not pull.**
 3. Support delivered body and extremities on your arm.
 4. If head does not deliver, place gloved hand in vagina and form "V" with index and middle fingers around baby's mouth and nose, should it begin to breath.

II. Prolapsed Cord:

- A. Place mother in **knee-chest** or **extreme trendelenburg.**
- B. Insert gloved hand into vagina and gently lift head/body off cord. **Continue until relieved by hospital staff.**
- C. Observe cord for pulsations, wrap cord in sterile dressing to keep it warm.

III. Cord Wrapped Around Neck (Nucal Cord):

- A. Gently attempt to loosen cord;
- B. With two fingers behind baby's neck, try to slip forward over baby's upper (anterior) shoulder and head. If unsuccessful, attempt to slip under lower shoulder and over the head.
- C. If unsuccessful, clamp cord with two (2) clamps or ties and cut between clamps. Carefully unwrap cord from around neck.
- D. Assist completion of delivery.

IV. Placenta Previa/Abruptio (Pre-birth Hemorrhage):

Note: **Previa** is usually painless with rapid blood loss to the point of exsanguinations. **Abruptio** is usually extremely painful/crampy and visible blood loss does not match the degree of shock signs/symptoms observed.

- A. Transport immediately.
- B. Contact receiving hospital en route.

ILS:

As above:

20. **IV Sodium Chloride 0.9% at TKO rate.**

21. **ECG monitor.**

ALS:

As above:

Postpartum Hemorrhage

BLS:

1. Assess **responsiveness** and **ABCs**.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask.
4. Monitor **Vital Signs** frequently (BP, Pulse, Respiration Rate);
5. Get **SAMPLE history**. Establish **last menstrual period**.
6. Treat for maternal **shock** as needed.
7. Place absorbent dressing externally over perineum (**Do not** pack vaginal opening).
8. Perform firm **External Uterine Massage**.

ILS:

As above:

9. **Large bore IV Sodium Chloride 0.9%** titrate to a systolic blood pressure of 90 mmHg.
10. Consider 2nd **large bore IV Sodium Chloride 0.9%** as needed.
11. **ECG monitor**.

ALS:

As above:

Toxemia of Pregnancy (Pre-Eclampsia / Eclampsia)

BLS:

1. Assess **responsiveness** and **ABCs**.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask.
4. Monitor **vital signs** frequently (BP, Pulse, Respiration Rate).
5. Get **SAMPLE history**. Establish **last menstrual period**.
6. Calm and reassure patient.
7. Treat seizures per **Seizure** protocol.

ILS:

As Above:

8. **Large bore IV Sodium Chloride 0.9%** at TKO rate.
9. **ECG monitor**.

ALS:

As Above:

10. If patient in seizure:
 - A. **Versed 0.1 mg/kg IV**. May repeat **q 5-15 min. as needed up to 10 mg** total.
11. Continue to calm and reassure patient. Any agitation or noxious stimuli (flashing lights and/or siren) could precipitate seizures.

* **Signs/Symptoms of Toxemia (Any or all of the following):**

Mild Pre-Eclampsia:

- A. Moderate Hypertension
- B. Edema
- C. Excessive Prenatal Weight Gain

Moderate to Severe Pre-Eclampsia:

- A. Hypertension > 160 mmHg systolic and > 110 mmHg diastolic
- B. Headache
- C. Cerebral Disturbances (changes in behavior)
- D. Visual Disturbances (flashes of light or black spots)
- E. Epigastric Pain
- F. Dyspnea/Cyanosis

Eclampsia:

- A. Seizure
- B. Postictal

Spontaneous Abortion

BLS:

1. Assess **responsiveness** and **ABCs**.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask.
4. Monitor **vital signs** frequently (BP, Pulse, Respiration Rate).
5. Get **SAMPLE history**. Establish **last menstrual period**.
6. Treat for **shock** as needed.
7. Apply loose trauma pad. **Do not** pack vaginal opening.
8. Collect any tissue that has passed and transport to the hospital with patient.
9. Provide emotional support to patient.

ILS:

As Above:

10. **Large bore IV Sodium Chloride 0.9%**. Titrate to a systolic blood pressure of 90 mmHg.
11. **ECG monitor**.

ALS:

As above:

Sexual Assault

BLS:

1. Assess **responsiveness** and **ABCs**.
2. Request **police response**.
3. Treat associated injuries per applicable protocol.
4. Monitor **vital signs** frequently (BP, Pulse, Respiration Rate).
5. Get **SAMPLE history**.
 - A. If patient is embarrassed or unwilling to answer questions about the assault, restrict inquiries to Past Medical History, Medications, etc.
 - B. Patient may be unwilling to answer any questions. **Do not press for answers.**
6. Provide emotional support to patient.
7. Maintain **Chain of Evidence** and **protect the scene**:
 - A. Advise patient not to bathe, douche, or change clothing, etc.
 - B. If clothing already changed, collect clothing worn during the assault and transport in a **paper bag** (never in plastic bag).
8. Treat all Signs/Symptoms per appropriate protocol.

ILS:

As above:

9. **Establish IV only as necessary.**
10. **ECG monitor only as necessary.**

ALS:

As above:



Section 7:
Pediatric Emergencies

Pediatrics General Considerations

1. Pediatric Age Definitions:
 - A. Pediatric patients are ≤ 14 years old.
 - B. Newborn patients are from birth to 28 days of age.
2. A **Broselow Pediatric Tape** is to be used for verification purposes any time a child requires ILS/ALS medications or procedures.
3. Averages for age:

Average Vital Signs

<u>Age</u>	<u>Pulse</u>	<u>Systole BP</u>	<u>Resp.</u>	<u>Weight (kg)</u>
Premature	140	50-60	<60	1-2 kg
Newborn	110-150	60-90	30-60	3-4 kg
1 year	100-140	75-100	25-40	10 kg
2 years	90-100	75-100	25-40	16 kg
6 years	80-100	85-100	20-30	20 kg
10 years	70-110	90-110	14-22	40 kg
Adolescent	60-100	100-120	12-20	50-70 kg

Average ET Sizes

<u>Age</u>	<u>Tube Size</u>	<u>Tube Length (cm)</u>
Premature	2.5	6 + weight in kg
Newborn	3.0	6 + weight in kg
6 months	3.5	11
18 months	4.0	11
3 years	4.5	13
5 years	5.0	14
6 years	5.5	15
12 years	6.5	19
16 years	7.0	20-24

Pediatric Fluid Challenge:

1. 20 ml/kg (10 ml/kg for Neonates) Sodium Chloride 0.9% (may repeat initial dose once, if needed).
2. Do not use blood pressure as a reliable guideline for shock in pediatric patients. Use capillary refill and other signs of perfusion.

APGAR Score			
	0	1	2
Heart rate	absent	< 100	> 100
Respiratory effort	Absent	Slow, irregular	Good, crying
Muscle tone	Limp	Some flexion of extremities	Active motion
Reflex irritability	No response	Grimace	Cough, sneezes
Color	Blue/pale	Extremities blue	Pink

Pediatric Respiratory Distress Without Stridor

BLS:

1. Assess **responsiveness** and **ABC**. Protect the airway.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask. Assist ventilation with **BVM** if needed.
4. Allow patient to assume **Position of Comfort** (with parent if necessary).
5. Monitor **vital signs** frequently (BP, Pulse, Respiration Rate).
6. Get **SAMPLE history** from patient, family member, guardian and/or bystanders.
7. Assist patient with Doctor prescribed **Metered Dose Inhaler (MDI)**.

ILS:

As Above:

8. **IV saline lock** or **Sodium Chloride 0.9% at TKO rate**.
9. **Intraosseous Access (IO)** for severe symptoms and if a venous site cannot be readily found (see **Procedures**).
10. **ECG monitor**.
11. **Xopenex (Levalbuterol) 1.25mg in 3 ml normal saline with Atrovent 0.5 mg (0.25 mg if ≤ 1 year old)** per nebulizer or BVM to nebulizer as needed.
12. Repeat **Xopenex (Levalbuterol) 1.25mg in 3 ml normal saline** as needed.

ALS:

As Above:

Pediatric Respiratory Distress With Stridor

BLS:

1. **Assess responsiveness** and **ABCs**.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **Do not** agitate patient or attempt to visualize pharynx.
4. **O₂ 12-15 LPM** non-rebreather mask if easily tolerated. If mask not tolerated by patient, **O₂ blow-by at 10 LPM with non-rebreather mask**.
5. Allow patient to assume **position of comfort**, with parent if necessary.
6. Monitor **vital signs** (BP, Pulse, Respiration Rate).
7. Get **SAMPLE History** from patient, family member, guardian.

ILS:

As above:

8. **Do not** attempt IV access.
9. **ECG monitor**.

ALS:

As Above:

- 10 Assess rate and quality of respirations, note retractions:
 - A. For mild stridor:
 - a. **Normal Saline** by Nebulizer
 - B. For Cyanosis and severe stridor:
 - a. **Normal Saline** by nebulizer
 - b. Prepare to assist ventilations
 - C. For Respiratory Arrest or Cyanosis with loss of consciousness:
 - a. Place patient supine with head in “sniffing position”, attempt positive pressure ventilation with Bag Valve Mask with good face seal (Preferred 2 person).
 - b. If unable to ventilate with BVM, attempt **Endotracheal Intubation**.

Pediatric Foreign Body Airway Obstruction

BLS:

1. Assess **responsiveness** and **ABCs**.
2. **Pulse oximeter**, if available (**do not delay O₂**).
3. **O₂ 12-15 LMP** non-rebreather mask if easily tolerated. If mask not tolerated by patient, **O₂ blow-by at 10 LMP non-rebreather mask**.
4. Allow patient to assume **position of comfort**, with patient if necessary.
5. Monitor **vital signs** (BP, pulse, respiratory rate).
6. Get **SAMPLE history** from patient, family member, guardian and/or bystander.

Conscious patient (able to speak, cough or cry):

1. Reassure patient.
2. Coach patient to forcefully cough.

Unconscious patient or unable to speak, cough, or cry:

1. Visualize the upper airway and remove the obstruction **if seen**.
2. Attempt to clear the obstruction and ventilate:
Infant: Deliver 5 back blows then 5 chest compressions. Repeat as needed.
Child: Perform chest compressions and attempt ventilations (30:2).

ILS:

As above:

ALS:

As above

7. If above unsuccessful, visualize larynx with **laryngoscope** and remove foreign body if seen with **Magill Forceps**.
8. If unsuccessful with direct laryngoscopy for child/infant **≤ 2 years old consider Needle Cricothyrotomy** (see **Procedures**).
9. If unsuccessful with direct laryngoscopy for child **> 2 years old consider Cricothyrotomy** using **Pertrach Cricothyrotomy set** (see **Procedures**).

Pediatric Respiratory Arrest

BLS:

1. Assess **responsive** and **ABCs**.
2. If no spontaneous ventilations or ventilations are inadequate, **ventilate with BVM and O₂ @ 15 LPM**. Assess lung sounds and chest rise and fall for adequate ventilations.
3. **Pulse oximeter**, if available (**do not delay oxygen**) and attempt to maintain SaO₂ of 90% or greater.
4. Obtain **vital signs** (BP, Pulse, Respiration Rate).
5. Obtain **SAMPLE History** from patient, family member, guardian and/or bystanders.

ILS:

As above:

6. **IV with saline lock or Sodium Chloride 0.9% at TKO rate.**
7. **Intraosseous access (IO)** for severe symptoms if a venous site cannot be readily found (see **Procedures**).
8. **ECG monitor.**
9. Consider **Naloxone 0.1 mg/kg IV/IO** if indicated.

ALS:

As above:

Neonatal Resuscitation

BLS:

1. Quickly dry amniotic fluid from head, body and limbs. Remove wet linen from contact with baby. Keep baby's body covered.
2. Position baby with neck slightly extended and head lower than body. Suction mouth then nose.
3. If thick meconium in amniotic fluid, perform oral suctioning.
4. Clamp umbilical cord approximately 4 inches apart and 6-8 inches from the baby.
5. Evaluate heart rate, respirations, and color:
 - A. Spontaneous Breathing, HR > 100 and skin pink – Keep infant warm and observe
 - B. Spontaneous Breathing, HR > 100 and skin cyanotic – Provide **blow-by O₂ @ 10 LPM**
 - C. Spontaneous Breathing, HR < 100 – Support ventilations with **BVM**
 - D. If apneic, flick sole of foot or rub back, and reevaluate respirations. If apnea persists, ventilate with **BVM**.
6. Assess **APGAR** scores at 1, 5, and 10 minutes after delivery.
7. **Reevaluate heart rate**
 - A. HR < 60 - Continue ventilations at 40-60/min. and initiate chest compressions at 120/min. Reassess after 30 seconds.
 - B. HR 60-100 but not increasing – Continue ventilations. Initiate chest compressions at 120/min. if HR < 80.
 - C. HR 60-100 and increasing – Continue ventilations.
 - D. HR > 100 and spontaneous respirations present – Discontinue ventilations, provide tactile stimulation, and monitor patient.

ILS:

As Above:

8. If HR < 80 after 30 seconds and chest compressions are initiated – Start **IV or IO** with **Sodium Chloride 0.9%**. Limit fluid to 10 ml/kg initial bolus.
9. **ECG monitor**.

ALS:

As above:

10. If meconium is present:
 - A. Visualize cords and **Suction with Meconium Aspirator or 10 fr. catheter**, as needed.
 - B. **Intubate and suction** trachea with ET tube as suction tube.
 - C. Re-intubate and attempt ventilations. Suction as needed.
11. If HR < 80 after 30 seconds and chest compressions are initiated – **Epinephrine 0.01 mg/kg of 1:10,000 IV/IO/ET**. Repeat **every 3 – 5 min.** as needed.
12. **PPV** for apnea, gasping respirations, or APGAR < 5.
13. **ET Intubation** for persistent apnea or APGAR < 5 after 10 min.

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Neonatal Resuscitation (Continued)

ALS (Continued):

14. If hypovolemia is suspected and HR remains < 100, administer **fluid bolus 10 ml/Kg Sodium Chloride 0.9% IV/IO**. Repeat once if signs of hypovolemia persist.
15. If respiratory depression from maternal narcotic use suspected, administer **Narcan 0.1 mg/kg to maximum dose 2.0 mg, IV/IO/ET**.
16. Check CBG and treat hypoglycemia per protocol.

Pediatric Bradycardia

BLS:

1. **Assess responsiveness and ABCs.**
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask if easily tolerated. If mask not tolerated by patient, administer **blow-by oxygen at 10 LPM by non-rebreather mask.**
4. If spontaneous ventilations are not adequate, **ventilate with BVM and O₂ @ 15 LPM.** Assess lung sounds and chest rise and fall for adequate ventilations.
5. If poor perfusion or hypotension still exist despite adequate oxygenation and ventilations, perform **Chest Compressions:**
 - A. **Infant** with heart rate < **80/min.**
 - B. **Child** with heart rate < **60/min.**
6. Monitor **vital signs** (BP, Pulse, Respiration Rate).
7. Get **SAMPLE History** from patient, family member, guardian and/or bystanders.

ILS:

As above:

8. **IV Sodium Chloride 0.9% at TKO rate.**
9. **Intraosseous Access (IO)** for severe symptoms and if a venous site cannot be readily found (see **Procedures**).
10. **ECG monitor.**

ALS:

As Above:

11. Administer **Atropine 0.02 mg/kg** (minimum single dose of 0.1mg). May repeat once.
 - A. Maximum child dose 0.5 mg.
 - B. Maximum adolescent dose 1 mg.
12. **Epinephrine 0.01 mg/kg of 1:10,000 IV/IO (0.1 mg/kg 1:1000 ET).** Repeat every 3-5 minutes as needed.
13. Consider **Transcutaneous Pacing** if no improvement with above treatment.

Pediatric Asystole

BLS:

1. Assess **responsiveness** and **ABCs**.
2. If no pulse, **begin CPR** for 2 minutes.
 - A. Single rescuer: 30 compression/2 breaths
 - B. 2 rescuer: 15 compression/2 breaths
3. Attach **AED or SAED** using pediatric pads. Press **Analyze**.
4. If no shocks advised or AED is not immediately available, **continue CPR**.
5. Insert appropriate **airway adjunct** (OPA/NPA) and ventilate with **BVM and supplemental oxygen at 15 LPM**.
6. Obtain **SAMPLE history** from family, friends or bystanders.
7. Continue CPR, package patient to backboard or scoop.

ILS:

As above:

8. **IV Sodium Chloride 0.9%** with initial fluid bolus of 20 ml/kg.
9. **Intraosseous access (IO)** if venous site cannot be immediately found.
10. **ECG monitor**. Confirm asystole in 2 leads.
11. Administer **Epinephrine 0.01 mg/kg of 1:10,000 IV/IO**. Repeat every 3-5 minutes.
Continue until vitals signs restored or resuscitation terminated.

ALS:

As above:

12. Consider **Transcutaneous Pacing** if asystole was witnessed to have followed any other cardiac rhythm.
13. If asystole persists, consider **Termination of Efforts** (see **General Guidelines** section for **Field Resuscitation Guidelines**).

Pediatric Ventricular Fibrillation / Pulseless Ventricular Tachycardia

BLS:

1. Assess **responsiveness** and **ABCs**.
2. If no pulse, **begin CPR** for 2 minutes.
 - A. Single rescuer: 30 compression/2 breaths
 - B. 2 rescuer: 15 compression/2 breaths
3. If patient is ≥ 1 year and ≤ 8 years old attach, **AED or SAED with pediatric pads** (for children > 8 years-old, use Adult Pads). Press **Analyze**.
4. **Defibrillate** as indicated.
5. **Resume CPR** immediately after shock.
6. Get **SAMPLE history** from family, friends or bystanders.
7. Insert appropriate **airway adjunct** and ventilate with **BVM and supplemental oxygen at 15 LPM**.
8. Continue CPR/shock cycles.
9. Package patient to long board or scoop.

ILS:

As above:

10. **IV Sodium Chloride 0.9% at TKO rate**.
11. **Intraosseous access (IO)** if venous site cannot be immediately found.
12. Administer **Epinephrine 1:10,000, 0.01 mg/kg IV/IO** every 3-5 minutes. Repeat between doses of **Lidocaine** and defibrillation until vital signs restored or resuscitation terminated.
13. Administer **Lidocaine 1.0 mg/kg (maximum 100 mg single dose) IV/IO**. May repeat every 3-5 minutes between doses of **Epinephrine** and defibrillation. **Maximum total of 3.0 mg/kg**.

ALS:

As above:

13. If arrest was witnessed, consider **Defibrillate 2J/kg (Biphasic or Monophasic)** before starting CPR.
14. Confirm pulseless VT/VF. Manually **Defibrillate at 2 J/kg**. All subsequent shocks are delivered at **4 J/kg**.
15. Place an **endotracheal tube**.

Pediatric Pulseless Electrical Activity (P.E.A.)

BLS:

1. Assess **responsiveness** and **ABCs**. **Suction** as needed.
2. If no pulse, **begin CPR** for 2 minutes.
 - A. Single rescuer: 30 compression/2 breaths
 - B. 2 rescuer: 15 compression/2 breaths
3. Attach **AED or SAED** with pediatric pads. Press **Analyze**.
4. If no shocks advised or AED is not immediately available, **continue CPR**.
5. Insert appropriate **airway adjunct** (OPA or NPA) and ventilate with **BVM and supplemental oxygen @ 15 LPM**.
6. Obtain **SAMPLE history** from family, friends or bystanders
7. Continue CPR, package patient on long board or scoop and prepare for transport
8. Search for a treat causes, if reversible.*

ILS:

As above:

9. **IV Sodium Chloride 0.9% at TKO**.
10. **Intraosseous access (IO)** if venous site cannot be immediately found.
11. **ECG monitor**
12. Administer **Epinephrine 0.01 mg/kg of 1:10,000 IV/IO every 3- 5 min**. Continue until vital signs restored or resuscitation terminated.
14. Search for a treat causes, if reversible.*

ALS:

As above:

15. Search for and treat causes, if reversible.*

* **Common Causes of PEA**

Hypovolemia: Rapid bolus of NS 500 ml

Acidosis: Ventilation, Sodium Bicarbonate

Hypoglycemia: IV D₅₀W

Tension pneumothorax: Needle decompression

Hypoxia: Ventilation

Hypo/hyperkalemia: See protocol

Toxins (OD): See protocol

Trauma: See protocol

Pediatric Wide Complex Tachycardia (VT) With Pulses

BLS:

1. Assess Responsiveness and **ABCs**.
2. Pulse Oximeter, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask.
4. **Vital Signs** (BP, Pulse, Respiration Rate).
5. Get **SAMPLE history** from family, friends or bystanders.
6. Transport in position of comfort.

ILS:

As above:

7. **IV Sodium Chloride 0.9% large bore catheter if possible at TKO rate.**
8. **ECG monitor**

ALS:

As above:

Unstable Patient with Ventricular Rate ≥ 150 :

Patients with any or all of the following: chest pain, SOB, decreased LOC, hypotension, shock, pulmonary edema, CHF, ischemia or AMI.

1. Consider sedation in patients > 10 years old, **Versed 0.2 to 0.5 mg/kg IV/IO. Do not delay cardioversion.**
2. **Synchronized Cardioversion 0.5 - 1 J/kg (biphasic or monophasic).** Repeat at **2 J/kg** as needed.
3. Administer **Lidocain 1.0 mg/kg** up to 100 mg IV/IO between shocks. Repeat every 5-10 minutes up to 3.0 mg/kg as needed.
4. If V-Tach persists/recurs, administer **Synchronized Cardioversion.** Begin with energy dose previously used.

Stable Patient:

1. Administer **Lidocain 1.0 mg/kg** up to 100 mg IV/IO. Repeat every 5-10 minutes up to 3.0 mg/kg as needed.
2. If VT persists/recurs, administer **Synchronized Cardioversion**, as in unstable patients.

Pediatric Narrow Complex Tachycardia

BLS:

1. Assess **responsiveness** and **ABCs**.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask.
4. **Vital Signs** (BP, Pulse, Respiration Rate).
5. Get **SAMPLE** history.

ILS:

As above:

6. **IV Sodium Chloride 0.9%** large bore catheter if possible at **TKO** rate.
7. **ECG** monitor.

ALS:

As above:

Unstable Patient with HR > 180 for Children, and > 220 for infants:

Patient with any or all of the following: chest pain, SOB, decreased LOC hypotension (systolic < 90), shock, pulmonary edema, CHF, ischemia or AMI.

1. Consider sedation in patients > 10 years old, **Versed 0.2 to 0.5 mg/kg IV/IO**. **Do not delay cardioversion.**
2. Administer **Synchronized Cardioversion 0.5-1.0J/kg (biphasic or monophasic)**. Repeat at increase to **2.0J/kg** as needed.
3. If the rhythm has not converted after shock, **Contact Medical Control** for further interventions.

Stable Patient with HR > 180 for Children, and > 220 for infants:

1. Direct patient to perform **Vagal Maneuver**. Carotid Sinus Massage may be performed on patients < 40 years of age, who have been checked for and do not have carotid bruits;
2. If SVT persists **Synconized Cardioversion**, as for unstable patients.

Pediatric Trauma

BLS:

1. Take **manual, in-line, C-spine stabilization**.
2. Assess **responsiveness** and **ABCs**. Protect the airway.
3. **Pulse oximeter**, if available (**Do Not Delay O₂**).
4. **O₂ 12-15 LPM** non-rebreather mask. Assist ventilations with **BVM** if needed.
5. Maintain patent airway while observing spinal precautions.
6. Maintain in-line C-spine stabilization when inserting airway adjuncts.
7. If head is fixed in other than neutral position and airway is patent, stabilize head in that position.
8. If airway is inadequate, straighten C-spine using in-line axial support, move just enough to establish a patent airway.
9. Place appropriately sized **cervical collar**.
10. **Immobilize** patient on a **pediatric backboard** or in **car seat with padding** if available.
11. Monitor **vital signs** frequently (BP, Pulse, Respiration Rate).
12. Assess and frequently reassess airway, motor response and sensory status.
13. Treat for **shock** as needed.
14. Get **SAMPLE history** from patient, family member, guardian and/or bystanders.

ILS:

As above:

15. **Large bore IV Sodium Chloride 0.9%**.
16. Obtain **Intraosseous Access (IO)** if a venous site cannot be readily found (see **Procedures**).
17. **Bolus 20 ml/kg (10 cml/kg for Neonate)** as needed for signs of **shock**. May **repeat as needed** if shock symptoms persist.
18. Consider 2nd **large bore IV/IO Sodium Chloride 0.9%** as needed.
19. **ECG monitor**.

ALS:

As above:

20. If signs of a **Closed Head injury***:
 - A. Elevate head of backboard 15° if patient has no signs of shock.

* **Signs of increasing intracranial pressure include (CHI):**

- | | |
|------------------------------|---------------------------|
| A. Dilated or Unequal Pupils | D. Posturing |
| B. Focal Neurological Signs | E. Glasgow Coma Score < 8 |
| C. Decreased LOC | |

Pediatric Shock

BLS:

1. Assess **responsiveness** and **ABCs**. Protect the airway.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask. Assist ventilations with **BVM** if needed.
4. Maintain adequate **airway**. Use appropriate **airway adjunct** as tolerated.
5. Monitor **vital signs** frequently (BP, Pulse, Respiration Rate).
6. Assess and frequently reassess airway, motor response and sensory status.
7. Keep patient **warm**. If non-traumatic, position patient **supine with legs elevated**.
8. Get **SAMPLE history** from patient, family member, guardian and/or bystanders.

ILS:

As above:

9. **Large bore IV Sodium Chloride 0.9%**.
10. Obtain **Intraosseous Access (IO)** if a venous site cannot be readily found (see **Procedures**).
11. **Bolus 20 ml/kg (10 ml/kg for Neonate)** as needed for signs of **shock**. May **repeat as needed** if shock symptoms persist.
12. Consider 2nd **large bore IV/IO Sodium Chloride 0.9%** as needed.
13. **ECG monitor**.

ALS:

As above:

* **Shock is indicated by:**

- | | |
|---------------------------------|---------------------------------|
| A. Altered LOC | D. Weak or Absent Distal Pulses |
| B. Capillary Refill > 2 Seconds | E. Cool Extremities |
| C. Rapid Pulse Rate | F. Hypotension |

Pediatric Allergic Reaction/Anaphylaxis

Mild Reaction: Red itchy skin, hives; and if insect sting present, localized swelling around sting site; with stable vital signs.

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

BLS:

1. Assess **responsiveness** and **ABCs**. Protect the airway.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask. Assist ventilations with **BVM** if needed.
4. If stinger present, scrape stinger off.
5. Monitor **vital signs** frequently (BP, Pulse, Respiration Rate).
6. Treat for **shock** as needed.
7. Get **SAMPLE** history.

EMT Basics:

8. If in **severe respiratory distress** or **BP < 90 mmHg systolic**, administer **Epinephrine 1:1,000 0.01 mg/kg up to 0.3 mg SQ**.

ILS:

As above:

9. **Large bore IV Sodium Chloride 0.9%** at TKO rate. Fluid challenge 20 ml/kg (10 ml/kg for neonates) as needed.
10. **ECG monitor**.
11. Administer **Benadryl 1.0 mg/kg** up to 50 mg IV/IO.
12. Administer **Xopenex (Levalbuterol) 1.25mg in 3 ml normal saline with Atrovent 0.5 mg (0.25 mg if ≤ 1 year old)** per nebulizer or BVM to nebulizer as needed.

ALS:

As above:

13. Administer **Epinephrine as appropriate:**
 - a. **Epinephrine 1:1,000 0.01 mg/kg up to 0.3 mg SQ**.
 - b. **Epinephrine 1:10,000 0.01 mg/kg up to 0.3 mg IV/IO**.
 - c. **Epinephrine 1:1,000 0.01 mg/kg up to 3.0 mg in 2 ml normal saline ETT**.

Pediatric Hypoglycemia

BLS:

1. Assess **responsiveness** and **ABCs**.
2. **Pulse oximeter**, if available (**Do Not Delay O₂**).
3. **O₂ 12-15 LPM** non-rebreather mask.
4. **Vital signs** (BP, Pulse, Respiration Rate).
5. Obtain **SAMPLE history**.
6. Assure history of diabetes, last meal, and last medication.
7. If patient has altered mental status, but is conscious and able to swallow and protect their own airway, administer **Oral Glucose 30gm (1 tube)** by mouth.

EMT-Basics:

8. Determine **Blood glucose**.

ILS:

As above:

9. Establish **IV of Sodium Chloride 0.9%** at **TKO rate**.
10. **ECG monitor**.
11. If blood glucose < 60 mg/dL, administer **D₅₀W (D₂₅W for infants), 0.5 gm/kg slow IV**.
12. Reassess blood glucose after 5 minutes.
13. If no response to treatment, consider **Altered Mental Status** protocol.

ALS:

As above:

Mixing D₂₅W:

Combine 1 preload of D₅₀W (25 gm in 50 ml) with 50 ml of normal saline (empty a 500ml bag of saline to the 50 ml mark). The concentration is now 25 gm in 100 ml.

Patient Refusals:

1. Patients who refuse transport to the hospital should be encouraged to ingest “long term” carbohydrates, as the above interventions are usually short acting and hypoglycemia may recur rapidly.
2. For patients using oral anti-hypoglycemic agents or a combination of oral agents and insulin and have developed hypoglycemia, **every effort** should be made to convince them to be transported to the hospital by ambulance, up to and including contacting **On Line Medical Control** in the patient’s presence so that the physician can discuss the importance of transport with the patient.

Pediatric Poisonings and Overdoses

BLS:

1. **Scene Safety.** Protect rescue personnel and bystanders as appropriate.
2. Assess **responsiveness** and **ABCs**. Protect the airway and anticipate vomiting.
3. **Pulse oximeter**, if available (**Do Not Delay O₂**).
4. **O₂ 12-15 LPM** non-rebreather mask. Assist ventilation with **BVM** if needed.
5. Monitor **vital signs** frequently (BP, Pulse, Respiration Rate).
6. Treat for **shock** as needed.
7. Determine:
 - A) Product and route administered.
 - B) Time of incident.
 - C) Amount of product taken.
8. Get **SAMPLE history**.
9. Gather medication bottles or original packaging of poisonous substance only if safe to do so.

ILS:

As above:

10. Establish an IV of Sodium Chloride 0.9% at a TKO rate.
11. Treat per **Altered Mental Status or Coma of Unknown Etiology** if product of overdose unknown.
12. **ECG monitor**.

ALS:

As above:

Specific Poison Therapies

- Continued on Next Page -

Pediatric Poisonings and Overdoses (Continued)

ALS (Continued):

Specific Poison Therapies (Continued)

Calcium Channel Blockers (with bradycardia) and Beta Blockers:

1. Administer **Atropine .02 mg/kg up to 3 mg IV/IO.**
3. **Fluid challenge 20 ml/kg Sodium Chloride 0.9%.**
4. **Transcutaneous pacing** as needed.

Organophosphates

1. **Atropine .02 mg/kg IO/VIO every 5 minutes** as needed until symptoms improve.
2. Suction as needed.
3. Treat seizures per protocol.

CNS Stimulants - Cocaine, Methamphetamine, MDMA (Ecstasy)

1. **O₂, 12-15 LPM** by non-rebreather mask.
2. **Versed 0.1-0.2 mg/kg IV/IO/IM up to 10 mg.**
3. Treat V-Fib per protocol, but limit **Epinephrine to 0.01 mg/kg of 1:10,000 every 5 minutes.**

For poisons not listed Contact Poison Control: 1(800) 222-1222

* **S.L.U.D.G.E.** Symptoms associated with organophosphate poisoning:

Salivation

Lacrimation

Urination

Defecation

Gastrointestinal Cramping

Emesis

Other Cholinergic (related to the parasympathetic nervous system) Symptoms: Central nervous system depression, weakness, muscle spasms or twitches, sweating, pulmonary edema, pupil constriction, decreased heart rate, seizures.

Pediatric Seizure

Febrile Seizure: Seizures common in children as a result of a high fever. Temperature is often above 102° F and the child is usually between 6 months and 5 years of age.

BLS:

1. Assess **responsiveness** and **ABCs**.
2. If patient still in seizure, protect them from injury from fall, striking head on floor, or surrounding objects. **Place NOTHING in patient's mouth.**
3. **O₂ 12-15 LPM** non-rebreather mask if able. Assist respirations with **BVM** if needed.
4. When tonic/clonic activity subsides, **suction** as needed.

EMT-Basics:

5. Determine **Blood glucose**. Treat per **Hypoglycemia** protocol.

If febrile seizure:

6. Treat as above.
7. Remove warm clothing, extra blankets, etc. to facilitate cooling.
8. Check oral or tympan temperature.
9. Monitor patient for improvement.

ILS:

As above:

10. Establish **IV of Sodium Chloride 0.9%** at **TKO** rate.
11. **ECG monitor**.

ALS:

As above:

12. If seizures are > 5 minutes in duration or recurrent, administer **Versed 0.1- 0.2 mg/kg IVP/IO/IO**. May repeat twice, at 5-minute intervals, as needed.

Pediatric Altered Mental Status or Coma of Unknown Origin

BLS:

1. Assess **responsiveness** and **ABCs**.
2. Take **spinal precaution** if event is **suggestive of injury**.
3. **Pulse oximeter**, if available (**Do Not Delay O₂**).
4. **O₂ 12-15 LPM** non-rebreather mask. Assist ventilations with **BVM** if needed.
5. Protect airway as needed. Consider **suction, oropharyngeal** or **nasopharyngeal airways**.
6. Obtain **vital signs** (BP, Pulse, Respiration Rate).
7. Get **SAMPLE history**.
8. Consider causes of coma (**AEIOU-TIPS***).

EMT-Basics:

9. Determine **blood glucose**. Treat per **Hypoglycemia** protocol.

ILS:

As above:

10. Establish an **IV of Sodium Chloride 0.9%** at **TKO** rate.
11. **ECG monitor**.
12. Administer **Narcan 0.1 mg/kg IV/IO**.

ALS:

As above:

- | | |
|--------------------------------|----------------------|
| * A - Alcohol, Acidosis | T - Trauma |
| E - Epilepsy | I - Insulin |
| I - Infection | P - Psychosis |
| O - Overdose/Poisoning | S - Stroke |
| U - Uremia | |



Section 8:
Procedures

Airway Management: BLS Procedures

AIRWAY MAINTENANCE AND CONTROL OF THE CERVICAL SPINE IS THE PRIMARY CONCERN. IF UNABLE TO ESTABLISH OR MAINTAIN AN AIRWAY, TRANSPORT TO THE NEAREST HOSPITAL. THIS INCLUDES PATIENTS ENTERED INTO THE TRAUMA SYSTEM.

INDICATIONS

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

SIGNS OF INADAQUATE OXYGENATION.

- Increased or decreased rate.
- Increased work of breathing.
- Changes in respiratory patterns
- Use accessory muscles.
- Decreased SaO₂.
- Mentation changes and/or agitation.
- Cyanosis
- Slow capillary refill.
- Abnormal end-tidal CO₂.
- Changes in pulse rate and/or EKG changes

DELIVERY SYSTEMS AND ADJUNCTS

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 are needed and in patients who have a decreased level of consciousness, trauma, chest pain, or hypovolemia (shock). Flow rates between 12-15 LPM.

Bag/Valve/Mask (BVM) Device

Used when the respiratory drive is compromised and patient requires ventilatory assistance.

Must be equipped with an oxygen reservoir capable of delivering at least 15 LPM.

Proper facial seal and head positioning is required.

Listen for lung sounds and observe the chest rise and fall to ensure proper ventilation.

Can cause abdominal distention (gas buildup) and aspiration of stomach contents.

- Continued on Next Page -

Nasopharyngeal Airway (NPA)

Used with patients who are unconscious or have an altered level of consciousness and are unable to maintain their airway. Smaller diameter and greater length make the NPA more likely to become obstructed by secretions.

NPA must be lubricated with water-soluble jelly prior to insertion.

May be used with a non-rebreather mask or with BVM.

Avoid use in patient's with facial fractures or possible head injuries.

Oropharyngeal Airway (OPA)

Used in patients who are 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 on an ET tube.

Patients who will tolerate an OPA are candidates for intubation.

OPAs must be used with high-flow oxygen delivery devices such as a BVM.

Airway Management: Capnography

Approximately 5% of the exhaled air of a healthy patient is carbon dioxide. End-tidal CO₂ devices are useful in identifying the correct placement of a King Airway or ET tube. The Easy Cap CO₂ Detector is an easy to use, visual indicator of CO₂ production and therefore, is a good indicator tube placement.

INDICATIONS

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

PRECAUTIONS

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.

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

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.

PROCEDURE

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

Airway Management: Endotracheal Intubation Paramedic Only

ORAL INTUBATION

INDICATIONS

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

PROCEDURE

1. Prepare the ET tube by checking the cuff. Apply a water-soluble lubrication jelly to the distal tip and cuff. Have suction ready. Place patient on the cardiac monitor and the pulse oximeter.
2. Preoxygenate the patient.
3. Open airway and apply cricoid pressure.
4. Intubate in a controlled, but timely manner.
5. Verify placement (5-point check, fogging of the tube, chest expansion and easy cap CO₂ detector.)
6. Attach an end-tidal CO₂ detector in perfusing patients.
7. Secure the tube with a tube holder or insert an OPA if a tube-holder is not present.
8. Place a C-collar to maintain tube position.
9. Monitor vital signs including O₂ saturation and end-tidal CO₂ detector.
10. Administer Versed in 2.5 mg increments as needed for agitation to a maximum of 10 mg.
11. Repeat 5-point check after every movement of patient or change in vital signs.
12. Document placement (5-point check, fogging of the tube, chest expansion, and tube check) on patient care form.

STOMAL INTUBATION

INDICATIONS

Patients with pre-existing tracheostomy and:

- A. Respiratory insufficiency or arrest.
- B. Brain injury (GCS \leq 8).
- C. Unconsciousness or altered mental status with airway compromise.
- D. Situations that require positive pressure ventilation.

PROCEDURE

1. Prepare the ET tube by checking the cuff. A smaller size tube (6mm or 7mm) may be needed if stoma is constricted. Apply a water soluble lubrication jelly to the distal tip and cuff. Have suction ready. Place patient on the cardiac monitor and the pulse oximeter.
2. Preoxygenate the patient.
3. Position the patient.

- Continued on Next Page -

4. Insert the tube through the stoma.
5. Advance the tube until the cuff is just inside the stoma. Inflate the cuff to prevent an air leak.
6. Verify placement (5-point check, fogging of the tube, chest expansion and Tube Check.)
7. Administer Versed 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.
8. Document placement (5-point check, fogging of the tube, chest expansion and tube check) on patient care form.

SPECIAL NOTE

1. The tube doesn't need to be cut/modified. Doing so may damage the tube and result in a cuff leak.
2. A patient will not be extubated in the field under any circumstances without OLMC approval.

Airway Management: King Airway **EMT-Basics | EMT-Intermediates | Paramedics**

INDICATION

Management of the airway in the respiratory and/or cardiac arrest.

First line airway management for the EMT-B and EMT-I 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

Patients with known esophageal disease (varicies, alcoholism, cirrhosis etc.) or ingestion of caustic substances

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.

PROCEDURE

1. Based on the patient's height, and using the package insert, choose the correct size King airway.
2. Test cuff inflation by injecting the maximum volume of air into the cuffs. Remove all air from both cuffs prior to insertion.
3. Apply a water-based lubricant to the distal tip and posterior aspect of the tube.
4. Pre-oxygenate patient with 100% oxygen for at least 1 minute.
5. Position the head. The ideal head position for insertion of the King Airway is the "sniffing position". However, the angle and shortness of the tube also allows it to be inserted with the head in a neutral position.
6. Hold the King Airway at the 15 mm connector with the dominant hand. With the non-dominant hand, hold mouth open and apply chin lift.
7. With the King Airway rotated laterally 45-90° such that the blue orientation line is touching the corner of the mouth, introduce tip into mouth and advance behind base of tongue. Never force the tube into position.
8. As tube tip passes under tongue, rotate tube back to midline (blue orientation line faces chin).
9. Without exerting excessive force, advance the King Airway until proximal opening of gastric access lumen is aligned with teeth or gums.
10. With a syringe, inflate the King Airway cuffs with the minimum volume necessary to seal the airway.
11. Attach the BVM to the 15 mm connector of the King Airway. While gently bagging the patient, gently pull back on the King Airway until the tube is "seated." Ventilation will become easy and free flowing (large tidal volume with minimal pressure).
12. Confirm King Airway placement with 5-point check. Listen to superior and inferior bilateral lung sounds as well as abdominal sounds. Observe for chest rise and fall.
13. Attach colormetric ET_{CO}₂ monitoring device to 15mm adaptor and observe for color

change.

14. Secure King Airway to the patient using tape or an approved commercial device.
15. Immediately following successful placement of the King Airway apply an appropriately sized cervical collar. A c-collar will assist in keeping the airway inline and the tube in place.
16. Continually reassess for proper tube placement any time that the patient is moved.

Airway Management: In-line Nebulizer

INDICATION

The need to administer Xopenex (Levalbuterol) and Atrovent through an endotracheal tube.

ASSEMBLY

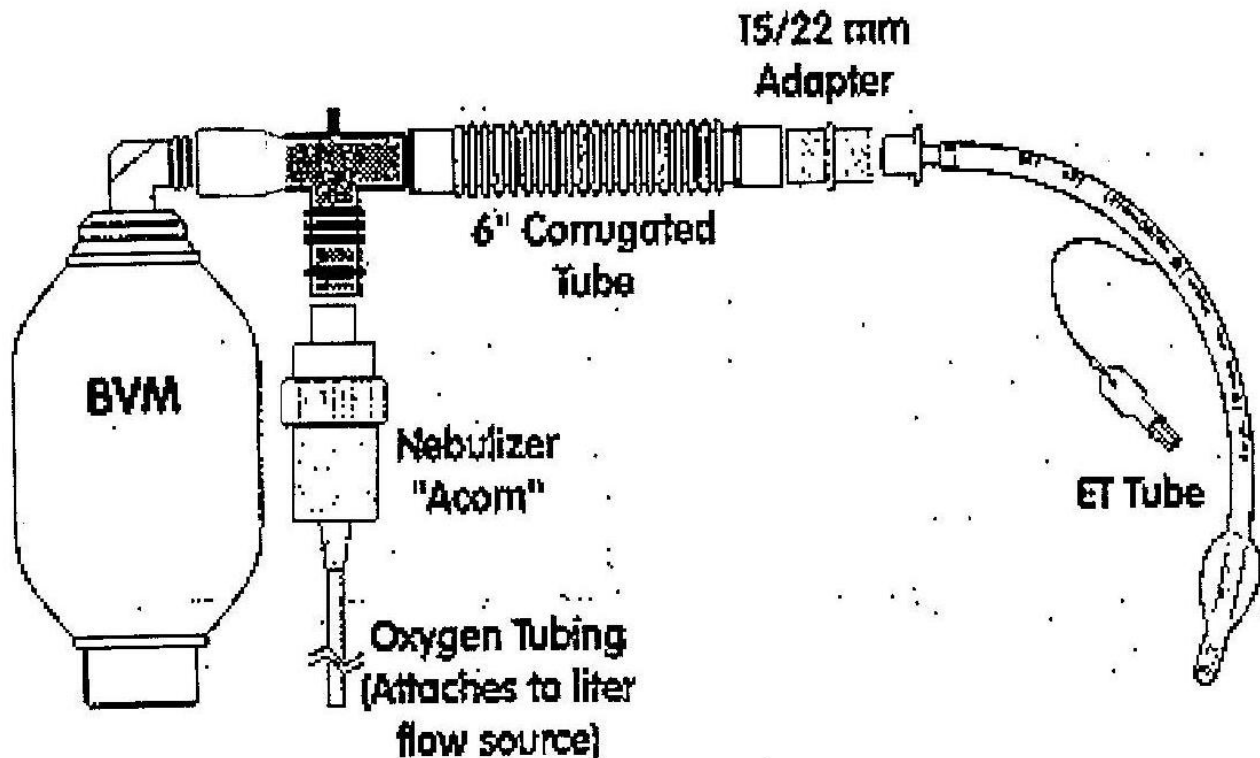
1. Assure that adequate ventilation's are being performed while assembling Nebulizer.
2. Remove Nebulizer "acorn" and attach setup between BVM and the ET tube. The 15/22mm adapter attaches to the ET tube.
3. Place medication into the nebulizer "acorn." Replace the cap and apply high liter flow O₂ (> 6 LPM).
4. Insert Nebulizer "acorn" securely into the Tee.

PROCEDURE

1. Begin bagging the patient while medication is placed in the nebulizer.
2. The nebulizer is attached to a liter-flow oxygen source, and inserted into the tee which opens the valve.
3. Medication flows into the circuit and is introduced via the bag-mask resuscitator.

PRECAUTIONS

Do not interrupt ventilation while assembling in-line nebulizer adapter.



Airway Management: Needle Cricothyrotomy with Pertrach Device **Paramedic Only**

INDICATIONS

This procedure is to be used only when all other attempts to establish an airway have been unsuccessful and/or 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

PRECAUTIONS

- Damage to nearby structures
- Vessels to either side of the midline
- Vocal cords if puncture is too high
- Penetrating injury of the posterior trachea if the puncture is made too deeply (This is most commonly seen in infants and children whose tracheas may be deceptively narrow)

PROCEDURE

1. Prepare equipment
2. Place the patient in a supine position with support under the shoulders and mild hyperextension of the neck.
3. Palpate the neck in the midline and locate the slight depression just below the notch of the thyroid cartilage. This is the position of the cricoid membrane.
4. Grasp the trachea and insert the needle into the membrane at a 90° angle.
5. Aspirate for air with a syringe. Remove the syringe.
6. Angle the needle 45° inferiorly.
7. Thread the dilator through needle.
8. Squeeze wings of needle and open out to split the needle. Remove needle.
9. Insert dilator into airway, place tube in a functional position, (faceplate against skin.)
10. Remove dilator.
11. Inflate cuff with 1 ml of air.
12. Secure the device to the neck and ventilate.
13. Confirm proper tube placement and apply CO₂ detector.

Airway Management: Pulse Oximeter

Pulse oximetry is the standard of care for the continuous, noninvasive monitoring of peripheral arterial hemoglobin oxygen saturation (SpO₂). This monitor provides an early warning of arterial hypoxemia that is often not appreciated by subjective observation. A light-emitting diode that measures absorption of specific wavelengths of light relative to the ratio of oxyhemoglobin and reduced hemoglobin is most commonly placed on the patient's finger or ear.

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.

The presence of dysfunctional hemoglobins can alter the ability of the SpO₂ to accurately reflect SpO₂. Carboxyhemoglobin, which is found in large quantities in carbon monoxide poisoning, is read as oxyhemoglobin by pulse oximeters, producing a falsely high SpO₂. This is the reason the SpO₂ may exceed the SpO₂ as measured by a laboratory CO₂-oximeter. A high methemoglobin concentration tends to result in a SpO₂ reading of 85% regardless of the actual SpO₂. Fetal hemoglobin has limited influences on the accuracy of the SpO₂ measurement. Complications from the use of pulse oximetry are most commonly caused by errors in data interpretation.

As a standard of care, a pulse oximeter shall be applied to all patient as soon as basic stabilization (ABCs) have been concluded. The pulse oximeter reading shall be recorded on the patient care form each time vital signs are taken.

<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 indicated
86-91%	Moderate Hypoxia	High-flow oxygen therapy indicated
< 85%	Severe hypoxia	Aggressive oxygen therapy. Intubation indicated.

The goal is to increase and maintain the patient's SpO₂ in the 95-100% range.

The pulse oximeter should be applied during any patient contact when available and is considered a standard of care.

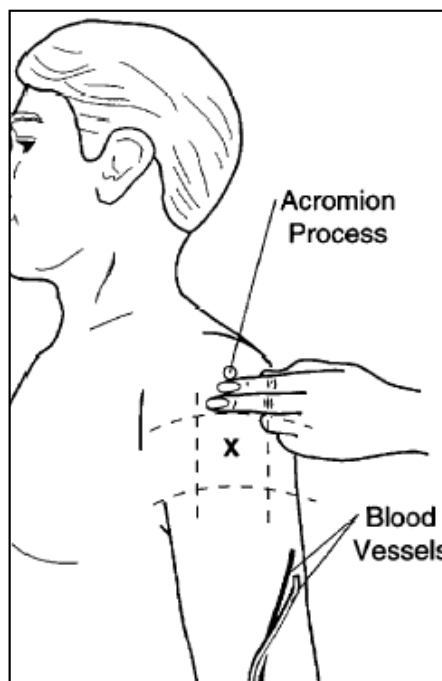
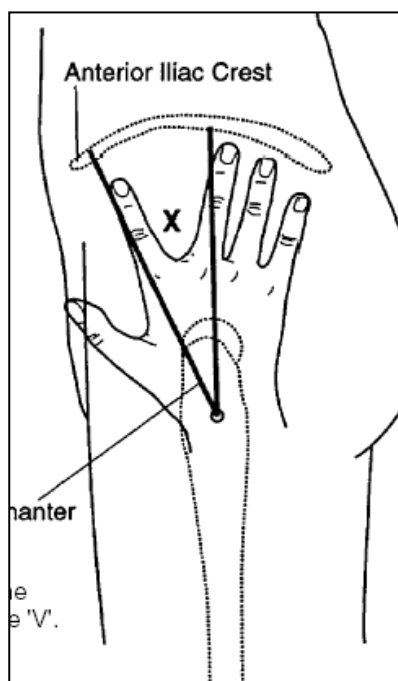
Intramuscular Injections Paramedic Only

Medications administered IM must be rotated among the major muscle. There is no need to change the needle between injections as long as the skin is adequately swabbed with alcohol.

INDICATIONS

Medication administration in circumstances when IV access is impractical, dangerous to the provider, or when IM medication administration is indicated by condition, such as:

- Anaphylactic shock.
- Sedation of the combative patient.
- Seizure termination.
- Pain management.



PROCEDURE

1. Prepare syringe, needle, and medication to be administered.
2. Select injection site and cleanse with alcohol swab.
3. Insert needle at a 90° angle to the skin with a quick motion.
4. Retain pressure around the injection site and administer the medication.
5. Remove the needle at a 90° angle with a quick motion.
6. Bandage the injection site.

Injection Sites

- Deltoid
- Dorsal gluteal
- Vastus lateralis
- Rectus femoris

Intraosseous Infusion EMT-Intermediate | Paramedic

INDICATIONS:

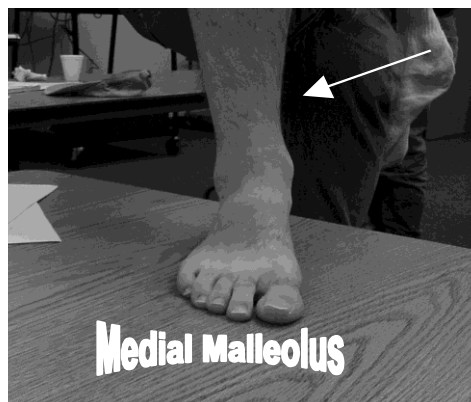
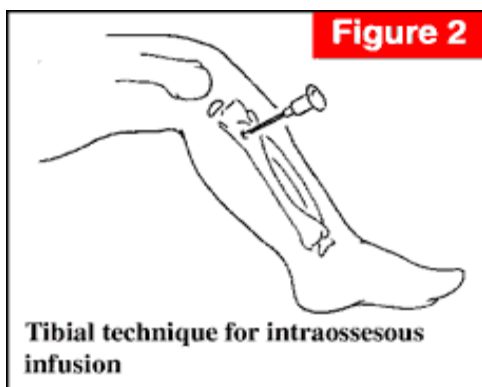
First line access in pediatric cardiac arrest.

Alternative to IV access in pediatrics and adults when IV access has been exhausted, impossible, or for patients in extremis.

PRECAUTIONS

Maximum of two attempts, one in each tibia or medial malleolus.

Excess fatty tissue over an insertion site may impede access.



PROCEDURE:

1. Avoid using a leg which has been traumatized or infected.
2. Locate anatomical landmarks:
 - A. **Tibial tuberosity (pediatrics/adults):** anteromedial flat surface 1-3cm below the tibial tuberosity.
 - B. **Medial malleolus (adults):** distal tibia in the midline 2-5 cm above the medial malleolus.
3. Prep the insertion site and dry with a sterile gauze.
4. Stabilize the leg with one hand and insert the IO needle perpendicular to the insertion site.
5. Push using a rotational movement (avoid rocking the needle). Advance until a “pop” or loss of resistance is felt.
6. Remove the stylet and attach a 10cc syringe. Confirm placement by aspiration of marrow or air.
7. Attach IV line and begin infusion. Pressure infusion is often needed to sustain adequate flow.
8. Screw down the stabilizing flange on the IO needle flush with the skin.
9. Stabilize the IO needle in place with bulky dressing.

Intravenous (IV) Lines, Solutions, and Drip Monitoring EMT-Intermediate | Paramedic

INDICATIONS

Fluid replacement for the volume depleted patient (medical or trauma).
Medication administration.

PRECAUTIONS

Fluid overload in the CHF and/or pulmonary edema patient.
Fluid overload in the pediatric patient.
Air embolism.
Catheter shear.
Accidental arterial puncture.
Thrombus (clot) formation.
Necrosis as a result of extravasation of select medications.
Allergic reaction to IV fluids or medications.

PROCEDURE

IV Fluid:

1. Select fluid to be administered (typically Sodium Chloride 0.9%) and check expiration date, fluid clarity, and the packaging is intact. Remove from outer wrapper.
2. Select the appropriate drip set. Usually a **Macro drip 10 gtts/ml** for all patients.
3. Remove the cap from the administration set port on the fluid bag. Remove the cap from the drip chamber spike on the drip set. It is important to **keep the spike clean**. Insert the spike into the port on the fluid bag.
4. Squeeze the drip chamber and fill to 1/3 full.
5. Open the flow regulator on the drip set and fill the line with fluid, purging all air. Close the clamp. The set is now primed.
6. Hang the set and keep the cap on the needle adapter (luer lock adapter) until the line is ready to be attached to the IV catheter.

IV Lock:

An IV lock can be placed instead of a fluid bag in patients where fluid overload is a concern, extrication will be complex (to prevent IV lines from interfering with operations), or simple drug administration.

1. Select an extension set and saline flush. Inspect the flush's expiration date, fluid clarity, and that the packaging is intact. Remove from outer wrapper.
2. Remove the extension set from the packaging and attach the saline flush to the **female** luer lock.
3. Flush the extension set with saline, purging all air. Typical priming volume is 0.7 ml. **Leave the saline flush attached**. The set is now primed.
4. Leave the cap on the needle adapter (male luer lock adapter) until the line is ready to be attached to the IV catheter.

- Continued on Next Page -

IV Access:

1. Prepare IV equipment, including administration set, IV catheter, bioclusive, and bandaging supplies.
2. Select the venipuncture site:
 - a. Hands
 - b. Wrists
 - c. Forearms
 - d. Antecubital fossa (AC)
3. Apply a constricting band proximal to the site.
4. Cleanse the venipuncture site with an alcohol swab, working in an outward circle from the center of the site.
5. Apply traction to the skin distal to the site to stabilize the vein and perform the venipuncture. Insert the IV cannula at a 10^o-30^o angle into the vein until a “pop” is felt or flashback occurs in the chamber.
6. Advance the cannula another 0.5 cm past this point, then slide the catheter into the vein.
7. Apply pressure to the vein at the tip of the catheter and occlude blood flow. Carefully remove the needle and dispose of it in a sharps container. Remove the constricting band.
8. Attach the administration set to the catheter hub, securing tightly. Assure positive flow through the catheter before continuing.
9. Apply a bioclusive to the IV site, then tape the tubing to the patient’s arm to prevent dislodgement of the IV.
10. Monitor the patient for signs of fluid overload. Monitor the IV sites for swelling, redness, or other complications of IV placement.

External Jugular and Foot Access (Paramedic Only):

External jugular IVs and IVs in the feet should be attempted only if no other IV is possible and life saving treatment must be given. Consider IO access as an alternative.

No more than one attempt per patient for external jugular access.

Patient Restraint

INDICATIONS

Patient restraint is to be considered a progression in force used to control a patient. This progression begins with attempting to verbally communicate with the patient and calm them down with the goal of avoiding physical restraint. However, given a patient's behavior due to numerous factors (alcohol, drug use, hypoglycemia, etc.) physical restraint may be necessary to protect the patient and responders and render care.

Patient restraint is not to be used on patients refusing treatment unless they are placed under a police hold. Patients who are under arrest or in handcuffs by law enforcement should stay in the handcuffs. If police are not going to accompany the patient to the hospital, the handcuffs should be removed or a handcuff key should be provided by law enforcement.

Patients shall not be restrained in the prone position, hogtied, sandwiched between a backboard and the stretcher, or in any other position or condition that would pose harm to the patient.

PROCEDURE

Physical Restraint:

- Use restraints to accomplish necessary patient care and ensure safe transportation.
- Call for help (police and additional fire resources) prior to attempting restraint procedures. Do not endanger yourself. Do not attempt to restrain a patient without adequate resources.
- Formulate a plan before attempting to restrain the patient and make sure the plan is communicated to all involved.
- Assure that restraints do not preclude evaluation of the patient's medical status.
- Place patient face up on long backboard or stretcher
- Secure extremities to the backboard or cot. Restrain the wrists and ankles using soft restraints. Tie the restraints to the backboard handles or gurney frame (not hand-hold or lift points). When restraining the arms, restrain one arm above the patient's head and the other at his side.
- Alternatively, fully immobilize the patient to a backboard using spider straps to accomplish restraint.
- If necessary, utilize cervical spine precautions to control violent head or body movements.
- Place a non-rebreather mask with oxygen to prevent the patient from spitting on responders.
- Secure the backboard onto gurney for transport using additional straps if necessary.

Chemical Restraint (Paramedic Only):

- Versed may be used to restrain a combative patient.
- Check blood glucose level and ensure that hypoglycemia is not a cause of the combativeness.
- Monitor O₂ saturation and assure that hypoxia is not a cause of the combativeness.

- Continued on Next Page -

- Administer Versed 2.5 mg IV or 5 mg IM. Physical restraint is often required in order to administer chemical restraint agents.

Pelvic Wrap with SAM Sling

INDICATIONS

The initial reduction of an unstable pelvic fracture to lessen ongoing internal bleeding and to ease pain by splinting the fracture using the SAM Sling.

- Apply to all significant trauma patients with either pelvic pain or pelvic instability.
- Consider the risk of pelvic instability in all blunt trauma patients with appropriate mechanism of injury (such as a side impact MVA).
- Consider pelvic wrap in trauma patients with pelvic pain that is not associated with pelvic injury.
- Consider pelvic wrap in trauma patient with pelvic pain, not associated with pelvic or hemodynamic instability.
- The pelvic wrap is not indicated for a suspected isolated hip fracture, such as in a ground level fall.

PROCEDURE

SAM Sling:

1. Unfold the sling with the white surface facing up.
2. Place white side of sling beneath patient at level of buttock. Consider placement of the sling on the backboard prior to patient extrication. Line up the sling so that the orange buckle will be on the patient's anterior midline.
3. Adjust the small blue Velcro pad to allow the black notched strap to pass through the buckle with plenty of slack.
4. With or without assistance pull both orange handles in opposite directions to tighten sling.
5. Apply traction until you hear or feel the buckle lock.
6. As soon as buckle locks, maintain tension and firmly press orange handle against blue surface of the sling to secure it in place.

NOTES

1. Always re-check the position of the sling/sheet. You should still be able to feel the anterior superior iliac spines after placement. If not, the sling/sheet may be too high on the pelvis and must be repositioned.
2. If the pelvis is unstable on initial exam, do not repeat the exam.

Needle Decompression **Paramedic Only**

INDICATIONS

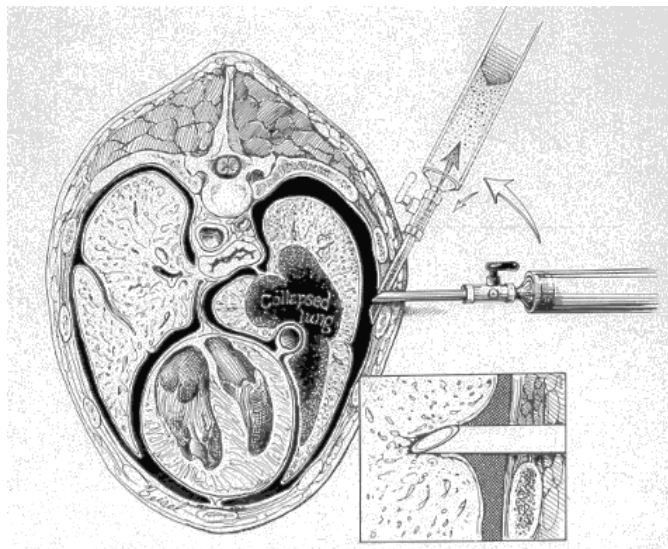
Reduction of a tension pneumothorax.

Signs of a tension pneumothorax must be present before decompression is attempted.

- Chest trauma
- COPD
- Shock, low BP, or rapidly falling BP
- Tracheal deviation away from affected side
- Asymmetrical chest wall movement
- Drum-like percussion on the affected side
- Progressive respiratory distress
- Patients on positive pressure ventilation
- Distended neck veins
- Hyper-expanded chest on affected side
- Increased resistance to ventilation, especially if intubated

PROCEDURE

1. Prepare equipment. Attach a syringe to the large bore IV catheter (10-14 G). Prepare commercial one-way valve device.
2. Expose the entire chest.
3. Clean chest vigorously with alcohol.
4. Locate the mid-clavicular line on the affected side.
5. Insert a large IV catheter (10-14 gauge) over the superior margin of the third rib.
6. Hit the rib, then slide over it into the intercostal space.
7. If air is under tension the barrel will pull easily and "pop" out the back of the syringe.
8. Remove syringe, advance the catheter, and then remove needle.
9. Attach the commercial one-way valve. Bleed any trapped air then close the device.
10. Be sure closed end is away from the patient.
11. Secure the catheter upright with bulky dressing.
12. Tape the valve outlet securely to the patient's chest to prevent displacement.



Transcutaneous Pacing **Paramedic Only**

INDICATIONS

Bradycardia with evidence of inadequate perfusion (hypotension, altered mental status).
Asystole and 2^o or 3^o heart blocks.

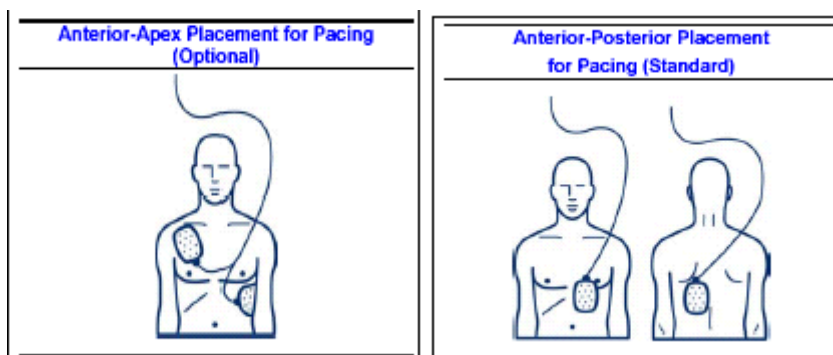
PRECAUTIONS

Transcutaneous pacing should not be used in:

- Prolonged asystole.
- Patients meeting death in the field criteria.
- Patients in traumatic cardiac arrest.

PROCEDURE

1. Attach pacing electrodes as directed by manufacturer of the electrode.
2. Begin pacing at a heart rate of 80 beats/minute and zero current output.
3. Increase current by increments of 20 mAmps.
4. Observe the ECG monitor for evidence of electrical capture.
5. Confirm mechanical capture by checking pulses and BP.
6. If patient is comfortable, continue pacing. Consider Versed 0.1mg/kg to a maximum of 2.5mg for patient's comfort.
7. If patient is still uncomfortable, decrease output by increments of 5 mAmps to point just above electrical and mechanical capture.
8. Contact OLMC for additional Versed.



NOTES

- If the patient is unconscious, evaluate pulse and BP. If no pulse, start CPR and follow PEA protocol.
- If have electrical capture and no pulses, follow PEA protocol.
- If there is no response to pacing and drugs, consult with OLMC.
- If a change in pacing rate is desired contact OLMC.

Automated External Defibrillation

Refer to American Heart Association current guidelines.

1. Rationale for early defibrillation

- a. The most frequent initial rhythm in sudden cardiac arrest is ventricular fibrillation.
- b. The most effective treatment for ventricular fibrillation is electrical defibrillation.
- c. The probability of successful defibrillation diminishes rapidly over time.
- d. Ventricular fibrillation tends to convert to asystole within a few minutes.

2. General guidelines

- a. One AED series equals zero (0) to three (3) shocks depending on what the AED indicates. Current AHA guidelines indicate 1 shock with minimal interruption of CPR.
- b. Never shock a conscious patient.
- c. The goal of EMT/FR defibrillator users should be to provide defibrillation within 90 seconds of arrival at the scene of a cardiac arrest.
- d. Rapid defibrillation is the treatment of choice for ventricular fibrillation and takes precedence over other treatment modalities, such as suctioning, IV's, and oxygen administration.
- e. An EMT or FR may not change the automatic settings of an AED if a manual override capability is available.

3. Indications

- a. Unresponsive, apneic, pulseless patients who are eight (8) years or older.

4. Contraindications

- a. The following patients should not be attached to an automatic or semiautomatic defibrillator:
 1. Any patient who is responsive, breathing, or has a pulse.
 2. Obvious "dead on scene" (decapitation, decomposition, or the presence of rigor mortis).
 3. Any patient who is actively seizing.

5. Precautions

- a. All persons should be clear of the patient while the machine is analyzing the rhythm and/or delivering a shock.

- Continued on next page -

Automated External Defibrillation (Continued)

6. Considerations

- b. Pediatric cardiac arrests are usually due to respiratory failure. Evidence suggests that ventricular fibrillation does occur in association with congenital heart problems, drug overdoses and glue sniffing.
- c. Do not use adult pads on children.
- d. Hypothermia:
 - 1. Defibrillation should not be withheld from the cold patient in ventricular fibrillation.
 - 2. Perform one series of AED protocol only.
 - 3. If the patient does not respond to one AED series, resume CPR and re-warming efforts.
 - 4. Do not continue defibrillation series.
- e. Trauma
 - 1. Consider the causes of the cardiac arrest before applying AED pads.
 - 2. Cardiac arrest secondary to major trauma seldom responds to defibrillation.
 - 3. Remember a ventricular fibrillation arrest may have been the actual cause of the accident.
- f. If the AED protocol is interrupted by the return of a normal rhythm, continue AED monitoring of the patient. Do not turn the unit off as the machine will reset back to the initial shock status.

7. Procedure

- a. Verify unresponsiveness, apnea and the absence of a pulse.
- b. Start CPR while the equipment is readied for use.
- c. Call for ALS if not already responding.
- d. Turn on the AED.
- e. Apply the pads to the patient's bare chest.
- f. Follow all AED screen and voice prompts during the rhythm analysis.
- g. Administer shock if indicated.
- h. Continue CPR for two minute.
- i. Repeat f, g, and h until:
 - 1. The ALS unit arrives and takes over resuscitative efforts.
 - 2. The Base Station Physician orders you to discontinue efforts.

8. Training and skills maintenance

- a. Any AED operator must practice their skills with the device every 6 months. This should include reviewing incidents of AED use in the system, studying any new protocols, and most important, practice working with the AED.

9. Post AED usage

- a. Each event requires a complete PCR including rhythm strips from the AED.
- b. Data cards or modules must be downloaded and erased after use to assure a clean card for future use. Events will not record over existing data on cards or tapes.

Central Line Catheter Access and Adjuncts **Paramedic only**

INDICATIONS

Access to permanent central line or other indwelling line catheters in life-threatening situations. ALS responders **shall not** access an AV shunt, and typically **may not** access other types of permanent lines except for:

- Cardiac arrest
- Symptomatic hypovolemic shock
- Under request of OLMC

At all times, ALS providers must follow written procedure for central line catheter access.

PROCEDURE

1. Sterile techniques must be maintained.
2. Use sterile gloves.
3. Clean port with Betadine swab (if available) followed by an alcohol swab.
4. Unclamp the catheter and inject 10 ml normal saline.
5. Aspirate back for blood return.
6. If blood returns, clamp catheter.
7. Remove syringe and connect IV solution.
8. Unclamp the catheter and administer solution at appropriate rate.

Cincinnati Stroke Test

The prehospital stroke test developed in Cincinnati effectively identifies patients with stroke. This scale evaluates three major physical findings: facial droop, motor arm weakness and speech abnormalities. The condensed examination can be accomplished with a series of simple tests that can help prehospital care providers to quickly identify a stroke patient who requires rapid transport to the hospital. A more extensive examination or institution of supportive therapies can be accomplished enroute to the hospital and in the emergency department. If possible, prehospital care providers should establish the time of onset of stroke signs and symptoms. This timing will have important implications for potential therapy. If the time of onset of symptoms is viewed as time zero, all assessments and therapies can be related to that time.

INDICATIONS

All patients with symptoms suggestive of possible CVA or TIA.

PROCEDURE

1. Assess for facial droop: Have the patient show their teeth or smile.
 - a. Normal: Both sides of face move equally well.
 - b. Abnormal: One side of the face does not move as well as the other.
2. Assess for arm drift: Have the patient closes their eyes and holds both arms out.
 - a. Normal: Both arms move the same direction or do not move at all (pronator grip may be helpful).
 - b. Abnormal: One arm does not move or one arm drifts down compared to the other.
3. Assess for speech abnormalities: Have the patient say "you can't teach an old dog new tricks."
 - a. Normal: The patient uses the correct words with no slurring
 - b. Abnormal: The patient slurs their words, uses inappropriate words or is unable to speak.

TASER Barb Removal

EMT-Basics | EMT Intermediates | Paramedics

The TASER is a less-than-lethal law enforcement device designed to temporarily subdue and incapacitate a combative subject. The pistol-shaped device fires two tethered darts that deliver 19 short pulses per second with a typical peak voltage of 1300 V. The pulse is designed to capture alpha motor neurons, causing Neuromuscular Incapacitation (involuntary stimulation of both the sensory nerves and the motor nerves). The pulse is designed to have minimal cardiac effects.

Any subject having received a TASER pulse should be evaluated by an EMT. The field protocol for removal of TASER barbs is for specifically trained **Seaside Fire Department Emergency Medical Technicians Basic, Intermediate, or Paramedic ONLY**. All department EMTs should bare in mind that Medix Ambulance is not normally dispatched for TASER deployments and further, Medix EMTs and Paramedics are not authorized to remove TASER barbs.

INDICATIONS

TASER deployment with barb removal as requested by Seaside Police.

CONTRAINDICATIONS

TASER barbs shall not be removed if:

- Barbs have penetrated any of the following:
 - Face/eye
 - Neck
 - Groin
 - Spinal column
- Patient has a GCS < 15 (altered mental status)
- Patient has abnormal vital signs:
 - Heart rate < 60 or > 110
 - Systolic blood pressure < 90 mmHg or > 180 mmHg
 - Respirations < 12 or > 30

Presence of secondary medical or traumatic event (chest pain, respiratory distress, hypoglycemia, injuries sustained from fall, etc).

Patient or police are requesting transport to the hospital (ER staff will remove TASER barbs).

Patient < 18 years of age (request Medix for transport)

PROCEDURES

1. Ensure scene safety and appropriate BSI.
2. Assess patient for 15 minutes prior to barb removal. Treat per appropriate protocols.
3. Obtain a baseline set of vitals.
4. Place patient on ECG monitoring.
5. Assure all TASER barbs have been accounted for (always deployed in pairs).
6. Ensure that TASER barb is no longer delivering a charge.
7. Using trauma shears, cut both wires.
8. Grasp the TASER barb cylinder with one hand or using a pair of pliers. Place the second hand near the impact site and apply counter-pressure. Pull the barb out in a single, quick

motion, perpendicular (90°) to the skin surface. Place the barb in a sharps container, or into the TASER deployment cartridge supplied by the officer.

9. Repeat for all impaled TASER barbs.
10. Swab each impact site with an alcohol swab and cover with a bandaid.
11. Obtain a repeat set of vitals before departing the scene.

DOCUMENTATION REQUIREMENTS

TASER barb removal requires complete and accurate documentation since the PCR may become a part of evidence.

1. Obtain patient's name, date of birth, home address, phone number, etc.
2. Obtain a SAMPLE history
3. Record both sets vital signs
4. Officer's name and badge number
5. Officer's signature on the PCR or refusal form

SPECIAL NOTE

There have been several reports of deaths following the deployment of a TASER on combative patients. When closely reviewed, these deaths have almost always involved improper or prone patient restraint, agitated delirium, hyperdynamic drugs, hyperthermia, or other major co-morbid factors. TASER International maintains that the TASER has "minimal cardiac effects," however risk factors still exist and research is ongoing.

Special consideration should be given to patients with cardiac history, respiratory history, and those under the influence of drugs or alcohol. It is imperative that every patient subject to TASER deployment receives a thorough medical exam and that the event is carefully documented.



Section 9:
Medications

Medication General Considerations

Pregnancy Risk Categories

Category:	Description of Risk Factor
A	Has demonstrated no risk to the fetus in the first or later trimesters.
B	No adequate studies in pregnant women, but animal studies have demonstrated adverse effects.
C	Benefits may be acceptable despite the potential risk.
D	Fetal risk has been demonstrated. In certain circumstances, benefits could outweigh the risks.
X	Fetal risk has been demonstrated. The risks outweigh any possible benefit to the mother. Avoid using in the pregnant or potentially pregnant patient.

Medications and Allergies

All medications in these protocols are to be administered only after ascertaining that the patient is **NOT** allergic to them. In critical situations when the patient has an altered level of consciousness, emergency care providers should question family, friends and look for medical alert identification and/or "Vial of Life" canisters.

Ammonia Inhalants

PHARMACOLOGY AND ACTIONS

Releases ammonia as a colorless gas with a strong, pungent odor. Reacts with mucosal surfaces causing irritation. Irritation is highly effective in eliciting a withdrawal response in all but deeply obtunded patients.

INDICATIONS

- Stimulus to aid in the assessment of a non-injured, obtunded, or comatose patient.

CONTRAINDICATIONS

- Patient is conscious

SIDE EFFECTS AND SPECIAL NOTES

- May cause mucosal burns if prolonged contact is maintained
- Headache
- Nausea and/or vomiting

PRECAUTIONS

- Inhalants should never be placed in nostrils or inside oxygen masks.

DOSAGE

One (1) ampule.

Aspirin

PHARMACOLOGY AND ACTIONS

Antiplatelet. Inhibits prostaglandin synthesis resulting in mild analgesia and anti-inflammatory effects. Disrupts platelet function for the life of the platelet (10 days).

INDICATIONS

- Unstable angina and acute myocardial infarction. Indicated for patients with suspected AMI and acute coronary syndrome (ACS).

CONTRAINDICATIONS

- Allergy to aspirin.
- Patient's receiving anticoagulants and/or have a history of active bleeding disorder or ulcer.
- Caution in patients with ASA/NSAID induced asthma or urticaria.

SIDE EFFECTS AND NOTES

- Patients with asthma may have an allergic reaction to aspirin. Ask patient about sensitivity.
- Do not withhold if patient has taken his or her own aspirin prior to arrival.

DOSAGE

- **Adult:** 324 mg PO (4 baby aspirin by mouth). If patient has taken Aspirin before your arrival, administer an additional 324mg.

PREGNANCY RISK CATEGORY: C, D in third trimester

Atropine Sulfate

PHARMACOLOGY AND ACTIONS

Anticholinergic. Increases heart rate by blocking vagal influences. Increases conduction through AV node, thereby increasing heart rate and myocardial oxygen demand. Decreases action/tone of the bladder causing urinary retention. Dilates the pupils. Blocks any vagal influences already present.

INDICATIONS

- To increase heart rate in symptomatic bradycardia or pacer failure. Improves conduction in Type I 2nd degree and Narrow Complex 3rd degree block.
- Organophosphate and nerve gas exposures.

CONTRAINDICATIONS

- Type II 2nd degree blocks. 3rd degree wide complex blocks.
- Atrial fibrillation and atrial flutter.

SIDE EFFECTS AND SPECIAL NOTES

- 2nd and 3rd degree blocks may be chronic and without symptoms.
- Bradycardia in acute MI is common and probably beneficial. Therefore, do not administer Atropine unless signs of poor perfusion are present.
- In cardiac arrest situations, atropine may dilate pupils.
- Pushed too slowly, atropine will cause a paradoxical 6-8 beat per minute slowing. For patients with HR < 40 this could be undesirable.
- When used for unstable bradycardia give rapid IVP.
- Atropine may only be given if a monitor with an ECG readout is available to the EMT-I and the technician is trained in recognizing Type II 2nd degree and 3rd degree heart block, and atrial fibrillation and atrial flutter.

DOSAGE

Bradycardia:

- **Adult:** .05 mg IV/IO every 5 minutes up to 3 mg total.
- **Pediatric:** .02 mg/kg IV/IO (minimum first dose 0.1 mg, maximum dose 0.5 mg for children, 1 mg for adolescents). May repeat as needed to 3 mg.

Bradycardic PEA/Asystole:

- **Adult:** 1 mg IV/IO every 5 minutes up to 3 mg total. 2 to 3 mg diluted in 10 ml saline ET.

Organophosphate Poisoning

- **Adult:** Large dose, 2 to 4 mg IV/IO. Repeat as needed.

PREGNANCY RISK CATEGORY: C

Atovent (Ipratropium Bromide)

PHARMACOLOGY AND ACTIONS

Anticholinergic. Atovent antagonizes acetylcholine receptors, producing bronchodilation. It is a weak bronchodilator with no anti-inflammatory effects. Atovent does not decrease bronchial hyper-responsiveness. The onset of action is slower than beta agonists.

INDICATIONS

- Supplemental to beta agonists in asthma and COPD. May be beneficial in children with moderate/severe asthma. Beneficial in adults and better tolerated than beta agonists in elderly.

SIDE EFFECTS AND SPECIAL NOTES

- Dry mouth and throat irritation.
- Headache.
- Cough.
- Increased intra-ocular pressure in with glaucoma.

CONTRAINDICATIONS

- Hypersensitivity/allergy to medication.
- Bradycardid a-fib/a-flutter.
- Patients with glaucoma.
- Allergy to peanuts.

DOSAGE

- **Adult:** 500 mcg/2.5 ml in nebulizer (one unit).
- **Pediatric (5-12 y/o):** 125-250 mcg in nebulizer.
- **Pediatric (>12 y/o):** 250-500 mcg in nebulizer.

PREGNANCY RISK CATEGORY: B

Benadryl (Diphenhydramine)

EMT-Intermediate | Paramedic

PHARMACOLOGY AND ACTIONS

Non-selective antihistamine. Benadryl blocks the action of histamines during an allergic reaction. It also treats dystonic reactions due to antipsychotic drugs such as Haldol, Thorazine, Compazine, and Inapsine. Benadryl possesses anticholinergic properties, resulting in antidyskinetic, antiemetic and sedative effects

INDICATIONS

- Second-line drug in anaphylaxis and severe allergic reactions after Epinephrine.
- First-line medication in mild allergic reactions.

PRECAUTIONS

- Hypersensitivity/allergy to medication.
- May have additive effect with alcohol or other CNS depressants.
- Useful in acute dystonic reactions but is not an antidote to Phenothiazine toxicity or overdose.

SIDE EFFECTS AND SPECIAL NOTES

- Drowsiness/sedation.
- May cause hypotension.
- Arrhythmias.
- Seizures.
- Dizziness.

DOSAGE

- **Adult:** 25 to 50 mg IV/IO/IM.
- **Pediatric:** 1 to 2 mg/kg IV/IO/IM.

PREGNANCY RISK CATEGORY: B

Dextrose 50% (D₅₀W, Glucose)

PHARMACOLOGY AND ACTIONS

Nutrient. Glucose is a carbohydrate that provides most of the body's quick energy. Blood glucose levels are regulated by the hormone Insulin. Glucose administered by IV has a very rapid effect on level of consciousness.

INDICATIONS

- Hypoglycemia documented by a glucometer.

PRECAUTIONS

- May worsen AMI and stroke.
- Extravasation will cause tissue necrosis. Return of blood should be checked during administration. If extravasation occurs, stop administration.
- Shall only be given IV. Dextrose will never be given orally.

SIDE EFFECTS AND SPECIAL NOTES

- May hasten Wernicke's encephalopathy in malnourished patients.

ADULT DOSAGE

- **Adult:** 25 grams IV.
- **Pediatric:** 0.5 mg/kg D₂₅W IV. D₂₅W is made by mixing 50 ml (25 gms) D₅₀W with 50 ml normal saline.

Epinephrine

PHARMACOLOGY AND ACTIONS

Sympathomimetic. Epinephrine is a naturally occurring hormone that stimulates the body's "fight or flight" response. Epinephrine stimulates alpha- and beta-adrenergic receptors, thereby increasing heart rate, blood pressure, myocardial contractile force, systemic vascular resistance, and myocardial O₂ consumption.

INDICATIONS

- First line drug in cardiac arrest for all arrest algorithms.
- First line drug in severe anaphylaxis.
- Severe asthma unrelieved by repeat Xopenex/Atrovent. Consider OLMC consult.

CONTRAINDICATIONS

- None in the cardiac arrest setting
- Hypersensitivity to drug
- Shock

SIDE EFFECTS AND SPECIAL NOTES

- Tachycardia
- Angina
- PVCs
- Hypertension
- Anxiety
- Tremor
- Headache
- Wheezing in the elderly can be pulmonary embolus/pulmonary edema or COPD with bronchospasm.

PRECAUTIONS

- Increases cardiac work which can cause angina, MI, and major dysrhythmias in patient with ischemic heart disease.

DOSAGE

- **Adult:**
 - Cardiac Arrest: 1 mg 1:10,000 every 3 to 5 minutes IV/IO. 2 mg in 10 ml normal saline ETT.
 - Anaphylaxis and Asthma: 0.3 to 0.5 mg 1:1,000 SQ/IM. 0.3 to 0.5 mg 1:10,000 IV/IO. Repeat as needed every 3 to 5 minutes.
- **Pediatric:**
 - Cardiac Arrest: 0.01 mg/kg 1:10,000 every 3 to 5 minutes IV/IO. 0.1 mg/kg 1:1,000 in 5 ml normal saline ETT.
 - Anaphylaxis and Asthma: 0.01 mg/kg 1:1,1000 SQ/IM up to 0.5 mg. 0.01 mg/kg 1:10,000 up to 0.5 mg IV/IO. Repeat as needed every 3 to 5 minutes.

PREGNANCY RISK CATEGORY: C

Lidocaine 2% EMT-Intermediate | Paramedic

PHARMACOLOGY AND ACTIONS

Antiarrhythmic. Lidocaine depresses automaticity of Purkinje fibers and raises the stimulation threshold in the ventricular muscle, making the heart more receptive to defibrillation.

INDICATIONS

- Antiarrhythmic in the setting of cardiac arrest for ventricular tachycardia and ventricular fibrillation.
- Antiarrhythmic in the setting of symptomatic ventricular tachycardia with pulses.
- PVC's in suspected ischemic event.
- Premedication for RSI.

CONTRAINDICATIONS

- Hypersensitivity/allergy to drug.
- Blood pressure < 90 mmHg systolic and/or heart rate < 50 bpm, contact OLMC for approval.

SIDE EFFECTS AND SPECIAL NOTES

- Sleepiness
- Dizziness
- Disorientation
- Confusion
- Convulsions
- Hypotension

HEPATIC OR RENAL DISEASE

The AHA ACLS Manual states the following for the use of Lidocaine:

“Clinicians must be aware that the balance between optimal therapeutics and toxic overdose is narrow in cardiac arrest. Several clinical conditions, such as advanced age and compromised liver function, dictate lower dosing of Lidocaine. Such patient should receive a single loading dose of 1mg/kg. Lidocaine toxicity is moot in patients who are dying because they cannot be converted from refractory VF/VT. Patients who remain in VF/VT despite multiple counter shocks, Epinephrine, and proper ventilation, the more aggressive dosing regimen remains rational and acceptable.”

DOSAGE

- **Adult:**
 - Cardiac arrest: 1.5 mg/kg IV/IO. 2 to 4 mg/kg ETT. Repeat every 3 to 5 minutes up to 3 mg/kg.
 - PVC and ventricular arrhythmias: 1.5 mg/kg IV/IO. Repeat dose at 0.75 mg/kg every 10 minutes up to 3 mg/kg.
- **Pediatric:**
 - Cardiac arrest: 1 mg/kg IV/IO. 2 to 3 mg/kg ETT. Repeat every 3 to 5 minutes up to 3 mg/kg.

PREGNANCY RISK CATEGORY: B

Narcan (Naloxone)

EMT-Intermediate | Paramedic

PHARMACOLOGY AND ACTIONS

Naloxone is a narcotic antagonist, which competitively binds to narcotic receptor sites and prevents opioids from binding. Antagonistic effect on opiates occurs within 1 to 2 minutes and lasts 1 to 4 hours.

INDICATIONS

- Respiratory depression and/or altered mental status in narcotic and opioid overdose.
- Diagnostic rule-out in coma of unknown etiology.

CONTRAINDICATIONS

- None in the setting of respiratory depression in suspected narcotic/opioid overdose

SIDE EFFECTS AND SPECIAL NOTES

- Withdrawal symptoms
- Nausea and/or vomiting
- Tachycardia
- Hypo- or hypertension
- Pulmonary edema
- Narcan can be given IM or IN if IV route is not available.

PRECAUTIONS

- Patients may exhibit violent withdrawal symptoms. Consider titration of dose to patient's respiratory status.
- May need large doses to reverse Propoxyphene (Darvon) overdose.

ADULT DOSAGE

- **Adult:** 0.5-2 mg IV/IO/IM, titrate to effect. 1 mg per nare nasal atomizer. Repeat as needed up to 8 mg.
- **Pediatric:** 0.1 mg/kg IV/IO/IM. Half dose per nare by nasal atomizer.

PREGNANCY RISK CATEGORY: B

Nitroglycerin

PHARMACOLOGY AND ACTIONS

Nitrate/Vasodilator. Nitroglycerin stimulates cGMP production, resulting in a variety of effects:

- Vascular smooth muscle relaxation
- Pooling of blood in veins decreasing return of blood to heart (reduces pre-load)
- Decreased peripheral resistance (reduces afterload)
- Dilatation of coronary arteries
- General smooth muscle relaxation

INDICATIONS

- Chest pain that is suspected cardiac in origin
- ACS

CONTRAINDICATIONS

- Hypersensitivity/allergy to drug
- Use of sildenafil (such as Viagra or Cialis). Contact OLMC for approval if taken in the last 24 to 48 hours.
- Blood pressure < 90 mmHg systolic

SIDE EFFECTS AND SPECIAL NOTES

- Hypotension
- Headache
- Flushing
- Dizziness
- Paradoxical bradycardia
- Reflex tachycardia

PRECAUTIONS

- Use with caution in hypotensive patients
- Caution in head injury
- Caution in acute right sided MI

DOSAGE

- 0.4 mg SL spray. Repeat as needed every 5 minutes.

PREGNANCY RISK CATEGORY: C

Oral Glucose

PHARMACOLOGY AND ACTION

Nutrient. Glucose is a carbohydrate that provides most of the body's quick energy. Blood glucose levels are regulated by the hormone Insulin. Glucose ingested orally has a slower rate of absorption than IV glucose, taking as long as 10 minutes to see effects.

INDICATIONS

- Hypoglycemia as determined by a glucometer only when patient is able to control their airway.
- Diagnostic rule out in altered mental status of unknown etiology only when patient is able to protect their airway.

CONTRAINDICATIONS

- Patient is unable to protect their airway

SIDE EFFECTS AND SPECIAL NOTES

- None when used in the indicated setting

PRECAUTIONS

- Patient must be able to protect their airway. Applying to the gums or the cheeks of an unconscious patient is not a recommended or approved means of administration.

DOSE

- 24 grams PO (orally). Repeat after 10 minutes as needed.

Oxygen

PHARMACOLOGY AND ACTIONS

Supplemental oxygen added to the inspired air raises the amount of oxygen in the blood and the amount delivered to the tissues. Oxygen is measured in the blood stream by use of a pulse oxymeter measuring the saturation of hemoglobin (see **Procedures**). Respiration in most people is regulated by small changes in acid/base balance and CO₂ levels, not a drop in oxygen saturation. It takes a large drop in blood oxygen concentration to stimulate respiration.

INDICATIONS

- Suspected hypoxemia or respiratory distress from any cause.
- Acute chest pain in which cardiac ischemia or myocardial infarction is suspected.
- Shock (decreased oxygenation of tissues) from any cause.
- Major trauma.
- Carbon monoxide poisoning.
- *Most patients will benefit from oxygen administration.*

SIDE EFFECTS AND SPECIAL NOTES

- None in the acute setting

PRECAUTIONS

- A small percentage of COPD patients breath using a hypoxic drive and high-flow, long term oxygen use may knock out this drive. However, do not withhold oxygen to these patients in the acute setting.

DOSAGE

Dependant upon delivery device and patient condition:

- Nasal canula 1-6 L
- Hand-held nebulizer 6-10L
- Mask nebulizer 10-15 L
- Non-rebreather mask 12-15 L
- Bag-valve-mask 15L

Sodium Chloride 0.9% (Normal Saline)

EMT-Intermediate | Paramedic

PHARMACOLOGY AND ACTIONS

Isotonic fluid. Sodium Chloride 0.9% is an isotonic crystalloid solution used for volume replacement and medication administration. It is a solution of 9 grams of NaCl dissolved in 1 litre of water. Sodium Chloride 0.9% has an osmolarity roughly equal to that of blood, keeping it in the vascular space as long as possible.

INDICATIONS

- Fluid replacement
- Medication administration

CONTRAINDICATIONS

- Hypersensitivity/allergy to drug

SIDE EFFECTS AND SPECIAL NOTES

- Sodium chloride is not an effective volume expander and will migrate out of the vascular space after roughly 30 minutes. Patients may require up to 3 times the amount of Sodium Chloride to compensate for blood or fluid loss (1 liter blood loss equals 3 liters sodium chloride replacement).

PRECAUTIONS

- Patients need to be monitored for potential fluid overload.

DOSE

- **Adult:**
 - Maintenance: 100 ml/hr
 - Bolus: 250 to 500 ml
- **Pediatric:** 20 ml/kg

Versed (Midazolam)

Paramedic Only

PHARMACOLOGY AND ACTIONS

Benzodiazepine. Versed is an ultra short-acting benzodiazepine that acts on GABA_A receptors sites. When bound it enhances the binding of GABA to the GABA_A receptor which results in inhibitory effects on the central nervous system. Versed has potent amnesic, hypnotic, anticonvulsant, skeletal muscle relaxant, and sedative properties.

INDICATIONS

- Status seizures
- Presedation for cardioversion, paralytic intubation, and pacing

CONTRAINDICATIONS

- Hypersensitivity/allergy to drug.
- Shock
- Narrow angle glaucoma

SIDE EFFECTS AND SPECIAL NOTES

- Respiratory depression/arrest
- Cardiac arrest
- Nausea and/or vomiting
- Sedation
- Headache
- Hypotension
- Agitation
- Involuntary movements
- Retrograde amnesia

PRECAUTIONS

- CNS depressant use

DOSAGE

- **Adult:**
 - Presedation: 2.5 to 5 mg IV/IO/IM
 - Status seizure: 2.5 to 5 mg IV/IO/IM. Repeat as needed up to 10 mg.
- **Pediatric:**
 - Presedation: 0.2 to 0.5 mg/kg IV/IO/IM.
 - Status seizure: 0.1 to 0.2 mg/kg IV/IO/IM.

PREGNANCY RISK CATEGORY: D

Xopenex (Levabuterol)

EMT-Intermediate | Paramedic

PHARMACOLOGY AND ACTIONS

Beta-2 Agonist. Xopenex is a potent, selective beta₂-adrenergic bronchodilator. It causes relaxation of bronchial smooth muscle. Improvement in pulmonary function can be seen in 2 to 15 minutes with a duration of action from 4 to 6 hours. Xopenex can have occasional, overlap cardiac effects, though not as severe as albuterol.

INDICATIONS

- Bronchial asthma
- Bronchial spasm that occurs with COPD
- Respiratory distress with wheezes

CONTRAINDICATIONS

- Hypersensitivity/allergy to drug
- MAO inhibitor use within the last 14 days

SIDE EFFECTS AND SPECIAL NOTES

- Bronchospasm, paradoxical
- Angioedema
- Arrhythmias
- Palpitations
- Dizziness
- Nervousness
- Tremor
- Tachycardia
- Chest pain
- Dry mouth

PRECAUTIONS

- Stop treatment if ventricular ectopy (PVC, VT) occurs.
- Paradoxical bronchospasm may occur with excessive administration. Skeletal muscle tremors are a common side effect.
- An ECG monitor with readout must be applied before the Xopenex treatment is started or no later than before it is completed.

DOSAGE

- 1.25mg/3cc normal saline by nebulizer

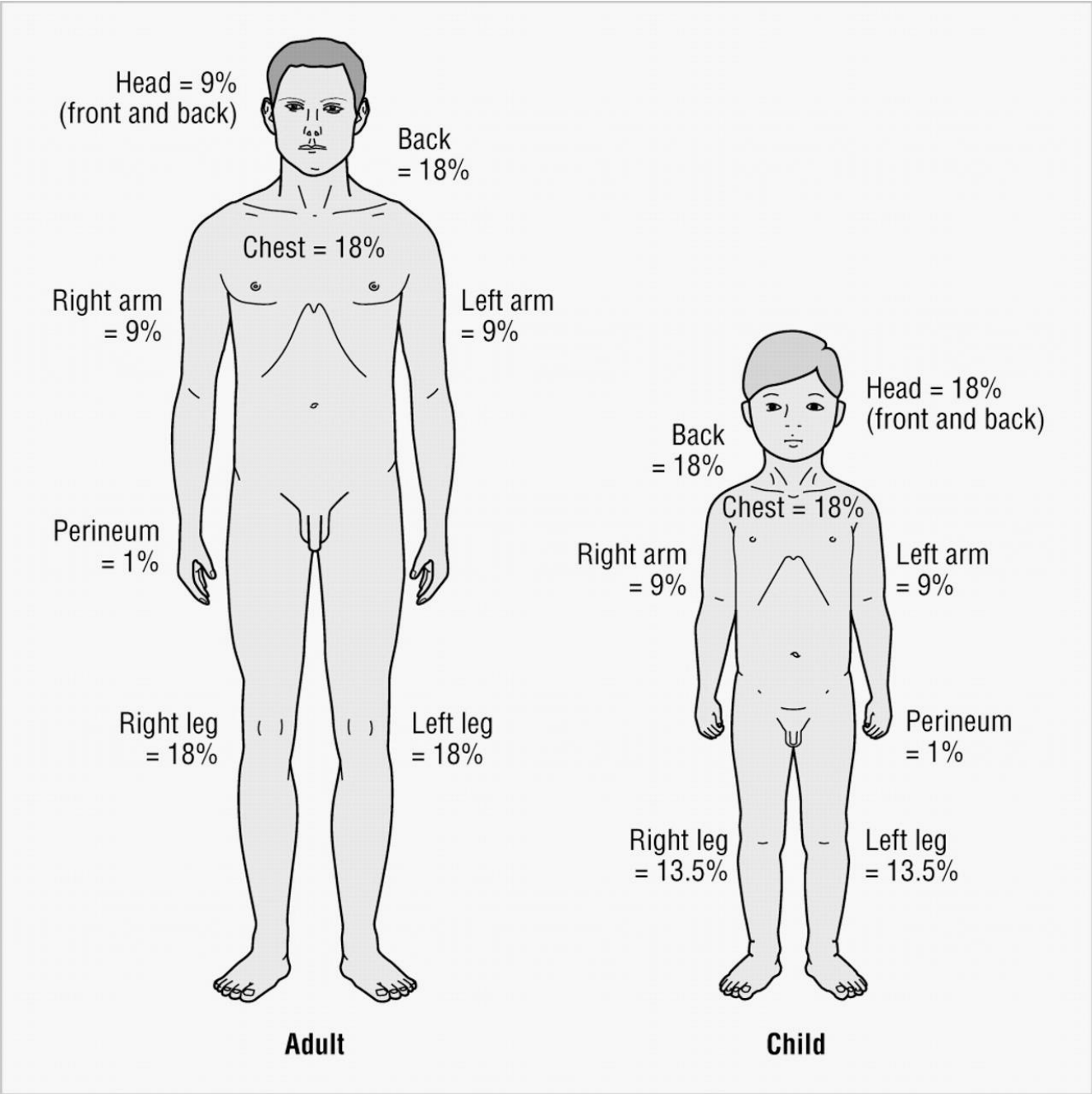
PREGNANCY RISK CATEGORY: C

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Section 10:
Tables and Charts

Rule of Nines Burn Chart



APGAR Scoring

The APGAR Score is recorded on all newborns at 1, 5, and 10 minute intervals. The Score is calculated similar to the Glasgow Coma Scale (GCS). Each of the given categories is evaluated, scored, and then all categories combined for the total.

The minimum score is 0 (requiring immediate intervention).
The maximum score is 10.

APGAR Score			
	0	1	2
Heart rate	Absent	< 100	> 100
Respiratory effort	Absent	Slow, irregular	Good, crying
Muscle tone	Limp	Some flexion of extremities	Active motion
Reflex irritability	No response	Grimace	Cough, sneezes
Color	Blue/pale	Extremities blue	Pink

Pediatric Average Vital Signs

<u>Age</u>	<u>Pulse</u>	<u>Systole BP</u>	<u>Resp.</u>	<u>Weight (kg)</u>
Premature	140	50-60	<60	1-2 kg
Newborn	110-150	60-90	30-60	3-4 kg
1 year	100-140	75-100	25-40	10 kg
2 years	90-100	75-100	25-40	16 kg
6 years	80-100	85-100	20-30	20 kg
10 years	70-110	90-110	14-22	40 kg
Adolescent	60-100	100-120	12-20	50-70 kg

Glasgow Coma Scale (GCS)

Evaluate a patient's best response in each category to determine score. A fully alert and oriented patient has a GCS of 15, an unresponsive patient with no response has a GCS of 3.

EYE OPENING		VERBAL RESPONSE		MOTOR RESPONSE	
Spontaneous	4	Oriented	5	Obeys commands	6
To voice	3	Confused	4	Localizes pain	5
To pain	2	Inappropriate words	3	Withdraws (pain)	4
None	1	Incomprehensible	2	Flexion (pain)	3
		None	1	Extension (pain)	2
				None	1

Oregon POLST Form, Front

HIPAA PERMITS DISCLOSURE OF POLST TO OTHER HEALTH CARE PROVIDERS AS NECESSARY			
Physician Orders for Life-Sustaining Treatment (POLST)			
FIRST follow these orders, THEN contact physician, nurse practitioner or PA-C. This is a Physician Order Sheet based on the person's current medical condition and wishes. Any section not completed implies full treatment for that section. Everyone shall be treated with dignity and respect.			Last Name /First/Middle Initial _____
Date of Birth ____/____/____		Last 4 #SSN ____-____-____	Gender <input type="checkbox"/> M <input type="checkbox"/> F
A	CARDIOPULMONARY RESUSCITATION (CPR): <u>Person has no pulse and is not breathing.</u> <input type="checkbox"/> CPR/Attempt Resuscitation <input type="checkbox"/> DNR/Do Not Attempt Resuscitation (Allow Natural Death) When not in cardiopulmonary arrest, follow orders in B, C and D .		
B	MEDICAL INTERVENTIONS: <u>Person has pulse and/or is breathing.</u> <input type="checkbox"/> COMFORT MEASURES ONLY Use medication by any route, positioning, wound care and other measures to relieve pain and suffering. Use oxygen, oral suction and manual treatment of airway obstruction as needed for comfort. Patient prefers no transfer: <i>EMS contact medical control to determine if transport indicated to provide adequate comfort.</i> <input type="checkbox"/> LIMITED ADDITIONAL INTERVENTIONS Includes care described above. Use medical treatment, IV fluids and cardiac monitor as indicated. Do not use intubation or mechanical ventilation. May use less invasive airway support (e.g. CPAP, BiPAP). Transfer to hospital if indicated. Avoid intensive care if possible. <input type="checkbox"/> FULL TREATMENT Includes care described above. Use intubation, advanced airway interventions, mechanical ventilation, and cardioversion as indicated. Transfer to hospital if indicated. Includes intensive care. Additional Orders: (e.g. dialysis, etc.) _____		
C	ANTIBIOTICS: <input type="checkbox"/> No antibiotics. Use other measures to relieve symptoms. <input type="checkbox"/> Determine use or limitation of antibiotics when infection occurs, with comfort as goal. <input type="checkbox"/> Use antibiotics if life can be prolonged. Additional Orders: _____	D	ARTIFICIALLY ADMINISTERED NUTRITION: <u>Always offer food and liquids by mouth if feasible.</u> <input type="checkbox"/> No artificial nutrition by tube. <input type="checkbox"/> Trial period of artificial nutrition by tube. (Goal: _____) <input type="checkbox"/> Long-term artificial nutrition by tube. Additional Orders: _____
E	MEDICAL CONDITION/GOALS: _____		
F	SIGNATURES: <u>The signatures below verify that these orders are consistent with the patient's medical condition, known preferences and best known information:</u>		
Discussed with: <input type="checkbox"/> Patient <input type="checkbox"/> Parent of Minor <input type="checkbox"/> Legal Guardian <input type="checkbox"/> Health Care Agent (DPOAHC) <input type="checkbox"/> Spouse/Other: _____		PRINT — Physician/ARNP/PA-C Name _____	Phone Number _____
		Physician/ARNP/PA-C Signature (mandatory) _____	Date _____
		Patient or Legal Surrogate Signature (mandatory) _____	Date _____
SEND FORM WITH PERSON WHENEVER TRANSFERRED OR DISCHARGED			

Use of original form is strongly encouraged. Photocopies and FAXes of signed POLST forms are legal and valid

Oregon POLST Form, Back

HIPAA PERMITS DISCLOSURE OF POLST TO OTHER HEALTH CARE PROVIDERS AS NECESSARY			
Other Contact Information (Optional)			
Name of Guardian, Surrogate or other Contact Person	Relationship	Phone Number	
Name of Health Care Professional Preparing Form	Preparer Title	Phone Number	Date Prepared
Person has: <input type="checkbox"/> Health Care Directive (living will)		<input type="checkbox"/> DPOAHC	<input type="checkbox"/> Living Will Registry
Encourage all advance care planning documents to accompany POLST			
DIRECTIONS FOR HEALTH CARE PROFESSIONALS			
<p>Completing POLST</p> <ul style="list-style-type: none"> Must be completed by health care professional. Should reflect person's current preferences and medical indications. Encourage completion of an advance directive. POLST must be signed by a physician/NP/PA to be valid. Verbal orders are acceptable with follow-up signature by physician/NP/PA in accordance with facility/community policy. Use of original form is encouraged. Photocopies and FAXes of signed POLST forms are legal and valid. <p>Using POLST</p> <p><i>Any incomplete section of POLST implies full treatment for that section.</i></p> <p>SECTION A:</p> <ul style="list-style-type: none"> No defibrillator (including AEDs) should be used on a person who has chosen "Do Not Attempt Resuscitation." <p>SECTION B:</p> <ul style="list-style-type: none"> When comfort cannot be achieved in the current setting, the person, including someone with "Comfort Measures Only," should be transferred to a setting able to provide comfort (e.g., treatment of a hip fracture). An IV medication to enhance comfort may be appropriate for a person who has chosen "Comfort Measures Only." Treatment of dehydration is a measure which may prolong life. A person who desires IV fluids should indicate "Limited Additional Interventions" or "Full Treatment." <p>SECTION D:</p> <ul style="list-style-type: none"> Oral fluids and nutrition must always be offered if medically feasible. A person with capacity or the surrogate of a person without capacity, can void the form and request alternative treatment. <p>Reviewing POLST</p> <p>This POLST should be reviewed periodically whenever:</p> <ol style="list-style-type: none"> (1) The person is transferred from one care setting or care level to another, or (2) There is a substantial change in the person's health status, or (3) The person's treatment preferences change. <p>To void this form, draw line through "Physician Orders" and write "VOID" in large letters. Any changes require a new POLST.</p>			
Review of this POLST Form			
Review Date	Reviewer	Location of Review	Review Outcome
			<input type="checkbox"/> No Change <input type="checkbox"/> Form Voided <input type="checkbox"/> New form completed
			<input type="checkbox"/> No Change <input type="checkbox"/> Form Voided <input type="checkbox"/> New form completed
SEND FORM WITH PERSON WHENEVER TRANSFERRED OR DISCHARGED			

Revised December 2008



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