

FINAL DRAFT V 1.3

**UNITED STATES ARMY MEDICAL DEPARTMENT
UNITED STATES ARMY SCHOOL OF AVIATION MEDICINE /
MEDICAL EVACUATION PROPONENCY DIRECTORATE
MEDEVAC STANDING ORDERS
AND
TREATMENT PROTOCOLS
TEMPLATE
Version 1.3**

Unit Medical Director's Initials _____
Approval/Review Date _____

INTRODUCTION:

This document has been prepared for use by MEDEVAC commanders and their subordinate unit flight surgeons, emergency medical services (EMS) physician advisors and flight medical aidmen (FMA), who are engaged in the conduct of aeromedical evacuation (MEDEVAC) and air medical transport (AMT) operations. By their nature, such operations may be wide in scope, involving the care of service members and military beneficiaries, as well as civilian emergency patients under the Military Assistance to Safety and Traffic (MAST) program.

In accordance with TC 1-212 and its subsequent additions, the MEDEVAC commander is charged with “establishing written unit medical standing orders and treatment protocols. These protocols should be in cooperation with the unit's wartime mission, peace operations, local EMS, and flight surgeon's directives.” This product has been developed and disseminated in an effort to support individual MEDEVAC units in establishing or intermittently reviewing the aforementioned unit protocol manuals. This template, which reflects current military emergency medical treatment doctrine and which has undergone aviation and emergency medicine peer review, provides a concise yet thorough basis from which individual MEDEVAC units may construct local standing orders / treatment protocol manuals based upon local resources and mission requirements. Also, by providing a uniform starting point, it is hoped that this template will encourage greater standardization among all MEDEVAC units with regard to basic medical care and services rendered, thus establishing a uniform standard of high quality en route care for wounded, injured and ill patients, both military and civilian.

Original development and field testing of this template is credited to personnel serving with the 571st Medical Company (AA), Fort Carson, Colorado. Its format includes subparagraphs delineating standing orders and treatment protocols at both basic and advanced life support levels of care, making this document uniquely adaptable to units with a wide range of capabilities and mission requirements. It was adapted for general use and received peer review by military emergency medicine and aviation medicine subject matter experts from Brooke Army Medical Center (BAMC), the United States Army School of Aviation Medicine (USASAM), and the Office of Consultants to the Surgeon General.

It is our sincerest hope that this document will aid MEDEVAC commanders, their medical advisors and flight medical aidmen in the conduct of their mission: to provide dedicated and unhesitating service to our fighting forces. In closing, we wish you Godspeed, a safe journey and a good outcome for the patients in your care.

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I. INTRODUCTION AND USE

The Commander, Unit Medical Director and the Unit Medical Trainer / Standards NCO have approved this document as Standing Orders (SO) / Patient Treatment Protocols for the ___st Medical _____ (Air Ambulance). Medicine is a practice and is constantly being changed and updated. To keep up with medical advancements, each section should be reviewed and updated as appropriate; at the minimum, change of command or medical director should prompt such a review. Changes and revisions will be issued to flight medics only after approval from the Commander and Unit Medical Director.

The booklet is printed in two editions, a full size letter copy; and a portable copy. Letter copies are distributed to the Unit Commander, Unit Medical Director(s), Unit Standards, Unit MAST Officer/NCO, MAST Committee and hospitals within our response area. The portable 5 x 8½-inch copy is presented to every medic. The medic will carry portable copies of the unit protocols whenever performing MEDEVAC duty. Copies or original s of all current certifications will be placed in the laminate card pockets provided in each portable copy (EMT level, ACLS, etc.).

This document is not intended to be a comprehensive patient care manual. Rather, it specifies standard operating procedures (SOP) and treatment protocols for discreet emergency conditions which should be used as a guideline for Flight Medical Aidmen (FMA) providing care by this organization.

The Introduction and Administrative Section set the standard which medical personnel will follow. All other sections are designed for use with basic providers and advanced providers. While they should be followed, they are no substitute for logical thinking, common sense and professional duty performance by the FMA’s employing them. Under occasional circumstances, mission requirements or a patient’s emerging condition may require the FMA to deviate from the stated protocol without immediate access to medical direction. Under such circumstances, deviations should be limited to level of training, common sense and the dictum “Primum Non Nocere” (“first, do no harm”). In any case, care rendered will require documentation. Depending on the incident and the outcome of the patient, there may be further questioning and review of each case.

Each treatment protocol was written with the basic life support tasks separate from the advanced life support tasks. This was done to offer the care provider a sensible order to patient treatment. A directional arrow indicates when/where the advanced procedures should begin in the algorithm, and what procedures to perform. In the event where the flight medic responds to an unusual case, where the illness or injury does not fall into a treatment protocol, seek directives from Medical Control if available; otherwise, apply the aforementioned skill, common sense and seek first to do no additional harm by your intervention. Remember, start with the basics and fall back on the basics.

Medical Director Signature of Approval_____

Approval Date_____

Approval/Review Date_____ Medical Director's Initials_____

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II. Administrative

- 1. Standing Orders**
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ADMINISTRATIVE

1. STANDING ORDERS

The medical director for _____ Medical _____ (Air Ambulance) will ideally be a licensed physician with emergency medical services (EMS) direction experience, who is appointed by the Commander. The medical director will advise the Commander on all medical components of the Unit's operations as required by the Commander. The medical director will also serve as medical control authority for all patient care performed by unit FMA's. The medical director will be available for consultation at all times, and will provide retrospective program improvement (PI) review, will supervise continuing education (CE) programming, and will serve as a medical liaison between this unit and other services / facilities / physicians.

With Command approval, the medical director may also appoint other licensed physicians at local facilities to serve as on-line medical control physicians (MCP). These individuals are authorized to provide direct on-line medical control and advice to unit FMA's, and may authorize additional procedures or deviations from standard protocol for which they will assume responsibility. A current list of eligible MCP's will be maintained by the unit and made available to FMA's along with this manual.

FMA's assigned or attached to this unit will maintain professional certifications and military credentials in accordance with pertinent Army Regulations (AR), TC 1- 237, Aircraft Training Manual (ATM): Utility Helicopter UH-60, US Army, 2001, and local command directives.

I EMS providers practicing at Emergency Medical Technician-Basic (EMT-B) level are authorized to perform the following procedures:

1. Administration of oxygen
2. Administration of oral glucose preparations (glucose paste/gel, fruit juice)
3. Assist patient with self-administration of nitroglycerin, metered dose inhalers (albuterol, etc.) and epinephrine auto-injectors, when such administration is appropriate and voluntary
4. Maintenance of intravenous (iv) infusions using standard crystalloid solutions (normal saline, Lactated Ringers solution)
5. Application of pneumatic anti-shock garment (MAST suit) and its inflation under medical direction
6. Cardiopulmonary resuscitation (CPR) and use of automated external cardiac defibrillator (AED) for treatment of cardiac arrest in accordance with American Heart Association (AHA) guidelines
7. Emergency/precipitous childbirth
8. Use of nasopharyngeal (NPA) and oropharyngeal (OPA) airways, as indicated
9. Application of airway suction in order to maintain patency
10. Use of bag valve mask ventilation device.
11. Operate blood glucometer
12. Operate pulse oximeter
13. Operate automated patient monitor devices (i.e. PRO-PAC)
14. Basic emergency patient assessment to include primary and secondary surveys and vital signs acquisition using standard diagnostic devices (stethoscope, otoscope, ophthalmoscope, sphygmomanometer/blood pressure cuff)
15. Simple patient extrication and appropriate spinal stabilization
16. Bandaging and splinting
17. Application and operation of the Sawyer Extractor reptile envenomation treatment device if indicated

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ADMINISTRATIVE-STANDING ORDERS

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II. EMS providers practicing at Emergency Medical Technician-Intermediate (EMT-I) level are authorized to perform the following procedures:

1. All skills stated under EMT-B
2. Administration of the following medications according to treatment protocols or direct medical control physician (MCP) order , demonstration of pharmacology knowledge is required before sign off from Medical Training NCO and approval from Medical Director
 - a. Atropine intravenous/endotracheal (iv/et) for symptomatic bradycardia or asystole
 - b. Epinephrine iv/et for ventricular fibrillation (VF), pulseless ventricular tachycardia (VT), asystole, PEA or anaphylaxis
 - c. Epinephrine/Benadryl autoinjector/subcutaneous (sq) for severe allergic reaction / anaphylaxis
 - d. Naloxone iv/et for altered mental status or respiratory depression presumed to be secondary to opioid overdose
 - e. Dextrose iv for symptomatic hypoglycemia or altered mental status where blood glucose level is below normal limits per treatment protocol or glucometer is unavailable
 - f. Albuterol solution nebulized in an air or oxygen powered inhaler for treatment of bronchospasm
 - i. Sublingual nitroglycerin tablet, spray or nitroglycerin paste, after MCP approval, in patients with presumptive cardiac chest pain, with systolic blood pressures greater than 100 mm Hg and in whom iv access has been established
 - j. Administration of chewable aspirin for presumptive cardiac chest pain after MCP approval
3. Direct laryngoscopic orotracheal intubation after skills demonstration and approval of medical director
4. Laryngoscopic visualization and removal of foreign body airway obstruction (FBAO) using McGill forceps after skills demonstration and approval by medical director
5. Insertion and maintenance of tibial intraosseous lines per treatment protocol in children under six (6) years of age, and sternal intraosseous device for older children / adults after skills demonstration and approval by medical director

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III. EMS providers practicing at Emergency Medical Technician-Paramedic (EMT-P) level are authorized to perform the following procedures:

1. All skills stated under EMT-B and EMT-I
2. Administration of the following medications according to unit treatment protocols or direct MCP order:
 - a. All medications stated under EMT-I
 - b. Adenosine iv for narrow complex tachycardia (NCT) presumed to be supraventricular tachycardia (SVT)
 - c. Lidocaine iv/et for VT or VF as bolus or infusion per AHA ACLS guidelines
 - d. Amiodarone 150mg iv for VF / pulseless VT refractory to initial defibrillation and first round epinephrine / lidocaine
 - e. Bretylium tosylate iv for sustained VF or VT as a bolus or infusion
 - f. Furosemide intravenous for symptomatic pulmonary edema secondary to presumptive congestive heart failure (CHF)
 - g. Dopamine iv maintenance infusion for the treatment of shock or bradycardia per direct MCP order
 - f. Morphine iv/im for chest pain or CHF per protocol, or for severe pain associated with trauma per direct MCP order
 - g. Diazepam iv for sedation during cardioversion for NCT and VT per treatment protocol
 - i. Calcium chloride iv for treatment of hypocalcemia, hyperkalemia, hypermagnesemia and to reverse symptoms of verapamil overdose
 - j. Magnesium sulfate iv for pre-eclampsia or hypomagnesemia k.
 - k. Droperidol iv/im to relieve nausea and vomiting, or chemical restraint of combative patient with intact airway and oxygenation
 - l. Midazolam iv for sedation if provided by sending facility
 - m. Vecuronium iv for neuromuscular blockade in rapid sequence intubation (RSI) and maintenance of paralysis in intubated / sedated transport patients. NOTE: this medication and accompanying RSI protocols may be used only after confirmation of airway management, intubation and pneumothorax diagnosis / treatment skills, and with medical director approval
 - n. Succinylcholine iv for neuromuscular blockade in rapid sequence intubation (RSI). NOTE: this medication and accompanying RSI protocols may be used only after confirmation of airway management, intubation and pneumothorax diagnosis / treatment skills, and with medical director approval
3. Synchronized cardioversion for NCT and VT with pulse
4. Surgical cricothyroidotomy after skill demonstration and approval by medical director
5. Rapid sequence intubation (RSI) with iv sedation and neuromuscular blockade, after skill demonstration and approval by medical director
6. Transcutaneous cardiac pacing (Not authorized in flight)
7. Needle thoracocentesis for treatment of tension pneumothorax after skill demonstration and approval by Medical Director

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ADMINISTRATIVE

2. PREPARE A PATIENT FOR TRANSPORT

INDICATIONS: Safety, comfort, and ease of patient access are all part of patient transport. Proper equipment and placement play an important role in transportation as well.

PATIENT MANAGEMENT PROCEDURES:

1. All patients transported by litter need appropriate protection from the elements as well as a minimum of two litter straps. Any personal items need to be properly secured and accounted for.
2. Hearing protection should be provided to all patients without contraindications
3. All trauma patients with suspected spinal injury shall be stabilized with a long spine board, appropriately sized cervical collar and head blocks to restrict lateral movement. If standard collar is not available, a properly sized and applied field expedient (towel roll, SAM splint, etc.) may be used. This includes any/all interfacility transfers, which presented with suspected spinal injuries prior to MEDEVAC/MAST arrival.
4. All urgent patients should have a minimum of one intravenous line established prior to transport, if possible.
5. Oxygen should be administered to all urgent patients; and to priority patients as indicated.
6. Ideally, the patient should be transported with the carousel in the fly position.
7. Any additional equipment must be properly secured (IV pumps, automated blood pressure devices).
8. Ambulatory patients must be properly placed in a crewmember seat. If no seats are available, the patient must be placed on a litter.
9. All IV lines shall be placed on IV pumps or pressure devices, such as a blood pressure cuff, to ensure flow after ascent to altitude.
10. If patient is endotracheally intubated, air in cuff will be replace with normal saline.
11. All air splints and MAST garments must have pressure release devices attached.
12. All urgent patients must be placed on the monitor (ie Pro-PAC) prior to transport.
13. All alert patients must be briefed on inflight communication procedures (ie hand signals, message board) and aircraft emergency procedures.

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ADMINISTRATIVE

3. INTERFACILITY TRANSFER OF ACUTELY ILL/INJURED PATIENTS

A. INDICATIONS: An interfacility transfer is requested by a hospital physician for a patient who requires further care beyond the sending facility’s capabilities.

B. PATIENT MANAGEMENT PROCEDURES:

1. The patient should be transported by personnel who are certified to perform advanced life support (ALS) procedures and have the equipment available to do so. Note: AR 500-4 (MAST Operations) REQUIRES the sending facility to either (a) provide the ALS provider or (b) assume liability for adverse outcomes that might ensue from substandard care in the event that the FMA is not ALS certified, and no ALS provider is available at the sending facility to accompany the patient. Also, the pilot in command is provided the latitude to decline the mission if after consultation with the FMA and / or medical director, it is determined that appropriate level of en route care may not be provided, and undue risk to the patient is expected.

If the FMA is not trained and authorized to perform ALS tasks, medical personnel at the sending facility with ALS certification should be requested to accompany the patient by the FMA. Should the sending facility be unable to provide such personnel, the FMA should advise the pilot in command, and if possible, consult the unit medical director, designated medical control physician or unit flight surgeon for guidance and possible aircrew augmentation support. If such guidance is unavailable, the FMA and pilot in command should apply their best common-sense determination of the relative risks and benefits to the patient of air transport, and determine whether to accept or decline the mission. In either case, the FMA should advise the sending physician that the sending facility is responsible and liable for assuring that the level of care in transport is maintained, or is responsible for adverse outcomes in the event it is not. Lastly, once the decision to transport has been made, the FMA should ensure that the sending physician has made contact with the receiving physician, and the FMA should document both respective physicians' names

2. The FMA should ensure prior to departure for the sending facility that a report is received briefly outlining the patient's condition, any special treatment performed that would require special care or equipment for the patient and that the sending and receiving facilities have agreed to the transfer.

3. FMA’s should make thorough but expeditious assessments prior to patient transport. Be sure to receive any records and pertinent documentation on the patient (i.e. lab work, x-rays). Also, request and confirm the presence of a “Memorandum of Transfer” document for the patient(s) being transported. Ideally, patients with valid “do not resuscitate” orders SHOULD NOT undergo air medical transport, as by definition their condition no longer constitutes an immediate threat to life, limb or eyesight.

4. If the patient’s condition deteriorates during transport, treat the patient’s condition based on unit protocols. An attempt should be made to contact the medical control physician for guidance if time and circumstances permit. If attempts at communications fail, maintain patient treatment standards by following appropriate protocols for your approved level of care, and document

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the care provided both for reporting to the accepting physician upon arrival at the receiving hospital, and for review by the medical director.

5. No medications beyond those authorized in the Unit Standing Orders should be administered to a patient by the FMA, regardless of training level. If a patient requires non-standard medications (not listed in the Standing Orders), the sending facility should provide skilled personnel to accompany the patient, or arrange with the unit medical director to provide aircrew augmentation. If such advanced medical care personnel are unavailable to accompany the patient, follow guidance provided in B.1. above.

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ADMINISTRATIVE

4. PATIENT AND SCENE MANAGEMENT

- A. INDICATIONS:** The quality of patient care is improved with good, orderly management and authority at the scene. At multiple casualty incidents, triage authority must be established quickly and tactfully.
- B. PATIENT MANAGEMENT PROCEDURES:**
1. The responder with the highest level of certification shall have authority over **TRIAGE AND TREATMENT** management on the scene. If more than one or all of the responders maintain the same certification level, then rank will take precedence.
 2. **MANAGEMENT OF THE SCENE AND SCENE SAFETY** in CONUS / MAST settings will be the responsibility of public safety officials, in such order (Police Department, Fire Department, and EMS). This includes but is not limited to control of bystanders, management of combative patients, patient extrication, etc
 - A.. On-scene physician intervenors (bystander or patient attending physicians) should identify themselves and their certification level with documentation licensure in one or more US States. The medical director grants authority to the senior FMA on-scene to determine using their best judgment whether such bystander physicians are appropriately credentialed and whether their involvement would add or detract from patient care and transport. In general, physicians on-scene should provide care that is consistent with published Unit medical treatment protocols. If they choose to deviate from these protocols, they should first speak with the medical director, or must personally assume direct patient care and accompany the patient to the destination facility. If either the physician is unable to do so, or if their care is deemed to be not in the patient’s best interest and crew’s safety, then such physician may be denied the opportunity to treat and transport the patient. FMA’s must maintain detailed and accurate documentation regarding any such case.
 - B. Appropriately trained and credentialed civilian EMS personnel may accompany the MAST patient with the approval of the pilot in command and FMA, particularly if the quality of patient care will be enhanced. This includes licensed physicians who have been engaged in the care of the patient, or who possess skills pertinent to the patient’s emergency care that would enhance that care beyond the level that the FMA is capable of providing. Beware that few physicians (eg. Emergency medicine specialists) will be capable of rendering a greater range of field care than an adequately trained FMA. As such, a physician who engages in care of your patient must be prepared to accompany that patient while en route to definitive care, as they may not relinquish care to a lower level provider.
 - C. The **ultimate authority** for on scene pre-hospital procedures is an on-line medical control physician, if available. If not, the FMA and pilot in command are ultimately responsible for the patient’s care unless that care is appropriately relinquished to a higher level provider who will accompany the patient on the flight. In any case, the pilot in command retains ultimate authority for who will be transported, based upon aircrew safety and operational security concerns.

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- D. Appropriate medical equipment should be made available to accompanying medical professionals with higher certification who render assistance in patient care, however unit medical equipment should remain with the aircraft or with the FMA until the patient is transferred to definitive care, at which time the equipment should be recovered.

- E.. In the event the FMA is in serious doubt regarding a potential ride-along provider's credentials or care (including physicians), or if a provider poses a risk to aircrew safety, you are authorized to relieve and order the removal of such an individual from the aircraft and patient, under the authority of the medical director (for medical issues) and pilot in command (for safety issues).

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ADMINISTRATIVE

5. DOCUMENTATION AND CONFIDENTIALITY

A. INDICATIONS:

Patient care documentation is important for continuity of care as well as for legal documentation of the patient's condition and treatment rendered. It is imperative that concise, accurate and legible records be generated for each patient, at the earliest practical juncture.

B. PATIENT MANAGEMENT PROCEDURES:

U.S. Army Medical Standard Operating Procedure, Uniform Code of Military Justice, U.S. Army FM 8-230, unit standard operating procedure, state and local legislation dictate how patient documentation and confidentiality will be maintained. At a minimum, the documentation of patient care should consist of:

1. Each patient that is seen, treated or transported will have a patient call report (trip sheet), or in lieu, a field Medical Card (for deployment or combat operations) written on the form designated appropriate according to unit SOP
2. Documentation that should be included on the form includes:
 - A. Chief complaint
 - B. Complete vital signs and times
 - C. Treatment provided and times
 - D. ECG strip(s), if monitored, and if available
 - E. Changes in the patient's condition
 - F. Contact with Medical Control
 - G. Any deviation from protocols and reasons to justify such deviations
3. Patient refusal documentation should include: (again and example would be good here, especially if JAG is included in the wording)
 - A. The patient's full name
 - B. The reason for the response
 - C. Reason for patient refusal
 - D. Vital signs and times
 - E. Any other physical signs or symptoms
 - F. Perceived competency of patient
 - G. Patient's level of consciousness
 - H. Name(s) and signature(s) of witness(es)
 - I. Signature of patient, or witnessed refusal of patient to sign
 - J. Any additional refusal forms, as required by SOP
4. A copy of the report should be faxed to or left at the receiving facility

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ADMINISTRATIVE

6. SEXUAL ASSAULT

INDICATIONS:

1. Responding to a suspected assault in persons of any age or gender.
2. Trauma or bleeding to the vagina, rectum or buttocks that cannot be explained.

REMARKS:

1. Questions pertaining to a person's sexual preference or history should not be asked. Avoid any question that may make the patient feel guilty. Detailed accounts of prior events are irrelevant to the FMA and should not be questioned.
2. DO NOT attempt to examine the patient without informed consent except to treat immediate life, limb or eyesight threats.
3. Limit cleaning of wounds to only determine severity. Discourage changing clothing, douching, bathing, urinating or brushing teeth until first seen by a sexual assault treatment professional, if at all possible.

PATIENT MANAGEMENT PROCEDURE:

1. Provide a safe, non-judgmental environment for the patient and offer psychological support; limit interaction with other personnel.
2. Assess for other illness or injury. Refer to appropriate Behavioral protocol.
3. The patient should be allowed to choose the gender of the care provider, if possible.
4. Preserve evidence if possible, and provided it does not compromise patient care
 - a. Bag all of the patient's personal items (clothes, blood stained items), preferably in paper bags if available.
 - b. Discourage patient from bathing or changing clothes.
 - c. Any articles in your possession should be signed for before turning them over.
5. Ensure that you write everything the patient stated, any findings during your exam and treatment given as soon as possible after mission completion.
6. Patient confidentiality is paramount

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ADMINISTRATIVE

7. TREATMENT OF MINORS

INDICATIONS: Any event where you respond to treat a minor patient (under legal age for local jurisdiction) and there is no parent or legal guardian available to represent the minor. For the purpose of the unit protocols and the differences in state and local laws where the unit may be tasked/stationed; all patients under age 18 years will be considered minors.

PATIENT MANAGEMENT PROCEDURE:

1. Treatment and transport of any minor requiring immediate care to save life or prevent severe injury will be performed under the doctrine of implied consent for minors.
2. In the event that a provider feels a minor needs medical care but, the patient refuses; Medical Control Physician should be contacted (if possible) for additional guidance.
3. If a minor is ill or injured and contact with the child's parents is not possible, Medical Control Physician should be contacted if possible to concur with transport plan.
4. **ALWAYS** act in the patient's best interest. **ALWAYS** maintain complete and careful documentation.
5. If the parent or guardian is present, follow these guidelines:
 - a. Allow one (1) parent to accompany the child during transport, if it does not interfere with patient care or flight safety.
 - b. In event of major trauma and/or cardiac arrest, judgement should be exercised in allowing parents to accompany the child.
 - c. Allow the parent to hold or touch the child, if possible
 - d. Remember to be open and honest to both parent and child about the child's condition and any treatment given. **DO NOT** diagnose, **DO NOT** deceive, and **DO** try to comfort the child or parent.

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8. PATIENT REFUSAL

INDICATIONS: If a patient (or person[s] responsible for a minor) refuses treatment or transport, after pre-hospital providers have arrived on scene, the following procedures should be carried out:

PATIENT MANAGEMENT PROCEDURE:

1. A Primary Assessment (to include vital signs) should be completed, if possible. Pay particular attention to the patient's mental status.
2. Determine the patient's (parent's) competency to make sound/valid judgements concerning the patient's condition. If there are any doubts from the provider's aspect, Medical Control should be contacted if possible to support your conclusion (in lieu, consider use of Police Department personnel to place the patient in protective custody).
3. Ensure that you clearly and repeatedly explain to the patient or responsible parties of the concerns and possible risks involved in refusing medical care; attempt to have a witness in attendance during this counseling, and document their identity and method of contacting them later, if needed.
4. Do not perform, or continue to perform Advanced Life Support procedures on a patient who is mentally competent to refuse care and does so.
5. Clearly document all findings during the patient assessment, any discussions with the patient regarding his/her condition as well as all persons involved with the patient. Document all statements made pertaining to the risks associated with refusing treatment and transportation and obtain a signature from a witness (crew member or police officer) and the patient or parties responsible for the patient as to refusal of care.
6. Clearly explain, to **Military Personnel**, why the treatment is needed. **Notify them that refusal of treatment may bring judicial punishment upon them under UCMJ.** Do not attempt to subdue the patient against their will (unless the patient appears mentally incompetent), **this constitutes assault and battery.** Attempt contact with Medical Control Physician for additional guidance. Consider help from law enforcement officials on post to place the patient in protective custody.

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ADMINISTRATIVE

9. DO NOT RESUCITATE (D.N.R.) / RESUSCITATION TERMINATION

INDICATIONS: FMA's will initiate cardiopulmonary resuscitation (CPR) for all patients without vital signs EXCEPT where the patient presents with one or more of the following:

1. Decapitation
2. Putrefied, decayed or decomposed body
3. Dependent lividity
4. Rigor mortis
5. Obviously mortal wounds (hemisection, crushed head and/or chest)

PATIENT MANAGEMENT PROCEDURE--DO NOT RESUSCITATE

1. Patient assessment and full resuscitation and/or intervention efforts should be performed until the DNR status is confirmed. Ideally, MEDEVAC missions will rarely involve military DNR patients requiring transport by air; by definition, MAST missions generally preclude DNR patient transports (“only life, limb or eyesight threatening cases”)
 - a. Ensure that the DNR bracelet/necklace is intact and/or that the **original** (no copies) DNR order is present and current.
 - b. If no bracelet or necklace can be located, AND an original DNR order cannot be located; the provider should treat the patient as if **no DNR is in effect**.
 - c. Providers should verify the DNR order to the identity of the patient (drivers' license or other photo I.D.).
 - d. Be advised that a competent patient or family member with “power of attorney for medical decision-making” may verbally rescind a DNR – if this occurs, document the person rescinding the DNR, and a witness to the action.
2. Authorized comfort interventions regardless of DNR status include:
 - a. Maintain an open airway and oxygen.
 - b. Suction
 - c. General patient comfort
 - d. Control any bleeding
 - e. Administration of analgesic medication authorized by Medical Control Physician or appropriate standing order, if applicable.
 - f. Emotional support for patient and family members
 - g. Other interventions outlined as acceptable in the DNR order, once validated.
3. The patient's physician or on-line Medical Control Physician should be contacted for any problems or questions about the DNR order.
4. The DNR order number should be documented on the patient call report.

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PATIENT MANAGEMENT PROCEDURE--CEASE RESUSCITATION

1. Resuscitation efforts will not be terminated without approval of the medical control physician, an on-line military emergency physician, or unless the appropriate standing order has been carried out (remote deployments / mobilization). If in doubt, resuscitate and transport..
2. When contacting medical control physician, FMA's should begin with the statement: **"This is a potential cease resuscitation call."** That FMA needs to provide Medical Control with a review of the patient's recent history (i.e. end stage cancer) and presentation when found. Report the rhythm, interventions given and changes (if any).
3. Signs of death, specific findings and the name of the physician who authorized termination of resuscitation and the time, should be annotated in the patient call report.

NOTE: Hypothermic patients, and those involved in cold water drowning, electrical injuries (including those struck by lightning) should receive FULL resuscitative measures until declared dead by a physician trained in the management of such patients.

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ADMINISTRATIVE

10. INFECTION CONTROL

INDICATIONS: Infection control is only as effective as the level and frequency of education and participation of all personnel at risk for exposure. Safety for all patients and providers is the ultimate goal.

STANDARD PRECAUTIONS FOR BLOOD AND BODY FLUID EXPOSURE:

1. Bodily fluids include but are not limited to: urine, feces, cerebrospinal fluid, breast milk, semen, gastric secretions, saliva, sputum, blood and other bodily drainage.
2. In any event where exposure to blood or body fluids is possible, standard precautions will be employed, regardless of diagnosis. Starting IV's, intubation, trauma resuscitation, childbirth and airway suctioning are examples of instances of possible exposure.

A. PATIENT MANAGEMENT PROCEDURE:

1. Wear latex gloves and change gloves between patients
2. If available, use appropriate barriers when there is significant risk of splash onto clothing
3. Wear masks that effectively protect against the aerosolization of blood, body fluids or airborne contaminants/infections. Masks should always be worn when suctioning, performing endotracheal intubation, or when a patient presents with signs/symptoms of an upper respiratory infection and/or recent history of an airborne respiratory infection; and if FMA has been notified that the patient has a respiratory infection. It is the FMA's responsibility to ensure the safety of the entire crew against potential respiratory infection, if the proper equipment is available.
4. Keep your face shield down on your flight helmet or wear other eye protection whenever splattering of blood or bodily fluids may occur.
5. Avoid mouth-to-mouth rescue breathing if at all possible. Bag-valve-mask (BVM) ventilation is the standard in such cases, followed by use of mouth-to-mouth rescue breathing with a barrier shield (such as a "Pocket Mask", "Microshield," etc.)
6. Always wash hands after every patient contact, if gloves were used or not.
7. Care of contaminated equipment:
 - a. All disposable equipment is to be placed in a red, waterproof bag. The bag will be labeled BIOHAZARD, and disposed of in an approved location for Biohazard waste; or by a licensed service.

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ADMINISTRATIVE-INFECTION CONTROL

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- b. Non-disposable equipment will be cleaned per manufacturer's recommendations and disinfected/sanitized with any CDC/OSHA approved disinfectant.
- c. **Non-disposable** laryngoscope blades, BVM units and other respiratory equipment, should be sterilized before re-use (if equipment is available)
 8. Soiled linens are to be placed in two fluid resistant bags (one inside the other), and marked BIOHAZARD.
 9. Needles and syringes are to be disposed of in puncture resistant containers. Recapping of needles is NOT recommended
 10. **DO NOT PLACE CONTAMINATED NEEDLES OR OTHER CONTAMINANTS IN ANY DRUG BAG.**
 11. When collecting blood or other specimens, try to avoid contaminating the outside of the container.
 12. All blood/bodily fluid spills will be disinfected with 1:10 parts household bleach to water solution or a CDC/OSHA approved disinfectant.
 13. The aircraft interior and all medical equipment should be cleaned routinely per unit SOP and manufacturer's specifications.
 14. Equipment and medications, which are NOT soiled and have NOT been opened or used, should NOT be discarded.

B. PATIENT MANAGEMENT PROCEDURE--EXPOSURE

1. Any expose skin and/or mucous membranes should be washed or flushed as soon as possible after the exposure incident. Any clothing that may have been contaminated should be changed. The skin should be inspected for signs of contamination, openings or punctures. Soiled clothing is to be bagged per section A8.
2. All exposure incidences, which occur on MEDEVAC / MAST missions will be documented and treated via the nearest available MTF emergency medical service (emergency room), or if unavailable, through the nearest definitive care facility as outlined in unit standing orders. Notify your PIC/supervisor and Medical Director of the incident. The individual(s) exposed will require a risk assessment by a physician or similar provider, blood tests, and possibly appropriate prophylaxis against the HIV virus, hepatitis viruses B and C, and possibly other pathogens.
3. Obtain and complete the appropriate Infectious Disease Exposure Report. If the paperwork is unobtainable (due to mission location), print or type any information leading up to and after the possible incident and any

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ADMINISTRATIVE--INFECTION CONTROL

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treatment rendered (washing of hands, flushed the eyes). Times are important to document and patient name and/or call number of the patient report.

4. Make sure that the local hospital in which the incident was reported (depending on mission location), or Army MTF receives the original. Make several copies for unit records, Medical Director, your medical and personal records. These must be delivered/annotated as soon as possible.

**C. PATIENT MANAGEMENT PROCEDURES--
UNIT/AGENCY RESPONSIBILITIES**

1. Medical personnel should confirm the possible amount of exposure with the individual(s), based on the information provided from the Exposure Report and statements from the individual(s).
2. Contact the appropriate personnel (Medical Director, ED Physician or Occupational Health) to determine what additional follow up/treatments are needed.
3. Notification of other EMS agencies or hospitals to request any needed follow up (the exposure source).
4. Ensures documentation procedures are conducted as soon as possible.
5. Individuals, and family members, who exhibit signs of fear or anxiety concerning an exposure incident, should be given a point of contact for additional information or counseling.
6. Re-educate individual(s) on the risks and prevention of infection control and exposure.
7. Ensures that the proper Personal Protective Equipment is available to all personnel at risk for exposures (i.e. Flight Medics, Crew Chiefs, Pilots and medical assistants).

D. PATIENT MANAGEMENT PROCEDURE--FOLLOW UP CARE:

1. It is the responsibility of the unit to ensure that follow up appointments/treatments not be delayed, upon notification of the incident. It is the individual(s) exposed responsibility to attend those follow up appointments/treatments.

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11. COMMUNICATIONS

INDICATIONS: Contact with the receiving hospital should be made at least five minutes prior to arrival if possible. In general, the more complicated the patient’s condition, the more beneficial it is to make earlier contact.

MANAGEMENT PROTOCOL: This format will be observed for all transports by the ____ Medical _____ (AA):

1. Identify yourself and aircraft designation when trying to establish contact with the receiving Emergency Department (ED). Allow some time for the ED to respond before attempting to make contact again.
2. Re-identify yourself, certification level and the aircraft designation once contact has been established.
3. Begin the report by identifying the patient’s age and chief complaint. DO NOT offer names or Social Security numbers over the radio transmission.
4. Give the patient’s vital signs and the last time they were taken.
5. State the treatment given to the patient in route and any response to the treatment.
6. Ask to speak with a physician to receive orders for requested medications. Ensure you have as complete a medical history on the patient as possible prior to request for medication orders.
7. Give the Emergency Department an estimated time of arrival.
8. Ask the ED staff if any additional information is needed.
9. Sign off with the aircraft designation.

FAILED COMMUNICATIONS: Every possible attempt should be made to contact medical control and / or the receiving facility for every patient transport, unless no such capability exists due to mission or situation. In the event of failed communications, have the PIC continue to attempt contact with the ED. It is also acceptable to attempt a patient report “in the blind” if there is reasonable suspicion that the receiving facility may be listening, but unable to establish two-way communications. Once communications with the ED staff is established, offer a patient report. Until contact is made, DO NOT delay patient treatment, continue to follow the treatment protocol employing standing orders (**per your certification level**). Ensure that you notify the Attending Physician of the receiving ED and fully document your actions in the patient call report.

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ADMINISTRATIVE

12. Patient Destinations per Acuity Category

Local Medical directors, Standards Instructors (SI) and Flight Instructors (FI), in conjunction with the Unit Commander and local MTF Commander should determine the respective names, locations, coordinates, contact numbers and types / levels of care available at military and civilian treatment centers within the unit's area of responsibility (AOR) / area of operations (AO). From this list, destination facilities for the following conditions should be prioritized and assigned for use:

- A) Major trauma care**
- B) Critical medical care**
- C) Cardiac referral center (emergent angioplasty and / or cardiothoracic surgery)**
- D) Pediatric critical care**
- E) Burn referral center**
- F) Toxicology / Poison Center (for information consultation)**
- G) Hyperbaric treatment facility**
- h) Inpatient psychiatric referral center**

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III. CLINICAL PROCEDURES

- 1. General Airway Management**
- 2. Oropharyngeal Airway**
- 3. Nasopharyngeal Airway**
- 4. Suctioning**
- 5. Hemorrhage (Bleeding) Control**
- 6. Dextrose Stick**
- 7. Splinting**
- 8. Short Spine Board (O.S.S.)**
- 9. Traction Splint**
- 10. Long Spine Board**
- 11. SKED Stretcher**
- 12. MAST/PASG**
- 13. Intravenous Therapy**
- 14. Oral Endotracheal Intubation in the Air Transport Setting**
- 15. Surgical Cricothyroidotomy**
- 16. Intramuscular Injection**
- 17. Subcutaneous Injection**
- 18. Intraosseous Therapy**
- 19. Chest Decompression / Needle Thoracentesis (Adult/Pediatric)**
- 20. Cardiac Monitor / Use of Defibrillator**
- 21. External Jugular Intravenous Therapy**
- 22. Rapid Sequence Intubation with Neuromuscular Blockade**
- 23. Mass Casualty Incident Triage**

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CLINICAL PROCEDURES

1. GENERAL AIRWAY MANAGEMENT

A. BASIC AIRWAY MANAGEMENT

INDICATIONS:

1. Any airway obstruction or potential airway obstruction
2. Patient unable to maintain airway patency without assistance
3. Altered mental status with absent gag reflex
4. Inadequate ventilation or oxygenation

PATIENT MANAGEMENT PROCEDURE

1. Use head tilt-chin lift method if cervical spine (C-spine) injury is unsuspected.
2. Perform a jaw thrust maneuver to maintain cervical spine stabilization when C-spine injury is suspected.
3. If a gag reflex is absent, an oropharyngeal airway (OPA) may be placed to aid in maintaining a patent airway. If used, be prepared for spontaneous emesis (suction and rolling). A nasopharyngeal airway (NPA) may be considered if airway support is desired, gag reflex is intact, no significant maxillofacial trauma exists, and the patient is able to tolerate the device.
4. If the patient's respiratory rate is less than ten (10) or greater than thirty (30), or shows signs of respiratory distress, the FMA should assist respirations using a bag valve mask (BVM) apparatus and high-flow oxygen if available.

B. OXYGEN ADMINISTRATION

INDICATIONS:

1. Hypoxia
2. Increased metabolic oxygen demand (trauma, precipitant childbirth, sepsis, respiratory distress, chest pain, altered mental status)
3. Any patient whom the FMA feels would benefit from additional oxygen.
4. Co-morbid conditions that may be exacerbated by altitude (i.e. coronary artery disease, chronic obstructive pulmonary disease – emphysema, etc).

PATIENT MANAGEMENT PROCEDURE:

1. All critical patients, or those with respiratory distress will receive 10-15 liters per minute (L/min) via non-rebreather mask (NRB). This high flow rate is required with NRB to maintain inflation of the reservoir bag and prevent carbon dioxide (CO₂) re-breathing. If this is not possible, use a partial non-rebreather (no reservoir bag), nasal cannula or bag-valve-mask (BVM) with blow-by.

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CLINICAL PROCEDURES --AIRWAY MANAGEMENT

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2. Administer 1-6 L/min via nasal cannula to hemodynamically stable patients with appropriate indications for supplemental oxygen (see indications above)
3. COPD patients who require high concentrations of oxygen should not have it withheld; be prepared, however, to provide assisted ventilations if needed.

**C. ADVANCED AIRWAY MANAGEMENT-AUTHORIZED FMA's ONLY
INDICATIONS:**

1. Respiratory arrest, respiratory failure or progressive respiratory distress.
2. An unconscious patient, who is still breathing, without a gag reflex or GCS < 14
3. Severe head injuries or patients with suspected increased intracranial pressure (ICP)
4. Patients in danger of rapidly increasing airway compromise (i.e. swelling, secretions, drug overdose or airway burns)
5. Medical control physician order for forced hyperventilation (with approved rapid sequence induction protocol)

CONTRAINDICATIONS:

1. Respiratory depression that may be reversed by administration of intravenous naloxone (Narcan) or 50% dextrose (D50) due to narcotic overdose or hypoglycemia.

PATIENT MANAGEMENT PROCEDURE:

1. Suction with Yankauer rigid tip prepared for use before any advanced airway procedure is attempted.
2. If time permits, pre-oxygenate the patient with NRB at 15 lpm. Avoid BVM ventilation if possible due to risk of gastric distention and aspiration.
3. Attempt endotracheal intubation.
4. For unstable patients, attempt in sequence:
 - a. BVM ventilation with nasopharyngeal or oropharyngeal airway, if appropriate.
 - b. Orotracheal intubation with in-line stabilization.
 - c. If patient is combative or laryngospasm is noted on primary intubation attempt, consider rapid sequence intubation (RSI) per protocol, if the FMA is credentialed by the medical director.
 - e. Consider surgical cricothyroidotomy if all above attempts have failed, and if the FMA is credentialed by the medical director.
5. Confirm tube placement and continue ventilation of the patient by BVM with 100 percent oxygen.
6. Repetitively examine the patient during transport for signs of tube dislodgment, mainstem bronchial intubation and tension pneumothorax, and treat as appropriate.

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CLINICAL PROCEDURES

2. OROPHARYNGEAL AIRWAY (OPA) INSERTION

- SKILL LEVEL:** All RL 1 flight medics are authorized to perform this skill.
- INDICATIONS:** To maintain an open airway for a patient without a gag reflex, and who has altered mental status, by lifting the base of the tongue away from the posterior portion of the oropharynx. May also be used to prevent the patient from biting an endotracheal tube in the event of seizures.
- CONTRAINDICATIONS:** Medics should assess for mental status and signs of a gag reflex. This can be done by having suction ready, then place a tongue depressor in the posterior oropharynx. If there is no gag, then the reflex is absent and the airway is unprotected.

PATIENT MANAGEMENT PROCEDURE:

1. Properly size the OPA by measuring from the corner of the patient's mouth to the angle of the patient's jaw, just below the earlobe. Have suction apparatus available before attempting OPA insertion.
2. Ensure that the patient's head remains in a neutral position even if no trauma is suspected.
3. Ventilate the patient with 100 percent oxygen (if time permits), until SaO₂ levels are as close to 100% as possible.
4. Grasp the patients tongue and jaw, and lift; or depress the patient's tongue with a tongue depressor.
5. Holding the OPA in your opposite hand, insert it into the patient's mouth. Ensure that the curved portion of the OPA is turned 180 degrees from final orientation and that the tip is pointing at the roof of the patient's mouth.
6. As you are inserting the airway, and the tip nears the uvula, the OPA needs to be turned 180 degrees so that the curved portion of the OPA is resting against the tongue.
7. To ensure proper placement, the base or end of the OPA should rest on the patient's lips. Clear breath sounds and equal rise and fall of the chest should be noted upon ventilation.
8. Should the patient become semi-conscious and/or regain a gag reflex, immediately remove the OPA and continue to watch the airway. If the airway remains compromised refer to Airway Management Protocol.

COMPLICATIONS:

1. Vomiting, suctioning may be needed
2. Aspiration
3. Bradycardia due to vagal stimulation

REMARKS: NONE

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CLINICAL PROCEDURES

3. NASOPHARYNGEAL AIRWAY (NPA) INSERTION

SKILL LEVEL: All RL 1 flight medics are authorized to perform this skill.

INDICATIONS: The nasopharyngeal airway is used as an adjunct to improve ventilation in the patient with an intact gag reflex.

CONTRAINDICATIONS:

1. The NPA should not be used in patients that present with bleeding from the nose or nasal obstruction.
2. An NPA should not be used in patients with suspected maxillofacial trauma.

PATIENT MANAGEMENT PROCEDURE:

1. Select the proper size by measuring from the tip of the patient's nose to the angle of the patient's jaw, just below the patient's earlobe and slightly smaller, in diameter, than the patient's nostril. Have suction available prior to attempt.
2. Maintain the patient's head in a neutral position even if no trauma is suspected.
3. Administer 100 percent oxygen (if time permits), until SaO₂ levels are as close to 100% as possible.
4. Lubricate the NPA with a water soluble gel or lidocaine jelly.
5. Visualize the larger of the nares and place the bevel against the septum of the patient's nose.
6. Push up on the tip of the nose and gently insert the NPA into the nostril; gentle rotation of the NPA often helps to ease advancement.
7. If resistance is met, remove the NPA and try the other nostril.
8. To verify proper position, the end of the NPA should rest on the opening of the nostril, clear breath sounds should be present, felt airflow from the end of the NPA and patient should report minimal to no discomfort.

COMPLICATIONS:

1. Vomiting, bleeding from the nasopharynx.
2. Laceration of the adenoids
3. Laryngospasm
4. Vagal stimulation resulting in bradycardia
5. Facial/skull fractures which may involve the cribriform plate.

REMARKS: NONE

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CLINICAL PROCEDURES

4. SUCTIONING

SKILL LEVEL: All RL 1 flight medics are authorized to perform this skill.

INDICATIONS: Complete or partial upper airway obstruction due to vomitus, sputum, or visible objects capable of being removed with suction in order to maintain an adequate airway.

CONTRAINDICATIONS: NONE in the pre-hospital setting.

PATIENT MANAGEMENT PROCEDURE:

- a. Rigid tip (Yankauer) suction device
 1. Used for suction of the oropharynx
 2. Pre-oxygenate patient (if time permits) until SaO₂ levels are as close to 100% as possible.
 3. Insert tip of rigid suction catheter to one side of the patients mouth, advanced the suction catheter only as far as is visible, **DO NOT LOSE SIGHT OF THE TIP.**
 4. Cover the vent hole with thumb (if one is present) to begin suction, use a sweeping motion from one side of the patient's mouth to the other as you move the catheter out of the patient's mouth.
 5. Only suction as you remove the catheter from the patients mouth and limit your suction time to < ten (10) seconds for adults, < five (5) seconds for infants and small children.
 6. Administer 100% oxygen once complete or before any further suctioning of the patients airway.

- b. Flexible suction catheter
 1. Can be used for suctioning the oropharynx and for removal of material in the endotracheal tube and nasopharyngeal airways.
 2. Pre-oxygenate patient (if time permits), until SaO₂ levels are as close to 100% as possible.
 3. Insert tip of suction catheter to one side of the patients mouth, advanced the suction catheter only as far as is visible, **DO NOT LOSE SIGHT OF THE TIP.**
 4. Cover the vent hole with thumb to begin suction, use a sweeping motion from one side of the patient's mouth to the other as you move the catheter out of the patient's mouth.
 5. Only suction as you remove the catheter from the patients mouth and limit your suction time to < ten (10) seconds for adults, < five (5) seconds for infants and small children.
 6. Administer 100 percent oxygen once complete or before any further suctioning of the patients airway.
 7. For suction of the nasopharynx, select the proper depth by measuring from the tip of the patients nose to the angle of the patients jaw, just below the patient's earlobe
 8. Mark the proximal portion with a piece of tape to ensure that the catheter is not forced into the lower airway.
 9. Insert the tip of the catheter into the nostril, apply gentle pressure until the tape touches the opening of the nostril.
 10. Cover the vent hole with thumb to begin suction while removing catheter from nostril with a slow, steady motion.

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CLINICAL PROCEDURES—SUCTIONING
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11. Only suction as you remove the catheter from the patients mouth and limit your suction time to < ten (10) seconds for adults, < five (5) seconds for infants and small children.
12. Administer 100% oxygen once complete or before any further suctioning of the patients airway.

COMPLICATIONS:

1. Vomiting, bleeding from the nasal mucosa.
2. Laceration of the adenoids
3. Vagal stimulation resulting in bradycardia
4. Laryngospasm.
5. Perforation of the cranium in maxillofacial trauma.

REMARKS: NONE

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CLINICAL PROCEDURES

5. HEMORRHAGE (BLEEDING) CONTROL

SKILL LEVEL: All RL 1 flight medics are authorized to perform this procedure.

INDICATIONS: Control of hemorrhage in a patient is a crucial life saving procedure. It is very important to find and treat all sources of bleeding, if we are to effectively treat the patient.

CONTRAINDICATIONS: NONE

PATIENT MANAGEMENT PROCEDURE:

1. Direct Pressure
2. Elevation
3. Pressure Dressing
4. Pressure Points
5. Splinting the affected area/extremity
6. Tourniquet

COMPLICATIONS: NONE

REMARKS:

1. Always inspect for entry and exit wounds.
2. Never remove a dressing that has become blood soaked. Continue to add more dressing to the other layers.
3. Use a tourniquet only as a last resort. Never remove a tourniquet after application and mark a "T" and the time of placement on the patient's forehead.
4. **Always wear personal protective equipment.**

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6. DEXTROSE STICK

SKILL LEVEL: All RL 1 flight medics are authorized to perform this procedure.

INDICATIONS: Unresponsive patients of unknown etiology, patients with suspected diabetic emergencies, possible stroke patients, kidney failure patients and patients with chronic alcohol problems.

CONTRAINDICATIONS: NONE

PATIENT MANAGEMENT PROCEDURE:

1. Ensure that Glucometer has been calibrated to the corresponding strip.
2. Insert test strip into glucometer
3. Swab patient's finger with alcohol wipe and lance finger using lancet.
4. Apply firm pressure to patient's finger to produce a drop of blood.
5. Apply a small drop of blood to the litmus strip, at the end of the exposed test strip.
6. Press the start button on the Glucometer and wait approximately thirty (30) seconds for results.
7. Apply direct pressure to puncture site, turn off glucometer and record findings.

COMPLICATIONS: NONE

REMARKS: Normal blood glucose levels are from 60 to 110.

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CLINICAL PROCEDURES

7. SPLINTING

SKILL LEVEL: All RL 1 flight medics are authorized to perform this skill.

INDICATIONS: The patient who presents with a presumed extremity fracture. Signs of pain, swelling, deformity, bleeding and guarding may be present upon examination. Do not assume that there is no fracture, if none of the signs listed previously are present. Try to splint a suspected fracture in the position of function, if possible, without causing further damage to the extremity.

CONTRAINDICATIONS: NONE

PATIENT MANAGEMENT PROCEDURE:

- a. Ulna/Radius
 1. Insure that infection control precautions are taken.
 2. Manually stabilize the extremity. Maximize the use of the crew chief, by requesting his/her aid.
 3. Assess for distal pulses in the affected extremity, motor function (assess for asymmetry in both extremities) and sensation.
 4. Hands should be placed in the position of function, if possible. Movement should be limited, to prevent any further damage, and distal pulses, motor function and sensation needs to be reassessed after each movement. A soft bandage can be placed in the hand of the injured extremity to maintain proper position.
 5. Measure for the size of splint on the unaffected extremity.
 6. Apply the splint to the underside of the injured extremity, immobilizing the joint above and below the suspected break. Ensure adequate padding for comfort and to prevent pressure points.
 7. Secure the splint with roller gauze or cravats and offer additional padding between the arm and chest, if time and equipment permits.
 8. Apply a sling and swath, if time permits; and reassess distal pulses, motor function and sensation.

- b. Tibia/Fibula
 1. Insure that infection control precautions are taken.
 2. Manually stabilize the extremity. Maximize the use of the crew chief, by requesting his/her aid.
 3. Expose the injured extremity.
 4. Assess for distal pulses in the affected extremity, motor function (assess for asymmetry in both extremities) and sensation.
 5. Measure for the size of splint(s) on the unaffected extremity.
 6. One splint should be placed medially and the other laterally, on the affected extremity. Ensure that adequate padding is used for comfort and to prevent pressure points.
 7. Voids, or dead spaces, should be filled in with padding, if time permits.
 8. Use roller gauze or cravats to secure the splints in place. If cravats or straps are used, insure that they are tied one above and below the wound, one above and below each joint.

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CLINICAL PROCEDURES—SPLINTING

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9. Stabilize the foot in the position of function, if possible. Consider the use of several blankets or pillows, and secured with wide tape or cravats.
10. Secure the entire lower extremity anatomically to the other (unaffected) extremity or with the use of a long board.
11. Reassess distal pulses, motor function and sensation.

COMPLICATIONS: Repeated movement of the extremity, could cause further damage and increased bleeding.

REMARKS: Continually reassess the extremity during transport. **Any bleeding noted from an open fracture should be controlled and dressed prior to splinting.**

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CLINICAL PROCEDURES

8. SHORT SPINE BOARD (O.S.S.)

SKILL LEVEL: All RL 1 Flight Medics are authorized to use this equipment after skills demonstration with Unit Medical Training NCO.

INDICATIONS:

1. For the use in stabilization of a patient's cervical spine in confined areas.
2. Extrication from vehicles where rapid extrication is not indicated based on the primary assessment and there is no long-term entrapment.
3. Prolonged vehicle entrapments, after life threatening injuries are attended to.
4. For use with the SKED during vertical or horizontal lift hoist rescues.

CONTRAINDICATIONS:

1. This equipment should not be considered for use as a means of rapid extrication, or for patients who exhibit signs/indications for rapid extrication.
2. The patient's head and neck should not be moved, but stabilized in the position found, if deformity is felt and/or crepitus is detected.

PATIENT MANAGEMENT PROCEDURE:

1. Assess for scene safety and the mechanism of injury.
2. Establish in-line stabilization of the patient's head and cervical spine unless contraindicated. Your partner MUST maintain this position until the entire splint is applied.
3. Assess the patient's airway, breathing and circulation.
4. Perform a neuromuscular survey by checking pulses, sensation and motor function in all extremities.
5. Assess the patient's neck for JVD, tracheal deviation, and subcutaneous emphysema.
6. Measure and apply an appropriately sized cervical collar to the patient.
7. With one person stabilizing the cervical spine, a second person provides anterior and posterior support to the thoracic cage.
8. The person stabilizing the patient's head will direct all patient movement. At his/her command, both personnel will move the patient forward. It is important to keep the entire spine in alignment when moving the patient. You will need to allow two to three inches of space between the patient's back and the seat.
9. Remove the O.S.S. from its case and unfold the two center sections.
10. The O.S.S. is placed behind the patient in the space created between the patient's back and seat.
11. Release the groin and torso straps. The torso straps should rest just under the armpits of the patient.
12. Pass the shoulder straps across the patient's chest and attach them to the corresponding strap at each of the patient's armpits. The buckle of each strap should be positioned on the anterior portion of the chest and be generally mid-clavicular.
13. Attach the second and third set of straps to their corresponding color.
14. Ensure that each strap is not tugged, but gently pulled to assure in-line stabilization.
15. Do not make the straps so tight as to make it difficult for the patient to breathe.
16. Bring the groin straps under each leg by using a sawing motion and attach to the corresponding strap at each thigh.
17. Pad each strap in the groin area before connecting them if time permits.
18. Reassess all of the straps to ensure that none are too loose.
19. Place the provided padding between the patient's head and the device as needed.

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This will help to ensure that the head and neck will maintain a neutral position. DO NOT place the padding behind the patient's neck.

CLINICAL PROCEDURES – SHORT SPINE BOARD

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20. The second person should now take over manual cervical spine stabilization and the partner will position the head flaps along the sides of the patient's head.
21. With the partner regaining control of cervical spine stabilization, the second person will position the Forehead Restraint Strap with the padding toward the patient. Move any hair from the patient's forehead and place the Forehead Restraint Strap on the patient with the lower edge covering the patient's eyebrows and attach to the velcro on the head flaps of the device.
22. Place the Collar Strap on the rigid chin rest of the cervical collar. Pull the ends of the strap upward and at an angle and attach to the velcro on the device.
23. Reassess patient's pulses, sensation and motor function in all extremities.
24. Properly secure the patient to a long spine board per protocol.

COMPLICATIONS:

1. The chest and abdominal straps could cause or increase dyspnea.
2. The Collar Strap could be displaced over the patient's mouth, upon movement of the patient, and create an airway obstruction.
3. It may take an extended amount of time to properly place the device on a patient.

REMARKS: NONE

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CLINICAL PROCEDURES

9. TRACTION SPLINT

SKILL LEVEL: All RL 1 flight medics are authorized to perform this procedure.

INDICATIONS: For use with suspected femur fractures.

CONTRAINDICATIONS: NONE

PATIENT MANAGEMENT PROCEDURE:

1. Ensure that infection control precautions are taken.
2. Apply manual stabilization to the leg.
3. Expose the extremity.
4. Have your crew chief or other assistant apply manual traction. The assistant should not move or release manual traction, until the splint is in place and mechanical traction is established.
5. Assess for distal pulses, motor function and sensation of the injured extremity.
6. Apply the ankle hitch/strap.
7. Using the other extremity, measure the splint size from the ischial tuberosity to eight-twelve inches past the foot.
8. Position the splint at the injured extremity, adjust and open the Velcro straps: one above and below the injury, one above the knee and ankle.
9. Lift the leg as one unit and place the splint under the extremity with the ischial pad resting against the ischial tuberosity.
10. Attach the ischial strap.
11. While your assistant is still maintaining manual traction, connect the "S" hook to the rings of the ankle strap.
12. Apply mechanical traction slowly until it is equal to or just surpasses manual traction-Guide progressive traction by improved pulse and decreased pain.
13. Secure the splint straps that support the leg and manual traction can be released.
14. Reassess distal pulses, motor function and sensation.
15. Place patient securely on long spine board.

COMPLICATIONS: Inadequate manual traction or excessive movement of the extremity may cause additional injury and/or improper immobilization of the leg.

REMARKS: NONE

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10. LONG SPINE BOARD

SKILL LEVEL: All RL 1 flight medics are authorized to perform this procedure.

INDICATIONS: Mechanism of injury (MOI) plays the largest part in the decision of whether to use the long spine board. It may be best to always be pessimistic in any situation where spinal stabilization is in question and use the long spine board. Therefore, if one or more of the following indicators are met, the patient(s) will be placed in full spinal stabilization with the use of the long spine board.

1. Neck or back pain.
2. Loss of consciousness or suspected loss of consciousness.
3. Altered level of consciousness.
4. Alcohol or drug intoxication.
5. Deformity or swelling noted to the head, neck, posterior thorax or abdomen.
6. Any deformity, instability or pain associated with exam of the pelvis.
7. Significant MOI (i.e., rapid deceleration (fall) greater than patients height, ejection from vehicle, motor vehicle accident (MVA) with speeds in excess of 10 mph)
8. Any electrical injury with related trauma.
9. Any injury related to high velocity projectiles (bullets, arrows, fragments from explosives) or penetration injuries to the head, neck, torso, abdomen or pelvis.

CONTRAINDICATIONS: NONE

PATIENT MANAGEMENT PROCEDURE:

1. Cervical spine control should be initiated simultaneously with inspection of the patient's airway, and maintained until the patient is fully stabilized on the long spine board.
2. Perform a quick neurological and circulatory assessment.
3. Place the appropriate sized cervical collar on the patient.
4. If the patient is trapped or pinned and does not need rapid extrication, the Oregon Spine Splint (O.S.S.), Kendrick Extrication Device (KED) or short spine board should be used to remove the patient from the vehicle.
5. The patient should be moved as a unit and placed on the backboard as a unit. A quick primary survey should be performed to assess for any injuries.
6. Once on the backboard, the patient's torso and legs should be secured to the long spine board with straps or cravats: Two straps, which cross the chest, from shoulder to torso and a second strap across the pelvis.
7. Lower extremities should be secured with straps above and below the knees.
8. The patient's head and neck are stabilized with a Cervical Immobilization Device (CID), Headbed, blanket roll or towel rolls and firmly secured with Velcro straps or tape across the forehead and chin.
9. Repeat neurological assessment.

COMPLICATIONS:

1. Pregnant patients may need to have the board tilted by placing a bolster underneath the right side to relieve pressure on the inferior vena cava during transport.
2. Be prepared to use suction for the patient in the event that the patient vomits.

REMARKS: NONE

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CLINICAL PROCEDURES

11.SKED STRETCHER

SKILL LEVEL: All RL 1 Flight Medics are authorized to perform this skill after skill demonstration to the Unit Medical Trainer.

INDICATIONS:

1. Transportation of an injured patient over rough terrain to aircraft or ambulance.
2. Horizontal or vertical lift of patient to aircraft via rescue hoist.
3. Water/hoist rescue of patients (must have flotation system properly attached to SKED prior to use and crewmembers must be equipped with the proper water survival gear).

CONTRAINDICATIONS:

1. **A long spine board or the O.S.S. with its rigid shoulder board attached MUST be used with the SKED, if the patient has a suspected spinal injury, prior to use.**

PATIENT MANAGEMENT PROCEDURE:

1. Step on the foot end and unroll the SKED, bending the plastic away from you as you unroll it. You may need to do the two or three times until the SKED lies relatively flat.
2. Insert the horizontal lift head strap through the slot from at the head portion of the stretcher. Pass the strap under the SKED and through the opposite slot at the head of the stretcher.
3. Repeat the same procedure with the horizontal lift foot strap at the other end of the SKED.
4. Place the patient onto the SKED by either log rolling him onto the SKED or slide the patient on from the foot of the SKED. Ensure that the straps are not underneath the patient, and center the patient on the stretcher.
5. Place the four cross straps over the patient and loop them through the buckles. Using the excess portion of cross strap, make a half hitch over the buckle.
6. Run the foot cross straps through the remaining unused grommets at the end of the SKED and loop through the buckles. Tie a half hitch over the buckle using the remaining portion of the cross strap.
7. Secure the pull strap at the head of the stretcher, to on of the cross straps at the patients chest with several half hitches.
8. **OPTIONAL-** Use the chest strap to secure the patients feet together to keep them from separating and protruding from the bottom of the SKED during hoisting operations.
9. Ensure that all four horizontal lift straps are equal and attach them to the locking carabiner / snap-link. The lock **MUST** be screwed tight before hoisting the patient.
10. Using the V-strap from the tag line, attach the two locking carabiners / snap-links to the head of the SKED stretcher and ensure that they are screwed tight.
11. Attach the hoist hook to the large, steel, locking carabiner.
12. Grab the tag line, give the appropriate hand signals to the hoist operator and guide the patient with the tag line as he/she is being hoisted to the aircraft. Try to prevent the SKED from oscillating until the patient is safely inside the aircraft.
13. Once the tag line has been released, place it inside the bag and prepare yourself to be hoisted to the aircraft.

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COMPLICATIONS:

1. In-line spinal stabilization cannot be maintained if the patient is moved/hoisted without the use of the O.S.S. or long spine board.
2. The patient can be ejected from the SKED stretcher during hoist operations if the patient is not properly positioned and secured in the SKED.

REMARKS: NONE

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CLINICAL PROCEDURES

12. MAST/PASG

SKILL LEVEL: All RL 1 flight medics are authorized to perform this procedure.

INDICATIONS:

1. Stabilization of suspected bilateral lower extremity fractures.
2. Stabilization and control of internal bleeding in suspected, grossly unstable pelvic fractures.

CONTRAINDICATIONS:

1. Congestive heart failure (pulmonary edema)-patients exhibiting shortness of breath or chest pain and rales on auscultation of lungs will not have MAST/PASG applied.
2. Abdominal section will not be inflated on patients with eviscerations, penetrating objects in the abdomen or pregnant patients.
3. Angulated fractures of the lower extremities.
4. Uncontrolled hemorrhaging.
5. Size of available PASG does not match patient (i.e. adult PASG for pediatric pt)

PATIENT MANAGEMENT PROCEDURE:

- a. Application and Inflation
 1. Spread MAST/PASG garment onto a stretcher, litter or long spine board.
 2. Move patient onto the MAST/PASG and align the patient's spine with MAST/PASG spine line, making sure the abdominal section is just below the lowest ribs.
 3. Wrap legs and abdominal sections and secure with Velcro closures.
 4. Ensure that all inflation/deflation valves are in the correct position.
 5. Inflate leg sections first until Velcro crackles and then close valves. Obtain B/P and inflate abdominal section, if indicated.
 6. Take patient's B/P again and record B/P and time of MAST/PASG inflation.
 7. Monitor patient's vital signs and reassess patient as indicated, during transport.
- b. Deflation
 1. Never deflate the MAST/PASG garment in the field.
 2. A physician must be present and in charge of the patient.
 3. If at any time during the deflation process, the patient's systolic blood pressure begins to fall precipitously, re-inflate the MAST/PASG garment at once.

COMPLICATIONS:

1. Rhabdomyolysis / compartment syndrome.
2. Precipitous drop in blood pressure due to rapid deflation.

REMARKS:

1. Two large bore IV's should be established after application of the MAST/PASG garment, if not done prior to application.
2. When inflating the MAST/PASG for splinting purposes, do not use full inflation pressure. Inflate until firm but still dents to finger pressure.

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CLINICAL PROCEDURES

13. INTRAVENOUS THERAPY

SKILL LEVEL: All RL 1 flight medics are authorized to perform this procedure, after demonstration of skill to Medical Training NCO and approval from Medical Director.

INDICATIONS:

1. Need for fluid replacement.
2. Need for medication administration.

PATIENT MANAGEMENT PROCEDURE:

- a. Select appropriate tubing.
 1. All adult trauma, heat injury, or dehydration patients, 10 – 15 drops per ml.
 2. Medical patients that require, or may require, IV infusion medications, 60 drops per ml or Dial-A-Flow administration set.
 3. Pediatric patients (medical or trauma) under the age of six (6), Buretrols or 60 drops per ml administration set, with a three way stop cock and a 30 – 60 cc syringe.
- b. Select appropriate catheter size.
 1. Adult medication line – 18 to 20 gauge Angiocath.
 2. Adult trauma/volume infusion – 14 to 16 gauge Angiocath.
 3. Cardiac arrest patient – 14 to 18 gauge Angiocath or Twin Catheter.
 4. Pediatric patients – see pediatric protocols
1. Assemble equipment – IV tubing, fluid, catheter, gloves, constricting band, and tape.
2. Check IV fluid for clarity, expiration date, and leaks. Discard if not clear; date expired, or leaking.
 - a. Using aseptic technique, connect tubing to stopcock, close all connections, spike bag and fill drip chamber. Open clamp and allow fluid to dispel all air from tubing. Close clamp and stopcock.
 - b. Connect Dial-A-Flow or Burotrol as appropriate.
3. Select appropriate site for insertion of catheter.
 - a. Use the upper extremities first, beginning at the most distal portion possible and moving proximal for other IV sites.
 - b. In serious/life threatening situations, select the antecubital fossa.
 - c. If no IV access is obtainable, see External Jugular Venipuncture Protocol.
4. Cleanse the site with providone iodine first (if available), using a circular motion. Allow the iodine to dry for thirty seconds if time permits. Cleanse the site with an alcohol pad in the same manner. If patient is allergic to iodine, use alcohol swab only.
5. Perform venipuncture with thumb or finger pressure below the insertion site, to stabilize the vein.
6. Hold IV catheter bevel up (down for infants).
7. Direct needle entry at a 30 – 45 degree angle from the skin. Once blood enters the flash chamber, move catheter almost level with patient's skin.
8. Guide the catheter/needle into the vein 1/4-inch.

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9. Advance catheter off needle and into vein.

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10. Anchor catheter hub with tape or Veni-Guard.
11. Loop IV tubing and anchor with tape to decrease tension on the IV site.
12. Set IV rate.
13. Label IV dressing or bag with date, time initiated, catheter size, and initials.

COMPLICATIONS:

1. Hematoma at the insertion site.
2. Infiltration
3. Air Embolism
4. Phlebitis
5. Arterial cannulation
6. Catheter tip sheer

REMARKS:

1. Fluid Challenge/Bolus
 - a. Primarily used for trauma patients and in certain cases of patients with inadequate preload.
 - b. Initiate IV infusion, using two Normal Saline, two Lactated Ringers or one of each.
 - c. Assess breath sounds for signs of pulmonary edema. If there are no signs or symptoms present, continue.
 - d. Adults - administer a bolus of 250 cc from each bag of IV fluid.
 - e. Reassess the patients blood pressure and administer additional 250 cc bolus', until patients pressure is > 90 mm Hg. Total fluid amounts not to exceed a maximum of 20 cc/kg.
 - f. Pediatric patients receive a bolus of 20 cc/kg, to a maximum total fluid amount of 60 cc/kg. Reassess blood pressure after each bolus.
 - g. Infants and neonates (age 0 to 30 days) receive a bolus of 10 cc/kg, to a maximum total fluid amount of 30 cc/kg. Reassess vital signs after each fluid bolus.
 - h. Medical Control should be contacted for direction to exceed the maximum allowable fluid amounts.
2. Intravenous Injection
 - a. Ensure the correct patient, medication, route, and dose and expiration date.
 - b. Wipe IV tubing medication port with alcohol pad.
 - c. Clamp off the IV tubing proximal to the medication port.
 - d. Insert needle into the medication port.
 - e. Administer the medication by pushing the plunger.
 - f. Remove the needle from the port and discard.
 - g. Unclamp the tubing to allow a "wide open" flow and administer 10 to 15 ml of crystalloid solution to flush the medication from the line.
 - h. Adjust the flow of the solution to KVO, if indicated.
 - i. Annotate administration, results and/or complications.
 - j. Continue to reassess vital signs.

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CLINICAL PROCEDURES

14. ORAL ENDOTRACHEAL INTUBATION IN THE AIR TRANSPORT SETTING

SKILL LEVEL: All RL 1 flight medics with a current EMT-I or current EMT-P certificate who meet the following requirements:

- a. Sign off from the unit Medical Training NCO and approval from the unit Medical Director with current AHA/ACLS certification.
- b. Must meet continuing education requirements by documenting ____ **successful** intubations on actual patients (field or operating room acceptable) per quarter, in accordance with Commander's / Medical director's policy, to continue practicing this skill.

INDICATIONS:

1. Patients who are not breathing and unresponsive.
2. Patients in severe respiratory distress, without a gag reflex.
3. As directed by on line Medical Control.

PATIENT MANAGEMENT PROCEDURE:

1. Select the proper tube size.
 - a. Adults
 - (1). 7.0 to 8.0 size ET tube for males
 - (2). 6.5 to 7.5 size ET tube for females
 - b. Children
 - (1). Use formula $[(16 + \text{age})/4]$
 - (2). Have one tube 0.5 mm smaller and 0.5 mm larger.
2. Use uncuffed tubes on children eight (8) years old and younger.
3. Have suction equipment readily available and the patient's airway examined for the presence of a foreign body or dentures and these removed if present.
4. Attempt to pre-oxygenate the patient if time permits, using hi-flow oxygen (10 lpm or greater) via non-rebreather mask for at least one minute
5. If a stylet is used, it should not extend past the tip of the tube and should be folded in place at the proximal end of the tube to prevent inadvertent advancement. (If the stylet is lubricated, it will slide out easier.)
6. Attach a ten-cc syringe normal saline or lactated ringers solution to the cuff on the tube and check cuff inflation.
7. Use a second person to provide in-line cervical stabilization on all trauma patients with cervical collar in place.
8. Grasp the laryngoscope handle with left hand and attach the appropriate blade. Test the light bulb. With neck stabilized and suction ready, insert blade into right side of mouth.
9. With the blade conforming to the curvature of the pharynx, gently lift the tongue until the glottic opening and vocal cords can be seen. An assistant may apply gentle cricoid pressure to help stabilize the larynx, aid in visualizing the cords and prevent gastric reflux.
10. Intubation attempts should be limited to two per patient. If intubation is difficult, consider other options to protect the airway.
11. Each intubation attempt should not exceed 30 seconds.
12. The patient needs to be ventilated for at least 30 seconds prior to each attempt.
13. The tube should not be passed until the patient's vocal cords are visualized and the tube can be seen passing through the cords.
14. After the tube has passed through the cords, inflate the cuff USING NORMAL SALINE or LACTATED RINGERS SOLUTION (NOT AIR) to the point of

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RESISTANCE, or approximately 10.0 cc of fluid. (This precludes over-expansion of air in the cuff that may occur with ascent to altitude).

CLINICAL PROCEDURES – OROTRACHEAL INTUBATION

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15. After the tube has been placed, confirm successful intubation:
 - a. Observe for chest rise upon ventilation.
 - b. Auscultate for bilateral breath sounds.
 - c. Observe for presence of vapor in ET tube on exhalation
 - d. Observe color change (purple to yellow) on end tidal CO₂ monitor (ETCO₂), if available
 - e. Observe oxygen saturation on pulse oximeter (should rise / remain over 90%).
16. Once proper tube placement has been established, note the position of the shaft at the patient's teeth and record the number on the tube. Continually reassess the patient's airway to notice if there has been a shift in the position of the tube.
17. Secure the tube in place.
18. If, at any time, successful tube placement cannot be confirmed, remove the tube. Maintain the patient's respirations with a BVM and 100 percent oxygen and basic airway management skills.
19. Reassess tube position frequently, assess breath sounds, epigastric sounds and ventilatory ability as indicated.

COMPLICATIONS:

1. Trauma to upper airway – fractured teeth, lacerations to lip, tongue, pharynx, larynx, vocal cords, trachea, or esophagus, with resultant hematoma formation, bleeding or abscess formation.
2. Intubation of the right or left mainstem bronchi.
3. Esophageal intubation.

REMARKS:

1. In the absence of an intravenous or intraosseous line, the following drugs can be administered down the endotracheal tube: Narcan, Atropine, Valium (diazepam), Epinephrine, Lidocaine (remember the mnemonic N-A-V-E-L)

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CLINICAL PROCEDURES

15. SURGICAL CRICOTHYROIDOTOMY

SKILL LEVEL: All RL 1 flight medics with a current EMT-I / P certificate who demonstrate skill proficiency to unit Medical Training NCO and approval from unit Medical Director.

INDICATIONS:

1. Airway obstruction above the vocal cords.
2. Airway access below the level of the vocal cords is needed (i.e. crushed larynx)
3. All other attempts were unsuccessful at establishing / securing the patient's airway.

CONTRAINDICATIONS: If the patient can be effectively ventilated using basic airway management skills, surgical cricothyroidotomy should not be performed.

PATIENT MANAGEMENT PROCEDURE:

1. Identify the cricoid membrane. This is bounded superiorly by the thyroid cartilage and inferiorly by the cricoid cartilage.
2. Prepare the area with iodine solution, if available. With a scalpel, make a 1.0 cm transverse incision over the membrane. Use the scalpel to puncture the membrane after the skin incision is made.
3. If landmarks are obscured by marked obesity or subcutaneous air, make a 2.0 cm vertical incision through the skin and dissect bluntly down to identify the cricoid membrane. Then make a 1.0 cm horizontal incision through the membrane when it is identified.
4. Enlarge the incision with the handle of the scalpel or other appropriate surgical instrument. **NEVER enlarge the incision with the scalpel blade.**
5. Insert the appropriate sized tracheostomy tube (a trimmed / shortened endotracheal tube may serve as a field expedient). Inflate the cuff with saline, or Ringer's Lactate, remove the obturator (if applicable), ventilate and confirm successful placement:
 - a. Observe rise and fall of the patient's chest.
 - b. Auscultate for bilateral breath sounds.
6. Transport the patient to the nearest appropriate medical center.

COMPLICATIONS:

1. Hemorrhage at site and into airway.
2. May cause pneumothorax.
3. May cause subcutaneous emphysema.
4. Esophagus may be perforated.
5. Possible laceration of the vocal cords.
6. Possible laceration of the thyroid gland.

REMARKS:

1. An endotracheal tube may be used in the absence of a tracheostomy tube. Insert the ET tube only until the cuff enters the trachea, and then inflate it.

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16. INTRAMUSCULAR (IM) INJECTION

SKILL LEVEL: All RL 1 FMA's who are authorized to practice as EMT-I or EMT-P after demonstration of skill to unit Medical Training NCO and approval from unit Medical Director.

INDICATIONS:

1. Administration of medications.
2. IV access unobtainable, and medication can be given intramuscularly (IM).
3. As directed by Medical Control Physician.

PATIENT MANAGEMENT PROCEDURE:

1. Inform the patient of the need for the medication and find out if the patient is allergic to the medication.
2. Select medication to be given by IM injection.
3. Check name, dose, and clarity and expiration date.
4. Select the injection site and clean with alcohol prep.
5. Gently hold the skin flat with the thumb and index finger of your free hand.
6. Insert the needle at a 90-degree angle from the skin and pull back on the plunger to be sure that the needle is not inserted into an artery or vein. If no blood is obtained, depress the plunger and administer the medication. If blood is obtained, withdraw the needle, discard and start over.
7. Pull out the needle at the same angle that it was inserted. Clean the site and dispose of the contaminated syringe.

COMPLICATIONS:

1. Inadvertent injection into an artery or vein.
2. Local infection resulting from bacterial contamination during IM injection.

REMARKS: NONE

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17. SUBCUTANEOUS INJECTION

SKILL LEVEL: All RL 1 FMA's who are authorized to practice as EMT-I or EMT-P after demonstration of skill to unit Medical Training NCO and approval from unit Medical Director.

INDICATIONS:

1. Administration of medications requiring this route.
2. IV access not obtainable, and medication can be given sq.
3. As directed by Medical Control Physician .

PATIENT MANAGEMENT PROCEDURE:

1. Inform the patient of the need for the medication and find out if the patient is allergic to the medication.
2. Select medication to be given by subcutaneous injection.
3. Check name, dose, and clarity and expiration date.
4. Select the injection site and clean with alcohol prep.
5. Gently hold the skin flat with the thumb and index finger of your free hand.
6. Insert the needle at a 45-degree angle from the skin and pull back on the plunger to be sure that the needle is not inserted into an artery or vein. If no blood is obtained, depress the plunger and administer the medication. If blood is obtained, withdraw the needle, discard and start over.
7. Pull out the needle at the same angle that it was inserted. Clean the site and dispose of the contaminated syringe.

COMPLICATIONS:

1. Inadvertent injection into an artery or vein.
2. Local infection resulting from bacterial contamination during injection

REMARKS: NONE

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CLINICAL PROCEDURES

18. INTRAOSSEOUS THERAPY

SKILL LEVEL: All RL 1 FMA's who are authorized to perform as EMT-I or EMT-P and are certified in ACLS or PALS, after demonstration of skills to unit Medical Training NCO and approval from unit Medical Director.

INDICATIONS:

1. Pediatric patients under the age of six years old. (Consider in older children on a case by case basis, with direction from Medical Control.)
2. Pediatric cardiopulmonary arrest, after effective ventilation has been established.
3. Shock/trauma after effective ventilation is established.
4. For cases of obtunded and severely ill or injured pediatric patients, where prolonged transport is anticipated and vascular access cannot be achieved by conventional means.

CONTRAINDICATIONS:

1. Osteogenesis imperfecta.
2. Placement in or distal to a fractured bone.
3. Placement through a burn site or infected area.
4. Dermatitis at the insertion site.
5. Use of hypertonic medications and solutions.

PATIENT MANAGEMENT PROCEDURE:

1. Position the patient. Place the patient in a supine position, maintaining cervical spine control precautions if needed. Place a small blanket or rolled towel behind the patient's knee for support.
2. Identify the landmarks and locate insertion site.
 - a. Optimal site: Proximal Tibial Site – midline on medial flat surface of anterior tibia, two (2) finger widths below the tibial tuberosity.
 - b. Alternate Site: Distal Femoral Site – midline two (2) finger widths above the femoral condyles.
3. Ensure that all equipment is ready for use and available for immediate access when the procedure is started.
4. Put on sterile gloves and prep the site with iodine solution, then alcohol, maintaining aseptic technique at all times. Select the needle to be used in the procedure and follow manufacturer recommendations for needle preparation.
5. Direct and insert the needle with the stylet in place, perpendicular to the bone, or angled away from the joint, avoiding the epiphyseal (growth) plate at the distal edge of the bone. Insert with pressure and a "boring" or "screwing" motion until penetration into the marrow. This is evident by a sudden "pop" or "give", which correlates with a lack of resistance.
6. Remove the stylet while stabilizing the intraosseous infusion needle and confirm placement:
 - a. Attach a 10-cc syringe, filled with Normal Saline, to the hub of the needle and inject 5 cc of Normal Saline. The injection should not be met with resistance or infiltration at the injection site.
 - b. Aspirate with the syringe, looking for blood/marrow particulate matters (only a small amount needs to be seen to confirm placement).
 - c. The needle should stand upright without support.

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CLINICAL PROCEDURES – INTRAOSSEOUS THERAPY

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7. Remove the syringe and immediately attach the IV administration set to the needle.
8. Stabilize the needle with tape and gauze, just as you would a penetrating object.
9. Adjust infusion flow rates while considering the following:
 - a. Gravity controlled flow rates may be unacceptably low.
 - b. IV solution may be placed in a pressure infuser or blood pressure cuff placed and inflated around the IV bag.
 - c. The IV bolus may be pushed through with a large syringe into a three-way stopcock.
10. Continuously recheck the placement of the infusion site and assess for extravasation.

COMPLICATIONS:

1. Soft tissue infusion from penetration of the posterior wall.
2. Slow infusion from clotting of marrow.
3. Osteomyelitis.
4. Fat embolism.
5. Periostitis at the injection site.
6. Infection.
7. Fracture of the bone.
8. Damage to the epiphyseal plate.

REMARKS: NONE

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CLINICAL PROCEDURES

**19. CHEST DECOMPRESSION / NEEDLE THORACENTESIS
ADULT/PEDIATRIC**

SKILL LEVEL: All RL 1 FMA's who are authorized to perform as EMT-P and are certified in ACLS (Providers should possess PALS certification or be under on-line medical guidance if performing this skill on patients younger than 15 years of age). FMA's are required to show demonstration of skills to unit Medical Training NCO and receive approval from unit Medical Director.

INDICATIONS:

1. Patients with suspected tension pneumothorax.
2. Chest injuries with diminished or absent breath sounds to one or both sides of the thoracic cavity.
3. Traumatic arrest patients with massive chest trauma should be considered for diagnostic / prophylactic bilateral chest decompression.
4. No response to aggressive oxygen and ventilatory assistance.
5. Correctly placed endotracheal tube if associated with life threatening shock and no other abnormal assessment findings are present to suggest an explanation for unequal breath sounds.

CONTRAINDICATIONS:

1. An attempt to contact Medical Control should be made for patients younger than 15 years of age and/or less than 80 pounds, prior to performing needle chest decompression.
2. If establishing contact with Medical Control is not possible, or would cause an unreasonable delay in the need for this life-saving procedure; the provider may perform this skill.

PATIENT MANGEMENT PROCEDURE:

1. Apply oxygen 15 LPM via BVM, endotracheal tube, or NRB mask as indicated.
2. Select needle size:
 - a. Patients 15 years old and/or in excess of 80 pounds – 14-16 gauge.
 - b. Pediatric patients – 16-18 gauge.
3. Anterior approach:
 - a. Identify the second intercostal space between the second and third ribs, mid-clavicular line, on the side of the pneumothorax.
 - b. Quickly prepare the area with providone iodine swabs.
 - c. Insert the needle at a 90-degree angle from the skin, "hugging" the top of the third rib and into the intercostal space.
 - d. Puncture the parietal pleura.
 - e. Aspirate as much air as necessary.
 - f. Remove the needle and leave the catheter in place.
 - g. Attach IV extension tubing, with three-way stopcock, to the catheter. Place a syringe on the stopcock for pediatric patients.
 - h. Secure catheter to patient with tape.
 - i. Repeat aspiration through this closed system, if signs of tension pneumothorax recur.

CLINICAL PROCEDURES – CHEST DECOMPRESSION

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COMPLICATIONS:

1. Simple pneumothorax.
2. Laceration of intercostal vessels.
3. Laceration of the lung.
4. Local cellulitis.
5. Subcutaneous emphysema.
6. Local hematoma.

REMARKS:

1. Tension pneumothorax may result from trauma or intubation and/or positive pressure ventilations. **Be especially careful about positive pressure ventilations (use of the BVM) with children and infants.**

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CLINICAL PROCEDURES

20. CARDIAC MONITOR / USE OF DEFIBRILLATOR

SKILL LEVEL: All EMT I and EMT-P, with current AHA/ACLS certification are authorized to use the cardiac monitor for appropriate treatment based on unit standing orders. All personnel authorized to use this equipment should demonstrate skill proficiency to the unit Medical Training NCO and receive approval from the unit Medical Director, prior to use.

INDICATIONS:

1. Altered level of consciousness.
2. Any patient with unstable vital signs.
3. Respiratory distress (i.e. CHF, COPD, asthma, pulmonary edema, and inhalation injuries).
4. Chest pain and/or other symptoms which indicate or suggest an acute myocardial infarction (AMI).
5. Electrical injuries.
6. Known or suspected drug ingestion/injection and/or toxic exposure.
7. Hypothermia or hyperthermia.
8. At the discretion of the FMA.

CONTRAINDICATIONS: NONE

PATIENT MANAGEMENT PROCEDURE:

1. All patients who present with any of the indications will be placed on the cardiac monitor as soon as possible and continuously monitored.
2. IV access should be obtained concurrently with cardiac monitoring as time permits
3. All FMAs will obtain and record a baseline strip for every patient placed on the cardiac monitor. Additional strips will be run and charted for any changes in the patient's rhythm and after any medications given.
4. All patients placed on the cardiac monitor are to be considered to warrant immediate transport.

A. MANUAL CARDIAC DEFIBRILLATION:

Skill Level: All EMT-I and EMT-P with current AHA/ACLS certification and approval from unit Medical Training NCO and Medical Director.

Indications:

1. A **pulseless** patient with ECG evidence of ventricular fibrillation or ventricular tachycardia.

Procedure:

1. Turn on the monitor.
2. Connect the patient cable to monitor, if time permits.
3. Attach the three monitor leads to the patient (RA, LA, and LL), if time permits.
4. Change from leads to paddles, place conductive gel on the paddles and perform a "quick look."
5. Start the paper recorder.
6. Assess the rhythm. If V-fib or V-tach present:

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CLINICAL PROCEDURES – CARDIAC MONITOR

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- a. Remove paddles and apply conductive gel or gel pads.
- b. Select the defibrillation charge (joules).
- c. Charge paddles and stop CPR.
- d. Yell “CLEAR”.
- e. Press paddles firmly (approx. 25 pounds) onto sternal and apical chest locations.
- f. Confirm that everyone is “CLEAR” and that you are “CLEAR”.
- g. Deliver shock.
7. Assess post-shock rhythm (no more than 15 seconds) and print a strip.
8. Resume CPR as indicated.
9. Repeat steps 5-7 as indicated per protocol.
10. When finished, clean paddles and replace.

Remarks:

1. Remember to submit a copy of the code summary rhythm strip with your patient care report.
2. The joules delivered vary per protocol. In pediatric cases, estimate the patient’s weight in kilograms and multiply by two (2) to obtain the joules required.

B. CARDIAC PACING

Skill Level: All EMT-P with current AHA/ACLS certification and approval from the unit Medical Training NCO and unit Medical Director.

Indications:

1. Asystole.
2. Symptomatic bradycardia:
 - a. Heart rate less than 60 beats per minute, with altered mental status or hypotension.
 - b. As indicated by on line Medical Control.

Procedure:

1. Connect the patient to the cardiac monitor.
2. Obtain a baseline strip and vital signs. IV lines should be established and sedation considered if time permits.
3. Apply the pacing pads to clean dry skin. Clip or shave excessive hair from chest, if necessary.
4. Place the FRONT (-) pacing pad on the left anterior chest, halfway between the xiphoid process and the left nipple, with the upper edge of the pad below the nipple.
5. Place the BACK (+) pacing pad on the left posterior chest beneath the scapula and lateral to the spine.
6. **IF ANTERIOR/POSTERIOR PLACEMENT IS CONTRAINDICATED.** Place the FRONT (-) pacing pad on the left chest, mid-axillary over the fourth intercostal space. Place the BACK (+) pacing pad on the right chest, subclavicular area.
7. Press the “PACER” button.

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8. Set the rate at 60 beats per minute, set current at zero (0) mA.
9. Adjust the current upward at 20 mA intervals until electrical capture occurs.
10. **Decrease** the current at 5 mA intervals until mechanical capture is lost.
11. **Increase** the current at 5 mA intervals until mechanical capture returns.
12. **Maximum pacer current is 200 mA.**
13. Reassess patient every five minutes.
14. If systolic BP is under 90 mm Hg, increase heart rate by 10 bpm (maximum 100) until systolic BP reaches 90 or greater.

Remarks:

1. **Palpable pulses**, which correspond to the rate set on the pacer, confirm successful mechanical capture. Contraction of the skeletal muscle DOES NOT confirm successful mechanical capture.
2. If ventricular fibrillation or pulseless ventricular tachycardia (VT) occurs at any time, turn off the pacer and proceed to defibrillation protocol.
3. CPR and ACLS should not be withheld during pacing unless perfusing rhythm is obtained.

C. SYNCHRONIZED CARDIOVERSION

Skill Level: All EMT-P with current AHA/ACLS certification and approval from the unit Medical Training NCO and unit Medical Director.

Indications:

1. Ventricular tachycardia with pulse and signs of hemodynamic instability (hypotension, chest pain, pulmonary edema, altered mental status).
2. The symptomatic patient in paroxysmal supraventricular tachycardia (SVT) and signs of hemodynamic instability (hypotension, chest pain, pulmonary edema, altered mental status).
3. Symptomatic atrial fibrillation (AF) or atrial flutter with heart rates greater than 120 beats per minute and signs of hemodynamic instability (hypotension, chest pain, pulmonary edema, altered mental status).

Procedure:

1. Apply supplemental oxygen, establish an IV and consider sedation, if time permits.
2. Turn on the cardioverter / defibrillator.
3. Attach leads to patient and obtain a rhythm strip.
4. Explain the procedure (briefly) to the patient.
5. Select the synchronous mode by depressing the “sync” button.
6. Make certain the sync marker coincides with the R wave.
7. Apply conductive gel to the paddles or place gel pads on the patient.
8. Select the appropriate energy level, per protocol, and place the paddles on the patient (Sternum and apex).
9. Depress the charge button and yell “CLEAR”.
10. Ensure that you are “CLEAR” and all other personnel are “CLEAR”.

CLINICAL PROCEDURES – CARDIAC MONITOR

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11. Apply firm pressure to the chest (approx. 25 pounds) and press the discharge buttons.
12. Hold the discharge buttons down until the shock has been delivered. There may be a delay, while the monitor waits to discharge on an R wave.
13. If tachycardia is still evident, increase the joules and deliver another shock per protocol until the patient converts into a more stable rhythm or becomes asymptomatic.
14. **ALWAYS RESET THE SYNCHRONIZATION MODE AFTER EACH SHOCK DELIVERED.**

Remarks:

1. Be aware of patient reverting to previous arrhythmia.

COMPLICATIONS:

1. Conversion into other arrhythmias
2. Injury to self or crew if shocks are not properly announced.

REMARKS:

1. Do not use the cardiac monitor as a sole means of patient assessment. It is to be used as an aid in conjunction with several other pieces of equipment.
2. **CARDIAC PACING IS NOT AUTHORIZED WHILE THE AIRCRAFT IS IN FLIGHT.**

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21. EXTERNAL JUGULAR VENIPUNCTURE

SKILL LEVEL: All RL 1 flight medic/EMT-I/P with current AHA/ACLS certification and approval from the unit Medical Training NCO and unit Medical Director. **The flight medic may not perform this skill on pediatric patients without current AHA/PALS certification.**

INDICATIONS:

1. Patients who require IV access for resuscitative purposes (example: cardiac arrest/trauma arrest, trauma patients with the potential for severe shock and/or require fluid replacement and medical patients in severe shock) in whom the flight medic is unable to successfully establish a peripheral IV site after two (2) attempts.
2. Use on adults and pediatric patients greater than three (3) years of age.
3. Only one (1) attempt may be performed. **Further attempts MUST be approved by on line Medical Control.**
4. Catheter size should not exceed 1 ¼ inch for pediatric patients.

CONTRAINDICATIONS: Penetrating trauma or hematoma to ipsilateral side

PATIENT MANAGEMENT PROCEDURE:

1. Place the patient in the supine position (or Trendelenburg / head of bed slightly depressed position if patient condition permits), turn the head to the opposite side of the intended venipuncture site. **If there is concern over possible cervical spine injury, the head will not be turned.**
2. Localize the distended jugular vein and prepare the site as you would for extremity venipuncture.
3. Place the tip of the index finger over the distal end of the vein and the thumb on the proximal end to anchor the skin and vein.
4. Align the catheter in the direction of the vein, pointing toward the clavicle making the puncture midway between the angle of the jaw and midclavicular line.
5. Enter the skin and vein, checking for the appearance of blood in the inlet of the IV catheter and advance the catheter slowly until you feel sure it lies in the vein.
6. Do not remove the index finger from the distal portion of the catheter until the IV tubing has been connected. Without moving the needle, advance the catheter.
7. With the tubing next to the catheter hub, remove the needle and carefully secure the tubing and catheter.
8. Open the IV flow rate clamp slowly and check for infiltration of fluids.
9. Secure the hub and tubing very well with tape, Op-site or Veni-Guard.

COMPLICATIONS:

1. Formation of a hematoma.
2. Cellulitis.
3. Thrombosis.
4. Phlebitis.
5. Sepsis.
6. Catheter fragment.
7. Infiltration.
8. Air embolism.
9. Carotid artery cannulation

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REMARKS:

1. If there is a risk of cervical spine injury, the head must be stabilized by one rescuer while the IV is started. A cervical collar may be applied over the IV site.
2. The catheter should never be advanced beyond the clavicle.

CLINICAL PROCEDURES

**22. RAPID SEQUENCE INTUBATION with
NEUROMUSCULAR BLOCKADE**

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SKILL LEVEL:

1. All RL 1 flight medic/EMT-P with current AHA/ACLS certification and approval from the unit Medical Training NCO and unit Medical Director.
2. **The flight medic may not perform this skill on pediatric patients without current AHA/PALS certification.**
3. **The flight medic IS REQUIRED to maintain his/her intubation continuing education in order to perform this skill.**

INDICATIONS:

1. Patients with airway compromise due to altered mental status (Glasgow Coma Score under 14 with lack of gag reflex; any patient with GCS 8 or less)
2. Patients whose combativeness could compromise the airway, spinal cord stability or safety of the crew during transport.
3. Patients with severe airway compromise, evidence of refractory hypoventilation or hypoxia (i.e. smoke inhalation, severe facial trauma or severe facial trauma associated with bleeding).
4. Patients who MUST have prolonged ventilatory assistance or airway protection.
5. Any need to abolish potentially harmful responses in intubation to the conscious/semi-conscious patient.

CONTRAINDICATIONS:

1. Never paralyze a spontaneously breathing patient unless you are likely able to intubate.
2. If you are unable to ventilate a patient with a bag valve mask (BVM), DO NOT paralyze the patient.
3. DO NOT use Vecuronium (Norcuron) if you question your ability to reliably intubate the patient
4. DO NOT use Succinylcholine if the patient has a history of renal failure, hyperkalemia, crush injury or burn (over 20% TBSA) greater than 24 hours prior to your planned intubation attempt. **See Medications Reference for more details.**

PATIENT MANAGEMENT PROCEDURE:

1. Pre-oxygenate the patient:
 - a. **Spontaneous respirations or labored breathing** - O2 15 liters via non-rebreather for two (2) minutes if time permits.
 - b. **Apneic patient** – positive pressure ventilations with 100 percent oxygen for two minutes. Consider applying cricoid pressure to avoid gastric distention and regurgitation.
2. Establish large bore IV line (two if possible) and administer fluid bolus if patient's BP is < 90 mm Hg and there are no signs of pulmonary edema.
3. Place patient on cardiac monitor, pulse oximeter.
4. Obtain a set of vital signs and perform a brief neurological exam.
5. Explain the procedure and reassure the patient if time permits.
6. Establish manual cervical spine stabilization and remove the cervical collar only if needed.
7. Prepare intubation and suction equipment, and have cricothyroidotomy kit available.
8. Prepare all medications prior to RSI attempt.

CLINICAL PROCEDURES – RAPID SEQUENCE INTUBATION

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9. Administer Lidocaine 1 mg/kg IV if there is a history of head injury
10. Administer Atropine 0.01 mg/kg IV (minimum dose 0.1mg) in patients less than 10 years of age.
11. Administer sedative / analgesic:
 - a. Midazolam (Versed)
 - (1). Adults – 5.0 mg IV
 - (2). Pediatrics – 0.02 mg/kg
 - b. Morphine or Fentanyl (if available)
 - (1) Adults – 4-8 mg morphine IV or 100 micrograms Fentanyl IV
 - (2) Pediatrics – 0.1 mg/kg morphine IV or 2 micrograms/kg Fentanyl
12. Administer paralytic:
 - a. Succinylcholine (Anectine)
 - (1). Adults – 1.0 mg/kg IV, max dose 150 mg
 - (2). Pediatrics – 1.0 mg/kg IV.
13. Wait for jaw relaxation and intubate, move slowly and take your time. Have other crewmember watch the pulse oximeter and report changes. Consider use of cricoid pressure while performing intubation if possible.
14. Limit each attempt to 30 seconds or pulse oximeter less than 90% (whichever comes first)
15. If unable to intubate, stop the procedure and re-oxygenate the patient for another minute using the BVM.
16. Flight medics are limited to three (3) attempts. If unable to intubate, resume ventilations with BVM and Basic Airway Management skills. Consider surgical cricothyroidotomy if indicated.
16. Once intubation is completed, confirm tube placement and secure the tube.
17. Reapply the cervical collar if indicated.
18. Consider use of Vecuronium (Norcuron) 0.1 mg/kg in adults and pediatrics to maintain paralysis for prolonged transport times. Vecuronium can be used as an initial paralytic if Succinylcholine is contraindicated, under the direction of on line Medical Control. If vecuronium is used, consider additional doses of sedatives / analgesics
19. Reassess vital signs every five (5) minutes.

COMPLICATIONS:

1. Vomiting during procedure.
2. Cardiac arrhythmias.
3. Trauma to upper airway – fractured teeth, lacerations to lip, tongue, pharynx, larynx, vocal cords, trachea, or esophagus, with resultant hematoma formation, bleeding or abscess formation.
4. Tension pneumothorax.
7. Intubation of the right or left mainstem bronchus.
8. Esophageal intubation (FATAL if undiagnosed and uncorrected).

REMARKS:

1. When administering RSI medications, administer them RAPIDLY (bolus). Total elapsed time of drug administration should be under 90 seconds.
2. Give maintenance doses of sedative during long transports.

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CLINICAL PROCEDURES

23. MASS CASUALTY TRIAGE

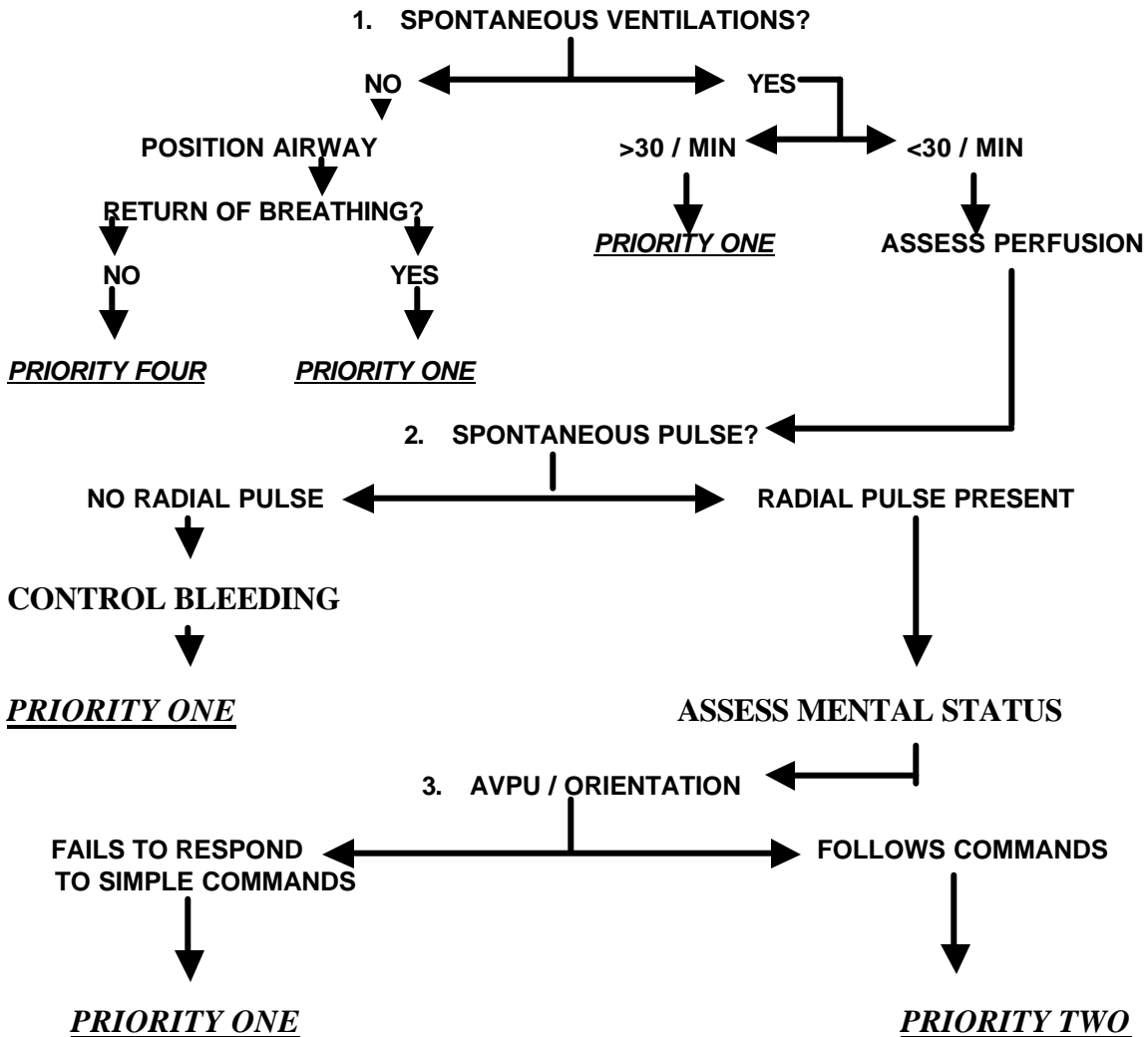
OVERVIEW:

The triage format described herein conforms to the accepted standards of *Pre-Hospital Trauma Life Support* (P.H.T.L.S.). **Simple Triage and Rapid Treatment** (S.T.A.R.T.) has proven to be an excellent and rapid approach to triaging large numbers of patients.

The first on-scene EMS Provider will establish a total patient count, and identify the known hazards, and **contact the medical control physician to initiate the receiving facilities Emergency Preparedness Plans**. The EMS Providers clear the site of any ambulatory wounded (**Priority Three** patients), relocating them to a designated “*Safe Zone*” area clear of any hazards. Subsequent EMS providers will be directed to assess these patients as the resources become available. Survivors must always be thoroughly assessed when time and resources become available, as they may have hidden serious injuries.

PRE-HOSPITAL GOAL: Save the most lives / limbs / eyes as possible with the limited treatment and transport resources at your disposal.

S.T.A.R.T. ALGORITHM



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IV. Medical Patient Care

- 1. Assessment (Medical)**
- 2. Gastrointestinal Hemorrhage (G.I. Bleed)**
- 3. Non-Traumatic Long Term Acute Illness**
- 4. Cerebrovascular Accident (CVA or Stroke)**
- 5. Seizures**
- 6. Non-Traumatic Abdominal Pain**
- 7. Asthma/COPD**
- 8. Congestive Heart Failure (Pulmonary Edema)**
- 9. Syncope/Fainting**
- 10. Unconscious Patient (Unknown Etiology)**
- 11. Anaphylaxis/Allergic Reaction**
- 12. Symptomatic Hypovolemic Shock**
- 13. Non-Traumatic Chest Pain**
- 14. Cardiac Arrest / Dysrhythmia**
 - Figure 1 Universal Algorithm for Adults**
 - Figure 2 V-Fib/Pulseless V-Tach**
 - Figure 3 Pulseless Electrical Activity**
 - Figure 4 Asystole**
 - Figure 5 Bradycardia**
 - Figure 6 Tachycardia**
 - Figure 7 Electrical Cardioversion**
 - Figure 8 Pulmonary Edema/Hypotention/Shock**
 - Figure 9 Acute Myocardial Infarction**
- 15. Poisoning/Overdose**
- 16. Labor and Delivery**
- 17. Snakebites**
- 18. Non-Traumatic Ophthalmological Emergencies**
- 19. Diabetic Emergencies**
- 20. Insect Bites/Stings**
- 21. Thrombolytic Screening**

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MEDICAL PATIENT CARE

1. ASSESSMENT (MEDICAL)

OVERVIEW: A large proportion of transports will involve medical problems. Important information regarding the patient may be obtained through a proper primary and secondary assessment. This will also maintain a high level of care for the patient and facilitate effective treatment.

PRE-HOSPITAL GOAL:

A. Scene Survey:

1. Obtain an overview of the scene and the patient(s).
2. Consider the safety of the EMS team and patient before approaching.

B. Primary Survey: All life-threatening problems should be noted and treated immediately. Oxygen should not be withheld until completion of the primary survey, if needed. Lung sounds and vital signs can be taken during the survey.

1. **Airway with cervical spine immobilization (if appropriate):**
The patient must have an open airway. The head tilt/chin lift or jaw thrust method and airway adjuncts can be used to maintain the airway. Apply rigid c-spine collar, bolsters and board if condition or clinical suspicion warrant.
2. **Breathing:** Adequacy of the respirations must be assessed. Look, listen and feel; auscultate breath sounds with a stethoscope. Look for signs of tension pneumothorax (deviated trachea on palpation, decreased breath sounds on affected side, subcutaneous air, crepitance, hyperresonance on percussion), flail chest and punctures.
3. **Circulation and hemorrhage control:** Central and peripheral pulses should be checked; assess skin temperature and color, capillary refill; identify and attempt initial control of significant external hemorrhage.
4. **Disability:** Assess level of consciousness using the **AVPU** mnemonic: Alert, alert to Verbal Stimulus, alert to Painful Stimulus, Unresponsive. Check pupils for symmetry and reactivity to light.
5. **Expose:** Remove clothing, as needed, to examine and evaluate the patient's medical problem. Search for Medical Alert Tags.
6. **Record Vital Signs:** Blood pressure, pulse, respiration rate and pulse-oximeter reading, if available.

C. Secondary Survey: Obtaining as much information as possible regarding the patient's history, the events occurring before the incident should be done during the secondary assessment. Relatives and bystanders may also give pertinent information on the patient's condition. **

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MEDICAL-- PATIENT ASSESSMENT
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1. **Inspect and palpate the scalp:** Checking for deformity, swelling, discoloration and lacerations.
2. **Inspect the eyes:** Checking for appropriate movement and pupillary response, swelling, discoloration and deformity of the orbits.
3. **Inspect and palpate the face, nose and mouth:** Checking for deformities, swelling, discoloration; checking for signs of cerebral spinal fluid coming from the nose; inspecting the mouth for loose teeth and/or dentures, make note of any unusual odor from the patients breath.
4. **Inspect and palpate the ears:** Looking for cerebral spinal fluid coming from the ears; inspect behind the ears for bruising, swelling and/or discoloration.
5. **Inspect and palpate the neck:** Note if trachea is midline; check for jugular vein distention; palpate cervical spine for tenderness, swelling or deformity.
6. **Inspect and palpate the chest.**
7. **Listen to and evaluate breath sounds .**
8. **Inspect and palpate the abdomen:** Palpate all four quadrants; note any pulsing masses, deformities, rigidity, distention and tenderness.
9. **Externally inspect the pelvic region.**
10. **Inspect and palpate the extremities:** Check capillary refill and check for distal motor and sensory; make note of any edema, especially in the ankles or feet.
11. **Palpate and inspect the back and buttocks.**

** Components of a patient medical history are:

Signs and symptoms and chief complaint

Allergies

Medications taken/taking

Past medical history (related to current medical problem)

Last food or drink / last TETANUS vaccination

Events leading up to need for medical response

Onset: *What where you doing when the problem began?*

Provocation: *Does anything make the problem better or worse?*

Quality: *Can you describe the pain?*

Radiation: *Does the pain radiate or are there associated problems?*

Severity: *How intense is the pain, on a scale of 1 to 10?*

Time: *When did the problem begin?*

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MEDICAL PATIENT CARE

**2. GASTROINTESTINAL HEMORRHAGE
(G.I BLEED)**

OVERVIEW: Upper gastrointestinal problems usually present with vomiting blood; lower gastrointestinal problems present with rectal bleeding or black / tarry stools (melena). GI bleeds, whether upper or lower, are managed identically though there is an added risk of aspiration associated with upper GI bleeds.

PRE-HOSPITAL GOAL: Maintain stable vital signs and protect the patient's airway.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

- 1. AIRWAY**
- 2. BREATHING**
- 3. CIRCULATION**
- 4. DISABILITY**
- 5. IF SHOCK IS PRESENT,
REFER TO SHOCK PROTOCOL.**
- 6. PLACE PATIENT IN
A SEMI-FOWLERS POSITION.**
- 7. ADMINISTER OXYGEN
PER PATIENT ASSESSMENT.**
- 8. TRANSPORT PROMPTLY
IN POSITION OF COMFORT**
- 9. REASSESS VITAL SIGNS
AS INDICATED.**



- 1. PLACE PATIENT ON
CARDIAC MONITOR.**
- 2. ESTABLISH I.V. OF N/S
PER I.V. THERAPY PROTOCOL TO
SUSTAIN B/P > 90 mm Hg.**

MEDICAL PATIENT CARE

3. NON-TRAUMATIC LONG TERM ACUTE ILLNESS

OVERVIEW: This covers a broad range of illnesses which need special care that pre-hospital providers are unable to give such as patients with: AIDS, Sickle cell anemia, Cancer, Down syndrome, etc... It is **extremely** important to rule out any other potentially serious problems/causes that raised the need for EMS response. Do not always get focused on the illness alone.

PRE-HOSPITAL GOAL: Maintain stable vital signs and keep the patient comfortable during transport.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY
2. BREATHING
3. CIRCULATION
4. DISABILITY
5. PLACE PATIENT
IN POSITION OF COMFORT.
6. CONSIDER OTHER CAUSES
OF PATIENT'S PAIN.
7. ADMINISTER OXYGEN
PER PATIENT ASSESSMENT.
8. TRANSPORT PROMPTLY
IN POSITION OF COMFORT.
9. REASSESS VITAL SIGNS
AS INDICATED.



1. PLACE PATIENT ON
CARDIAC MONITOR.
2. ESTABLISH I.V. OF N/S K.V.O.
PER I.V. THERAPY PROTOCOL TO
SUSTAIN B/P OF 90 mm Hg.
3. CONSIDER I.V.
ANALGESIC FOR PAIN, PER
PROTOCOL OR STANDING ORDERS.

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MEDICAL PATIENT CARE

**4. CEREBROVASCULAR ACCIDENT
(CVA, STROKE, TIA)**

OVERVIEW: Patients who experience a cerebrovascular accident, commonly present with an onset of unilateral weakness (hemi paresis), paralysis (hemi plegia), difficulty speaking (aphasia), or a combination.

PRE-HOSPITAL GOAL: Maintain stable vital signs, increase oxygen delivery, protect the patient's airway, provide psychological support, and transport promptly.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

**1. AIRWAY; PROTECT C-SPINE
IF INDICATED**

2. BREATHING

3. CIRCULATION

4. DISABILITY

5. ASSESS FOR SIGNS OF TRAUMA.

**6. ADMINISTER OXYGEN
PER PATIENT ASSESSMENT.**

**7. PERFORM DEXTROSE STICK
DOCUMENT FINDINGS.**

**8. PERFORM NEUROLOGICAL EXAM
AND DOCUMENT FINDINGS.**

**1. PLACE PATIENT ON
CARDIAC MONITOR.**

**9. SUCTION OROPHARYNX
AS NECESSARY.**

**2. ESTABLISH I.V. N/S K.V.O.
PER I.V. THERAPY PROTOCOL TO
SUSTAIN B/P OF 90 mm Hg.**

**10. TRANSPORT PROMPTLY
IN POSITION OF COMFORT.**

**3. IF BLOOD SUGAR < 50mg/dl,
ADMINISTER 1 AMPULE (25g) D50 IV.**

**11. REASSESS VITAL SIGNS
AS INDICATED.**

**12. IF PATIENT / BYSTANDERS REPORT
ONSET OF SYMPTOMS / SIGNS AT
LESS THAN THREE (3) HOURS PRIOR
TO TRANSPORT, MAKE ALL ATTEMPTS
TO CONTACT RECEIVING FACILITY AND
AND TRANSPORT AS QUICKLY AS
POSSIBLE TO FACILITATE POSSIBLE
THROMBOLYTIC THERAPY**

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MEDICAL PATIENT CARE

5. SEIZURES

OVERVIEW: Seizures are categorized into two groups; Generalized Tonic/Clonic (“Grand Mal”) and Partial Complex (“Petit Mal”). Generalized Tonic/Clonic seizures may present with violent shaking of the upper and lower extremities, incontinence, and often some form of tissue injury (tongue biting) and /or musculoskeletal injury. Partial complex seizures may or may not show any major visible signs of seizure activity at all and are usually localized to one muscle group. In any event of suspected seizures, they will all be treated the same.

PRE-HOSPITAL GOAL: Maintain stable vital signs, protect the airway and C-spine, minimize trauma, attempt to abort seizure activity if possible, and provide an accurate description of seizure activity to emergency physician.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY CONTROL; PROTECT C-SPINE AS INDICATED.

2. BREATHING

3. CIRCULATION

4. DISABILITY

5. ASSESS FOR SIGNS OF TRAUMA

6. NOTE CHARACTERISTICS OF SEIZURE ACTIVITY.

7. ADMINISTER OXYGEN PER PATIENT ASSESSMENT.

8. PERFORM DEXTROSE STICK DOCUMENT FINDINGS.

9. SUCTION OROPHARYNX AS NECESSARY.

10. TRANSPORT PROMPTLY IN POSITION OF COMFORT.

11. REASSESS VITAL SIGNS AS INDICATED.

12. OBTAIN PATIENT HISTORY IF POSSIBLE.

1. PLACE PATIENT ON CARDIAC MONITOR.

2. ESTABLISH I.V. N/S K.V.O. PER I.V. THERAPY PROTOCOLS TO SUSTAIN B/P OF 90 mm Hg.

3. IF BLOOD GLUCOSE < 60 MG/DL ADMINISTER 1 AMP (25G) D50 IV.

4. ADMINISTER VALIUM 5.0 mg (0.1mg/kg pediatric) I.V. P. SLOWLY EVERY 5 MINUTES AS INDICATED up to 20mg.

5. MONITOR VENTILATORY EFFORT CLOSELY. CONSIDER ADVANCED AIRWAY MEASURES AS CLINICALLY INDICATED.

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MEDICAL PATIENT CARE

6. NON-TRAUMATIC ABDOMINAL PAIN

OVERVIEW: Abdominal pain composes a wide spectrum of diagnoses, and may range in severity from trivial to immediately life-threatening. Despite its non-traumatic nature, the FMA must be vigilant constantly for developing signs of shock, and must be ready to treat it aggressively. Constant reassessment of the patient is important.

PRE-HOSPITAL GOAL: Maintain stable vital signs, rule out any potential life threatening disorders and transport patient expeditiously in position of comfort.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY
2. BREATHING
3. CIRCULATION
4. DISABILITY
5. IF PATIENT IS IN SHOCK,
REFER TO APPROPRIATE
PROTOCOL.
6. ADMINISTER OXYGEN
PER PATIENT ASSESSMENT.
7. TRANSPORT PROMPTLY
IN POSITION OF COMFORT.
8. REASSESS VITAL SIGNS
AS INDICATED.



1. IF PATIENT IS IN SHOCK OR
AGE IS GREATER THAN 35,
PLACE ON CARDIAC MONITOR.
2. ESTABLISH I.V. N/S or L/R
PER I.V. THERAPY PROTOCOL and
maintain B/P OF 90 mm Hg.

MEDICAL PATIENT CARE

7. ASTHMA/C.O.P.D.

OVERVIEW: Asthma and chronic obstructive pulmonary disease (COPD) represents a broad range of acuity, which may present with only mild respiratory distress, moderate difficulty or full respiratory failure. These conditions may often rapidly become worse due to environmental exposure (smoke, dust, heat, cold, etc.), infections (respiratory infections, bronchitis, pneumonia) or improper use of medications. COPD patients rely on the level of oxygen in their blood to stimulate breathing, rather than levels of carbon dioxide levels as do individuals with healthy respiratory systems. As a result, higher concentrations of oxygen may **decrease** their respiratory drive. **DO NOT** let this prevent you from administering high levels of oxygen to a patient with COPD if clinically necessary. When giving oxygen to a COPD patient that is complaining of dyspnea; place them on high flow oxygen, but **MONITOR THEM CLOSELY**. If they demonstrate increasing signs of respiratory distress, continue aggressive treatment. If however, the examination improves yet the patient seems to be breathing less often, consider decreasing the amount of supplemental O₂ (NOTE: in such cases, be certain that the ventilatory rate is not decreasing due to fatigue, which is an indication for endotracheal intubation and ventilatory support). Recall also that **“all that wheezes is not asthma.”** Wheezing may also be caused by pulmonary edema (“cardiac asthma”), foreign body airway obstruction and laryngeal edema (burns, anaphylaxis).

PRE-HOSPITAL GOAL: Maintain stable vital signs, support ventilations, obtain history, reduce bronchospasm and improve oxygenation.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY

2. BREATHING

3. CIRCULATION

4. DISABILITY

5. ADMINISTER OXYGEN
PER PATIENT ASSESSMENT.



1. PLACE PATIENT ON
CARDIAC MONITOR.

6. TRANSPORT PROMPTLY
IN POSITION OF COMFORT.

2. ADMINISTER ALBUTEROL,
1. 2.5-2.5 mg (0.25-0.5 ml) WITH
3.0 ml N/S IN A NEBULIZER.

7. REASSESS VITAL SIGNS
AS INDICATED.

3. CONSIDER ATROVENT
(Ipratropium Bromide), or Epinephrine
(1:1000) 0.3 cc S.Q. in patients under age
50 without coronary artery disease
history, and heart rate under 120.

4. ESTABLISH I.V. OF N/S K.V.O.
PER I.V. THERAPY PROTOCOL TO
SUSTAIN B/P > 90 mm Hg.

5. REPEAT ALBUTEROL
AS NEEDED.

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MEDICAL PATIENT CARE

**8. CONGESTIVE HEART FAILURE
(PULMONARY EDEMA)**

OVERVIEW: Intravascular volume overload and dysfunction of myocardial contractility contribute to congestive heart failure (CHF). Its onset may be gradual or acute and is often associated with signs of coronary ischemia and/or severe hypertension. CHF may be difficult to tell from asthma, in some cases, as it often presents with wheezing as well as crackles on lung auscultation.

PRE-HOSPITAL GOALS: Maintain stable vital signs, increase tissue oxygenation, treat for potential ischemia, begin diuresis, obtain a history, monitor airway and breathing.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY

2. BREATHING

3. CIRCULATION

4. DISABILITY

**5. ADMINISTER OXYGEN TO
MAINTAIN SAO₂ > 90% THEN
REASSESS BREATHING**

**6. IF NOT CONTRAINDICATED,
ADMINISTER ASPIRIN (160-325 PO)**

**1. PLACE PATIENT ON
CARDIAC MONITOR.**

**7. TRANSPORT PATIENT IN POSITION
OF COMFORT (OFTEN SITTING
POSITION). ALLOW PATIENT TO
LEGS OFF STRETCHER ONLY.
IF IT IS SAFE TO DO SO.**

**2. ESTABLISH IV OF N/S K.V.O.
PER IV THERAPY PROTOCOL TO
MAINTAIN MEDICATION LINE HANG**

**8. REASSESS VITAL SIGNS
AS INDICATED.**

**3. ADMINISTER 0.4 mg OF
NITROGLYCERIN SL OR APPLY
1-2 cm OF NITRO PASTE, IF
PATIENT'S SYSTOLIC > 90 mm Hg.**

**4. ADMINISTER 20 mg LASIX
SLOW I.V. PUSH IF SYSTOLIC
B/P IS > 90 mm Hg. MAY REPEAT IN TEN
(10) MINUTES AS INDICATED*****

**5. CONSIDER MORPHINE SULFATE
2.0 mg I.V.P. EVERY FIVE (5)
MINUTES UP TO 10.0 mg IF
SYSTOLIC B/P IS > 90 mm Hg. *****

**6. MONITOR PATIENTS
RESPIRATORY EFFORT CLOSELY.**

***** IF PATIENTS SYSTOLIC B/P IS LESS THAN 90 mm Hg, CONTACT MEDICAL CONTROL FOR FURTHER ORDERS AND/OR ADVICE.**

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MEDICAL PATIENT CARE

9. SYNCOPE/FAINTING

OVERVIEW: Syncope may be caused by a wide variety of problems. The most common cause is transient loss of cerebral circulation (and thus oxygen) due to vasodilation. This usually corrects spontaneously once the body has relaxed, vascular tone is returned and blood flow and oxygen are restored to the brain. **NOTE:** Be alert for any altered level of consciousness or unstable sign from the patient, after regaining consciousness and treat with appropriate protocol.

PRE-HOSPITAL GOAL: Maintain stable vital signs, protect the patient’s airway and C-spine, increase oxygen delivery to the brain, obtain an accurate history, and provide psychological support to the patient.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

**1. AIRWAY; PROTECT C-SPINE
IF INDICATED.**

2. BREATHING

3. CIRCULATION

4. DISABILITY

**5. ASSESS FOR TRAUMA AND REFER
TO APPROPRIATE PROTOCOL.**

**6. MAINTAIN PATIENT IN
SUPINE POSITION.**

**7. ADMINISTER OXYGEN TO MAINTAIN
SAO₂ > 90%.**

**8. ASCERTAIN GLUCOSE LEVEL
WITH DEXTROSE STICK
AND DOCUMENT.**

**9. IF PATIENT HAS ALTERED
LEVEL OF CONSCIOUSNESS
REFER TO APPROPRIATE PROTOCOL.**



**1. IF PATIENT IS > 25 YEARS OLD
OR HAS ABNORMAL VITAL SIGNS,
PLACE ON CARDIAC MONITOR.**

**10. TRANSPORT PROMPTLY IN
POSITION OF COMFORT.**

**2. ESTABLISH I.V. OF N/S K.V.O.
PER I/V/THERAPY PROTOCOL.**

**11. REASSESS VITAL SIGNS
AS INDICATED.**

**3. IF BLOOD GLUCOSE < 50 MG/DL,
ADMINISTER 1 AMP D50 (25G) IV.**

MEDICAL PATIENT CARE

**10. UNCONSCIOUS PATIENT
(UNKNOWN ETIOLOGY)**

OVERVIEW: Unconsciousness may result from many causes, however it is prudent to first assume life threatening cardiopulmonary or central nervous system disorders as the etiology. Patients will be unable to give reliable history and physical assessment will often be inconclusive. It is very important to survey the scene and bystanders to obtain any helpful information possible.

PRE-HOSPITAL GOAL: Maintain stable vital signs, protect the cervical spine, try to obtain the most complete history possible. **TREAT ANY POTENTIALLY REVERSIBLE CAUSE AS OPIOID OVERDOSE OR HYPOGLYCEMIA.**

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

**1. AIRWAY; PROTECT C-SPINE
AS INDICATED.**

2. BREATHING

3. CIRCULATION

4. DISABILITY

**5. ASSESS FOR POSSIBLE
TRAUMA.**

**6. ADMINISTER OXYGEN
PER PATIENT ASSESSMENT.**

**7. PERFORM DEXTROSE STICK.
IF GLUCOSE IS < 60 REFER TO ALS
PORTION OF UNCONSCIOUS
PATIENT PROTOCOL.**

**8. SUCTION OROPHARYNX
AS NECESSARY.**

**9. OBTAIN COMPLETE HISTORY
OF INCIDENT IF POSSIBLE.**

**10. TRANSPORT PATIENT IN
POSITION OF COMFORT.**

**11. REASSESS VITAL SIGNS
AS INDICATED.**



**1. PLACE PATIENT ON
CARDIAC MONITOR.**

**2. REFER TO APPROPRIATE
PROTOCOL IF ETIOLOGY IS
KNOWN (i.e. ARRHYTHMIA,
HEAD INJURY, ETC.)**

**3. ESTABLISH I.V. OF N/S K.V.O.
PER I.V. THERAPY PROTOCOL.**

**4. IF DEXTROSE STICK GLUCOSE
IS < 50 ADMINISTER 100MG
THIAMINE IV THEN 1 AMP (25G)
D50 IVP.**

**5. IF DEXTROSE STICK IS
UNAVAILABLE, CONSIDER
100mg THIAMINE IV then
25 cc OF D50W I.V.P., and/or
OR 2.0 mg OF NALOXONE I.V.P.**

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MEDICAL PATIENT CARE

11. ANAPHYLAXIS/ALLERGIC REACTIONS

OVERVIEW: Anaphylaxis is the body's reaction to a foreign substance such as food, medicine, pollen, insect sting or ingested, inhaled or injected substances. Patients generally experience systemic rash / swelling and may suffer bronchospasm or laryngeal edema causing airway obstruction or respiratory failure. This is a medical emergency . If this condition is accompanied by hypotension, intravenous fluids and / or pressor agents may be required.

PRE-HOSPITAL GOAL: Maintain stable vital signs, protect the patient's airway, support ventilation, treat any potentially reversible process. Obtain a complete history.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY
2. BREATHING
3. CIRCULATION
4. DISABILITY
5. ADMINISTER OXYGEN PER PATIENT ASSESSMENT.
6. EVALUATE SEVERITY OF PATIENT'S REACTION.
7. *APPLY COLD TO EXTREMITY IF AN INSECT BITE.*
8. TRANSPORT PROMPTLY IN POSITION OF COMFORT.
9. REASSESS VITAL SIGNS AS INDICATED.



1. PLACE PATIENT ON CARDIAC MONITOR.
2. ESTABLISH I.V. OF N/S or L/R PER I.V. THERAPY PROTOCOL TO MAINTAIN SYSTOLIC B/P AT > 90 mm Hg.
3. ADMINISTER EPINEPHRINE (1: 1,000) 0.3 cc S.Q. FOR B/P < 90 mm Hg, WHEEZING, OR AIRWAY COMPROMISE IF PATIENT IS LESS THAN 50 YEARS OLD AND HAS NO CARDIAC HISTORY.
4. ADMINISTER BENADRYL 50 mg I.V.P. OR I.M. AS INDICATED.
5. CONTACT MEDICAL CONTROL PHYSICIAN TO DISCUSS POSSIBLE ADMINISTRATION OF METHYL-PREDNISOLONE (SOLU-MEDROL) 125MG IV.

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MEDICAL PATIENT CARE

12. SYMPTOMATIC HYPOVOLEMIC SHOCK

OVERVIEW: Shock is inadequate tissue perfusion. It may result from hemorrhage, severe dehydration, impaired cardiac output or decreased vascular tone (sepsis, spinal cord injury, anaphylaxis). Shock is progressive and is uniformly fatal if not promptly identified and corrected.

PRE-HOSPITAL GOAL: Maintain airway and stable vital signs. Increase oxygen delivery to the brain, increase blood pressure to 90 mm Hg or greater, and treat any reversible causes.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY; PROTECT CERVICAL SPINE AS INDICATED.

2. BREATHING

3. CIRCULATION AND HEMORRHAGE CONTROL.

4. DISABILITY

5. ASSESS PATIENT FOR TRAUMA.

6. ADMINISTER OXYGEN PER PATIENT ASSESSMENT.



1. PLACE PATIENT ON CARDIAC MONITOR.

7. PLACE P.A.S.G./M.A.S.T. ON PATIENT.

2. ESTABLISH TWO I.V. s OF N/S; GIVE 250 cc BOLUS FROM EACH UNTIL B/P > 90 mm Hg CAN BE MAINTAINED.

8. TRANSPORT PROMPTLY IN SUPINE POSITION.

3. REASSESS PATIENT'S VITAL SIGNS AND LUNG AUSCULTATION. DO NOT OVERHYDRATE A PATIENT WITH SUSPECTED PULMONARY EDEMA.

9. ATTEMPT TO CONTACT MEDICAL CONTROL FOR AUTHORIZATION TO INFLATE P.A.S.G./M.A.S.T. AS INDICATED.

10. REASSESS PATIENT'S VITAL SIGNS AS INDICATED.

4. TRANSPORT TO DEFINITIVE CARE AS QUICKLY AS POSSIBLE. DO NOT DELAY TRANSPORT - PERFORM PROCEDURES ENROUTE.

11. TRANSPORT TO DEFINITIVE CARE AS QUICKLY AS POSSIBLE. DO NOT DELAY TRANSPORT - PERFORM PROCEDURES ENROUTE.

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MEDICAL PATIENT CARE

13. NON-TRAUMATIC CHEST PAIN

OVERVIEW: Non-traumatic chest pain is a common presenting complaint and should always be treated as a life threatening condition. Often, the pain is attributed to acute myocardial infarction (heart attack) or angina pectoris. Contributing factors which can indicate likelihood of heart disease are: prior history of heart disease, hypertension, diabetes, hyperlipidemia, family history of heart disease (parents or siblings under age 55 years), tobacco use, and cocaine or amphetamine abuse regardless of age.

PRE-HOSPITAL GOAL: Maintain stable vital signs, determine presumptive cause of chest pain, increase oxygenation of the blood, reassure and comfort the patient, and reverse ischemia if possible.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY
2. BREATHING
3. CIRCULATION
4. DISABILITY
5. ADMINISTER OXYGEN PER PATIENT ASSESSMENT.
6. OBTAIN PATIENT HISTORY; REASSURE PATIENT.
7. TRANSPORT PROMPTLY IN POSITION OF COMFORT.
8. REASSESS VITAL SIGNS AS INDICATED.
9. IF NO CONTRAINDICATION, ADMINISTER ASPIRIN 160 – 325MG PO.



1. PLACE PATIENT ON CARDIAC MONITOR.
2. IF INDICATED, REFER TO CARDIAC ARRHYTHMIA PROTOCOL
3. ASCERTAIN PATIENT'S DRUG ALLERGIES.***
4. IF NO CONTRAINDICATION administer ASPIRIN 160 – 325MG PO.
5. ESTABLISH I.V. OF N/S K.V.O. PER I.V. THERAPY PROTOCOL.
6. IF ANGINA IS SUSPECTED, AND B/P IS > 90 mm Hg SYSTOLIC, ADMINISTER NITROGLYCERIN (NTG) 0.4 mg S.L.
7. IF PAIN PERSISTS AFTER 5 MIN, REPEAT NTG 0.4 mg S.L. MINUTES (assure BP > 90mm Hg SYSTOLIC)
8. IF PAIN PERSISTS AFTER 5 MIN, REPEAT NTG 0.4 mg S.L. MINUTES

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(assure BP > 90mm Hg SYSTOLIC)

MEDICAL-- NON-TRAUMATIC CHEST PAIN
Page 2

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

**9. IF PAIN PERSISTS, APPLY
1 TO 2 cm OF NITROGLYCERIN
PASTE.**

**10. IF PAIN PERSISTS, ADMINISTER
MORPHINE SULFATE 2.0 mg
I.V.P. EVERY FIVE (5) MINUTES (IF
AVAILABLE) FOR RELIEF OF PAIN,
TO A MAXIMUM DOSE OF 10.0 mg;
(assure Systolic BP > 90 mm Hg)**

**10. WATCH RESPIRATORY
EFFORT CLOSELY.**

*****REMARKS:** Consider pre-hospital screening for **thrombolytic** therapy and contact Medical Control if possible.

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MEDICAL PATIENT CARE

14. CARDIAC ARREST / DYSRHYTHMIA

OVERVIEW:

PRE-HOSPITAL GOAL:

**SEE AMERICAN HEART ASSOCIATION / ADVANCED CARDIAC LIFE SUPPORT (ACLS)
ALGORITHM ILLUSTRATIONS IN APPENDIX**

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MEDICAL PATIENT CARE

15. POISONING/OVERDOSE

OVERVIEW: The most common manifestations of a severe poisoning are coma, seizures, and cardiac arrhythmias. Treatment for poisoning is generally supportive. **NOTE: In general, induction of vomiting in the adult patient is not indicated in the pre-hospital environment for management of poisoning.** Certain agents have specific antidotes; therefore, it is imperative to identify any agent the patient may have taken. Common chemicals that pose immediate life threats include tri-cyclic antidepressants (amitriptyline, others), aspirin, acetaminophen (tylenol), iron supplements and ethylene glycol (antifreeze). Other dangerous ingestants include illicit (“Street”) drugs, prescription and over the counter medications, and industrial solvents, chemicals and adhesives which can be inhaled. **NOTE: Contact Medical Control Physician initially, NOT the local Poison Center for patient care orders.**


REMARKS: SCENE SAFETY IS PARAMOUNT. BE AWARE OF POSSIBLE HARMFUL INHALANTS, CONSIDER DECONTAMINATION OF PATIENT BEFORE TRANSPORT. BE AWARE OF ANY DRUG PARAPHERNALIA OR WEAPONS ON SCENE. Law enforcement may be at the scene, try not to disturb the scene or any evidence, but patient care is your priority.

PRE-HOSPITAL GOALS: Maintain stable vital signs, protect the airway, monitor patient’s level of consciousness and cardio-respiratory activity. Bring any substance ingested by the patient, or any empty containers, which is found on scene to the receiving facility.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY
2. BREATHING
3. CIRCULATION
4. DISABILITY
5. IF PATIENT IS UNCONSCIOUS OR HAVING SEIZURES, REFER TO APPROPRIATE PROTOCOL.
6. ADMINISTER OXYGEN PER PATIENT ASSESSMENT.
7. SUCTION OROPHARYNX AS NECESSARY.
8. TRANSPORT PROMPTLY IN POSITION OF COMFORT.
9. REASSESS VITAL SIGNS AS INDICATED.

1. PLACE PATIENT ON  CARDIAC MONITOR.
2. ESTABLISH I.V. OF N/S K.V.O. PER I.V. THERAPY PROTOCOL TO MAINTAIN SYSTOLIC B/P AT > 90 mm Hg.

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MEDICAL PATIENT CARE

16. LABOR AND DELIVERY

OVERVIEW: Normally, labor and delivery should pose no significant problems for the pre-hospital provider. However, serious medical or trauma complications can occur before, during and after delivery. These include, but are not limited to fetal infection, abnormal presentation, fetal bradycardia / distress, meconium aspiration, cephalopelvic disproportion and prolapsed or nuchal (wrapped around neck) umbilical cord. Prompt transportation to an appropriate medical facility is very important in those cases. Always document blood pressure readings and any presence of edema in pregnant patients. Try to remember to ask the following questions, at a minimum:

1. What is the due date?
2. How many children are you expecting?
3. Has your “water broke?” (rupture of membranes)
4. When was your last doctor visit?
5. Were there any complications during your pregnancy?
6. Have you taken any drugs or alcohol during your pregnancy?
7. How many previous pregnancies/deliveries?

PRE-HOSPITAL GOAL: Obtain complete history. Determine stage of labor and decide if there is time to transport. Transport patient in left lateral decubitus position (if possible) to prevent compression of the mother’s inferior vena cava (can cause hypotension). If there is no time for transport, assist with delivery. Assess for meconium staining and suction as needed. Protect newborn from heat loss, assess for, and treat for complications to mother and child. Provide oxygen for mother and infant, treat mother for shock and/or hemorrhage if indicated. Record time of delivery.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY

2. BREATHING

3. CIRCULATION

4. DISABILITY

5. ADMINISTER OXYGEN PER PATIENT ASSESSMENT.

6. OBTAIN MEDICAL HISTORY, DETERMINE STAGE OF LABOR, PLAN FOR TRANSPORT TO HOSPITAL ACCORDINGLY.

1. PLACE PATIENT ON CARDIAC MONITOR.

2. ESTABLISH I.V. OF N/S K.V.O. PER I.V. THERAPY PROTOCOLS

7. IF TRAUMA OR MEDICAL PROBLEM, TO MAINTAIN B/P > 90 mm Hg. BEGIN TRANSPORT PROMPTLY IN APPROPRIATE POSITION.

8. REASSESS VITAL SIGNS.

MEDICAL -- LABOR AND DELIVERY

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BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

**9. IF CROWNING HAS STARTED
PLAN TO DELIVER AT SCENE.**

**10. DELIVER INFANT; SUCTION
AIRWAY, CLAMP AND CUT
UMBILICAL CORD, DRY INFANT AND
KEEP WARM, ASSESS VITAL
SIGNS, RECORD TIME.**

**11. ASSIST INFANT'S RESPIRATION'S
WITH OXYGEN VIA BLOW-BY
OR B.V.M AS INDICATED.**

**12. REFER TO NEWBORN
RESUSCITATION PROTOCOL
IN PEDIATRIC PROTOCOL'S
SECTION AS INDICATED.**

**13. REASSESS MOTHER'S
VITAL SIGNS; RECORD
INFANT'S A.P.G.A.R. SCORE
AT ONE (1) MINUTE AND
FIVE (5) MINUTES. OBSERVE / ASSIST
DELIVERY OF PLACENTA.**

**14. TRANSPORT MOTHER AND
INFANT PROMPTLY IN
POSITION OF COMFORT.**

**15. REASSESS BOTH PATIENT'S
VITAL SIGNS AS INDICATED.**

REMARKS: Contact Medical Control to have pediatrics equipment readily available in the event of childbirth, before arrival to hospital.

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MEDICAL PATIENT CARE

17. SNAKEBITE

OVERVIEW: Life threatening snakebites are a rare occasion. Normally, second and subsequent bites are more serious than an initial snakebite. The body produces increased antibodies from the first bite to recognize antigens from any further bites. From this, the patient may experience a more severe reaction.

NOTE: **There is no need to incise the bitten area and suction a snakebite, although early application of a mechanical venom extractor may be helpful. Do not apply ice, cold compresses or electric current.**

PRE-HOSPITAL GOAL: Transport the patient promptly and calmly to the nearest appropriate medical facility. Maintain stable vital signs, protect the patient’s airway and obtain a history including the type of snake (if known).

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY

2. BREATHING

3. CIRCULATION

4. DISABILITY

5. ADMINISTER OXYGEN PER PATIENT ASSESSMENT.

6. PLACE PATIENT IN POSITION OF COMFORT, REMOVE CONSTRICTING CLOTHING.

7. IMMOBILE BITTEN AREA AND PLACE IN SLIGHTLY DEPENDENT POSITION.



1. PLACE PATIENT ON CARDIAC MONITOR.

8. IF B/P IS < 90 mm Hg REFER TO ANAPHYLAXIS/ ALLERGIC REACTION PROTOCOL.

2. ESTABLISH I.V. OF N/S K.V.O. PER I.V. THERAPY PROTOCOL TO MAINTAIN SYSTOLIC B/P > 90 mm Hg.

9. TRANSPORT PROMPTLY IN POSITION OF COMFORT.

10. REASSESS VITAL SIGNS AS INDICATED.

11. IF TREATMENT COMMENCES WITHIN 15 MINUTES OF BITE, A MECHANICAL VENOM EXTRACTOR (eg. “Sawyer Extractor”) MAY BE APPLIED. FOLLOW INSTRUCTIONS ON PACKAGE INSERT.

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MEDICAL PATIENT CARE

18. NON-TRAUMATIC EYE EMERGENCIES

OVERVIEW: Severe eye pain and vision loss may result from acute glaucoma, infection, occult injury (e.g. abrasions or foreign bodies), excessive ultraviolet light exposure (e.g. from welding or “snowblindness”), or from acute occlusion of a retinal blood vessel (though this may be painless). All of these emergencies require urgent attention by a physician. Blurred vision, diplopia, or blood in a part of the eye, could be the result of some primary eye disease or other serious medical problem. Such patients should be transported to the emergency department without delay.

PRE-HOSPITAL GOAL: Obtain history, record vital signs, and transport to nearest appropriate medical facility without delay.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

- 1. AIRWAY**
- 2. BREATHING**
- 3. CIRCULATION**
- 4. DISABILITY**
- 5. APPLY DRESSINGS AS INDICATED TO PROTECT THE EYES.**
- 6. ADMINISTER OXYGEN PER PATIENT ASSESSMENT.**
- 7. TRANSPORT PROMPTLY; UNLESS CONTRAINDICATED ELEVATE PATIENT’S HEAD.**
- 8. REASSESS VITAL SIGNS AS INDICATED.**

MEDICAL PATIENT CARE

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19. DIABETIC EMERGENCIES (CONSCIOUS)

OVERVIEW: Diabetes mellitus is an illness characterized by inadequate insulin production (insulin dependent diabetes) or insensitivity of target organs to insulin (non-insulin dependent diabetes). This may cause serious problems for the patient if they suffer an acute illness or injury, if they do not follow their diet correctly, or if they fail to take medications properly. There are two problems that are related to diabetic emergencies; diabetic ketoacidosis (DKA) (inadequate insulin administration) and insulin shock / hypoglycemic emergency (too much insulin or too little carbohydrate intake). Rapid pulse, hypotension, acetone (sweet, fruity) breath odor are all sign and symptoms of DKA. With insulin shock; pulse rate, pressure and respirations may be normal or abnormal, and the patient may present with a wide range of signs and symptoms, including altered mental status, coma, seizures, cardiac arrhythmias, and even sudden cardiac death.

PRE-HOSPITAL GOAL: Maintain stable vital signs, protect the patient's airway, obtain history and glucose level reading if possible, rule out or treat for insulin shock.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY; PROTECT CERVICAL SPINE AS INDICATED.

2. BREATHING

3. CIRCULATION

4. DISABILITY

5. ADMINISTER OXYGEN PER PATIENT ASSESSMENT.

6. IF PATIENT IS UNCONSCIOUS, REFER TO UNCONSCIOUS PATIENT PROTOCOL.

7. SUCTION OROPHARYNX AS NECESSARY.

8. CHECK DEXTROSE STICK IF AVAILABLE. IF GLUCOSE IS < 50 ADMINISTER ORAL GLUCOSE OR REFER TO ALS PORTION OF DIABETIC EMERGENCY PROTOCOL.

9. OBTAIN A COMPLETE HISTORY OF INCIDENT IF POSSIBLE.

10. TRANSPORT PATIENT IN POSITION OF COMFORT and CONTINUE TO REASSESS.



1. PLACE PATIENT ON CARDIAC MONITOR.

2. ESTABLISH I.V. OF N/S K.V.O. PER I.V. THERAPY PROTOCOL.

3. CHECK DEXTROSE STICK IF AVAILABLE. IF GLUCOSE IS < 50 ADMINISTER THIAMINE 100MG I.V.P. THEN 25CC D50W IVP

4. IF DEXTROSE STICK IS NOT AVAILABLE, ADMINISTER THIAMINE 100MG IVP THEN D50W 25CC IVP

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MEDICAL PATIENT CARE

20. INSECT BITES/STINGS

OVERVIEW: Bites and stings can range from minor irritations to severe reactions. Allergic reactions cause many deaths each year from wasps, bees, hornets and ants (*Hymenoptera spp.*). Venomous spiders and scorpions can be particularly dangerous as well. The brown Recluse spider (*Loxosceles reclusa*) can cause a substantial degree of tissue necrosis. Black widow spider (*Latrodectus mactans*) bites can effect the nervous system. Luckily, only the bark scorpion has caused fatalities in the United States. Signs and symptoms are generally the same: localized pain, redness and swelling; muscle spasms, dyspnea, nausea/vomiting, sweating and possibly seizures.

PRE-HOSPITAL GOAL: Maintain stable vital signs, protect patient’s airway, reassure the patient, treat for potential shock, watch for seizure activity, transport promptly to the nearest appropriate medical facility.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

- 1. AIRWAY; PROTECT CERVICAL SPINE AS INDICATED.**
- 2. BREATHING**
- 3. CIRCULATION – ANAPHYLAXIS PROTOCOL IF INDICATED.**
- 4. DISABILITY**
- 5. ADMINISTER OXYGEN PER PATIENT ASSESSMENT.**
- 6. REFER TO APPROPRIATE PROTOCOL IF ANAPHYLAXIS/ ALLERGIC REACTION IS SUSPECTED.**
- 7. REFER TO SEIZURE PROTOCOL IF INDICATED.**
- 8. OBTAIN COMPLETE HISTORY OF INCIDENT IF POSSIBLE.**
- 9. TRANSPORT PATIENT IN POSITION OF COMFORT.**
- 10. REASSESS VITAL SIGNS AS INDICATED.**

1 → PLACE PATIENT ON CARDIAC MONITOR.

2. ESTABLISH I.V. OF N/S K.V.O. PER I.V. THERAPY PROTOCOL. TO MAINTAIN B/P > 90 mm Hg.

MEDICAL PATIENT CARE

21. THROMBOLYTIC SCREENING

OVERVIEW: “Door to Drug” therapy is important for management of an MI because “Time is Muscle”. With thrombolytic therapy being offered to viable candidates in the hospital, it is equally important for the pre-hospital provider to obtain as much pertinent history on the patient prior to arrival as possible. This pertinent history must also be obtained for administration of aspirin prior to arrival at the medical facility.

PRE-HOSPITAL GOAL: Maintain stable vital signs, give high flow oxygen, nitroglycerin, and morphine for analgesia. Administer aspirin **IF** patient answered “**NO**” to all screening questions. Start two (2) IVs; try to limit one attempt per IV. Attempt to obtain ECG with at least leads I, II, III and MCL 1 through MCL 6. Obtain a complete history and ask all screening questions. **ALL QUESTIONS SHOULD BE “NO”.**

SIGNS AND SYMPTOMS: Non-traumatic chest pain > thirty (30) minutes but < twelve (12) hours with no relief from nitroglycerin and appropriate ECG findings as follows:

- a. 2 millimeter ST segment elevation in two contiguous precordial leads (V1-V6)
- b. 2 millimeter ST segment elevation in one peripheral lead (I, aVL, II, III, aVF) with appropriate reciprocal changes
- c. New onset left bundle branch block

1. Has patient had active bleeding within the past ten (10) days?
2. Does the patient have a history of active peptic ulcer disease?
3. Has the patient had any surgery or traumatic injury in the past six (6) weeks?
4. Does the patient have a history of a hemorrhagic cerebrovascular accident (CVA)?
5. Does the patient have a history intracranial cancer?
6. Does the patient have a known allergy or hypersensitivity to any thrombolytic agent?
7. Does the patient have a history of uncontrolled hypertension?
8. Has the patient ever had thrombolytics before; if so, which one and when?
9. Is the patient pregnant?

IF PATIENT ANSWERS NO TO ALL QUESTIONS, ALERT MEDICAL FACILITY OF POSSIBLE THROMBOLYTIC CANDIDATE.

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V. Trauma Patient Care

- 1. Assessment- Trauma**
- 2. Trauma Patient**
- 3. Head Injury**
- 4. Spinal Injury**
- 5. Amputated Part**
- 6. Evisceration**
- 7. Impaled Objects**
- 8. Fracture**
- 9. Thoracic Trauma**
- 10. Ophthalmological Injuries**

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TRAUMA PATIENT CARE

1. PATIENT ASSESSMENT - TRAUMA

OVERVIEW: Trauma is the leading cause of death in Americans between the ages of 1 and 44. Key questions to ask are: What happened? How was the patient injured? Trauma assessment is indicated for any person(s) whose mechanism of injury involved environmental factors (burns, drowning, toxic inhalants), motion, or a significant amount of energy to that patient (motor vehicle, penetrations, rapid deceleration).

PRE-HOSPITAL GOAL:

A. Scene Survey

1. Obtain an overview of the scene and the patient(s).
2. Consider the safety of the EMS personnel and the patient.

B Primary Survey: This is a rapid assessment to identify all immediate life threatening problems. Oxygen should be administered as soon as possible, if indicated and vital signs can be taken during this portion of the assessment.

1. Airway with cervical spine immobilization (if appropriate):

The patient must have an open airway. The head tilt/chin lift or jaw thrust method and airway adjuncts can be used to maintain the airway. Apply rigid c-spine collar, bolsters and board if condition or clinical suspicion warrant.

2. Breathing: Adequacy of the respirations must be assessed. Look, listen and feel. Auscultate breath sounds with a stethoscope. Look for signs of tension pneumothorax (deviated trachea on palpation, decreased breath sounds on affected side, subcutaneous air, crepitation, hyperresonance on percussion), flail chest, and punctures.

3. Circulation and hemorrhage control: Central and peripheral pulses should be checked. Assess skin temperature and color, capillary refill; identify and attempt initial control of significant external hemorrhage. Consider application of M.A.S.T. / P.A.S.G. garment per protocol.

4. Disability: Assess level of consciousness using the **AVPU** mnemonic: Alert, (responds) to Verbal Stimulus, alert to Painful Stimulus, Unresponsive. Check pupils for symmetry and reactivity to light.

5. Expose: Remove clothing, as needed, to examine and evaluate the patient's medical problem.

6. Status: Decide if immediate transport is indicated ("Load and GO").

Do not delay transport of a patient who clearly will require emergency surgical care simply in order to complete your assessment and protocols. Obtain and record vital signs and history for receiving facility.

C Secondary Survey:

1. Take and record vital signs.

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2. **Head:** Inspect the mouth, nose and the facial bones. Inspect and palpate the scalp and ears; and check the eyes and pupils.

TRAUMA-- PATIENT ASSESSMENT

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3. **Cervical spine.**
4. **Chest:** Inspect, palpate and auscultate for breath sounds.
5. **Abdomen/Pelvis:** Inspect and palpate the abdomen, assess for pelvic injury or instability. Consider the use of P.A.S.G./M.A.S.T. if indicated.
6. **Lower Extremities:** Inspect and palpate the legs and feet. Check for distal pulses, movement and sense of touch.
7. **Upper Extremities:** Inspect and palpate the arms and hands. Check for distal pulses, movement and sense of touch.
8. **Back and Buttocks:** Inspect and palpate.
9. Identify and treat minor wounds and fractures.

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TRAUMA PATIENT CARE

2. THE TRAUMA PATIENT

OVERVIEW: A patient with multiple injuries can overwhelm a pre-hospital provider. These concepts in the management of the trauma patient will expedite patient care:

1. Perform scene survey; look for hazards, signs of violence, weapons and/or additional patients.
2. Begin every patient assessment with ABCDE.
3. Always assume spinal cord injury in patients with multiple injuries and/or significant mechanism of injury.
4. Administer a minimum of 10 liters oxygen by non-re-breather mask for all multisystem trauma patients and/or patients with significant mechanism of injury.
5. On scene time should be limited to less than ten (10) minutes after patient extrication.
6. Invasive procedures such as I.V. therapy and cardiac monitors should be done while en route to the medical facility. DO NOT delay patient transport for these reasons.
7. Continually reassess your patient’s status. Patients with multiple injuries and/or significant mechanism of injury should have vitals reassessed every five (5) minutes if possible.
8. Transportation to a medical facility capable of stabilizing and treating trauma patients (i.e. a designated regional trauma center) is crucial.

PRE-HOSPITAL GOALS: Establish and maintain a patent airway, assist breathing as indicated, control hemorrhage, determine critical injuries, patient’s stability and “load and go” situation. Maintain stable vital signs and prompt transportation to appropriate medical facility.

BASIC LIFE SUPPORT

1. **AIRWAY; PROTECT CERVICAL SPINE AS INDICATED.**
2. **BREATHING**
3. **CIRCULATION**
4. **DISABILITY; DETERMINE GLASGOW COMA SCORE.**
5. **ADMINISTER OXYGEN PER PATIENT ASSESSMENT.**
6. **ASSESS FOR MAJOR TRAUMA.**

ADVANCED LIFE SUPPORT

****IF PROBLEM REFER TO AIRWAY MANAGEMENT PROTOCOL****

****IF PROBLEM REFER TO AIRWAY MANAGEMENT PROTOCOL****

****IF PROBLEM REFER TO SHOCK PROTOCOL****

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7. DETERMINE “LOAD AND GO” STATUS OF PATIENT.

TRAUMA -- THE TRAUMA PATIENT
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8. PLACE PATIENT ON LONG SPINE BOARD AS INDICATED.

9. TRANSPORT TO NEAREST APPROPRIATE MEDICAL FACILITY



1. IF TIME, PLACE PATIENT ON CARDIAC MONITOR.

10. REASSESS VITAL SIGNS AS INDICATED.

2. ESTABLISH TWO IVs OF N/S OR L/R PER I.V. THERAPY PROTOCOL. ADMINISTER 250 cc BOLUS FROM EACH IV. UNTIL

**PATIENT’S B/P IS > 90 mm Hg.
REASSESS PATIENT’S VITAL SIGNS AFTER EACH BOLUS. MAX DOSE OF 20 cc PER Kg.**

3. FOR CARDIAC ARRHYTHMIA’S, REFER TO APPROPRIATE PROTOCOL

TRAUMA PATIENT CARE

3. HEAD INJURY

OVERVIEW: Head injury should be suspected with **any** loss of consciousness or mechanism of injury that would suggest possible head injury. The skull encloses the brain, so be cautious about giving large amounts of fluids to a patient with a suspected head injury. This could cause extravasation of fluid from the vascular system into the cells and increase intracranial pressure. If the patient presents hypotensive, consider other causes. All patients with a possible head injury will be treated as having a cervical spine injury until proven otherwise. **NOTE: The most important sign of a head injury is the patient’s level of consciousness.**

PRE-HOSPITAL GOAL: Stabilize the head and entire spine, reassess for changes in level of consciousness, limit I.V. fluids, transport as quickly as possible and limit altitude to 1500 feet AGL or less.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY; PROTECT CERVICAL SPINE AS INDICATED.

*****IF PROBLEM REFER TO AIRWAY MANAGEMENT PROTOCOL*****

2. BREATHING

*****IF PROBLEM REFER TO AIRWAY MANAGEMENT PROTOCOL*****

3. CIRCULATION

*****IF PROBLEM REFER TO SHOCK PROTOCOL*****

4. DISABILITY; DETERMINE GLASGOW COMA SCORE.

5. ADMINISTER OXYGEN PER PATIENT ASSESSMENT.

6. ASSESS FOR MAJOR TRAUMA.

7. DETERMINE “LOAD AND GO” STATUS OF PATIENT.

8. PLACE PATIENT ON LONG SPINE BOARD AS INDICATED.

9. TRANSPORT TO NEAREST APPROPRIATE MEDICAL FACILITY.



1. IF TIME, PLACE PATIENT ON CARDIAC MONITOR.

10. REASSESS VITAL SIGNS AS INDICATED.

2. ESTABLISH I.V. OF N/S OR L/R K.V.O. PER I.V. THERAPY PROTOCOL.

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TRAUMA PATIENT CARE

4. SPINAL INJURY

OVERVIEW: Spinal injury should be suspected with any vehicle related trauma, diving accidents, jumps, falls, crush, lightening or electrical injuries; gunshot wounds of the head, neck, chest, back or abdomen; any patient found unconscious in the setting of a traumatic injury; and at any time the mechanism of injury suggests the possibility of spinal injury. Patient presentation or normal neurological exam does not rule out a possible spinal injury. A neurological exam should be conducted before and after immobilization of the spinal column.

PRE-HOSPITAL GOAL: Use spinal precautions with all trauma patients, immobilize appropriate patients prior to transport, assess and document all neurological findings.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY; PROTECT CERVICAL SPINE AS INDICATED.

2. BREATHING

3. CIRCULATION

4. DISABILITY; DETERMINE GLASGOW COMA SCORE.

5. ADMINISTER OXYGEN PER PATIENT ASSESSMENT.

6. ASSESS FOR OTHER SIGNS OF TRAUMA.



1. PLACE PATIENT ON CARDIAC MONITOR, IF TIME.

7. PLACE PATIENT ON LONG SPINE BOARD.

2. ESTABLISH I.V. OF N/S or L/R PER I.V. THERAPY PROTOCOL.

8. TRANSPORT PATIENT TO APPROPRIATE MEDICAL FACILITY.

9. REASSESS VITAL SIGNS AS INDICATED.

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TRAUMA PATIENT CARE

5. AMPUTATED EXTREMITY

OVERVIEW: Amputation can become life threatening if there is associated hemorrhage. Use direct pressure with sterile pads (if available) to control the bleeding initially. Follow the guidelines stated in BLEEDING CONTROL PROTOCOL. Use a tourniquet as a last resort, however do not delay its use if hemorrhage cannot be controlled by more conservative measures, or if the patient's life is threatened by continued bleeding.

PRE-HOSPITAL GOALS: Control bleeding, treat for shock, manage pain, recover and appropriately package amputated part if possible for potential re-implantation, transport as quickly as possible. Notify receiving facility as early as possible so surgical team can be assembled.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY

2. BREATHING

3. CIRCULATION; CONTROL HEMORRHAGE.

4. DISABILITY

5. ADMINISTER OXYGEN PER PATIENT ASSESSMENT.

6. RETRIEVE AMPUTATED PART AND PLACE IN PLASTIC BAG; PLACE BAG IN CONTAINER OF ICE AND SALINE IF TIME PERMITS; DO NOT ATTEMPT TO CLEAN PART; DO NOT PLACE PART ON DRY ICE, RETRIEVE ANY PARTS POSSIBLE WITHOUT DELAY OF TRANSPORT TIME.

7. TRANSPORT PROMPTLY IN POSITION OF COMFORT.

8. REASSESS VITAL SIGNS AS INDICATED.

1. ESTABLISH TWO LARGE BORE I.V.'s PER I.V. THERAPY

PROTOCOLS IN NON-AMPUTATED EXTREMITY, TO MAINTAIN A B/P > 90 mm Hg SYSTOLIC.

2. PLACE PATIENT ON CARDIAC MONITOR, IF AVAILABLE.

3. CONSIDER ANALGESICS PER MEDICATION PROTOCOL OR CONTACT MEDICAL CONTROL FOR FURTHER GUIDANCE AS NEEDED.

TRAUMA PATIENT CARE

6. EVISCERATION

OVERVIEW: Shock, hemorrhage and a significant hypothermia can accompany an evisceration. Use sterile gauze moistened with saline for a dressing and take steps to treat shock and prevent hypothermia. It is imperative that the patient be transported without delay.

PRE-HOSPITAL GOAL: Maintain stable vital signs, minimize blood loss, minimize loss of body heat, prevent or treat shock, cover the wound, transport promptly to nearest appropriate medical facility.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY

2. BREATHING

3. CIRCULATION

4. DISABILITY

**5. ADMINISTER OXYGEN PER
PATIENT ASSESSMENT.**

**6. COVER EVISCERATED ORGAN(S)
WITH STERILE DRESSING MOISTENED
WITH NORMAL SALINE; DO NOT
ATTEMPT TO REPLACE ORGANS.**

**7. ASSESS FOR POSSIBLE
IMPALED OBJECTS. DO NOT
REMOVED IMPALED OBJECTS.**

**8. TRANSPORT PROMPTLY
IN POSITION OF COMFORT.**

**9. REASSESS VITAL SIGNS
AS INDICATED.**

- ➔ 1. PLACE PATIENT ON
CARDIAC MONITOR, IF TIME.
2. ESTABLISH TWO LARGE BORE
IV. PER IV. THERAPY
PROTOCOL TO MAINTAIN
B/P/ > 90 mm Hg SYSTOLIC.**

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TRAUMA PATIENT CARE

7. IMPALED OBJECTS

OVERVIEW: Pre-hospital providers can often become focused on an impaled object injury; discipline must be maintained to assess the patient’s Airway, Breathing and Circulation FIRST. Never remove an impaled object in the pre-hospital environment unless it interferes with the patient’s Airway or Breathing; removal may cause further damage or an increase in hemorrhaging. Proper stabilization of the object is paramount to prevent movement with consideration to rapid transportation of the patient. Assistance with disengaging or cutting large anchored objects may be required in order to “free” the patient for transport. Medical control should be contacted if the patient cannot be transported with the object in place.

PRE-HOSPITAL GOAL: Rapid assessment of the patient, stabilization and transport. Maintain stable vital signs, control bleeding and treat for shock.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY

2. BREATHING

3. CIRCULATION

4. DISABILITY

**5. ADMINISTER OXYGEN PER
PATIENT ASSESSMENT.**

**6. STABILIZE OBJECT; DO NOT
REMOVE UNLESS OBJECT
INTERFERES WITH AIRWAY,
BREATHING OR WOULD
MAKE TRANSPORT IMPOSSIBLE.**

**7. APPLY BULKY DRESSINGS
AROUND OBJECT TO SECURE
IN PLACE.**

**8. TRANSPORT PROMPTLY
IN POSITION OF COMFORT,
MINIMIZE MOVEMENT
OF THE IMPALED OBJECT.**

**9. REASSESS VITAL SIGNS
AS INDICATED.**

**1. PLACE PATIENT ON
CARDIAC MONITOR, IF TIME.**

**2. ESTABLISH TWO LARGE BORE
IV. PER I.V. THERAPY
PROTOCOL TO MAINTAIN A
SYSTOLIC B/P > 90 mm Hg SYSTOLIC.**

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TRAUMA PATIENT CARE

8. FRACTURES

OVERVIEW: Musculoskeletal injuries are common and usually obvious, rarely are these injuries life threatening. Do not become distracted by obvious yet non-lethal extremity injuries before completing the primary survey (i.e Airway, Breathing and Circulation). Much of the patient’s pain may usually be relieved with proper stabilization and splinting of the suspected fracture site.

PRE-HOSPITAL GOAL: Maintain stable vital signs, handle the patient gently, stabilization and splinting of the affected area, perform neurological checks on the injured extremity before and after splinting.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

- 1. AIRWAY**
- 2. BREATHING**
- 3. CIRCULATION**
- 4. DISABILITY**
- 5. ADMINISTER OXYGEN PER PATIENT ASSESSMENT.**
- 6. CHECK FOR SPASM, SWELLING, TENDERNESS, SENSATION, DISTAL PULSES, AND CAPILLARY REFILL AT THE INJURY SITE.**
- 7. STABILIZE INJURED PART WITH APPROPRIATE SPLINT AND PADDING.**
- 8. RE-CHECK DISTAL PULSES AND SENSATION AFTER SPLINTING AND RECORD FINDINGS.**
- 9. APPLY DRESSINGS TO ALL OPEN WOUNDS**
- 10. TRANSPORT PROMPTLY IN POSITION OF COMFORT.**
- 11. REASSESS VITAL SIGNS AS INDICATED.**

- 1. ESTABLISH I.V. PER I.V. THERAPY PROTOCOL TO MAINTAIN A SYSTOLIC B/P/ > 90 mm Hg.**

- 2. PLACE PATIENT ON CARDIAC / VITAL SIGNS MONITOR.**

TRAUMA PATIENT CARE

9. THORACIC TRAUMA

OVERVIEW: A rapid initial assessment followed by expeditious transport is vital for the patient’s survival. Early transport with IVs and other interventions performed en route to the medical facility is the standard – “the best treatment is speed [to resuscitative surgical care].” Do not be fooled by gunshot or penetration wounds that appear relatively insignificant.

PRE-HOSPITAL GOAL: Control hemorrhage, maintain stable airway and vital signs, treat for shock, attempt to identify mechanism of injury and consider patient as a “load and go”.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY; PROTECT CERVICAL SPINE AS INDICATED.

2. BREATHING

3. CIRCULATION

4. DISABILITY

5. ADMINISTER OXYGEN PER PATIENT ASSESSMENT. ASSIST RESPIRATIONS WITH B.V.M. AS INDICATED.

1. IF TENSION PNEUMOTHORAX IS SUSPECTED, CONSIDER NEEDLE DECOMPRESSION PER PROTOCOL.

6. ATTEMPT TO IDENTIFY MECHANISM OF INJURY; OBTAIN HISTORY.

2. ESTABLISH I.V. PER I.V. THERAPY PROTOCOL TO MAINTAIN A SYSTOLIC B/P > 90 mm Hg.

7. REASSESS SOURCE OF RESPIRATORY DISTRESS, STABILIZE CHEST INJURIES.

3. PLACE PATIENT ON CARDIAC AND VITAL SIGNS MONITOR.

8. PLACE PATIENT ON LONG SPINE BOARD.

9. TRANSPORT PATIENT TO NEAREST APPROPRIATE MEDICAL FACILITY.

10. REASSESS VITAL SIGNS AS INDICATED.

TRAUMA PATIENT CARE

10. OPHTHALMOLOGIC INJURIES

OVERVIEW: Ocular problems can result from several sources. Penetrating wounds could be the result of a gunshot or impaled objects. Particles can be thrown or blown into the eyes from wind or compressed gases, which could abrade or penetrate the eyes. Blunt trauma can cause an avulsion or globe rupture. Both eyes should be covered with sterile patches and the patient transported rapidly to the nearest appropriate medical facility. Do not attempt to remove impaled objects from the eyes. Chemical exposures should be treated with copious amounts of water throughout–transport until arrival at the medical facility.

PRE-HOSPITAL GOAL: Reassure the patient. Use appropriate dressings to protect the eyes from added injury and insure that both eyes are covered to prevent ocular movement and any further damage. Bolster impaled objects to prevent further injury. Continuous irrigation with sterile water or N/S to chemical or thermal burns.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

- 1. AIRWAY**
- 2. BREATHING**
- 3. CIRCULATION**
- 4. DISABILITY**
- 5. ADMINISTER OXYGEN PER PATIENT ASSESSMENT.**
- 6. ASSESS FOR TRAUMA - REFER TO APPROPRIATE TRAUMA PROTOCOL.**
- 7. IF CAUSTIC EXPOSURE IRRIGATE CONTINUOUSLY WITH N/S OR STERILE WATER.**
- 8. APPLY DRESSINGS AND BOLSTER IMPALED OBJECTS AS INDICATED.**
- 9. TRANSPORT PROMPTLY WITH PATIENT'S HEAD ELEVATED.**
- 10. REASSESS VITAL SIGNS AS INDICATED.**

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VI. BEHAVIORAL PATIENT CARE

- 1. Behavioral Emergencies**
- 2. Sexual Assault**
- 3. The Combative Patient**
- 4. Suicidal Patients**

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BEHAVIORAL PATIENT CARE

1. BEHAVIORAL EMERGENCIES

INDICATIONS: There are organic, situational, and psychiatric causes of behavioral disorders.

1. Organic causes include toxic and deficiency states, infections, neurological diseases, and cardiovascular and metabolic disorders.
2. Situational causes are a result of an emotional reaction to a stressful event.
3. Disturbances, which arise from within the patient, are psychiatric, such as psychosis.
4. Persons with behavioral emergencies may be experiencing pain as real to them as if it were a severe traumatic injury.

PATIENT MANAGEMENT PROTOCOL:

1. Obtain as accurate a history of the patient and events as possible, to help determine the cause of the behavioral disorder.
 - a. Precipitating factors.
 - b. Patients existing life situation.
 - c. Any past or recent medical/psychiatric history.
 - d. Determine the patient’s mental status – oriented/disoriented, is the patient’s thinking organized/disorganized?
 - e. Are the patient’s facial or emotional expressions appropriate for the situation?
 - f. Observe the patient’s speech patterns, motor function and posture.
2. The FMA should:
 - a. Always be alert to scene safety.
 - b. Assess for life threatening illnesses or injuries.
 - c. Ensure you identify yourself.
 - d. Remain calm and take your time with the patient.
 - e. Remove any persons and/or objects from the scene that may be disturbing to the patient
 - f. Try to encourage the patient to relax and talk.
 - g. Never touch the patient without his/her expressed consent.
 - h. Ask open-ended questions.
 - i. Never allow the patient to move between you and an exit.
 - j. Offer emotional support.
 - k. Never argue with or shout at the patient.
 - l. Take the time to explain procedures to an anxious or confused patient.
 - m. Determine if patient is safe for transport by air.

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BEHAVIORAL PATIENT CARE

2. SEXUAL ASSAULT

INDICATIONS: It is very important to understand that sexual assault is a crime of violence, not of sex. Victims need emotional support; reassurance, RESPECT and most importantly, they need to feel safe. Attempts should be made from the onset of care to re-establish the patient's sense of self-control of the situation. Be aware also that sexual assault is a crime which may claim male as well as female victims.

PATIENT MANAGEMENT PROCEDURE:

1. Allow the patient to chose the gender of the caregiver, if possible, or allow a person of the patient's choice to ride along, if possible.
2. Listen carefully to and document what the patient has to say.
3. Advise the victim to NOT destroy anything which might constitute evidence.
4. Reassure the victim of their personal safety.
5. Do not ask about any details of the assault or question the person's honesty.
6. Try to avoid touching the patient, unless absolutely necessary.
7. Always ask for the person's permission before touching them.
8. Always explain the procedure you are to perform.
9. Do not inspect the victim's genital area, unless the patient's wounds are severe and require inspection before treatment.
10. Never offer false hopes to the victim.
11. Document all findings, signs and symptoms for possible evidence.
12. Be gentle, kind and respectful when treating the patient.

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BEHAVIORAL PATIENT CARE

3. COMBATIVE PATIENTS

INDICATIONS: Flight medics may naturally respond to a combative or otherwise violent patient with anger and be prepared to defend oneself. Be aware, however, that such behavior may be caused by hypoxia, shock, delirium or other sequelae of illness or injury.

PATIENT MANAGEMENT PROCEDURE:

1. Survey the scene, locate any possible risk factors:
 - a. Alcohol and/or drug intoxication.
 - b. Large crowds where incidents of violence have occurred.
 - c. Manic-depressives or psychotic patients.
 - d. Delirium, anxiety, phobias and disorientation.

2. Treat the patient's life threatening injuries.
3. Try to calm and reassure the patient.
4. Always be honest with the patient.
5. Be alert to outbursts of violence:
 - a. Tense posture.
 - b. Threats from the patient.
 - c. Increasing or hyper activity.
 - d. Aggressive or offensive body language.

6. Physical restraints will be used on all violent patients prior to loading the patient on the aircraft.
 - a. Document actual need for restraint (i.e. patient is imminent risk to self or others)
 - b. Attempt to obtain medical control physician approval prior to application
 - c. Once restraints are applied, constantly monitor patient for signs of airway obstruction, respiratory distress or aspiration. Also, monitor peripheral pulses in all extremities at least every 15 minutes, and adjust restraints to allow for circulation.
 - d. Attempt to convert to chemical restraint (sedation) or otherwise remove physical restraints as soon as safely possible.

7. Diazepam should be used to sedate and help maintain the patient (after consult with on-line Medical Control). This should also be done for the safety of the crew. **Serious consideration should be made to the use of sedatives in the violent patient. Their mental status could be the result of trauma, seizure or overdose.**

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8. Refer to the Rapid Sequence Intubation Protocol if the patient’s actions could compromise the airway, cause further injury to his/her self and or compromise the cervical spine (based upon the patient’s current injuries).
9. Always consider requesting additional help with a violent patient.

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BEHAVIORAL PATIENT CARE

4. SUICIDAL PATIENTS

OVERVIEW: Safety of the flight medic and crew as well as the patient is paramount. If the patient is armed, consider the patient homicidal as well as suicidal. Medical treatment is the priority for the patient, but suicidal patients should be transported to a facility that is appropriate for the patient's injuries as well as their behavioral problems.

PRE-HOSPITAL GOAL: Try to provide a calm environment for the patient. Provide emotional support and understanding of the problem. Provide medical intervention if warranted. Transport to an appropriate medical facility.

RISK FACTORS: Any person may become suicidal regardless of sex, age, ethnicity or background. Common recognized risk factors in developed countries include: Age: 15-24 years and over 40. Sex: Male. Usually divorced or widowed. Recent loss or surgery. Patient has a history of past attempts.

INURY/INJECTION

1. SCENE / CREW SAFETY
2. AIRWAY.
3. BREATHING.
4. CIRCULATION.
4. IF MEDICATION/SUBSTANCE INJECTED, REFER TO POISONING PROTOCOL.
5. IF TRAUMA INVOLVED, REFER TO TRAUMA PROTOCOL.

VERBAL THREAT

1. SCENE / CREW SAFETY
2. PROTECT PATIENT.
3. DEVELOP RAPPOROT.
4. CREATE CALM ENVIRONMENT.
5. ASSESS RISK FACTORS.
6. TRANSPORT TO APPROPRIATE MEDICAL FACILITY.
7. IF PATIENT POSES A RISK TO CREW SAFETY, CONSIDER APPLYING RESTRAINT OR CONTACT MEDICAL CONTROL FOR FURTHER GUIDANCE.

VII. ENVIRONMENTAL PATIENT CARE

- 2. Hyperthermia/Heat Stroke**
- 3. Hypothermia**
- 4. Frostbite**
- 5. Smoke Inhalation/Carbon Monoxide Poisoning**
- 6. Chemical and Thermal Burns**
- 7. Electrical Injuries/Lightning**
- 8. Drowning/Near-Drowning**
- 9. Dysbarism (Arterial Gas Embolism and Decompression Illness)**
- 10. Hazardous Materials/Radiation Emergencies**
- 11. Nerve Agent Poisoning**

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ENVIRONMENTAL PATIENT CARE

1. HYPERTHERMIA / HEAT STROKE

OVERVIEW: All patients (especially pediatric and geriatric patients) that present with altered mental status in a warm humid environment, should be assessed for hyperthermia / heat injury.

PRE-HOSPITAL GOAL: Move the patient to a cool environment and remove clothing. Apply water to the patient's body. Apply cold packs to the armpits neck and groin. Circulate air across the patient.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY

2. BREATHING

3. CIRCULATION

4. DISABILITY

**5. ADMINISTER OXYGEN
PER ASSESSMENT.**

**6. REFER TO UNCONSCIOUS
PATIENT OR SEIZURES
PROTOCOLS IF
INDICATED.**

**7. EXPOSE AND COOL THE
PATIENT WITH TEPID WATER
SPRAY AND FANNING.**

**8. IF PATIENT IS
CONSCIOUS, AND IS NOT
COMPLAINING OF NAUSEA,
GIVE ELECTROLYTE
SOLUTION (GATORADE).**

**9. TRANSPORT IN
POSITION OF COMFORT.**

**10. REASSESS VITAL SIGNS
AS INDICATED.**



**1. PLACE PATIENT
ON CARDIAC MONITOR.**

**2. ESTABLISH 16-18 GAUGE
IV OF L/R OR N/S AT
200 cc/hr. GIVE FLUID
BOLUS IF B/P < 90 mm Hg.**

ENVIRONMENTAL PATIENT CARE

2. HYPOTHERMIA

OVERVIEW: Any patient who presents with altered level of consciousness and had extended exposure to a cold or wet environment should be considered hypothermic. Exposure to the cold can cause vasoconstriction and bradycardia, which could make it difficult to find a pulse. **Absence of a pulse should be confirmed for a minimum of sixty (60) seconds before initiating CPR.**

PRE-HOSPITAL GOAL: Remove wet clothing and place patient in a warm environment. Handle the patient gently at all times. Provide multiple layers of dry blankets, over and under the patient. **Medications should be delayed in the event of cardiac arrest until the patient's body temperature has risen (approx. 85 degrees). Defibrillation should not be attempted if the patient presents with ventricular fibrillation or pulseless ventricular tachycardia, however defibrillation is more likely to succeed as core temperature rises toward normal.**

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY.

2. BREATHING.

3. CIRCULATION, IF
PULSELESS BEGIN CPR.

4. DISABILITY.

5. ADMINISTER 100 %
OXYGEN.

6. BEGIN REWARMING.

7. TRANSPORT PROMPTLY
IN POSITION OF
COMFORT.

8. REASSESS VITAL SIGNS
AS INDICATED.



1. PLACE PATIENT ON
CARDIAC MONITOR.

2. REFER TO APPROPRIATE
ARRHYTHMIA PROTOCOL.

ENVIRONMENTAL PATIENT CARE

3. FROSTBITE

OVERVIEW: Cold injury may occur at temperatures independent of the freezing point. Always suspect hypothermia in patients suffering from frostbite.

PRE-HOSPITAL GOAL: Remove the patient's wet clothing and get them to a warm dry place, if possible. Begin rapid re-warming the patient if there is no chance of re-freezing the extremity. Do not allow the affected extremity to re-freeze. Do not rub or move the affected extremity.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

- 1. AIRWAY.**
- 2. BREATHING.**
- 3. CIRCULATION.**
- 4. DISABILITY / NEURO.**
- 5. REMOVE WET CLOTHING;
BEGIN REWARMING USING WARM
WATER (< 102 DEGREES FAHRENHEIT).
DO NOT USE WARM OR HOT AIR.**
- 6. REFER TO HYPOTHERMIA
PROTOCOLS IF INDICATED.**
- 7. TRANSPORT PATIENT IN
POSITION OF COMFORT.**
- 8. REASSESS VITAL SIGNS
AS INDICATED.**

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ENVIRONMENTAL PATIENT CARE

4. SMOKE INHALATION / CARBON MONOXIDE POISONING

OVERVIEW: Smoke inhalation and carbon monoxide poisoning are the major causes of fire related deaths. Always suspect respiratory damage and smoke inhalation injury for all victims of thermal burns (especially facial burns). Carbon monoxide can be produced by almost any flame. Headache, dizziness and nausea are the initial symptoms of carbon monoxide poisoning. Serious signs include respiratory distress, confusion, agitation. At the extreme, coma, cardiac dysrhythmias and cardiac arrest may result.

PRE-HOSPITAL GOAL: Protect yourself and crew from exposure to hazardous materials. The extrication of victims should be performed by trained personnel with the proper equipment. Administer hi-flow oxygen (non-rebreather mask at 10 lpm or greater), protect the airway and assist the patient's breathing if indicated. Treat for shock, maintain the patient's vital signs and transport. Consider intubation if patient has facial burns, sooty sputum or wheezing.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY

2. BREATHING

3. CIRCULATION

4. DISABILITY / NEURO

**5. ADMINISTER 100%
OXYGEN BY NRB.**



**1. PLACE PATIENT ON
CARDIAC MONITOR.**

**6. TRANSPORT PROMPTLY
IN POSITION OF COMFORT.**

**2. ESTABLISH IV OF L/R
OR N/S PER PROTOCOL..**

**7. REASSESS VITAL SIGNS
AS INDICATED.**

ENVIRONMENTAL PATIENT CARE

5. CHEMICAL AND THERMAL BURNS

OVERVIEW: Caustic chemicals, electricity and/or direct thermal energy can cause burns. The patient's history, the source of the burn and whether the patient was in an enclosed space all need to be considered and documented. Critical burns are those involving the respiratory system; 2nd degree burns over thirty (20) percent of the total body surface area (TBSA); Third degree burns over ten (10) percent TBSA; circumferential 2nd or 3rd degree burns, and burns to the face, hands, feet or genitalia.

PRE-HOSPITAL GOAL: Always ensure that the area is safe. For 1st and 2nd degree burns, stop the burning process by irrigation using sterile or clean cool water, followed by dry sterile dressings. Cover the patient over and under with a sterile burn sheet to protect burned areas from dust and debris. Protect and maintain the patient's airway. Continually monitor the patient's vital signs. Transport to the nearest appropriate medical facility. NOTE: initial care need not occur at a burn center . If in doubt regarding TBSA, err on the side of overestimation. **Brush all dry chemicals from the burned area before irrigating with water. Irrigate or flush the chemicals for at least 15 minutes.**

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY.
2. BREATHING.
3. CIRCULATION.
4. DISABILITY.
5. ADMINISTER OXYGEN PER ASSESSMENT.
6. TRANSPORT PROMPTLY
7. COVER BURNED AREAS WITH DRY STERILE DRESSINGS.
8. REASSESS VITAL SIGNS AS INDICATED.



1. PLACE PATIENT ON CARDIAC MONITOR.
2. ESTABLISH IV OF L/R OR N/S PER PROTOCOL.
3. ADMINISTER MORPHINE 2 TO 10 MG IV / IM AFTER CONSULTING MEDICAL CONTROL.

ENVIRONMENTAL PATIENT CARE

6. ELECTRICAL INJURIES / LIGHTNING

OVERVIEW: Always protect yourself and crew first - then render help to the patient. The voltage, amperage and the time that the patient was exposed will determine the severity of the shock (AMPERAGE KILLS). Electricity causes extensive neurological damage, injuries to the internal organs, spinal injury, tissue damage, paralysis, cardiac and respiratory arrest.

PRE-HOSPITAL GOALS: Ensure scene safety. Expect multi-system injuries and transport as soon as possible. **Consider spinal stabilization in all electrocution victims.**

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

- 1. TURN OFF POWER.**
- 2. AIRWAY, CERVICAL SPINE STABILIZATION.**
- 3. BREATHING, ADMINISTER 100 PERCENT OXYGEN PER PATIENT ASSESSMENT.**
- 4. REASSESS BREATHING.**
- 5. BEGIN B.V.M. IF RESPIRATIONS ARE INADEQUATE.**
- 6. CIRCULATION.**
- 7. DISABILITY / NEURO.**
- 8. ASSESS FOR TRAUMA, REFER TO APPROPRIATE TRAUMA PROTOCOL.**
- 9. PREVENT HEAT LOSS.**
- 10. TRANSPORT PROMPTLY.**
- 11. CONTACT MEDICAL CONTROL AS NEEDED.**



- 1. PLACE PATIENT ON CARDIAC MONITOR.**



- 2. PERFORM ORAL ET INTUBATION PER PROTOCOL IF AIRWAY BURN IS SUSPECTED, OR FOR RESPIRATORY DISTRESS.**
- 3. TREAT DYSRHYTHMIAS PER ACLS GUIDELINES.**
- 4. ESTABLISH IV/IO ACCESS OF L/R OR N/S PER PROTOCOL.**

ENVIRONMENTAL PATIENT CARE

7. NEAR DROWNING

OVERVIEW: Near-drowning is a major cause of accidental death. (NOTE: “drowning” is irreversible death from immersion; “Near-drowning” implies initial survival from immersion, however death may result later from co-morbid conditions). Remember to assess for other injuries which may have resulted prior to or after the incident. Precipitating factors include but are not limited to trauma, hypothermia, exhaustion, seizures, drug and/or alcohol intoxication. Be cautious and maintain cervical spine stability for all near-drowning victims. Always treat near-drowning patients as hypothermic.

PRE-HOSPITAL GOAL: Airway management and cervical spine stabilization. Remove the patient from the water as quickly as possible. It is important to maintain cervical spine stabilization during patient movement. Support respiratory effort. Treat for hypothermia. Provide respiratory support.

BASIC LIFE SUPPORT

- 1. AIRWAY, PROTECT CERVICAL SPINE.**
- 2. BREATHING; ADMINISTER 100% OXYGEN BY NRB**
- 3. CIRCULATION, PERFORM CPR WHEN INDICATED.**
- 4. DISABILITY / NEURO.**
- 5. REFER TO APPROPRIATE PROTOCOL FOR TRAUMA, CARDIAC ARREST OR HYPOTHERMIA.**
- 6. TRANSPORT IN POSITION OF COMFORT.**
- 7. REASSESS VITAL SIGNS AS INDICATED.**

ADVANCED LIFE SUPPORT

- ➔ 1. PERFORM ORAL ET INTUBATION PER PROTOCOL IF PATIENT IS OBTUNDED, OR IF AIRWAY IS OTHERWISE UNSECURED.**
- 2. ADMINISTER 100% OXYGEN BY BAG-VALVE-ET TUBE**
- ➔ 3. PLACE PATIENT ON CARDIAC MONITOR.**
- 4. ESTABLISH IV OF L/R OR N/S PER PROTOCOL.**

ENVIRONMENTAL PATIENT CARE

8. DYSBARISM (ARTERIAL GAS EMBOLISM AND DECOMPRESSION ILLNESS)

OVERVIEW: Arterial gas embolism (AGE) occurs when pulmonary gas pressure exceeds ambient pressure sufficiently to rupture lung tissue and vessels (e.g. holding breath during ascent from depth, or during ascent to altitude / rapid cabin decompression). This condition (called Pulmonary Overpressure Syndrome) causes gas bubbles to enter the circulatory system, where they may travel to the brain, coronary or peripheral arteries. Thus, AGE may cause cardiac arrest, stroke or coma, or an ischemic extremity or organ. The hallmark presentation of AGE is sudden loss of consciousness after a diver reaches the surface. Other signs and symptoms may include bloody froth from the nose and mouth, chest pain, dizziness, blurred vision, and slurred speech. Pneumothorax may also develop.

Decompression illness (DCI) results when a patient who was breathing pressurized air at a specified depth arises too quickly, which allows nitrogen gas in solution to form bubbles in body tissues (rather than slowly wash-out during planned decompression “stops” during ascent). These bubbles may have direct mechanical as well as biochemical and autoimmune effects on the involved tissues. DCI Type I (“the bends”) effects primarily the musculoskeletal system, causing muscle and joint pain. DCI Type II (“the chokes”) effects the cardiovascular, pulmonary and central nervous systems, and may present with chest pain, paralysis, respiratory distress, shock and altered mental status / coma.

PRE-HOSPITAL GOALS: Pre-hospital care for both causes of dysbarism are essentially similar. Maintain the patient’s airway. Assess for trauma and coincidental morbidity (hypoglycemia, hypothermia, etc.), administer 100% oxygen, obtain an accurate history of the event and the patient, transport to the nearest appropriate medical facility at lowest safe altitude.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY



1. PERFORM ORAL ET INTUBATION PER PROTOCOL IF PATIENT IS OBTUNDED, OR IF AIRWAY IS OTHERWISE UNSECURED.

2. BREATHING; ADMINISTER 100% OXYGEN BY NON-REBREATHER MASK. OR IF AIRWAY IS OTHERWISE UNSECURED.

3. CIRCULATION.

4. DISABILITY.

5. ADMINISTER 100% OXYGEN.



2. PLACE PATIENT ON CARDIAC MONITOR.

6. TRANSPORT PATIENT IN TRENDELENBURG, LEFT LATERAL RECUMBENT.

3. ESTABLISH IV OF N/S OR L/R PER PROTOCOL.

7. REASSESS VITAL SIGNS AS INDICATED.

4. CONTACT MEDICAL CONTROL TO CONSIDER ORAL ASPIRIN 325 MG PO, LIDOCAINE 1MG/KG IV BOLUS, AND / OR SOLUMDEROL

8. TRANSPORT AT LOWEST POSSIBLE 125MG IV . SAFE ALTITUDE (IDEALLY < 4000 Feet msl).

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ENVIRONMENTAL PATIENT CARE

9. HAZARDOUS MATERIALS / RADIATION EMERGENCIES

OVERVIEW: Patients who are not properly decontaminated will contaminate the flight crew and aircraft. **Complete (head to toe) NBC protective equipment is required for all crew members.** Only specially trained personnel should perform the initial treatment of the patient. Once decontamination of the patient has been performed, the flight medic will continue care (with all protective equipment worn). Always attempt to maintain an upwind and uphill position from the incident.

PRE-HOSPITAL GOALS: Protect self and crew from contamination source, call for appropriate hazardous materials experts if none are on scene. Have the Hazmat Team remove the victim(s) from the contaminated area, perform an initial primary assessment and decontaminate the patient(s). Following patient decon, treat other injuries, remove and dispose of patient’s clothing and transport to an appropriate medical facility. **Medical facility MUST be notified prior to arrival to prepare for patient.**

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

- 1. ENSURE THAT CREW IS PROTECTED.**
- 2. ENSURE THAT PATIENT DECON IS PERFORMED BY EXPERT PERSONNEL.**
- 3. AIRWAY.**
- 4. BREATHING.**
- 5. CIRCULATION.**
- 6. DISABILITY / NEURO.**
- 7. CONTINUE PATIENT DECONTAMINATION.**
- 8. ADMINISTER OXYGEN PER ASSESSMENT.**
- 9. REMOVE PATIENT’S CLOTHING; PERFORM SECONDARY SURVEY.**
- 10. REFER TO TRAUMA PROTOCOL IF INDICATED.**
- 11. CONTINUE PATIENT DECONTAMINATION FOR AT LEAST 15 MIN.**
- 12. REASSESS VITAL SIGNS AS INDICATED.**

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ENVIRONMENTAL PATIENT CARE – HAZMAT/RADIATION EMERGENCIES

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**13. CONTACT MEDICAL CONTROL FOR
FURTHER GUIDANCE, AS NEEDED.**

**14. NOTIFY RECEIVING FACILITY
OF HAZMAT PATIENT.**

**15. TRANSPORT PROMPTLY
IN POSITION OF COMFORT.**

**16. REASSESS VITAL SIGNS
AS INDICATED.**

REMARKS: Focus on decontamination of the patient first. Maintain the patient with basic skills (primary survey), advanced life support can be performed in route to the medical facility if time permits.

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ENVIRONMENTAL PATIENT CARE

10. NERVE AGENT POISONING

OVERVIEW: Organophosphate and carbamate toxins are inhibitors of acetyl-cholinesterase at the neuromuscular junction. Such exposures cause an increase in the levels of acetylcholine (neurotransmitter) by deactivating cholinesterase at the synapse. This causes increased / involuntary parasympathetic activity. This may include muscarinic effects (**S**alivation, **L**acrimation, **U**rination, **D**iarrhea, **G**astrointestinal cramps and **E**mesis) and nicotinic effects (**B**radycardia, **A**ltered mental status and **M**uscle fasciculations), thus the acronym “**SLUDGE – BAM.**”.

PRE-HOSPITAL GOALS: Protect yourself and crew! Remove the patient from the source, have expert personnel provide decontamination of the patient. Protect and maintain the patient’s airway, remove the patient’s clothing. Administer CPR if needed, establish IV access and administer appropriate medications. Transport to appropriate medical facility. Obtain a thorough history of the events prior to EMS arrival.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. ENSURE THAT CREW IS PROTECTED.

2. ENSURE THAT PATIENT DECON IS PERFORMED BY EXPERT PERSONNEL.

3. SUPPORT / SECURE AIRWAY.

4. BREATHING; ADMINISTER 100% OXYGEN BY NRB

5. CIRCULATION.

6. DISABILITY / NEURO.

7. CONTINUE PATIENT DECONTAMINATION.

8. REMOVE PATIENT’S CLOTHING; PERFORM SECONDARY SURVEY.

9. REFER TO TRAUMA PROTOCOL IF INDICATED.

1. ATTEMPT INTUBATION IF PATIENT IS OBTUNDED, APNEIC OR RESPIRATORY EFFORT IS INADEQUATE.

2. PLACE PATIENT ON CARDIAC MONITOR

3. ESTABLISH IV OF N/S OR L/R. PER PROTOCOL.

4. ADMINISTER 1mg ATROPINE IV FOR CLINICAL SIGNS OF ORGANO-PHOSPHATE POISONING, OR PER DIRECTION OF MEDICAL CONTROL PHYSICIAN. . MAY REPEAT DOSE EVERY 10 MINUTES AS NEEDED. (PEDIATRIC DOSE 0.05 mg/kg IV, MINIMUM 0.1MG DOSE)

ENVIRONMENTAL PATIENT CARE – NERVE AGENT POISONING
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**10. CONTACT MEDICAL CONTROL
PHYSICIAN AS NEEDED.**

**5. IF AVAILABLE, ADMINISTER
PRALIDOXIME (2-PAM) PER
MEDICAL CONTROL PHYSICIAN
ORDER OR PACKAGE INSERT.**

**11. NOTIFY RECEIVING
FACILITY OF HAZMAT
PATIENT.**

**12. TRANSPORT PROMPTLY
IN POSITION OF COMFORT.**

**13. REASSESS VITAL SIGNS
AS INDICATED.**

REMARKS: Focus on decontamination of the patient first. Maintain the patient with basic skills (primary survey), advanced life support can be performed in route to the medical facility if time permits.

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VIII. Pediatric Patient Care

- 1. Patient Assessment**
- 2. Respiratory Distress/Failure**
- 3. Newborn Resuscitation**
- 4. Head Trauma (Pediatric)**
- 5. Chest Trauma (Pediatric)**
- 6. Abdominal Trauma (Pediatric)**
- 7. Asthma/Wheezing**
- 8. Fever**
- 9. Coma/Altered Mental Status**
- 10. Shock**
- 11. Seizures**
- 12. Burns**
- 13. Epiglottitis**
- 14. Near Drowning**
- 15. Electrical Injuries/Lightning**
- 16. Hypothermia**
- 17. Hyperthermia**
- 18. Poisoning**
- 19. Anaphylaxis**
- 20. Suspected Child Abuse**

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PEDIATRIC PATIENT CARE

1. PATIENT ASSESSMENT – PEDIATRIC

OVERVIEW: Life threatening injury or illness is the focus of the primary assessment. Primary and secondary assessment is similar for children and adults, but specific therapeutic interventions and medication doses may differ significantly. Remember – children are NOT small adults.

Recent research confirms that for children, adequate respiratory support is critical. On the other hand, recent research also confirms that EMS personnel should not perform endotracheal intubation on children unless providers are well-trained and do this procedure regularly – in the L.A. County EMS study (New England Journal of Medicine, 2000), patient outcomes were no different between the intubation group and the bag-valve-mask-suction group. Take home message: Provide aggressive respiratory support via BVM, but do not perform ET intubation unless you have extensive and RECENT experience with pediatric patients.

PRE-HOSPITAL GOALS: Assessment of the patient during the primary assessment should be performed rapidly to determine all life threatening injuries. The secondary assessment is done after those injuries have been identified and stabilized. Be aware of injuries that are unique to pediatric patients. Maintain the patient’s airway, treat for shock and reassess the patient after each intervention. Secondary assessments should be done in route to the medical facility. At all times, TRY TO ACT CALMLY, DELIBERATELY AND GENTLY.

A. PRIMARY SURVEY

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY; CERVICAL SPINE STABILIZATION, SUCTION IF INDICATED.

2. REASSESS THE PATIENT.

3. USE AN OPA TO PROTECT THE PATIENT’S AIRWAY, IF INDICATED.

4. REASSESS THE PATIENT.

5. BREATHING; ASSESS RATE, DEPTH AND EFFORT, ADMINISTER 100% OXYGEN AS INDICATED PER PATIENT ASSESSMENT. ASSIST VENTILATIONS WITH BVM AS NEEDED.

6. IF PENETRATING CHEST INJURY IS SUSPECTED, REFER TO CHEST TRAUMA PROTOCOL.

7. IF RESPIRATORY DISTRESS IS EVIDENT, ASSIST VENTILATIONS WITH B.V.M.

1. IF APPROVED BY MEDICAL DIRECTOR AND ETA TO DESTINATION FACILITY > 15 MIN, PERFORM E-T INTUBATION.

8. ASSESS CIRCULATION.

2. ESTABLISH VASCULAR ACCESS VIA IV/IO LINE.

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PEDIATRIC PATIENT CARE – PATIENT ASSESSMENT

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BASIC LIFE SUPPORT

**9. IF PERFUSION IS INADEQUATE,
REFER TO SHOCK PROTOCOL.
CONSIDER AND TREAT FOR
HYPOTHERMIA.**

10. REASSESS THE PATIENT.

11. DISABILITY – BASIC NEURO EXAM (AVPU).

**12. TRANSPORT IMMEDIATELY
IF THE PATIENT IS UNSTABLE.**

13. PREVENT HEAT LOSS.

**14. REASSESS VITAL SIGNS
AS INDICATED.**

ADVANCED LIFE SUPPORT

**3. ADMINISTER FLUID
BOLUS OF 20cc/kg NS OR LR.
REASSESS VITAL SIGNS
AND BREATH SOUNDS.**

B. DETAILED SECONDARY ASSESSMENT

HEAD:

- A. SCALP INJURY OR HEMATOMA, CREPITANCE / STEPOFF /DEPRESSION OF SKULL ON PALPATION**
- B. LOOK FOR BATTLE’S SIGN (ECHYMOSES BEHIND EARS / MASTOID – IMPLIES BASILAR SKULL FRACTURE) AND RACON’S EYE SIGN (MAXILOFACIAL FRACTURE)**
- B. FLUIDS FROM THE EARS AND/OR NOSE**
- C. DAMAGE TO THE EYES**
- D. LOOSE TEETH**
- E. BLOOD FROM THE MOUTH**
- F. NASAL FLARING**

NECK:

- A. GROSS DEFORMITY, SUBCUTANEOUS AIR**
- B. PALPATE FOR TRACHEAL DEVIATION**
- C. STRIDOR / SCALENE MUSCLE RETRACTIONS**

CHEST:

- A. DIAPHRAGMATIC BREATHING OR FLAIL**
- B. DIFFICULTY BREATHING**
- C. SUBCOSTAL RETRACTIONS**
- E. CREPITUS OR SUBCUTANEOUS EMPHYSEMA**
- F. CYANOSIS**
- G. BRUISING/TENDERNESS**

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PEDIATRIC PATIENT CARE – PATIENT ASSESSMENT

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ABDOMEN:

- A. TENDERNESS
- B. DISTENTION
- C. BRUISING
- D. ABRASIONS
- E. PELVIC INSTABILITY/TENDERNESS
- F. VISUALLY INSPECT PERINEUM FOR TRAUMA / BLEEDING

BACK / FLANK:

- A. ECHYMOSIS (BRUISING)
- B. COSTOVERTEBRAL ANGLE (CVA) TENDERNESS
- C. SPINAL STEPOFF OR CREPITANCE

EXTREMITIES

- A. ASSESS FOR PULSES MOTOR AND SENSATION
- B. GROSS DEFORMITY OR LEG LENGTH DISCREPANCY

SKIN

- A. MULTIPLE OLD INJURIES OR VARIABLE-AGE BRUISES
- B. SCARS, BRUISING OR BURNS
- C. BITE MARKS
- D. ROPE MARKS
- E. CAPILLARY REFILL
- F. CYANOSIS

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PEDIATRIC PATIENT CARE

2. RESPIRATORY DISTRESS/FAILURE

OVERVIEW: This condition may result from a broad spectrum of insults, to include an obstructed airway, epiglottitis, croup, bronchitis, asthma, pneumonia, smoke inhalation, near-drowning, blunt or penetrating trauma. Take care to ensure that the initial assessment focuses on:

1. Airway Patency
2. Gas Exchange
3. Oxygenation
4. Respiratory effort

All of these help the pre-hospital provider in differentiating among the possible causes. **NOTE: Use airway adjuncts with great caution in patients presenting with inspiratory AND expiratory stridor (possible foreign object airway obstruction) and avoid attempts to visualize the airway unless essential to resuscitation, due to the increased risk of precipitating complete obstruction.**

PRE-HOSPITAL GOAL: Maintain patent airway, provide supplemental oxygen, assist respirations as needed, obtain history and perform assessment to determine cause. If child is conscious, try to keep a parent near the child for comfort (if it does not hamper patient care).

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY/PROTECT CERVICAL SPINE AS INDICATED.

2. BREATHING; ADMINISTER 100 PERCENT OXYGEN.

3. IF STRIDOR OR DROOLING; REFER TO F.B.O.A. OR EPIGLOTTITIS PROTOCOLS.

4. IF WHEEZING; REFER TO ASTHMA PROTOCOL.

5. IF RESPIRATIONS ARE INEFFECTIVE, BEGIN B.V.M. VENTILATION.

6. CIRCULATION

7. DISABILITY

8. OBTAIN AN ACURATE HISTORY TO DIFFERENTIATE CAUSES; REFER TO APPROPRIATE PEDIATRIC PROTOCOL: F.B.O.A. EPIGLOTTITIS, CHEST TRAUMA.

9. TRANSPORT PROMPTLY IN POSITION OF COMFORT.



1. PLACE PATIENT ON CARDIAC MONITOR AND PULSE OXIMETER.



2. PERFORM IN LINE ORAL INTUBATION IF AUTHORIZED.



3. FREQUENTLY REASSESS BREATH SOUNDS FOR TUBE PLACEMENT AND POSSIBLE PNEUMOTHORAX, REFER TO NEEDLE DECOMP. PROTOCOL.

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10. REASSESS ABCD FREQUENTLY.

PEDIATRIC PATIENT CARE

3. NEWBORN RESUSCITATION

OVERVIEW: Most newborns require only minimal airway suctioning, warmth and stimulation after birth. More aggressive interventions, such as ventilation, chest compressions and pharmaceutical adjuncts, should be attempted only if initial passive support is unsuccessful. A newborn's cardiac output is rate dependent; bradycardia is usually the result of hypoxia. If the hypoxia is corrected, the heart rate usually will normalize spontaneously. If it does not, more aggressive maneuvers may be warranted.

PRE-HOSPITAL GOAL: Maintain vital signs and color, keep infant dry and warm, identify signs of meconium and intubate.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. ASSIST BIRTH

2. IF MECONIUM PRESENT, SUCTION NARES AND MOUTH.

3. DRY AND WARM INFANT. POSITION AIRWAY AND SUCTION MOUTH THEN NOSE.

4. APPLY TACTILE STIMULATION FOR THIRTY (30) SECONDS (DRY WITH TOWEL OR RUB BACK).

5. ADMINISTER 100 PERCENT OXYGEN IF CYANOTIC.

6. IF RESPIRATIONS ARE NOT SPONTANEOUS OR HEART RATE IS < 100 PER MINUTE, ASSIST VENTILATIONS WITH BAG-VALVE-MASK (BVM) AND 100% OXYGEN.

7. IF RESPIRATIONS ARE LABORED, ASSIST VENTILATIONS WITH BVM AND 100% OXYGEN.

8. REASSESS AIRWAY AND BREATHING.

9. CHECK INFANT'S HEART RATE, IF < 60 PER MINUTE BEGIN CHEST COMPRESSIONS AT 100 PER MINUTE.

10. TRANSPORT PROMPTLY.

11. REASSESS ABCD FREQUENTLY.



1. WITH MINIMAL STIMULATION, INTUBATE AND SUCTION WHILE WITHDRAWING ET TUBE; REPEAT UNTIL ET TUBE IS CLEAR OF MECONIUM, THEN ADMINISTER 100 PERCENT OXYGEN AND MONITOR.



2. IF LESS THAN 80, INTUBATE AND VENTILATE INFANT AT 20 PER MINUTE WITH 100% OXYGEN.

3. REASSESS. IF HEART RATE CONTINUES LESS THAN 100 PER MINUTE, ADMINISTER EPINEPHRINE (1: 10,000) DOSE 0. 01 mg/kg I.V./I.O.

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OR DOUBLE DOSE FOR ET TUBE.

PEDIATRIC -- NEWBORN RESUSCITATION
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BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

**4. REASSESS AND REPEAT
EPINEPHRINE EVERY FIVE (5)
MINUTES IF HEART RATE
IS LESS THAN 100/MINUTE.**

**5. MAINTAIN WARMTH AND
PREVENT HEAT LOSS.**

**6. TRANSPORT EMERGENTLY TO
NEAREST PEDIATRIC / NEONATAL
FACILITY OR FULL-SERVICE
EMERGENCY DEPARTMENT FOR
FURTHER STABILIZATION.**

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PEDIATRIC PATIENT CARE

4. HEAD TRAUMA (PEDIATRIC)

OVERVIEW: Maintain a high level of suspicion for head injury in any pediatric trauma patient. Increased intracranial pressure is more prevalent in children with head injuries; this is also the most common cause of secondary brain injury and death. This may be minimized with appropriate management of the airway, oxygenation and expeditious transport to a trauma center. Any signs of shock should precipitate aggressive supportive measures including the establishment of intravenous access, if possible. Re-assessment during transport is also critical, as any trauma patient may decompensate quickly. Lastly, pay particular attention to keeping the patient warm during transport, as hypothermia is a common and dangerous complicating condition for the trauma patient.

PRE-HOSPITAL GOAL: Assess for and recognize signs of ICP, frequently monitor patient's level of consciousness, maintain patient's airway, treat for shock according to protocols, prevent hypothermia.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

**1. ASSESS AIRWAY; IMMOBILIZE
CERVICAL SPINE AS APPROPRIATE**

**2. ASSESS BREATHING;
APPLY SUPPLEMENTAL OXYGEN**

**3. ASSESS CIRCULATION (CAPILLARY
REFILL, PULSES IN ALL EXTREMITIES)**

**4. DISABILITY; ASSESS
GLASGOW COMA SCORE**

**5. IF ALTERED MENTAL STATUS,
MONITOR AIRWAY PATENCY
AND SUCTION / ASSIST VENTILATION
AS NEEDED**

**6. PLACE PATIENT ON
LONG SPINE BOARD.**

**7. NOTIFY MEDICAL
CONTROL OF PENETRATING
SCALP INJURY OR
BLOOD FROM EARS OR
NOSE.**

**8. MAINTAIN WARMTH
PREVENT HEAT LOSS.**

9. TRANSPORT PROMPTLY.



**1. PLACE PATIENT ON
CARDIAC MONITOR AND
PULSE OXIMETER.**



**2. IF MENTALLY OBTUNDED,
ASSESS AIRWAY PATENCY;
CONSIDER ET INTUBATION TO
SECURE AIRWAY**

**3. ESTABLISH I.V./I.O. PER
PROTOCOL, CONSIDER BOLUS OF
20 cc/kg OF N/S OR L/R IF SIGNS
OF HYPOTENSION / SHOCK
ARE PRESENT.**

REMARKS: CHILDREN AGES 0-30 days ARE GIVEN 10 cc/kg FLUID BOLUS

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PEDIATRIC PATIENT CARE

5. CHEST TRAUMA (PEDIATRIC)

OVERVIEW: A child’s thoracic cavity is more compliant and softer than an adult’s. Children are more susceptible to heart and lung contusions because of rib and general thoracic compliance; this makes flail chest uncommon in children. Tension pneumothorax is among the most common serious chest injuries in children.

PRE-HOSPITAL GOAL: Ventilatory support as needed, stabilize penetrating objects, occlude open chest wounds, early recognition and treatment of tension pneumothorax, treat for shock, attempt to identify mechanism of injury and consider patient as a “load and go”.

BASIC LIFE SUPPORT

1. ASSESS AIRWAY; SUCTION / APPLY ADJUNCTS AS NEEDED.
2. ASSESS BREATHING; ADMINISTER SUPPLEMENTAL OXYGEN / ASSIST RESPIRATIONS WITH BVM AS NEEDED.
3. ASSESS CIRCULATION (CAPILLARY REFILL, PULSES IN ALL EXTREMITIES, SOURCES OF HEMORRHAGE)
4. DISABILITY
5. STABILIZE PENETRATING OBJECTS; APPLLY NON-OCCLUSIVE DRESSING TO OPEN WOUNDS.
6. TRANSPORT PROMPTLY IN POSITION OF COMFORT.
7. CONTACT MEDICAL CONTROL.
8. MAINTAIN WARMTH; PREVENT HEAT LOSS.
9. REASSESS VITAL SIGNS FREQUENTLY.

ADVANCED LIFE SUPPORT

1. IF AIRWAY IS NOT PATENT, PERFORM ET INTUBATION WITH IN-LINE C/SPINE IMMOBILIZATION
2. PLACE PATIENT ON CARDIAC MONITOR.
3. IF RESPIRATORY DISTRESS PERSISTS, WITH DIMINISHED OR ABSENT BREATH SOUNDS; PERFORM NEEDLE DECOMPRESSION.+++
4. ESTABLISH I.V./I.O. ACCESS PER I.V./I.O. PROTOCOL.
5. ADMINISTER FLUID BOLUS OF 20 cc/kg IF SIGNS OF SHOCK ARE PRESENT. ###



REMARKS: +++ Medics should attempt to establish on-line Medical Control before attempting this procedure. **If unable to contact Medical Control, the medic may perform this procedure; without approval, if indicated.**

REMARKS: ### CHILDREN AGE 0-30 days ARE GIVEN 10 cc/kg FLUID BOLUS’.

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PEDIATRIC PATIENT CARE

6. ABDOMINAL TRAUMA (PEDIATRIC)

OVERVIEW: Abdominal organs occupy a much larger space in children and blunt trauma to this area can cause significant life-threatening injuries (e.g. liver, spleen, mesenteric blood vessels). Wherever bruising, pain and/or tenderness are present, anticipate shock and/or deterioration.

PRE-HOSPITAL GOAL: Maintain airway and ventilatory support, anticipate vomiting and the need for suctioning, take measures to prevent shock and stabilize vital signs, maintain close contact with Medical Control and prompt transport to the nearest appropriate medical facility.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY: PROTECT THE CERVICAL SPINE; SUCTION AS INDICATED.

2. BREATHING: ADMINISTER SUPPLEMENTAL O2 BY NRB; IF RESPIRATORY EFFORT IS INADEQUATE, VENTILATE WITH BVM AND 100% O2

3. CIRCULATION

4. DISABILITY

5. STABILIZE / BOLSTER ANY PENETRATING OBJECTS

6. IF PERFUSION IS INADEQUATE; REFER TO SHOCK PROTOCOL.

7. CONTACT MEDICAL CONTROL IF AVAILABLE.

8. MAINTAIN WARMTH; PREVENT HEAT LOSS.

9. TRANSPORT PROMPTLY IN POSITION OF COMFORT.

10. REASSESS VITAL SIGNS FREQUENTLY.

← 1. IF WARRANTED, PERFORM ORAL ET INTUBATION AND ADMINISTER 100% O2 BY BAG

→ 2. ESTABLISH I.V./I.O. OF N/S OR L/R PER I.V./I.O. PROTOCOL GIVE BOLUS OF 20 cc/kg, IF SIGNS OF SHOCK ARE PRESENT. ###

3. PLACE PATIENT ON CARDIAC MONITOR.

REMARKS: ### CHILDREN AGES 0-30 days ARE GIVEN 10 cc/kg FLUID BOLUS'.

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PEDIATRIC PATIENT CARE

7. ASTHMA/WHEEZING

OVERVIEW: Asthma, bronchiolitis, pneumonia or a foreign body airway obstruction can cause wheezing. Increasing or decreasing respiratory rates are an indication of respiratory failure. **Patients that show a decrease in level of consciousness and/or are combative accompanied with wheezing, may be at serious risk of impending respiratory failure.**

PRE-HOSPITAL GOAL: Place patient in position of comfort; if possible, have the parent nearby. Assist respirations with 100 percent oxygen as indicated, provide medications as ordered, transport promptly to nearest appropriate medical facility.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY

2. BREATHING: ADMINISTER OXYGEN AS INDICATED.



1. IF RESPIRATORY EFFORT IS INADEQUATE, PERFORM ORAL ET INTUBATION AND ADMINISTER 100% O2 BY BAG-VALVE.

3. CIRCULATION

4. DISABILITY

5. OBTAIN COMPLETE HISTORY.



2. PLACE PATIENT ON CARDIAC MONITOR & PULSE OX.

6. TRANSPORT PROMPTLY IN POSITION OF COMFORT.

3. ESTABLISH I.V./I.O. PER I.V./I.O. PROTOCOL K.V.O. OF N/S OR L/R.

7. CONTACT MEDICAL CONTROL IF AVAILABLE.

4. ADMINISTER ALBUTEROL NEB 0.5CC DILUTED IN 5CC NS.

8. MAINTAIN WARMTH; PREVENT HEAT LOSS.

5. CONTACT MEDICAL CONTROL PHYSICIAN TO CONSIDER USE OF EPINEPHRINE SUBCUTANEOUS (1: 1000 CONCENTRATION) IF NEBULIZER UNAVAILABLE.

9. REASSES VITAL SIGNS FREQUENTLY.

6. REPEAT ALBUTEROL OR EPINEPHRINE EVERY TWENTY (20) MINUTES AS NEEDED MAXIMUM THREE (3) DOSES.

7. CONSIDER ADMINISTRATION OF SOLU-MEDROL 1MG / KG IV / IM

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PEDIATRIC PATIENT CARE

8. FEVER

OVERVIEW: Fever is a physiologic response to infection and some other illnesses. Fevers that cause a rapid rise in body temperature may precipitate a febrile seizure, most common in children under age 5. Do not perform extra-corporeal cooling (ice baths, water vapor spray, fanning) in patients with fever, unless hyperthermia is suspected or focal neurologic signs are present. Any rash that is associated with a fever should be considered a serious emergency, and standard precautions to avoid exposure to health providers, aircrew and bystanders should be employed. Post-exposure prophylaxis against meningococemia and other pathogens may be indicated for exposed contacts. Contact medical control or seek guidance at the receiving facility expeditiously after mission completion.

PRE-HOSPITAL GOALS: Primary assessment, obtain pertinent history of the patient, take the patient's temperature if possible, transport expeditiously.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY.

**2. BREATHING;
ADMINISTER 100%
OXYGEN AS INDICATED.**

**1. PLACE PATIENT ON
CARDIAC MONITOR AND
PULSE OXIMETER.**

3. CIRCULATION.

4. DISABILITY.

**5. REFER TO SEIZURE PROTOCOL IF
PATIENT IS SEIZING.**

**6. OBTAIN HISTORY AND
TEMPERATURE, IF POSSIBLE.**

**7. IF TEMPERATURE IS > 101.5 DEGREES,
ADMINISTER ACETAMINOPHEN IF AVAILABLE.**

**8. VENTILATE PATIENT WITH B.V.M. IF
RESPIRATIONS ARE INADEQUATE.**

**9. TRANSPORT PROMPTLY
IN POSITION OF COMFORT.**



**2. IF HYPOVOLEMIA IS
SUSPECTED, ATTEMPT
VASCULAR ACCESS
VIA IV/IO PROTOCOL.**

**10. CONTACT MEDICAL
CONTROL.**

**4. ADMINISTER FLUID
BOLUS 20 cc/kg L/R OR N/S
IF SIGNS OF SHOCK ARE PRESENT.**

**11. REMOVE EXCESS
HEAVY CLOTHING / BLANKETS.**

**5. REASSESS VITAL SIGNS
AND BREATH SOUNDS,
REPEAT BOLUS IF INDICATED.**

**12. REASSESS VITAL SIGNS
AS INDICATED.**

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PEDIATRIC PATIENT CARE

9. COMA/ALTERED MENTAL STATUS

OVERVIEW: Identification of the etiology of coma or altered mental status may be difficult, but it is beneficial in management of this type of patients. Most common causes of this condition include respiratory insufficiency / hypoxia, ingestion of poisons, trauma, epilepsy and infection.

PRE-HOSPITAL GOALS: Maintain the patient’s airway, administer oxygen and assist ventilation as indicated. Patients that have not been intubated, should be placed on their left side, in the event of regurgitation (if cervical spine injury is not suspected). Always assess patient for possible signs of dehydration (especially infants) and abuse or neglect.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

**1. AIRWAY, CERVICAL SPINE
STABILIZATION AS INDICATED.**

**2. BREATHING, ADMINISTER
OXYGEN PER PATIENT
AS INDICATED.**

3. CIRCULATION.

4. DISABILITY.

**5. OBTAIN PATIENT HISTORY
ASSESS FOR TRAUMA; REFER TO
APPROPRIATE PROTOCOL
AS INDICATED.**

**6. REASSESS A,B,C,D AND
VITAL SIGNS.**

**7. PLACE PATIENT IN
LEFT LATERAL RECUMBANT
POSITION IF NO CERVICAL
SPINE INJURY SUSPECTED.**

**8. MAINTAIN PATIENT’S
BODY TEMPERATURE.**

9. TRANSPORT PROMPTLY.

10. CONTACT MEDICAL CONTROL.

**11. REASSESS PATIENT’S
VITAL SIGNS AS INDICATED.**

**1. PLACE PATIENT ON
CARDIAC MONITOR & PULSE OX.**

**2. IF RESPIRATORY EFFORT
IS INADEQUATE, CONSIDER
ORAL ET INTUBATION**

**3. CONTINUALLY REASSESS
BREATHING.**

**4. ESTABLISH IV/IO ACCESS
PER PROTOCOL AT K.V.O. RATE.**

**5. CHECK BLOOD GLUCOSE,
IF < 50, ADMINISTER D25 VIA IV/IO.**

**6. ADMINISTER NARCAN, IV/IO PER
PROTOCOL.**

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PEDIATRIC PATIENT CARE

10. SHOCK

OVERVIEW: Shock is inadequate tissue perfusion. In pediatric patients, shock results most often from dehydration (vomiting and diarrhea, inadequate oral intake), sepsis and blunt trauma. Signs and symptoms include tachycardia, pale skin, cool extremities, delayed capillary refill, altered mental status, diminished or absent peripheral pulses and reduced urine output. Hypotension and bradycardia are late signs, which indicate imminent cardiac arrest. Shock is progressive and is uniformly fatal if not promptly identified and corrected.

PRE-HOSPITAL GOALS: Increase oxygen delivery to the patient’s vital organs, maintain patient’s vital signs, prevent heat loss, identify and treat underlying causes. DO NOT delay patient transport to obtain IV access.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. ASSESS AIRWAY, STABILIZE CERVICAL SPINE.



1. IF PATIENT IS UNCONSCIOUS, CONSIDER ORAL ET INTUBATION.

2. ASSESS BREATHING: ADMINISTER OXYGEN AS APPROPRIATE.



2. PLACE PATIENT ON CARDIAC MONITOR.

3. CIRCULATION: CONTROL HEMORRHAGE, REASSESS FOR SIGNS OF SHOCK

4. DISABILITY.

5. REASSESS PATIENT’S A,B,C,D AND VITAL SIGNS.

6. CONSIDER USE OF MAST/PASG IN AGE >=15 YRS.



3. ESTABLISH IV/IO ACCESS PER PROTOCOL.

7. REASSESS A,B,C,D AND VITAL SIGNS.

4. ADMINISTER FLUID BOLUS OF 20 cc/kg OF L/R (10 cc/kg FOR NEWBORNS) PER IV THERAPY PROTOCOL.

8. CONTACT MEDICAL CONTROL PHYSICIAN FOR GUIDANCE , AS APPROPRIATE.

9. TRANSPORT TO NEAREST MEDICAL FACILITY CAPABLE OF PEDIATRIC EMERGENCY / TRAUMA CARE.

10. PREVENT HEAT LOSS.

NORMAL SYSTOLIC BLOOD PRESSURES:

- 1. Zero (0) days – one (1) month = greater than 60**
- 2. One (1) month – one (1) year = greater than 70**
- 3. Patients greater than one year old = 70 + (2 x Age)**

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PEDIATRIC PATIENT CARE

11. SEIZURES

OVERVIEW: Always consider hypoxia, trauma and hypoglycemia as the initial cause of seizure activity. Fever, ingested poisoning, metabolic disorders, electrolyte imbalance and a history of seizure activity are other causes. Patients who are actively seizing will often suffer from respiratory insufficiency or airway compromise. In children, severe hypoxia is usually associated with bradycardia, and implies imminent cardiac arrest.

PRE-HOSPITAL GOALS: Maintain / support the patient’s airway, administer oxygen and offer respiratory support if needed. Try to prevent any further injury to patients still actively seizing. If authorized, establish IV/IO access and administer medications per Medical Control. Diazepam per rectum is an acceptable alternative if no IV/IO access is available. Refer to appropriate protocol for rectal diazepam if indicated.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY, CERVICAL SPINE STABILIZATION.

2. BREATHING, ADMINISTER OXYGEN PER PATIENT ASSESSMENT.



1. PLACE PATIENT ON CARDIAC MONITOR AND PULSE OXIMETER.

3. CIRCULATION.

4. DISABILITY.

5. OBTAIN PATIENT HISTORY.

6. ASSESS FOR GENERALIZED OR FOCAL SEIZURES AND SIGNS OF TRAUMA. REFER TO APPROPRIATE PROTOCOL AS INDICATED.



2. ESTABLISH IV/IO ACCESS PER PROTOCOL OF N/S, K.V.O.

3. ADMINISTER DIAZEPAM 0.1 MG / KG IV / IO PER MEDICAL CONTROL OR SOP, FOR GENERALIZED TONIC / CLONIC SEIZURES.

7. REASSESS A,B,C,D AND PATIENT’S VITAL SIGNS.

4. CHECK PATIENT’S BLOOD GLUCOSE.

8. TRANSPORT IN POSITION OF COMFORT.

5. ADMINISTER D25 IF GLUCOSE IS < 50.

9. CONTACT MEDICAL CONTROL.

10. REASSESS A,B,C,D AND PATIENT’S VITAL SIGNS.

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PEDIATRIC PATIENT CARE

12. BURNS

OVERVIEW: Scald injuries are among the most prevalent burns in young children. Flame injuries occur more frequently in older children, accounting for the most fatalities. Smoke inhalation may cause death rapidly; thus airway and respiratory effort must be reassessed regularly throughout transport. Children are at greater risk for shock and hypothermia than adults with corresponding burns because of proportionately larger Total Body Surface Area (TBSA).

PRE-HOSPITAL GOALS: Prior to engaging the patient, ensure that the area is safe. . Avoid injury from smoke inhalation. Support airway and respirations. Treat the patient for shock. For 1st and 2nd degree burns, stop the burning process by irrigation using sterile or clean cool water. Cover burns with sterile dressings to protect burned areas from dust and debris. Continually monitor the patient’s vital signs, and beware of hypothermia. Transport to the nearest appropriate medical facility. **Brush all dry chemicals from the burned area before irrigating with water. Irrigate or flush chemical burns for at least 15 minutes.**

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. REMOVE PATIENT FROM THE SOURCE OF THE BURNS, COOL HOT FLESH TO ARREST BURNING PROCESS.

2. REMOVE ALL CLOTHING AND JEWELRY.

3. APPLY WET DRESSINGS TO AREAS STILL BURNING.

4. AIRWAY, CERVICAL SPINE STABILIZATION.

1. IF OBTUNDED, OR SIGNS OF AIRWAY BURN, PERFORM ORAL ET INTUBATION.

5. BREATHING: ADMINISTER HI-FLOW OXYGEN.

2. PLACE PATIENT ON CARDIAC MONITOR.

6. CIRCULATION.

7. IF PATIENT IS IN RESPIRATORY DISTRESS OR ALTERED MENTAL STATUS, BEGIN B.V.M. VENTILATIONS.

3. ESTABLISH IV/IO ACCESS PER PROTOCOL.

8. WRAP PATIENT IN STERILE, DRY DRESSING OR BURN SHEET.

4. ADMINISTER 20.0 cc/kg IV / IO BOLUS IF 2ND / 3RD DEGREE BURNS ARE > 15% TBSA.

9. ASSESS EXTENT OF BURNS.

11. TRANSPORT IN POSITION OF COMFORT TO NEAREST APPROPRIATE MEDICAL CENTER.

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PEDIATRIC PATIENT CARE

13. EPIGLOTTITIS

OVERVIEW: This bacterial infection usually affects children ages 2 to 6 years of age, but can occur in infants and adolescents. Children present with high fever, drooling, an inability to swallow or talk, stridor and hoarseness.

PRE-HOSPITAL GOALS: Handle the patient **gently** and transport as rapidly as possible. Avoid unnecessary agitation, as this may hasten airway occlusion. **DO NOT** separate the child from the parent(s). **DO NOT EXAMINE THE MOUTH OR THROAT.** If the patient is conscious, allow him/her to sit in the position of comfort during transport. Be prepared to suction and perform advanced airway maneuvers if appropriately trained and authorized.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. DO NOT TOUCH OR EXAMINE THE AIRWAY.

2. BREATHING: IF CONSCIOUS ADMINISTER 100 PERCENT OXYGEN VIA BLOW-BY IN ACCEPTABLE MANNER, CONSIDER ADMINISTRATION BY CHILDS PARENTS.

3. ASSESS CIRCULATION.

4. ASSESS DISABILITY / NEURO STATUS.

5. IF UNCONSCIOUS:
A. MAINTAIN PATIENT'S AIRWAY.
B. VENTILATE USING BVM.
C. INSERT NPA IF INDICATED.

6. CONTACT MEDICAL CONTROL FOR FURTHER GUIDANCE.

7. TRANSPORT PROMPTLY IN POSITION OF COMFORT.

8. REASSESS A,B,C,D AND PATIENT VITAL SIGNS.



1. PLACE PATIENT ON CARDIAC MONITOR.



2. PERFORM ORAL ET INTUBATION IF AUTHORIZED.

3. IF UNSUCCESSFUL, CONTINUE USING BVM, INSERTING NPA AND / OR OPA AS TOLERATED.

PEDIATRIC PATIENT CARE

14. NEAR DROWNING

OVERVIEW: Pre-hospital providers must be aggressive in management of the patient’s airway and cervical spine stabilization for near-drowning victims. Bradycardia is due to hypoxia and cold stress, especially in small children and infants. Always check the pulse for a full minute before beginning chest compressions.

PRE-HOSPITAL GOALS: Establish an airway and administer 100 percent oxygen. Treat for shock and monitor carefully. Obtain a complete history of the events prior to the submersion and its duration. Treat for hypothermia.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY, CERVICAL SPINE STABILIZATION.

2. BREATHING: ADMINISTER 100 PERCENT OXYGEN PER PATIENT ASSESSMENT.

3. CIRCULATION.

4. DISABILITY / NEURO.

5. ASSESS RESPIRATORY EFFORT AND MENTAL STATUS, BEGIN CPR AS INDICATED.

6. BEGIN ASSISTED VENTILATIONS IF RESPIRATIONS ARE INADEQUATE.

7. REMOVE ALL CLOTHING AND WRAP IN DRY BLANKETS.

8. REFER TO HYPOTHERMIA PROTOCOL IF INDICATED.

9. REASSESS A,B,C,D AND PATIENT’S VITAL SIGNS.

10. TRANSPORT TO NEAREST APPROPRIATE MEDICAL FACILITY.

13. CONTACT MEDICAL CONTROL AS NEEDED.

← 1. PLACE PATIENT ON CARDIAC MONITOR & PULSE OX. TREAT DYSRHYTHMIAS PER APPROPRIATE PROTOCOL.

→ 2. PERFORM ORAL ET INTUBATION IF RESPIRATORY EFFORT IS INADEQUATE.

3. ESTABLISH IV/IO ACCESS OF N/S OR L/R PER PROTOCOL.

PEDIATRIC PATIENT CARE

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15. ELECTRICAL INJURIES/LIGHTNING

OVERVIEW: These patients can present with hypovolemia, multiple fractures, extensive burns and cardiac dysrhythmias. Always remember personal safety first if the patient is still in contact with the current source.

PRE-HOSPITAL GOALS: Check to be sure that the power source has been turned off. Do not delay transport time for treatments on scene. Perform a rapid assessment, assess for shock perform cervical/spinal stabilization, keep the patient warm and transport promptly. Obtain IV/IO access.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. TURN OFF POWER.

2. AIRWAY, CERVICAL SPINE STABILIZATION.

3. BREATHING, ADMINISTER 100 PERCENT OXYGEN PER PATIENT ASSESSMENT.

4. REASSESS BREATHING.

5. BEGIN B.V.M. IF RESPIRATIONS ARE INADEQUATE.

6. CIRCULATION.

7. DISABILITY.

8. ASSESS FOR TRAUMA, REFER TO APPROPRIATE TRAUMA PROTOCOL.

9. PREVENT HEAT LOSS.

10. TRANSPORT PROMPTLY.

11. CONTACT MEDICAL CONTROL.

12. REASSESS PATIENT AS INDICATED.

←→ 1. PLACE PATIENT ON CARDIAC MONITOR AND PULSE OXIMETER.

→ 2. PERFORM ORAL ET INTUBATION (LIMIT 2 ATTEMPTS).

3. TREAT DYSRHYTHMIA PER PROTOCOL.

4. ESTABLISH IV/IO ACCESS OF L/R PER PROTOCOL.

PEDIATRIC PATIENT CARE

16. HYPOTHERMIA

OVERVIEW: Hypothermia results from prolonged immersion or exposure to a cold environment. Hypothermia is defined as a core temperature under 95 degrees Ferenheight; it is subdivided into mild, moderate and severe categories.

PRE-HOSPITAL GOALS: Rapid recognition of hypothermia is critical. Remove the patient's clothing and begin gradually re-warming the patient, do not let this delay patient transport. Move the patient gently because the hypothermic heart is electrochemically irritable, rendering the patient susceptible to lethal dysrhythmias. Protect the patient's airway and support respiratory function.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY, CERVICAL SPINE STABILIZATION.

2. BREATHING, ADMINISTER 100 PERCENT OXYGEN PER PATIENT ASSESSMENT.

3. BEGIN B.V.M. VENTILATIONS IF RESPIRATORY EFFORT IS INADEQUATE.

4. CIRCULATION: ASSESS TEMPERATURE AND HEART RATE FOR A FULL MINUTE. DO NOT BEGIN CPR IF PULSE IS PRESENT

5. DISABILITY / NEURO.

6. REMOVE ALL OF PATIENT'S CLOTHING, BEGIN RE-WARMING WITH DRY BLANKETS.

7. CONTACT MEDICAL CONTROL.

8. TRANSPORT PROMPTLY.

←→ 1. PLACE PATIENT ON CARDIAC MONITOR AND PULSE OXIMETER.

←→ 2. PERFORM ORAL ET INTUBATION

→ 3. TREAT DYSRHYTHMIAS PER THE APPROPRIATE PROTOCOL.

4. ESTABLISH IV/IO ACCESS OF N/S PER PROTOCOL. USE WARM IV FLUID WHEN AVAILABLE.

PEDIATRIC PATIENT CARE

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17. HYPERTHERMIA

OVERVIEW: Heat stroke is a progression from hyperthermia and is a medical emergency. The body's core temperature can reach in excess of 41- degrees Celsius. The elderly, very young and athletes are more susceptible to hyperthermia. Signs may include warm skin, inadequate perfusion, altered mental status, shock and coma. Despite popular opinion, it is NOT necessary to stop perspiring in order to have heat stroke, although the majority of afflicted patients will appear dry.

PRE-HOSPITAL GOALS: The patient should have all clothing removed and cooling begun immediately. Apply cool water in a fine spray, and fan the patient. Allow air to pass through the cabin of the aircraft. Avoid OVERCOOLING – the resultant shivering may precipitate rhabdomyolysis.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY, CERVICAL SPINE
STABILIZATION.

2. BREATHING: ADMINISTER
100 PERCENT OXYGEN PER
PATIENT ASSESSMENT.

3. CIRCULATION.

4. DISABILITY.

5. REMOVE PATIENT'S
CLOTHING AND BEGIN
COOLING PROCESS.

6. REASSESS THE
PATIENT'S VITAL SIGNS.

7. CONTACT MEDICAL CONTROL.
AS NEEDED.

8. TRANSPORT PROMPTLY.

← 1 → PLACE PATIENT ON
CARDIAC MONITOR AND
PULSE OXIMETER.

2 → ESTABLISH IV/IO ACCESS
OF N/S PER PROTOCOL.

3. ADMINISTER FLUID BOLUS
OF 20 cc/kg OF N/S OVER
20 MINUTES (10 cc/kg FOR INFANTS).

4. REPEAT BOLUS IF CAPILLARY
REFILL > 2 SECONDS.

PEDIATRIC PATIENT CARE

18. POISONING

OVERVIEW: Ingestion of a potentially toxic substance is a common pediatric emergency. Many times the ingested substance is a prescribed medication, cleaning chemical or plant. While most reported toxic ingestions will eventually be diagnosed as non-lethal, the risk of rapid decompensation in those for whom the ingestion WAS lethal necessitates aggressive management and expeditious transport to an emergency care facility. **Any patient with altered mental status should not be given fluids by mouth. Do not induce vomiting.**

PRE-HOSPITAL GOALS: Assure scene safety prior to engaging patient, and decontaminate prior to rendering care. Assess and maintain the patient’s airway. Remember to save the substance (if possible) and any emesis and bring them to the hospital. Always use care when handling poisons. While a Poison Control Center may provide useful information, contact Medical Control for actual medical direction.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. REMOVE PATIENT FROM THE ENVIRONMENT.

2. AIRWAY, CERVICAL SPINE STABILIZATION.

3. BREATHING: GIVE 100 PERCENT OXYGEN PER PATIENT ASSESSMENT.

4. BEGIN VENTILATIONS WITH B.V.M. IF PATIENT’S RESPIRATIONS ARE INADEQUATE.

5. CIRCULATION.

6. DISABILITY / NEURO.

7. OBTAIN PATIENT HISTORY AND REMAINDER OF INGESTED SUBSTANCE.

8. REASSESS PATIENT’S VITAL SIGNS.

9. CONTACT MEDICAL CONTROL.

10. TRANSPORT PROMPTLY.

1. PLACE PATIENT ON CARDIAC MONITOR.

2. PERFORM ORAL ET INTUBATION IF RESPIRATIONS ARE INADEQUATE.

3. ESTABLISH IV/IO OF N/S OR L/R PER PROTOCOL.

4. IF PATIENT IS UNRESPONSIVE AND TOXIN IS UNKNOWN, REFER TO PEDIATRIC COMA PROTOCOL.

5. IF AVAILABLE, ADMINISTER ACTIVATED CHARCOAL 1GM / KG UP TO 100 GM TOTAL ORALLY.

PEDIATRIC PATIENT CARE

19. ANAPHYLAXIS

OVERVIEW: Anaphylaxis commonly results from an allergic reaction from insect stings, food and medications. Cyanosis, wheezing and respiratory arrest are severe signs of anaphylaxis, which are similar to asthma. Watch for signs of shock. ALL providers should assist the patient with his/her own allergy medications (Benadryl, bee sting kit).

PRE-HOSPITAL GOALS: Protect the patient’s airway and support respiratory effort. Offer 100 percent oxygen, treat the patient for shock and prevent heat loss. Try to obtain the patient’s medical history and events leading up to the incident. Transport as rapidly as practicable.

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

1. AIRWAY, CERVICAL SPINE STABILIZATION.



1. PLACE PATIENT ON CARDIAC MONITOR & PULSE OX.

2. BREATHING, ADMINISTER HI-FLOW O2 VIA NON-REBREATHER MASK.

2. IF AIRWAY IS COMPROMISED, CONSIDER ORAL ET INTUBATION

3. CIRCULATION.

4. DISABILITY / NEURO.

5. DETERMINE SEVERITY OF ALLERGIC REACTION AND OBTAIN COMPLETE PATIENT HISTORY.

6. ASSIST VENTILATIONS WITH B.V.M. IF INDICATED.

7. REASSESS PATIENT’S VITAL SIGNS.



3. IF AIRWAY EDEMA, BRONCHOSPASM OR HYPOTENSION, ADMINISTER 0.15CC EPINEPHRINE SQ OR EPI-PEN AUTOINJECTOR

8. TRANSPORT PROMPTLY TO THE NEAREST APPROPRIATE MEDICAL FACILITY.

4. REPEAT AT 20 MINUTES IF SYMPTOMS RECUR.

9. CONTACT MEDICAL CONTROL.

5. ESTABLISH IV/IO ACCESS WITH N/S OR L/R PER PROTOCOL.

10. PREVENT HEAT LOSS.

6. ADMINISTER DIPHENHYDRAMINE (BENADRYL) 1MG / KG IV / IO / IM (Maximum 50mg).

7. IF AVAILABLE, ADMINISTER SOLU-MEDROL 1MG / KG IV / IM.

PEDIATRIC PATIENT CARE – ANAPHYLAXIS
Page 2

BASIC LIFE SUPPORT

ADVANCED LIFE SUPPORT

**7. CONSIDER USE OF ALBUTEROL 1.25-
2.5 mg NEBULIZED.**

**8. CONSIDER SURGICAL
CRICOTHYROIDOTOMY IF
TRAINED AND AUTHORIZED.**

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PEDIATRIC PATIENT CARE

20. SUSPECTED CHILD ABUSE

OVERVIEW: Child abuse, whether recognized or undiagnosed, is a significant cause of pediatric trauma. It is very important that flight medics know and recognize the signs of child abuse. Some children are able to endure minor abuse and remain silent. A pattern of abuse often escalates, and may lead to severe injury and death. ALWAYS believe a child who claims to be abused, until proven otherwise. Children with obvious signs of abuse should have every measure taken to protect them. Let them know they are safe, they have done nothing wrong, that they are not in trouble. Try to calm any fears they may have and do not question them excessively in the prehospital environment.

FLIGHT MEDIC CRITICAL ACTIONS:

1. Accurately record the history of the patient's injuries as stated by the patient's parent(s) or caregiver(s).
2. Do not accuse or confront the parent(s) or caregiver(s).
3. **Follow the applicable protocols for treatment and transport.**
4. Report any suspicions to the Emergency Department physician as soon as possible.
5. Ensure that Child Protective Services are notified.
6. Strict confidentiality is paramount.

NOTE: Proof of abuse is not needed to file a report. There does need to be reasonable cause to suspect abuse/neglect. **Failure to report suspected abuse/neglect is cause for possible judicial action against health care providers, to include flight medics.**

A. INDICATIONS OF CHILD ABUSE

1. The story given to you by the parent(s) or caregiver(s) does not coincide with the severity of the patient's injuries.
2. The child's actions and/or behavior is not consistent with their age.
3. The history of the event continually changes.
4. The parents contradict each other.
5. A reluctance to give a history from the parent(s) or caregiver(s).
6. There was a delay in seeking medical care for the child.
7. Timing of the injury does not agree with the age of the wound.
8. The emotional response from the parent(s) or caregiver(s) does not seem appropriate for the severity of the wound/injury.
9. Abuse is blamed on another party, but no name(s) are offered or are unknown.
10. The patient states that a family member caused the injuries.
11. The scene is inconsistent with the history of the injury.

B. SIGNS OF CHILD ABUSE:

1. Bruising is noted at different stages of healing and they are reported as part of the same injury
2. Bruising of the genitals, inner thighs, buttocks, lower back, neck, earlobes, cheeks and bruises from human bites or the shape of a hand.
3. Any marks, scars or bruises in the shape of objects (cords, rope, belts and buckles).
4. Rope burns or marks on the ankles or wrists.
5. Cigarette burns or burns in the shape of irons or other hot objects.

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PEDIATRIC PATIENT CARE – CHILD ABUSE

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6. Scald burns from emmersion or “stocking glove” burns of the extremities.
7. Burns to the buttocks and/or genitals.
8. Any form of trauma, such as itching, pain bruising or bleeding to the genitals and/or rectum.
9. Any unexplained fractures.

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IX. MEDICATION REFERENCE

- 1. Adenosine (Adenocard)**
- 2. Albuterol (Ventolin)**
- 3. Aspirin**
- 4. Atropine Sulfate**
- 5. Dextrose**
- 6. Diazepam (Valium)**
- 7. Diphenhydramine (Benadryl)**
- 8. Dopamine (Intropin)**
- 9. Droperidol (Inapsine)**
- 10. Epinephrine**
- 11. Flumazenil (Romazicon)**
- 12. Furosemide (Lasix)**
- 13. Lidocaine (Xylocaine)**
- 14. Magnesium Sulfate**
- 15. Midazolam (Versed)**
- 16. Morphine Sulfate**
- 17. Naloxone (Narcan)**
- 18. Nitroglycerin**
- 19. Oxygen**
- 20. Sodium Bicarbonate**
- 21. Succinylcholine (Anectine)**
- 22. Thiamine**
- 23. Vecuronium (Norcuron)**
- 24. Ceftriaxone (Rocephin)**

Unit Medical Director's Initials _____

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MEDICATIONS REFERENCE

1. ADENOSINE (ADENOCARD)

CLASSIFICATION: Atrio-ventricular (AV) nodal conduction antagonist
(supraventricular antiarrhythmic)

MECHANISM OF ACTION: Blocks conduction through the AV node, interrupts reentrant pathways, restoring PSVT to NSR. Facilitates diagnosis of atrial fibrillation (AF), and PSVT presenting with wide QRS complex due to bundle branch block.

INDICATIONS: treatment of PSVT; diagnosis of rapid narrow-complex tachycardia (PSVT vs. AF)

CONTRAINDICATIONS: Known hypersensitivity to Adenosine; sinus nodal dysfunction (sick sinus syndrome). Concurrent use of Theophylline, Carbamazepine, Dipyridamole.

SIDE EFFECTS: Transient shortness of breath, facial flushing, transient dysrhythmias, chest pressure, hypotension, headache, nausea, and bronchospasm.

DOSAGE: 6.0 mg rapid IV push followed immediately by 10cc NS / LR flush via proximal i.v. site (at forearm or above) over 1-2 seconds; if no response, administer 12 mg over 1-2 seconds rapid IV push then 10cc NS / LR flush.

PEDIATRICS: contact medical control physician for further guidance.

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2. ALBUTEROL

CLASSIFICATION: Sympathomimetic

MECHANISM OF INJURY: Causes the smooth muscle of the bronchial tree and the peripheral vasculature to relax by stimulating the beta-2 receptors.

INDICATIONS: Bronchial asthma, bronchospasm due to bronchitis or emphysema, bronchitis, obstructive pulmonary disease in patients four (4) years of age and older.

CONTRAINDICATIONS: Tachyarrhythmias, hypersensitivity

SIDE EFFECTS: Muscle cramps, tachycardia, nausea, vomiting, anxiety, coughing, chest discomfort.

DOSAGE: Nebulizer w/ 10 L per minute of oxygen

Patients > 10 years old 1. 2.5-2.5 mg (0.25-0.5 ml) mixed in three (3) ml of saline; if no response, repeat dose every 20 minutes.

PEDIATRICS: 0.03 ml/kg nebulized; maximum dose, 1.0 ml

Unit Medical Director's Initials_____

Approval/Review Date_____

MEDICATIONS REFERENCE

3. ACETYLSALICYLIC ACID (ASPIRIN)

CLASSIFICATION: antipyretic, anti-inflammatory agent; platelet function inhibitor.

MECHANISM OF ACTION: Aspirin inhibits latelet function .

INDICATIONS: Use for patients with suspected AMI or unstable angina after proper thrombolytic screening.

CONTRAINDICATIONS: Allergy or hypersensitivity, severe anemia, history of blood coagulation defects, currently taking anticoagulation medications, congestive heart failure, known potassium deficiency, pregnancy, **any** surgery over past two months, patients under 25 years of age, CVA, ulcers, bleeding tendencies, liver or kidney disease.

SIDE EFFECTS: bronchospasm, dyspepsia, nausea, and epigastric discomfort.

DOSAGE: Two (2) 80 mg chewable tablets by mouth (PO), chew and swallow

PEDIATRICS: Not indicated for pediatric patients.

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4. ATROPINE SULFATE

CLASSIFICATION: Anticholinergic (vagolytic) agent.

MECHANISM OF ACTION: Atropine blocks the action of acetylcholine on postganglionic cholinergic receptors in smooth muscle, cardiac muscle, exocrine glands, urinary bladder, and the AV and SA nodes in the heart.

INDICATIONS: Asystole, PEA, organophosphate poisoning, symptomatic bradycardia.

CONTRAINDICATIONS: Atrial fibrillation, atrial flutter, glaucoma, use with caution in infants and children.

SIDE EFFECTS: Dilated pupils, V-fib, V-tach, tachycardia, headache, nausea, vomiting

DOSAGE: Asystole/PEA: 1mg IVP, (2-2.5 mg ET) every 3-5 minutes; maximum dose 0.04 mg/kg

Symptomatic Bradycardia: 0.5-1.0 mg IVP every 3-5 minutes;
maximum dose 0.04 mg/kg

Organophosphate poisoning: 2 mg IV every 5 minutes until signs of atropine intoxication appear.

2-2.5 times dosage if given via ET tube

PEDIATRIC: Indicated only in patients \geq one (1) year of age. 0.02 mg/kg; minimum dose 0.1 mg.

Unit Medical Director's Initials_____

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MEDICATIONS REFERENCE

5. DEXTROSE

CLASSIFICATION: Carbohydrate, nutrient

MECHANISM OF ACTION: Cellular energy substrate. Exclusive energy source of brain and liver.

INDICATIONS: Altered mental status secondary to hypoglycemia, unconsciousness or coma of unknown etiology.

CONTRAINDICATIONS: Hyperglycemia (too much dextrose) may increase ischemia and brain injury in stroke patients. Blood glucose levels should be obtained prior to administration, if available.

SIDE EFFECTS: Tissue necrosis at or above IV site (limit IV attempts).

DOSAGE: 50 ml of 50 percent dextrose (25 g) IVP

PEDIATRICS: Children age 3-14 years give 0.5 gm/kg (1 ml/kg) of 50 percent dextrose IV.

Infants and children age 0-35 months give 0.5 gm/kg (2 ml/kg) of 25 percent dextrose IV.

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6. DIAZEPAM (VALIUM)

CLASSIFICATION: Benzodiazepine, anti-convulsant, sedative

MECHANISM OF ACTION: Suppresses seizure activity through the motor cortex of the brain.

INDICATIONS: Termination of seizure activity, sedation prior to cardioversion or rapid sequence intubation, chemical restraint of a combative patient.

CONTRAINDICATIONS: Head injury, coma, hypotension, glaucoma, and respiratory depression

SIDE EFFECTS: Respiratory depression, decreased blood pressure, venous irritation, drowsiness

DOSAGE: Status epilepticus: 5-10 mg slow IVP/ or per rectum (PR)

Sedation: 5-15 mg slow IVP

PEDIATRIC: Children age 1 month-5 years: 0.25 mg/kg every 5 minutes IV, IO (double dose for PR), as indicated; maximum dose 5.0 mg.

Children age 5 and older: 0.25 mg/kg every 5 minutes IV, IO (double dose for PR), as indicated; maximum dose 10.0 mg.

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MEDICATIONS REFERENCE

7. DIPHENHYDRAMINE (BENADRYL)

CLASSIFICATION: Antihistamine

MECHANISM OF ACTION: Benadryl acts as a histamine-1 receptor antagonist inhibiting the affects of histamine within the body.

INDICATIONS: Allergic reactions, extra pyramidal symptoms (acute dystonic reactions), may function as a sedative at high doses, decongestant for elective patient transport prior to flight

CONTRAINDICATIONS: Acute angle closure glaucoma, allergy or hypersensitivity to substance

SIDE EFFECTS: Sedation, blurred vision, anticholinergic effects, drowsiness.

DOSAGE: 25 to 50 mg IM or IVP

PEDIATRICS: 1.0 mg/kg IV, IO, or IM.

Unit Medical Director's Initials _____
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MEDICATIONS REFERENCE

8. DOPAMINE (INTROPIN)

CLASSIFICATION: Alpha- and beta-adrenergic agent (sympathomimetic, cardiac inotrope and vasoconstrictor).

MECHANISM OF ACTION: Dopamine stimulates beta 1 receptors and variable alpha receptors (peripheral vasoconstriction). Dopamine increases myocardial contractility, cardiac output, and stroke volume. At low doses, it increases renal output by selectively increasing splanchnic (including renal) blood flow.

INDICATIONS: Cardiogenic and septic shock.

CONTRAINDICATIONS: Hypotension related to trauma, tachydysrhythmias, reduce dose to 1/10 for patients using monoamine oxidase inhibitors (antidepressants)

SIDE EFFECTS: Increased myocardial oxygen demand, tachydysrhythmias, ventricular tachycardia, ventricular fibrillation, hypertension, nausea, vomiting, ischemia, AMI, extravasation may cause necrosis.

DOSAGE: Mix 400 mg in 250 ml of NS or D5W (1600 µg/ml);
 renal dosage 2-5 µg/kg/min
 beta dosage. 5-10 µg/kg/min
 alpha dosage 10-20 µg/kg/min

	Micrograms/kilogram/minute				
wt. in kg	2mg	5mg	10mg	15mg	20mg
2.5	**	**	1	1.4	2
5	**	1	2	3	4
10	**	2	4	6	8
20	1.5	4	8	11	15
30	2	6	11	17	23
40	3	8	15	23	30
50	4	9	19	28	38
60	5	11	23	34	45
70	5	13	26	39	53
80	6	15	30	45	60
90	7	17	34	51	68
100	8	19	38	56	75
	Microdrops per minute				

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MEDICATIONS REFERENCE

9. DROPERIDOL (INAPSINE)

CLASSIFICATION: Antipsychotic, anti-emetic, and antianxiety agent

MECHANISM OF ACTION: Droperidol causes sedation, alpha adrenergic blockade, peripheral vascular dilation, and has antiemetic properties. It is metabolized in the liver and excreted in the feces and urine.

INDICATIONS: To relieve nausea and vomiting, and reduce anxiety. May be used for chemical restraint of combative patients requiring urgent transport or extraction from a tactical setting.

CONTRAINDICATIONS: Pregnancy, known renal or liver failure

SIDE EFFECTS: Hypotension, tachycardia, respiratory depression, laryngospasm, bronchospasm, dizziness, and hallucinations, extrapyramidal symptoms (dystonia).

DOSAGE: 2.5-5.0 mg IVP or IM; maintenance dose 1.25-2.5 mg IV

PEDIATRICS: Children ages 2-12 years: 0.1 mg/kg IV, IO, IM

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10. EPINEPHRINE

CLASSIFICATION: Sympathomimetic

MECHANISM OF ACTION: Stimulates alpha and beta adrenergic receptors to cause vasoconstriction, increased contractility and increased automaticity and increased blood pressure. Epinephrine causes bronchodilation and antagonizes the effects of histamine. .

INDICATIONS: Cardiac arrest, reversal of acute anaphylaxis and asthma refractory to first line medications.

CONTRAINDICATIONS (relative): Tachycardia, coronary artery disease, and patients over 50 years of age with tachydysrhythmias.

SIDE EFFECTS: Tachycardia, ventricular tachycardia, ventricular fibrillation, angina, and hypertension

DOSAGE: Anaphylaxis: 0.3cc of **1:1,000** solution subcutaneously OR
1cc of 1:100,000 solution IVP ***

Asthma: 0.3cc of **1:1,000** solution subcutaneously
1cc of 1:100,000 solution IVP ***

Cardiac arrest: 1 mg (10 ml of **1:10,000** sol) IVP every 3-5 minutes

2-2. 5 times for all doses of 1:10,000 solution for ET tube.

PEDIATRICS: Anaphylaxis: 0.01 mg/kg (0.01 ml/kg of **1:1,000** sol) SQ; maximum dose 0.5 mg

Cardiac arrest: Children age > one month: 0.01 mg/kg (1 ml/kg of 1:10,000 sol)
IV, IO

Children age 0-30 days: 0.01-0.03 mg/kg
(1-3 ml/kg of 1:10,000 sol) IV, IO

***** A 1:100,000 solution of epinephrine may be prepared by injecting 1 cc of standard IV epinephrine (1:10,000 pre-loaded syringe) and diluting it with 9cc of normal saline or lactated ringers solution. USE IV EPINEPHRINE WITH EXTREME CAUTION – AND ATTEMPT TO CONTACT MEDICAL CONTROL PHYSICIAN PRIOR TO ITS USE, IF POSSIBLE.**

Unit Medical Director's Initials_____

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MEDICATIONS REFERENCE

11. FLUMAZENIL (ROMAZICON)

CLASSIFICATION: Benzodiazepine antagonist

MECHANISM OF ACTION: Benzodiazepine antagonist

INDICATIONS: Reversal of benzodiazepine-induced sedation and respiratory depression

CONTRAINDICATIONS: status epilepticus, history of epilepsy or seizures, history of benzodiazepine dependence or chronic use, increased intracranial pressure, allergy to benzodiazepines,

SIDE EFFECTS: Seizures, nausea, vomiting, agitation, dizziness, and withdrawal symptoms

DOSAGE: 0.2 mg IVP; may repeat three times; maximum dose 1.0 mg

PEDIATRIC: 0.01 mg/kg IV, IO, up to a 0.2 mg bolus; maximum dose 1.0 mg.

WARNING: there is **LITTLE IF ANY** indication for use of Flumazenil in the field setting, with the possible exception of single episode witnessed **ACCIDENTAL** overdose of benzodiazepines associated with shock or symptomatic bradycardia. As such, this drug will **NOT LIKELY BE CARRIED** on routine missions.

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12. FUROSEMIDE (LASIX)

CLASSIFICATION: Diuretic

MECHANISM OF ACTION: Furosemide inhibits the reabsorption of sodium and chloride at the distal Loop of Henle, resulting in the excretion of sodium and chloride and small amounts of potassium along with accompanying free water; also may cause selective vasodilation of the pulmonary capillary vascular bed.

INDICATIONS: Congestive heart failure with pulmonary edema, other applications per medical control physician order.

CONTRAINDICATIONS: Dehydration, hypokalemia, hepatic coma, and hypotension

SIDE EFFECTS: Hypokalemia, hypotension, dehydration, nausea, vomiting, diarrhea, vertigo, headache, and dizziness, hearing loss (at cumulative doses exceeding 200mg)

DOSAGE: 20 mg IVP; may repeat, **once**, same dose after ten (10) minutes if no effect from first dose.

PEDIATRICS: 1 mg/kg IV, IO; maximum dose 40 mg AFTER medical control approval

Unit Medical Director's Initials _____
Approval/Review Date _____

MEDICATIONS REFERENCE

13. LIDOCAINE (XYLOCAINE)

CLASSIFICATION: Antiarrhythmic, local anesthetic

MECHANISM OF ACTION: Lidocaine suppresses ventricular depolarization and automaticity. It is thought to increase the threshold for ventricular fibrillation while suppressing ventricular ectopy in the myocardial infarction setting. This helps to prevent recurring PVC's which leads to ventricular fibrillation.

INDICATIONS: Ventricular tachycardia, ventricular fibrillation, symptomatic patients with more than six PVC's per minute.

CONTRAINDICATIONS: Second degree Mobitz II and third degree AV blocks, allergy or hypersensitivity to lidocaine.

SIDE EFFECTS: Hypotension, bradycardia, seizures, drowsiness, nausea, vomiting, respiratory and cardiac arrest.

DOSAGE: V-fib or pulseless V-tach: 1.0 to 1.5 mg/kg IV bolus may repeat dose every 3-5 minutes. Maximum dose 3 mg/kg.

Wide complex tachycardia, stable ventricular tachycardia: 1.0 to 1.5 mg/kg initial bolus, may repeat 0.5 to 0.75 mg/kg every 5-10 minutes to a maximum dose of 3 mg/kg.

Drip: Mix 1 gram in 250 ml N/S, infuse at 2-4 mg/minute.

2-2.5 times the dosage if given via ET tube.

PEDIATRICS: 1 mg/kg IV bolus; infuse at 0.5 to 1mg per minute up to age 16.

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14. MAGNESIUM SULFATE

CLASSIFICATION: Electrochemical

MECHANISM OF ACTION: Magnesium sulfate acts as a central nervous system depressant and smooth muscle relaxant; it may also have cell membrane stabilizing properties

INDICATIONS: eclampsia; preterm labor; asthma / reactive airways disease refractory to standard medications; adjunct to other treatment of hyperkalemia; adjunctive treatment in myocardial infarction.

CONTRAINDICATIONS: Shock, history of hypertension, third degree AV block, renal failure, hypocalcemia. Should not be administered 2 hours prior to delivery unless specifically ordered by an attending obstetrician or emergency physician (ie. eclampsia patient en route to emergency caesarian section).

SIDE EFFECTS: sweating; flushing; bradycardia; hypotension; paralysis of diaphragm and accessory muscles resulting in respiratory arrest.

DOSAGE: 1-2 grams diluted in 50 cc of N/S given over 5 minutes. Higher doses may be ordered by medical control physician for pre-eclamptic patients.

PEDIATRIC: 10 to 20 mg / kg IV over 5 minutes, ONLY after medical control physician order.

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MEDICATIONS REFERENCE

15. MIDAZOLAM (VERSED)

CLASSIFICATION: Short-acting potent benzodiazepine

MECHANISM OF ACTION: A short acting anxiolytic / hypnotic agent; also has amnestic properties (causes patient to forget events).

INDICATIONS: rapid sequence intubation adjunct

CONTRAINDICATIONS: Patients allergic or hypersensitive to benzodiazepines, respiratory depression, shock.

SIDE EFFECTS: respiratory depression, amnesia, drowsiness, apnea, hypotension, nausea/vomiting.

DOSAGE: 0.02 to 0.05mg IV. (sedation 1mg IV)

PEDIATRIC: 0.03 mg/kg IV. (Sedation: 6m-5yr 0.05-0.10mg/kg IV, 6-12yr 0.025-0.05mg/kg IV, Status epilepticus: 0.15mg/kg IV)

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16. MORPHINE SULFATE

CLASSIFICATION: Opioid analgesic

MECHANISM OF ACTION: analgesia by stimulation of opioid receptors in central nervous system. Decreases the responsiveness of alpha-adrenergic receptors, which produces vasodilation.

INDICATIONS: Presumed cardiac chest pain refractory to nitroglycerin, pulmonary edema, moderate to severe pain.

CONTRAINDICATIONS: hypotension, respiratory depression, depressant drugs already administered, hypersensitivity or allergy to substance

SIDE EFFECTS: Respiratory depression, hypotension, bradycardia, vomiting, nausea, dizziness, and altered mental status.

DOSAGE: 2 mg IV every 3-5 minutes to a maximum dosage of 10 mg. **Contact with Medical Control must be established in order to increase maximum dosage.**

PEDIATRIC: 0.1 mg/kg IV. **Contact with Medical Control should be made prior to administration for pediatric patients.**

Unit Medical Director's Initials _____
Approval/Review Date _____

MEDICATIONS REFERENCE

17. NALOXONE (NARCAN)

CLASSIFICATION: Opiate antagonist

MECHANISM OF ACTION: competitive inhibitor of opiate binding at opioid receptors in CNS..

INDICATIONS: For use in the reversal of suspected opioid intoxication.

CONTRAINDICATIONS: Allergy or hypersensitivity to substance.

SIDE EFFECTS: Withdrawal type effects, nausea, vomiting. Hypotension and hypertension are rare.

DOSAGE: 2.0 mg IV or IM repeat every 2-3 minutes until narcotic effects are reversed.
Maximum dosage 10 mg. (Use only minimal dose necessary to reverse respiratory depression in narcotic abuser to avoid agitation)

2-2.5 times dosage if given via ET tube.

PEDIATRIC: Children less than 5 years of age – 0.1 mg/kg IV, IO, SQ, ET.

Children 5years and older – 2.0 mg IV, IO, SQ, ET.

Unit Medical Director's Initials_____

Approval/Review Date_____

18. NITROGLYCERIN

CLASSIFICATION: potent vasodilator

MECHANISM OF ACTION: Vascular smooth muscle relaxation, which leads to venous, coronary and arterial vasodilation. This causes a decrease in preload and myocardial oxygen demand. It also dilates pulmonary capillaries.

INDICATIONS: Presumed cardiac chest pain, congestive heart failure

CONTAINDICATIONS: Hypotension, allergy or hypersensitivity to this substance.

SIDE EFFECTS: Dizziness, headache, burning under tongue or on skin, hypotension.

DOSAGE: Sublingual: 0.4 mg (1 tablet) SL, repeat every 5 minutes if no relief for a total of 3 doses. **DO NOT ADMINISTER UNTIL IV ACCESS IS ESTABLISHED; DO NOT ADMINISTER IF SYSTOLIC BP IS LESS THAN 90mm Hg.**

Topical: 1 inch applied to the patient's chest. **Remove prior to defibrillation.**

PEDIATRIC: Not indicated for use with pediatrics.

Unit Medical Director's Initials _____
Approval/Review Date _____

MEDICATIONS REFERENCE

21. OXYGEN

CLASSIFICATION: Gas

MECHANISM OF ACTION: Oxygen is essential to life. It is a primary substrate in oxidative phosphorylation, which is what separates us (well, most of us anyway) from the yeasts, fungi and other lower life forms. With precious few exceptions, oxygen is a safe form of treatment for many emergency conditions.

INDICATIONS: Hypoxia, ischemic conditions and cardiac arrest.

CONTRAINDICATIONS: None in the pre-hospital setting.

SIDE EFFECTS: Oxygen may cause drying of the mucous membranes; long term exposure to high concentrations may cause toxicity and retinal damage. Loss of respiratory drive in CO2 retainers (COPD) may cause respiratory depression, but should not be withheld if the patient is hypoxic and in respiratory distress.

DOSAGE: 100 % for cardiac arrest and critical injuries/illness.

35 % or greater for COPD patients, as needed.

PEDIATRICS: 24-100 % as indicated.

Unit Medical Director's Initials_____

Approval/Review Date_____

MEDICATIONS REFERENCE

19. SODIUM BICARBONATE

CLASSIFICATION: Electrolyte, biochemical buffer, alkalizing agent

MECHANISM OF ACTION: multiple.

INDICATIONS: Severe metabolic acidosis refractory to hyperventilation, tricyclic antidepressant overdose, hyperkalemia, alkalization for treatment of rhabdomyolysis or aspirin intoxication with medical control physician order.

CONTRAINDICATIONS: Metabolic or respiratory alkalosis.

SIDE EFFECTS: Volume overload, alkalosis, paradoxical CNS acidosis.

DOSAGE: 1 mEq/kg IV followed by 15-20 cc flush of N/S.

PEDIATRIC: 1 mEq/kg IV followed by 15-20 cc flush of N/S.

Unit Medical Director's Initials _____
Approval/Review Date _____

20. SUCCINYLCHOLINE

CLASSIFICATION: Short duration, depolarizing neuromuscular blocking agent.

MECHANISM OF ACTION: Paralyzes skeletal and respiratory muscles. Paralysis last approximately 5 minutes.

INDICATIONS: Only to be used in cases where emergent endotracheal intubation, in the conscious/semiconscious patient, is needed (i.e. rapid sequence intubation).

CONRAINDICATIONS: Renal failure, hyperkalemia, digitoxicity. Major trauma, crush injury, burns occurring over 24 hours prior to your planned intubation. Penetrating eye injuries, malignant hyperthermia, history of “slow acetylator,” allergy or hypersensitivity to substance.

SIDE EFFECTS: Increased intraocular pressure, excessive salivation, respiratory depression, apnea, cardiac arrest, bradycardia, tachycardia, fasciculations, hyper/hypotension.

DOSAGE: 1.0 to 1.5mg / kg IV, max dose of 150mg.

PEDIATRICS: 1.0 mg/kg IV.

WARNING: DO NOT USE THIS AGENT UNLESS:

1) YOU ARE TRAINED AND AUTHORIZED TO PERFORM RAPID SEQUENCE INTUBATION BY THE MEDICAL DIRECTOR AND COMMANDER;

2) PREPARED WITH SUCTION, A BVM APPARATUS AND SURGICAL CRICOTHYROIDOTOMY SET IN THE EVENT OF INTUBATION FAILURE (YOU MUST BAG THE PATIENT OR PERFORM CRICOTHYROIDOTOMY) UNTIL THE EFFECT SUBSIDES; AND

3) YOUR PATIENT HAS AN URGENT NEED FOR RAPID SEQUENCE INTUBATION (THIS IS NOT AN ELECTIVE MANEUVER IN THE FIELD SETTING)

Unit Medical Director's Initials_____

Approval/Review Date_____

MEDICATIONS REFERENCE

21. THIAMINE

CLASSIFICATION: Vitamin (B-3)

MECHANISM OF ACTION: Critical micronutrient component of glucose metabolism. Thiamine insufficiency coupled with glucose administration may precipitate Wernicke's encephalopathy.

INDICATIONS: Coma of unknown origin, alcoholism, delirium tremens.

CONTRAINDICATIONS: Hypersensitivity.

SIDE EFFECTS: Should be administered prior to 50 % Dextrose in alcoholic patients.

DOSAGE: 100 mg slow IV or IM

Unit Medical Director's Initials _____
Approval/Review Date _____

22. VECURONIUM (NORCURON)

CLASSIFICATION: Non-depolarizing neuromuscular blocking agent.

MECHANISM OF ACTION: Paralyzes respiratory and skeletal muscles. Paralysis lasts for approximately 30-45 minutes.

INDICATIONS: To maintain paralysis during long transport times. May be use initially to facilitate endotracheal intubation if succinylcholine is contraindicated.

CONTRAINDICATIONS: Children less than 31 days old, obesity, and hypersensitivity to bromides.

SIDE EFFECTS: Prolonged paralysis, hypotension, malignant hyperthermia, bradycardia.

DOSAGE: 0.1 mg/kg IV.

PEDIATRIC: 0.1 mg/kg IV.

WARNING: DO NOT USE THIS AGENT UNLESS:

1) YOU ARE TRAINED AND AUTHORIZED TO PERFORM RAPID SEQUENCE INTUBATION BY THE MEDICAL DIRECTOR AND COMMANDER;

2) PREPARED WITH SUCTION, A BVM APPARATUS AND SURGICAL CRICOTHYROIDOTOMY SET IN THE EVENT OF INTUBATION FAILURE (YOU MUST BAG THE PATIENT OR PERFORM CRICOTHYROIDOTOMY) UNTIL THE EFFECT SUBSIDES; AND

3) YOUR PATIENT HAS AN URGENT NEED FOR RAPID SEQUENCE INTUBATION (THIS IS NOT AN ELECTIVE MANEUVER IN THE FIELD SETTING)

Unit Medical Director's Initials_____

Approval/Review Date_____

MEDICATIONS REFERENCE

23. Ceftriaxone (Rocephin)

CLASSIFICATION: Third-generation cephalosporin antibiotic.

MECHANISM OF ACTION: potent antibiotic with broad spectrum (skin structure, gastrointestinal, genitourinary, pulmonary, hematologic and central nervous system pathogens).

INDICATIONS: sepsis, presumed meningitis, penetrating trauma / open fractures / combat wounds.

CONTRAINDICATIONS: allergy or hypersensitivity to substance; limited cross-allergic activity to penicillin (administer with caution, have epinephrine ready).

SIDE EFFECTS: gastrointestinal (diarrhea, nausea).

DOSAGE: 1 to 2 gm IV or IM once daily. (use 2mg for severe sepsis or presumed meningitis).

PEDIATRIC: 50 to 100mg / kg IV / IM once daily (use higher dose for presumed meningitis).

NOTE: ALTHOUGH ANTIBIOTIC THERAPY IS NOT ROUTINELY ADMINISTERED BY PRE-HOSPITAL CARE PROVIDERS, THIS MEDICATION IS INCLUDED IN THIS REFERENCE BECAUSE OF ITS POTENTIAL UTILITY IN REMOTE DEPLOYED SETTINGS OR DURING WARTIME. REFER TO LOCAL PROTOCOLS OR MEDICAL CONTROL PHYSICIAN ORDER PRIOR TO USE.

Unit Medical Director's Initials _____
Approval/Review Date _____