Parkmedic EMR Manual

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GENERAL INFORMATION

Terms, Acronyms and Abbreviations

ABCs	Airway, Breathing, Circulation.
ACLS	Advanced Cardiac Life Support.
AED	Automated External Defibrillator.
ALOC	Altered Level of Consciousness.
ALS	Advanced Life Support.
AMA	Against Medical Advice.
AMS	Acute Mountain Sickness OR Altered Mental Status.
ASA	Aspirin.
BLS	Basic Life Support.
BVM	Bag Valve Mask.
C/C	Chief Complaint.
CHF	Congestive Heart Failure.
CNS	Central Nervous System.
CO	Carbon Monoxide.
COPD	Chronic Obstructive Pulmonary Disease.
CO2	Carbon Dioxide.
CPAP	Continuous Positive Airway Pressure.
CPR	Cardio-Pulmonary Resuscitation.
CSM	Circulation, Sensory, Motor.
D50	Dextrose 50%.
DAN	Diver's Alert Network.
DBP	Diastolic Blood Pressure.
DNR	Do Not Resuscitate.
EMS	Emergency Medical Service.
EMT	Emergency Medical Technician.
ETT	Endotracheal Tube.
FBO	Foreign Body Obstruction.
GCS	Glasgow Coma Score.
GSW	Gun Shot Wound.
GI	Gastro-Intestinal.
HACE	High Altitude Cerebral Edema.
HAPE	High Altitude Pulmonary Edema.
HHN	Held-Held Nebulizer.
HR	Heart Rate.
HTN	Hypertension.
IM	Intramuscular.
IN	Intra-Nasal.
IO	Intraosseous.
IUD	Intrauterine Device.
IV	Intravenous.
IVF	IV Fluids.
IVP	IV Push.
JVD	Jugular Venous Distention.
LEMA	Local EMS Medical Advisor.
LMP	Last Menstrual Period.
LOC	Level of Consciousness OR Loss of Consciousness.
LR	Lactated Ringers.
MAD	Mucosal Atomizer Device.
MCI	Multi-Casualty Incident.
MDI	Metered-Dose Inhaler.
MI	Myocardial Infarction.
MOI	Mechanism of Injury.
NEMA	National EMS Medical Advisor.
NG	Naso-Gastric.
NPS	National Park Service.
NRM	Non-Rebreather Mask.
NS	Normal Saline.
NSAID	Non-Steroidal Anti-Inflammatory Drug.
NTG	Nitroglycerin.
N/V	Nausea and Vomiting.
O2	Oxygen.
OTC	Over The Counter.
PCR	Patient Care Report.
PE	Pulmonary Embolism OR Physical Exam.
PMH	Past Medical History.
PO	*Per Os* (By Mouth).
POV	Privately-Owned Vehicle.
PRN	*Pro Re Nata* (As Needed).
R/O	Rule Out.
ROM	Range of Motion.
RR	Respiratory Rate.
SBP	Systolic Blood Pressure.
SC or SQ	Subcutaneous.
SCUBA	Self-Contained Underwater Breathing Apparatus.
SIVP	Slow IV Push.
SL	Sublingual.
SOB	Shortness of Breath.
S/S	Signs and Symptoms.
STD	Sexually Transmitted Disease.
TAR	Treat and Release.
TBSA	Total Body Surface Area.
TCA	Tricyclic Antidepressant.
TIA	Transient Ischemic Attack.
TKO	To Keep (Vein) Open.
T-POD	Traumatic Pelvic Orthotic Device.
TTJI	Transtracheal Jet Insufflation.
UAO	Upper Airway Obstruction.
VS	Vital Signs.
>	Greater Than.
≥	Greater Than or Equal To.
<	Less Than.
≤	Less Than or Equal To.

AIRWAY OBSTRUCTION – Foreign Body

Emergency Medical Responder

Indications: Foreign body obstruction of airway

Contraindications: None

Equipment: None

Complications:
1. Airway bleeding/injury
2. Aspiration
3. Worsening of airway obstruction
4. Chest/abdominal trauma

Procedure:
1. If conscious – allow patient to assume position of comfort and encourage them to cough.
2. If unconscious

	Adult (>8 years old)	**Child (1-8 years old)**	**Infant (birth to 1 year)**
Ventilations	10-12 per/min	20 per/min	20 per/min
If unable to ventilate, reposition head and reattempt ventilation. If still unsuccessful:			
Tongue/Jaw lift	Yes	Yes	Yes
Finger Sweep	Yes	Only if object is seen	Only if object is seen
Abdominal Thrust	Sets of 5	Sets of 5	***Not Used***
Chest Thrusts	Only if victim pregnant or obese	***Not Used***	Sets of 5 back blows followed by 5 chest thrusts
Back Blows	***Not Used***	***Not Used***	

3. Continue the above sequence until successful.
4. If patient resumes effective breathing, place in position of comfort.

Cross Reference:

Procedures:
Cardiac Arrest (Adult Medical) Pediatric - Medical Arrest
Trauma Arrest (Adult and Pediatric)

Automatic External Defibrillator (AED)

Emergency Medical Responder

Scope of Practice: First Responder. (although AED's may be used by any NPS employee) It is preferable, but not mandatory, that the NPS employee has been trained on the AED before it is actually used.

Indications: Primary indication is cardiac arrest. If an AED is available it should be brought to the patient's side as designated under special considerations in specific protocols. It should remain with the patient until they are released (this is because the patient may arrest during your care). However,

a. If during search and rescue operations it is impractical to transport the AED it should not be brought.
b. At no time should bringing an AED to the patients' side delay initial patient contact, initial treatment or transport.
c. In patients who are not in cardiopulmonary arrest the AED should be at the patient's side as designated in protocol but not attached to the patient.

Contraindications (to attaching AED to patient): Patient is not in cardiopulmonary arrest

Equipment: AED

Procedure: The AED should be applied and actually used in all cases of medical cardiopulmonary arrest over the age of one month. Cardiopulmonary arrest is assessed by having these three factors: **unresponsive, no breathing and no pulse**. Unless all three of these conditions are met, do not apply AED to the patient.

Actual AED use should follow the visual (lights), voice prompts or written instructions accompanying the AED.

1. Use the AED at the earliest possible moment in cardiopulmonary arrest.
2. Hold CPR, apply AED pads and clear from the patient when AED is analyzing or delivering a shock.
3. If no shock is indicated, then recheck pulse. If none, resume CPR for 2 minutes, or until the AED reanalyzes.
4. Repeat this sequence 5 times
5. If no shock is indicated, recheck pulse. If present, leave AED on the patient but in off mode and follow the adult or pediatric medical cardiac arrest protocol.
6. If a shock is delivered by the AED follow prompts regarding pulse checks or further AED shocks, in which case you should remain clear of the device and the patient.
7. In all cases of successful resuscitation, the AED should remain attached to the patient but in the off mode. If the patient re-arrests the AED should be turned on again. (Exception: if during ambulance transport the patient re-arrests, the ambulance should immediately stop and only then should the AED be turned on again. This is to avoid analyzing interference from a moving vehicle).
8. Remember to do CPR in cases of cardiopulmonary arrest. If alone, perform CPR using a 30:2 compression to ventilation ration on all patients. If performing 2-rescuer CPR use a 15:2 compression to ventilation ration for patients under the age of 12. Compressions are given at a rate of 100 per minute.
9. Continue to follow cardiac arrest adult medical protocol.
10. Special caveats:
    a. Do not use the AED if patient is less than one month of age. Use a child dose-reduction system with AEDs (e.g. pediatric pads/cables), when available, for children from 1 month to 8 years old. Do not use AED on neonates.
    b. Do not use the AED if patient has obvious major trauma.
    c. Do not use the AED if patient is in a moving vehicle (stop vehicle)
    d. Do not use the AED if patient is in water or skin is wet (dry them off)
    e. Do not use the AED until any transdermal (skin, ie nitro paste) medications have been removed (wipe off).
    f. Alter pad placement to avoid placing directly over a patients implanted pacemaker.
11. Patient complaints where AED should be brought to patient side but not attached are all of the listed cross references below. Note: AED should actually be applied in cardiac arrest.

Automatic External Defibrillator (AED)

Cross References

Procedures

Protocols

Abdominal Pain
Allergic Reactions
Altered Mental Status/Altered Level of Consciousness
Chest Pain – Cardiac
Electrical and Lightning Injuries
Ingestions/Poisoning
Near Drowning
Respiratory Distress
Seizures
Shock without Trauma

Base Hospital Contact

Emergency Medical Responder

General

Base Hospital Contact is to be made as specified in individual protocols.

Base contact should be attempted if no protocol exists for an individual patient's particular complain.

Base Contact is required for all *Against Medical Advice* (AMA) releases and all contacts where care was provided and the patient was released at the scene (TAR). The patient must sign AMA on a PCR in both cases prior to release.

If base contact cannot be made, proceed by individual protocol and use your best judgment. Make base contact as soon as possible. Document inability to contact base.

Epinephrine Auto-Injector

Emergency Medical Responder

Scope: EMR

Indications: Allergic Reaction
Respiratory Distress

Procedure:

1. Refer to *Allergic Reactions* and *Respiratory Distress* Protocols for indications and dosages.
2. Confirm patient is appropriate candidate to receive epinephrine.
3. Inform patient that they will be receiving an injection to make them feel better. Advise them it may make them feel shaky and their heart pound.
4. Clean skin with alcohol prep.
5. Familiarize yourself with the unit
6. Grasp unit, with the black tip pointing downward
7. Form a fist around the auto-injector (black tip down)
8. With your other hand, pull off the gray activation cap
9. Hold black tip near outer thigh.
10. Swing and jab firmly into outer thigh so that auto-injector is perpendicular (at a 90 degree angle) to the thigh
11. Hold firmly in thigh for several seconds.
12 Remove unit, massage injection area for several seconds.
13. Check black tip: if needle is exposed the patient received the dose, if not repeat steps 9 through 12.
14. Note, most of the liquid (about 90 %) stays in the auto-injector and can not be reused.
15. Bend the needle back against a hard surface
16. Carefully put the unit (needle first) back into the carrying tube (without the gray activation cap)
17. Recap the carrying tube.
18. Observe patient for improvement or worsening of condition. Repeat exam and vitals after each dose.
19. Document procedure, vitals and response to treatment.

Notes:

1. Never put thumb, fingers, or hand over black tip.
2. Do Not remove gray activation cap until ready to use.

Diagrams: See package insert

Fracture / Dislocation Management (Splinting)

Emergency Medical Responder

Scope of Practice: EMR

REFERENCE PROTOCOL *Minor or Extremity Trauma, Major Trauma-Adult* and/or *Pediatric – Major Trauma*

1. Assess distal circulation, sensation and motor function (CSM)
2. Irrigate and dress open wounds
3. Immobilize joint itself if that is site of primary injury
4. Immobilize joints above and below long bone injuries.
   Suspected mid-shaft femur fractures are best immobilized with a traction splint
   Suspected hip fractures may be immobilized on a long board
5. Ensure that the splint is well padded
6. Ensure that toes and/or fingers are accessible for repeated assessment
7. Elevate the injury, if possible
8. Reassess distal CSM function after any manipulation, splinting, or movement of the injury
9. Document procedure

Cross References

Procedures

Protocols
Major Trauma
Minor or Extremity Trauma
Pediatric – Major Trauma

Mucosal Atomizer Device (MAD)

Emergency Medical Responder

Scope of Practice EMR, EMT, Parkmedic, Paramedic

Indications Administration of approved medications intranasally

Contraindications None, although administration may be less effective with nasal obstruction

Side Effects Possible choking

Equipment Mucosal Atomizer Device; 3ml syringe, medication, small gauge needle, alcohol swab

Procedure

Attach needle to syringe and insert into naloxone ampule
Draw up desired dose of medication
Remove needle from syringe and attach Mucosal Atomizer Device to tip of syringe.
Insert Mucosal Atomizer Device into nostril and depress syringe with sufficient force to atomize medication
If giving more than 1 mL, then give 50% of dose in each nostril

Notes:

The Mucosal Atomizer Device may be used in all body positions.
If giving multiple doses, repeat the dose in the other nostril unless obviously obstructed.
Giving more than 1 mL in a nostril causes medication to drip unabsorbed into throat

Cross Reference

Protocols:	Drugs:
Altered Mental Status/Altered Level of Consciousness (ALOC)	Naloxone (Narcan)

Multi-Casualty Reporting Format

Emergency Medical Responder

I. INDICATION:

An MCI is any incident in which the number of patients **cannot be fully managed** by the on-scene personnel (in many parks this policy is implemented at five or more patients).

II. INITIAL MULTI-CASUALTY SCENE SIZE UP:

Relayed to dispatch by the first EMS provider on the scene.
Includes the following items **only**:

1. Mobile unit, provider level (Paramedic/Parkmedic/EMT/EMR) and identification (radio call sign)
2. Exact Location/ Environment/ Elevation
3. Type of Incident
4. Hazards
5. Estimate of Casualties (Color Code/Triage designation if known) triage category
6. Request additional help as needed

III. MULTI-CASUALITY PATIENT REPORT:

To be called in by the Incident Commander or designee to base or designated disaster control facility, once patients are ready for transport. Information is to be utilized to help determine patient destination. **Do not include specifics on physical exam, nor requests for additional therapy, unless transport will be delayed.**

1. Mobile unit, provider level (Paramedic/Parkmedic/EMT/EMR) and identification (radio call sign)
2. Triage Tag number
3. Patient Profile (Age and sex ONLY)
4. Color Priority Code/ Triage destination
5. Primary Injury (chief complaint)
6. Destination unless redirected by Base Hospital
7. Transporting Unit and Type (air/ground)
8. Departure Time/ETA

IV. MULTI-CASUALITY PATIENT REPORT (LARGE DISASTER):

Shortened report given during large disaster (with Base Hospital permission).

1. Mobile unit, provider level (Paramedic/Parkmedic/EMT/EMR) and identification (radio call sign)
2. Triage Tag number
3. Color Code/Triage designation
4. Destination
5. Transporting Unit

V. DEFINITIONS:

Acuity – severity of illness or injury

Futility – when a patients condition is so critical that their chance of survival despite maximal intervention is remote.

Incident Commander (IC) - The first rescuer on scene and individual in charge of the overall incident, responsible for commanding and coordinating the disaster site response in its entirety and requesting additional resources as needed. The Triage Leader, Extrication Leader, Treatment Leader, Transport Leader and Dispatch all report to the IC. (Appendix A)

Multi-Casualty Reporting Format

Incident Command System (ICS) - A nationally recognized approach to MCI's using common terminology and procedures. It is a modular organization providing the framework for agencies to respond in a coordinated effort to incidents regardless of size.

Jump START– A complementary triage system to START designed to be used with children (defined as shorter than the NPS Pediatric Resuscitation Tape and/or Broselow tape, generally 8 years old or less).

Multi-Casualty Incident (MCI) - any incident with five or more patients, or when the number and acuity of patients overwhelms the rescuer's ability to provide care in the usual manner.

Patient- A person with a medical complaint needing assessment, medical care and treatment.

START Triage –
A specific triage system (Simple Triage and Rapid Treatment) designed for very large-scale disasters. Adult patients are each given a triage tag (METTAG) and assigned to a severity group (Minor/Green, Delayed/Yellow, Immediate/Red or Morgue/Black) representing acuity on the basis of a 30 second or less assessment of airway, respiratory rate, capillary refill (or radial pulse for Jump START) and mental status only. See diagram. Categories currently are:

Immediate/Red- designated for patients who are critically ill but potentially salvageable if given top priority for treatment and transport.

- When using the START triage system, this includes patients requiring airway maneuvers but who are still breathing spontaneously, respiratory rate greater than 30, altered mental status, or capillary refill greater than 2 seconds.
- When NOT using the START/Jump START system, this category would include patients with respiratory distress, shock, altered mental status, multi-system trauma, severe chest or abdominal pain or tenderness, suspected spinal cord injury, hypothermia, fractures with vascular compromise and significant burns.

Delayed/Yellow- designation for delayed care. This category includes patients with significant injury who will require further care and transport to the hospital but whose injuries are unlikely to result in immediate loss of life or limb.

- Using START triage, this would include any patient who does not meet the criteria for either the green, red or black categories.
- When not using the START/Jump START system, this category would include patients with isolated femur fractures or dislocations with normal circulation, mild chest pain or abdominal pain or tenderness with normal vital signs, possible neck or back injuries without neurological deficit, and a history of loss of consciousness but normal mental status.

Minor/Green- designation for ambulatory patients with minor complaints such as simple closed fractures and lacerations and abrasions with bleeding controlled, aka the "walking wounded".

Deceased/Black- designation for patients who are dead or determined to have no reasonable chance of survival despite airway intervention.

NOTE: Any patient who is non-ambulatory (i.e. requiring C-spine precautions) is triaged as a Delayed/Yellow patient unless triaged as an Immediate/Red patient or Deceased/Black.

Triage Tag (METTAG)- Cards designed to be used with the START/Jump START system, but may be used with any triage system. One tag is placed on each patient. Each tag has a number by which patients may be identified and has removable color strips corresponding to the severity group. Tags may also be used to help identify patients who are related, when determining destination of transport (e.g. "pt found in red car" may be documented on the Triage Tag comments area so unconscious mother and daughter both end up in the same hospital). (Appendix I)

Victim- Person who is involved in an event or incident who has no medical complaints.

Multi-Casualty Reporting Format

VI. PROCEDURE:

1. "Size Up." The first rescuer on scene shall make a rapid assessment of scene safety, the number and acuity of patients and a "reasonable overestimation" of the number of resources needed. This information shall be conveyed immediately to dispatch.

2. If overwhelmed, the rescuer shall either take a purely command role as IC or shall begin triage based on START/Jump START criteria, stopping only to make simple life saving interventions such as opening an airway or controlling bleeding. Bystanders and Minor/Green patients should be utilized to help when needed (e.g. hold pressure on a wound, comfort a child) or segregated to a specific area.

3. If *not* overwhelmed, the rescuer shall address each patient individually. Triage (including the assignment of color) shall be performed on the basis of a routine primary and secondary survey and consideration of specific injuries and vital signs. Treatment shall proceed according to standard treatment protocols.

4. Patients shall be separated into distinct treatment areas according to color designation when practical, based on number of patients/rescuers and geography.

5. As additional rescuers arrive on scene, a reassignment of the Incident Commander may be made based on rank, experience, and medical training.

6. The Incident Commander, using the incident command system, shall either assume responsibility for, or delegate someone to be responsible for, the following roles as needed depending on the size and complexity of the incident:

Operations Section Chief
Triage Leader
Extrication Leader
Treatment Team Leader(s) (green, yellow, and red)
Transportation Leader
Dispatch Leader

Depending on the scope and duration of the MCI, these individuals may be present as well:

EMS Branch Director
Staging Area Manager
Communications Officer
Public Relations Officer
Morgue Coordinator
Food Supplier
Law Enforcement/Traffic Group Supervisor
Fire Suppression Group Supervisor
Liaison Officer (outside agencies)

Importantly, each individual must know who reports to them and to whom they report. If there is not enough manpower to cover each role, the IC may need to assign multiple roles to each available person.

7. Base contact should be made as soon as possible and prior to patients being transported. Early notification of base hospital allows them to initiate their MCI plan and will assist with patient distribution to the available hospitals in an effort to avoid relocating the disaster to one hospital.

8. The Treatment Leader or each treatment color group leader shall try to reassess each patient at least every fifteen minutes. Patients who are re-triaged and determined to be a higher priority or lower priority than their initial assessment, shall be re-tagged with a new Triage Tag, noting the time, and initials of the person making the assessment. That person is then responsible for making sure the patient is moved to the appropriate color treatment area.

9. Performing CPR should NOT be done unless adequate manpower allows for immediate treatment of all critical Immediate/Red AND Delayed/Yellow priority patients.

10. All Immediate/Red priority patients should be transported from the scene first, Delayed/Yellow priority next, and last Minor/Green priority patients. Each transport unit should contain two patients, except in unusual circumstances. Depending on the number of patients in each group, there may be an occasion for a Delayed/Yellow priority patient to accompany either an Immediate/Red priority, or a Minor/Green priority patient. Attempts should be made to keep family members together and dispatched to the same hospital. Some Minor/Green priority patients may be "Treated and Released" (TAR) or released "Against Medical Advice" (AMA). Minor/Green priority patients can be transported by van or bus to an appropriate medical facility.

VII. USING THE JUMP-START ALGORITHM:

Step 1 – All children who are able to walk are directed to the area designated for Minor/Green patients, where they will undergo secondary (more involved) triage. At a minimum, secondary triage should consist of the respirations, pulse and mental status components of the Jump START algorithm. Infants who are developmentally unable to walk should be screened at the initial site (or at the secondary triage site for Minor/Green patients if carried there by others), using the Jump START algorithm. If they satisfy all of the physiologic "delayed" criteria (i.e., fullfill no "Immediate/Red" criteria) and appear to have no significant external injury, infants may be triaged to the Minor/Green category.

NOTE: Children with special health care needs are often chronically unable to ambulate. These children can be triaged similarly to infants who are developmentally unable to walk. Respiratory and circulatory parameters remain unchanged, although those with chronic respiratory problems may routinely have elevated respiratory rates. Neurological status may be difficult to judge due to lack of knowledge of a given patient's baseline function. A caregiver with knowledge of the children involved would be of invaluable assistance in this case, usually in the secondary triage stage. If a caregiver in unavailable, err on the side of caution and triage as if baseline function is normal for age.

NOTE: Be on the lookout for information about special needs children; there is a trend favoring brief medical data cards to be stored in the driver's area of buses and other vehicles routinely transporting children with special health care needs.

Step 2A – Nonambulatory pediatric patients are initially assessed for presence/absence of spontaneous breathing. Any patient with spontaneous respirations is then assessed for respiratory rate (see **Step 3**). Any patient with absolute apnea or intermittent apnea (periods of more than 10 secs) must have their airway opened by conventional positional techniques, including (limited) BLS airway foreign body (FB) clearance *only* if there is an obvious FB. If the patient resumes spontaneous respirations, an Immediate/Red priority is given and the triage officer moves on.

Step 2B – If upper airway opening does not trigger spontaneous respirations, the rescuer palpates for a pulse (carotid, radial, brachial or pedal). If there is **no** pulse, the patient is tagged as Deceased/Black and the triage officer moves on.

Step 2C – If there is a palpable pulse, the rescuer gives 5 breaths (about 15 sec.) using mouth-to-mask/barrier technique. This is the pediatric "jumpstart." One mask (with one-way valve) should be available on every potential first-in EMS unit. If necessary, an inverted adult mask may be used for a child. Ventilatory face shields such as those marketed for CPR classes and public use may also be used. Cross-contamination is a minimal issue, as this is already occurring because triage personnel do not change gloves between patients. Also, children are somewhat less likely to have dangerous transmissible diseases and the number of children satisfying the criteria for a ventilatory trial will be relatively small. If the ventilatory trial fails to trigger spontaneous respirations, the child is classified as Deceased/Black. If spontaneous respirations resume, the patient is tagged as Immediate/Red and the triage officer moves on without providing further ventilations. The child may or may not still be breathing on arrival of other non-triage personnel. Appropriate intervention can then be determined based upon the resources available at the designated treatment site.

Multi-Casualty Reporting Format

Step 3 – All patients at this point have spontaneous respirations. If the respiratory rate is roughly 15 – 45 breaths/min proceed to **Step 4** (assess perfusion).

If the respiratory rate is less than 15 (slower than one breath every 4 seconds) or faster than 45 or very irregular, the patient is classified as Immediate/Red and the triage officer moves on.

Step 4 – All patients at this point have been judged to have "adequate" respirations. Assess perfusion by palpating pulses on an (apparently) uninjured limb. This has been substituted for capillary refill (CR) in the adult START Triage because of the variation in children's CR with body and environmental temperature.

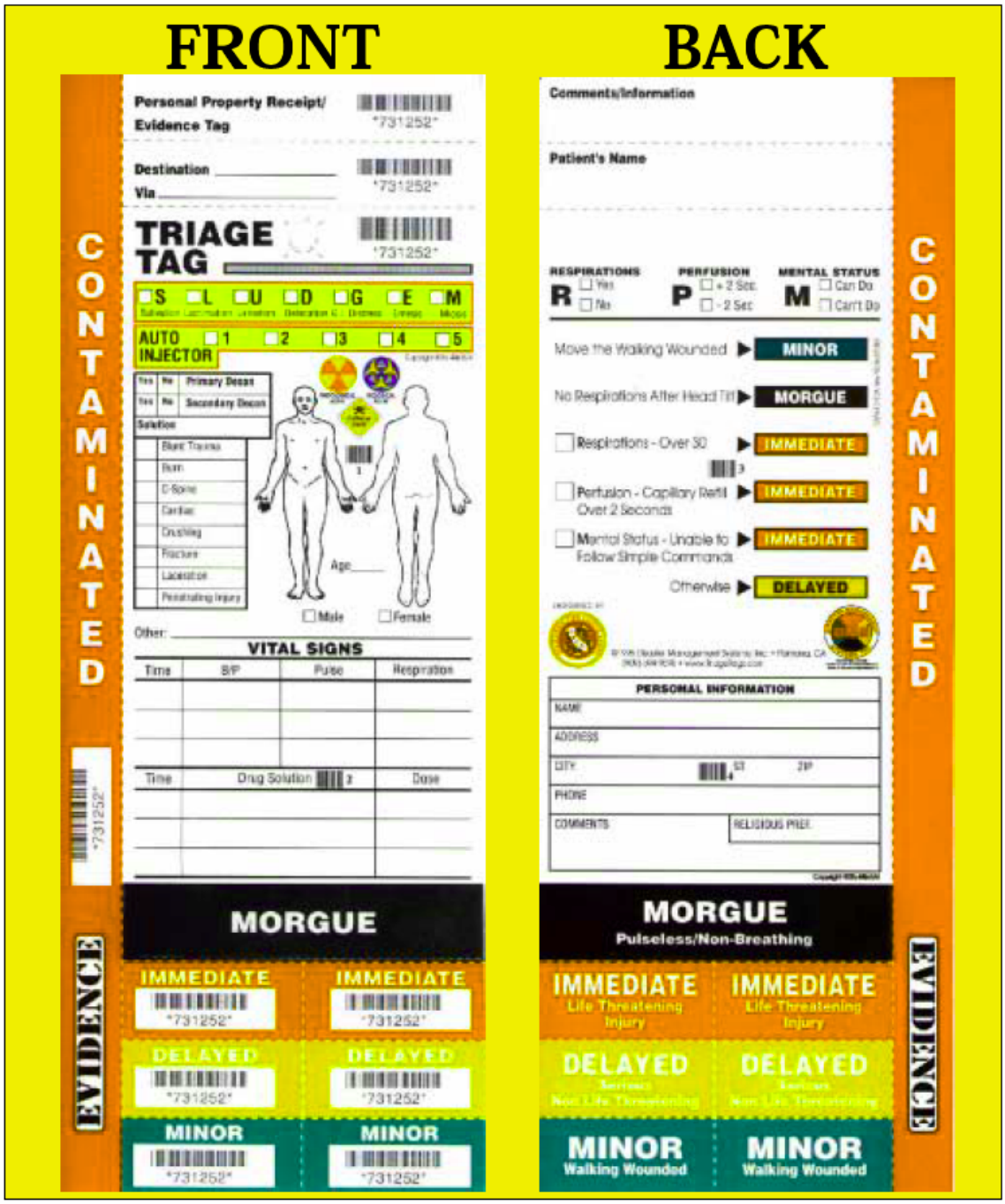
If there are palpable pulses, the rescuer assesses mental status (**Step 5**). If there are no pulses, the patient is categorized as an Immediate/Red patient and the triage officer moves on.

Step 5 – All patients at this point have "adequate" ABC's. The rescuer now performs a rapid "AVPU" assessment, keeping in mind the apparent developmental stage of the child. If the patient is ***A***lert, reponds to ***V***oice, or responds appropriately to ***P***ain (localized stimulus and withdraws or pushes it away), the patient is triaged in the Delayed/Yellow category.

If the child does not repond to voice and responds inappropriately to pain (only makes a noise or moves in a nonlocalizing fashion), has decorticate or decerebrate posturing, or is truly ***U***nresponsive, an Immediate/Red priority is given and the triage officer moves on.

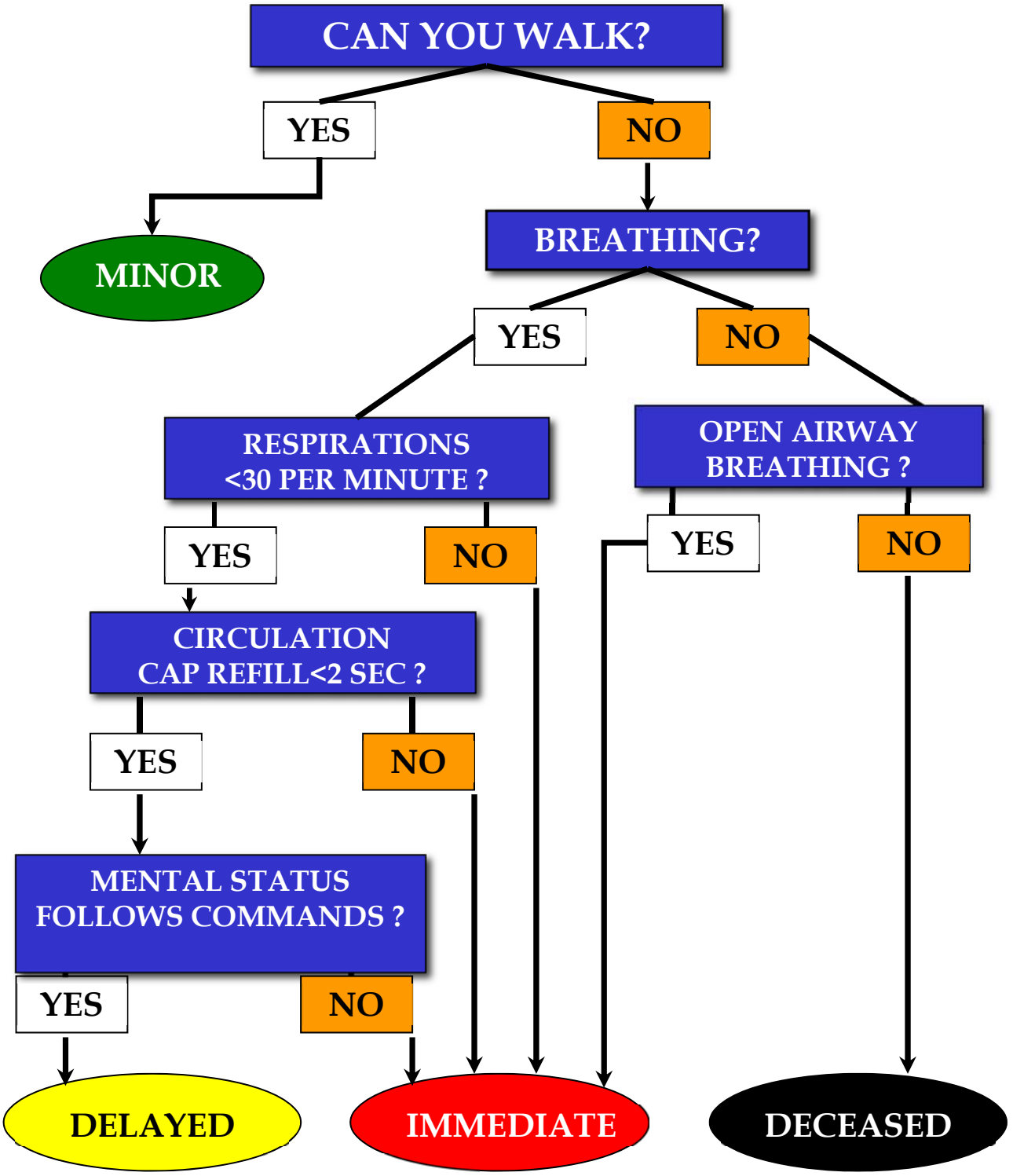
Multi-Casualty Reporting Format

Medical Emergency Triage Tag
METTAG

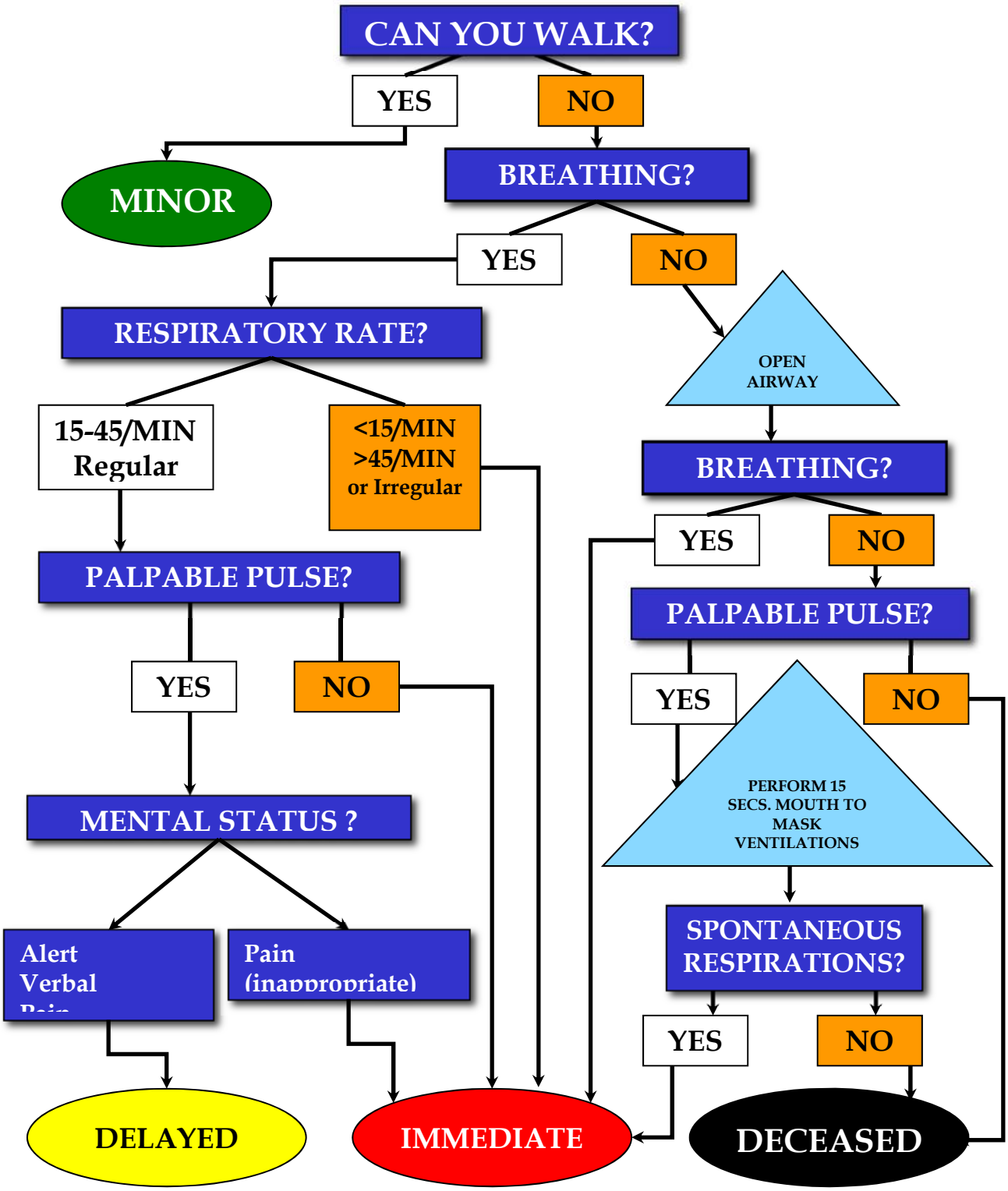


This is an example of a METTAG used in California. Any similar tag is appropriate for use.

Simple Triage And Rapid Treatment



Jump START (Pediatric)



NAAK/MARK I (OPTIONAL)

Emergency Medical Responder

Scope of Practice: Law Enforcement Emergency Medical Responders certified in NAAK/Mark I. For force protection and personal administration only.

Indications:

Officer who is exposed to and symptomatic from nerve agent or organophosphate (multiple symptoms of the AB-SLUDGEM (A-Altered mental status; B-Bronchorrhea, Breathing difficulty or wheezing, Bradycardia; S-Salivation, Sweating, Seizures; L-Lacrimation (tearing); U-Urination; D-Defecation or Diarrhea, G-GI upset (abdominal cramps), E-Emesis (vomiting), M-Miosis/Muscle activity (twitching)) Multiple patients with multiple symptoms makes diagnosis more likely.

Contraindications:

1. Use of Mark I kit in patients who in fact do not have nerve agent/organophosphate exposure. A single symptom of AB-SLUDGEM will almost certainly not be due to a poisoning.
2. As prophylaxis against suspected nerve agents/organophosphate exposure (The kit will not protect from an anticipated exposure).

Equipment: NAAK/Mark I kit content: Atropine 2mg auto-injector
2 PAM, pralidoxime chloride, 600 mg auto-injector

Complications:

From atropine component: tachycardia, headache, altered mental status, agitation, hypertension, fever, blurred vision

From 2 PAM component: dizziness, weakness, tachycardia, headache, hypertension, nausea, blurred vision

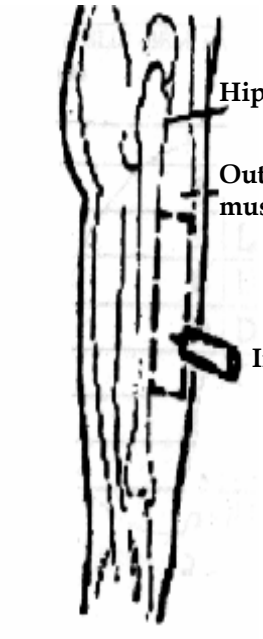
Procedure (also see diagram):

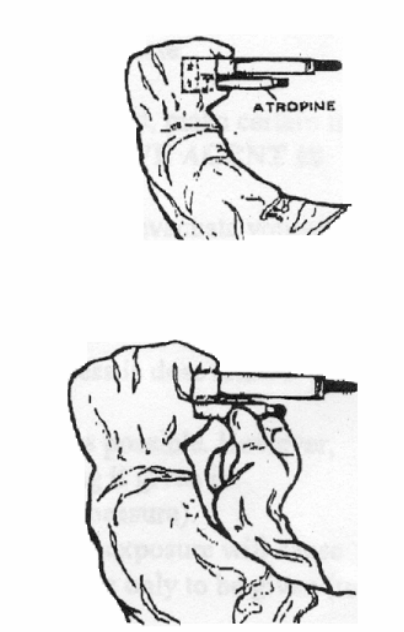
1. Remove NAAK/Mark I from its storage location. With the NON-DOMINANT HAND, hold the auto-injectors by the plastic clip so the large auto-injector is on top and the kit is positioned in front at eye level.
2. With the other hand, check the injection site (buttocks or thigh) for buttons or other objects that might interfere with injections
3. Grasp the ATROPINE auto-injector (green-tipped and marked with a "1") with the thumb and first two fingers, then pull the auto-injector away from the plastic clip in a smooth motion.
4. Hold the auto-injector like a pen or pencil (between the thumb and first two fingers).
5. Position the green tip of the auto-injector against the injection site (thigh or buttocks).
6. Apply firm, even pressure (not a jabbing motion) to the injector until it pushes the needle into the thigh or buttocks. Hold the injector in place for at least ten (10) seconds (estimated by counting "one-one-thousand, two-one-thousand" and so forth). Carefully remove the auto-injector from the injection site and place into a sharps container.
7. Pull the 2-PAM (pralidoxime chloride) auto-injector out of the plastic clip and inject using the procedures outlined in steps 3 – 6.
8. For moderate symptoms give two (2) stacked doses of both components of Mark I kit .
   For severe symptoms give three (3) stacked doses of both components of Mark I kit.
9. Return to Ingestions/Poisoning protocol except delete charcoal administration and pay special attention to note #2 below.

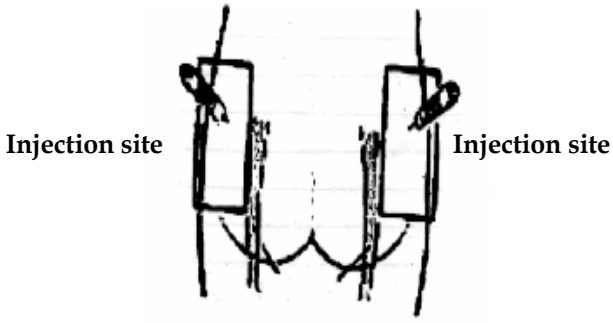
Notes:

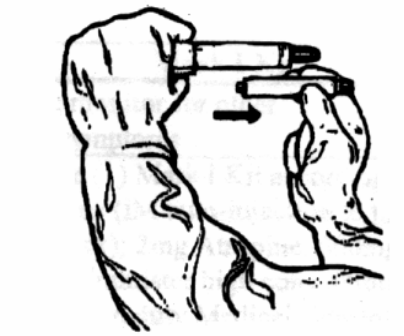
1. All suspected nerve agent/organophosphate exposure should be run with base contact whenever possible.
2. For persistent symptoms should give Atropine (preferably IV, second choice IM) 2mg every 5 minutes until no respiratory secretions or wheezing/rales.
3. Attend to scene safety. Do not enter any area where nerve agent or massive quantity of organophosphate is suspected or present without proper personal protection.
4. If you or your partner are exposed AND symptomatic, evacuate yourself and your partner from the area.
5. Remove all clothing from any symptomatic person.

NAAK/MARK I (OPTIONAL)









Procedures:

Cross Reference

Protocols:

Altered Mental Status/Altered Level of Consciousness (ALOC)
Ingestions/Poisoning
Respiratory Distress

Oxygen Administration

Emergency Medical Responder

Scope of Practice: EMR

Indications:

1. Adult - Respiratory rate less than 10 or more than 24.
   Pediatric - Respiratory rate less than 15 or more than 30.
2. Respiratory distress, cyanosis, inhalation injuries or aerosol exposure.
3. Chest pain of possible cardiac or pulmonary cause
4. An irregular heart rhythm (pulse) or heart rate.
   - Adults - greater than **120** or less than 50.
   - Pediatric - greater than 140 or less than 75.
   - Infants - greater than 160 or less than 100.
5. Shock from any cause
6. Significant multiple system trauma
7. Acute alteration of mental status or any acute neurologic symptom (including syncope, seizure, stroke, numbness, etc.)
8. Any other indication specifically covered in the protocols.

Contraindications: None

Equipment: Oxygen tank, nasal cannula or non-rebreather mask

Complications:

May cause sleepiness (carbon dioxide (CO_2) narcosis/retention) and respiratory depression in patients with emphysema / COPD. **Do not withhold oxygen from patients in respiratory distress.** If a COPD patient develops respiratory depression after receiving oxygen, assist respiration with BVM.

Dosage/Route:

Spontaneously Breathing Patients:

- Mild distress or stable vitals:
  Low Flow - Nasal cannula (2 – 6 liters/min)
- Severe distress, unstable vitals or altered mental status:
  High Flow-Non-re-breather oxygen mask (10 - 15 liters/min) Keep reservoir bag inflated
- In all protocols, if pulse oximetry is available, titrate oxygen flow to keep saturation above 94%.

Use Bag-Valve-Mask (BVM) with supplemental oxygen (10-15 liters/min) when:

1. Patient is not breathing
2. Patient is breathing too slowly or too shallowly to adequately ventilate

COPD/Emphysema Patients (by history or exam or on home oxygen)

Start oxygen at 2 liters/min by nasal cannula.
If patient is still cyanotic (blue) or markedly dyspneic gradually increase oxygen until cyanosis clears.
If still cyanotic or markedly dyspneic (short of breath) on 6 liters/min by nasal cannula, change to High Flow.
Prepare to assist with Bag-Valve-Mask

Notes: Use these guidelines to determine oxygen administration in all protocols where oxygen is indicated. Exceptions will be noted in individual protocols.

Oxygen Administration

Cross References

Protocols:

Allergic Reactions
Altered Mental Status/Altered Level of Consciousness (ALOC)
Altitude Illness
Bites and Stings
Burns
Cardiac Arrest (Adult Medical)
Chest Pain - Cardiac
Childbirth
Electrical and Lightning Injuries
Heat Illness
Ingestion/Poisoning
Major Trauma-Adult
Near Drowning
Pediatric – Medical Arrest
Pediatric – Major Trauma
Pediatric – Newborn Resuscitation
Respiratory Distress
SCUBA/Dive Injury
Seizures
Shock without Trauma
Trauma Arrest (Adult and Pediatric)
Vaginal Bleeding

Spine Immobilization

Emergency Medical Responder

Scope of Practice: EMR

Indications: Any patient with a history of trauma, or found in the setting of potential trauma (including near-drowning) who meets any of the following criteria:

1. Unstable Patient: per appropriate Protocol.
2. Pain: complaining of midline neck or back pain (without language barrier) All patients involved in moderate to high speed motor vehicle accidents.
3. Tenderness: midline neck or back tenderness
4. Altered Mental Status: inability to follow simple commands or inconsistency in following simple commands.
5. Distracting Injury: any injuries which appear to be distracting patient from identifying midline neck or back pain (e.g. major fractures).
6. Neurologic Deficit: any numbness, tingling or weakness not obviously explained by a co-existing extremity fracture. eg. paresthesia, numbness, weakness, paralysis, asymmetric movements or gait, pain inhibiting neck movement. New or worsened signs or symptoms in a patient with a preexisting deficit(s)

Note: Restricted or Painful Range of Motion: if a patient meets none of the previous criteria, then ask them to rotate their head slowly from side to side and to flex and extend their neck. If they are unable/unwilling to do so or describe pain or numbness/tingling in their arms or legs they should be immobilized.

Note: Although this procedure is primarily aimed at trauma patients who may need spinal immobilization, on rare occasions non traumatic neck or back pain with neurologic deficits (eg. pathologic fracture) may also need immobilization. See box* below for treatment procedures for those patients with non-traumatic midline neck/or back pain and/or tenderness.

Equipment Vacuum splint, Backboard and straps, KED, rigid cervical collar, tape, head supports

Procedure Complete spinal immobilization should ideally include backboard, head support, taping of head to board and strapping of torso/extremities which permits patient to be turned on their side in case of vomiting, without movement of the spine. In the event that such equipment is not immediately available, immobilization can be maintained manually, using a blanket roll or other improvised bilateral head supports that prevent rotation and flexion.

Ambulatory Patients:

Ambulatory patients without neurological signs or symptoms, without complaints of midline neck/back pain, and without midline neck/back tenderness to palpation should be transported in position of comfort.

Ambulatory patients with complaints of midline neck/back pain, or midline neck/back tenderness, without neurological signs or symptoms, should be transported on a gurney in position of comfort. Their neck/back can be supported as needed.

Ambulatory patients with neurological signs or symptoms after trauma, or suspected trauma, need full spinal precautions.

Non-Ambulatory Patients:

Non-ambulatory patients without neurological signs or symptoms, without complaints of midline neck/back pain, and without midline neck/back tenderness to palpation should be transported in position of comfort.

Spine Immobilization

Non-ambulatory patients with complaints of midline neck/back pain, or midline neck/back tenderness, without neurological signs or symptoms, should be transported on a gurney in a supine position. Their neck/back must be supported until placed on the gurney (e.g. manually hold C-spine, place in KED). Once on the gurney, their neck/back can be supported as needed.

Non-ambulatory patients with neurological signs or symptoms including altered mental status, after trauma, or suspected trauma, need full spinal precautions.

Severe Multisystem Trauma:

Patients with severe multisystem trauma should be transported using vacuum splint, break-away flat, KED or backboard to simultaneously protect the patient and expedite transfers in severely injured patients.

The following is a chart summary regarding when spinal immobilization should be considered.

Spinal Immobilization Chart - Trauma

	No midline neck pain/tenderness	Midline neck pain/tenderness	Neurological signs/symptoms	Altered mental status
Ambulatory	Position of Comfort	Gurney - Position of Comfort with/without support	Full	Position of Comfort
Non-Ambulatory	Position of Comfort	Gurney - Supine with extrication support	Full	Full
Severe Multisystem Trauma	Full	Full	Full	Full

Spinal Immobilization Chart - Non-Traumatic *

	Cervical Spine Pain/Tenderness	Thoraco/Lumbar Spine Pain/Tenderness
With New Neurologic Deficits	Full	Thoraco/Lumbar Immobilization
Without New Neurologic Deficits	Position of Comfort	Position of Comfort

Note: When full spinal immobilization is implemented, a vacuum mattress is the ideal device. If a rigid backboard is necessary, special padding such as a back raft or other padding should be used – especially in prolonged transports > 30 min.

If a patient does not meet requirements to be transported in full spinal precautions, this does NOT mean they are “cleared” from having a spinal injury. Significant injuries may be present and further evaluation is needed.

Although C-Collars are commonly used in EMS they do not constitute cervical immobilization and should be considered an adjunctive measure only and not absolutely necessary.

Children injured in motor vehicle collisions shall be immobilized and transported in their car seats whenever possible. Appropriate padding can be used to achieve immobilization in the car seat. Small children immobilized on a rigid board will often require padding behind their torso to maintain neutral position because of their relatively large head.

Booster seats, designed for children 40-80 pounds, are NOT adequate for spinal immobilization.

Spine Immobilization

When placing a patient in full spine precautions, splint head-to-pelvis with no lateral movement of pelvis/legs; limited bending at the hips is permissible for comfort.

When placing a patient in T-spine precautions, splint head-to-pelvis and immobilize legs at the hips; padding the pelvis for comfort is permissible.

When placing a patient in L-spine/pelvis precautions, also splint the T-spine, pelvis, and hips; the neck and head may be free for patient comfort.

When any doubt or communication barrier exists, err on the side of immobilization. This is especially true in the elderly, mentally disabled, and patients with whom you have a language barrier

Cross Reference:

Protocols:
Altered Mental Status/Altered Level of Consciousness (ALOC)
Electrical and Lightning Injuries
Major Trauma – Adult
Near Drowning
Pediatric – Major Trauma
Scuba/Dive Injury
Seizures

Standard Reporting Format (Call-In)

Emergency Medical Responder

I. INDICATION:

Base contact for non Mass Casualty Incident (MCI) call-ins.

II. FORMAT:

1. IDENTIFICATION: Unit number (call sign), name, EMS certification

2. CONDITION:
   STAT: Unstable vitals or potentially threatening to life or limb **NON-STAT:** Stable vitals, not threatening to life or limb **MEDICAL:** Most severe problem is medically based **TRAUMA**: Most severe problem is trauma based

3. LOCATION/ENVIRONMENT/ELEVATION

4. ETA/ DEPARTURE TIME/TRANSPORT TYPE/DESTINATION

5. PATIENT PROFILE: (Age, Sex, Wt.)

6. MENTAL STATUS:
   Examples: Adult: Alert and oriented
   Pediatric: Playful, interactive, eye contact, consolable

7. GLASGOW COMA SCORE

8. CHIEF COMPLAINT

9. VITAL SIGNS:
   Respiratory rate/ Lung sounds/ effort
   Pulse/ BP/ Capillary refill
   Pupils
   Skin (cool/warm, pale/pink, dry/clammy)

10. PAST MEDICAL HISTORY

11. ALLERGIES

12. MEDICATIONS

13. PHYSICAL EXAM: Pertinent positives/negatives

14. TREATMENT IN PROGRESS (and patient response)

15. REQUESTS FOR ADDITIONAL THERAPY / QUESTIONS

Note: In STAT cases EMS providers may call in an "incomplete report" if immediate feedback or guidance from base physician is desired.

When To Initiate a Patient Care Report/Run Sheet (PCR)

Emergency Medical Responder

Scope EMR, EMT, Parkmedic, and Paramedic

Indications A PCR will be completed for:

Anyone requesting medical assessment about a present medical condition.

Anyone who, in your judgment, requires medical attention even if medical attention is not requested (i.e. altered mental status, psychiatric condition).

Anyone administered medication or treatment of any kind.

An exception to this rule is Acetaminophen (Tylenol) or Ibuprofen (Motrin, Advil) dispensation for self-administration.

Wound Care

Emergency Medicine Responder

Scope of Practice: Emergency Medicine Responder

Indications Any significant break in the skin (e.g. open blister, abrasion, burn, puncture, laceration, open fracture, avulsion, amputation)

Procedure

Control bleeding to further assess wound:

1. Utilize direct pressure. Well-aimed direct pressure to the source of most bleeding with a gloved hand and dressing will stop most bleeding. If bleeding continues, temporarily remove dressing to ensure that direct pressure is being appropriately applied to the source of bleeding. Pack wound if needed for additional bleeding control. Bandage wound to keep dressing in place.
2. Elevate injured body part.
3. If bleeding continues, attempt the use of a pressure dressing to control bleeding.
4. If necessary, a tourniquet may be required for severe or difficult to control bleeding. See below for proper use and placement of a tourniquet.
5. Once bleeding control has been achieved, continue with wound care as listed below.
6. Frequently reassess to ensure bleeding hasn't returned.
7. Reassess bandages that may have become constricting and compromising distal CSM.

Wound Care (Keep wound as clean as possible): Gently remove any foreign material (except impaled objects), but do not delay transport if patient is unstable. Remove any constricting items (rings, watches, etc.)

Irrigation: For any open wounds - Irrigate with approximately 100ml per centimeter of wound- length using NS/LR, sterile water, or potable water as available. Pressure irrigation using18 gauge IV catheter and syringe is preferred. If bleeding is, or was, heavy, do not disturb clots to irrigate.
Burns < 15% TBSA can be gently rinsed. Do not use high pressure lavage.

Note: Do not use iodine, hydrogen peroxide, alcohol, or other antiseptics for irrigation.

Note: Wounds that should not be irrigated include:

- Actively bleeding wounds
  History of arterial bleeding (see special considerations – tourniquets)
- Punctures below skin surface (inside the cavity)
- Burns > 15% TBSA

Specific wounds/situations Amputations: Gently rinse the amputated part; wrap in moist, clean cloth or gauze; place in a dry, water tight plastic bag. DO NOT IMMERSE PART DIRECTLY IN WATER OR ICE. Place bag in ice water or a cool water bath and transport with patient. Do not delay transport looking

for amputated tissue. Consider helicopter transport as replantation success is highly time-dependent.

Impaled objects: Stabilize in place unless they interfere with transport or ventilation. If shortening or removal is required for either reason, base contact/communication failure orders apply.

Large, deep or gaping wounds: Should be splinted if near joints; per PROTOCOL: *Fracture/Dislocation Management*.

Sucking chest wounds: Place an occlusive dressing on the wound. Vent dressing or needle the chest if the signs/symptoms of a Tension Pneumothorax occur.

Eye Injury: REFERENCE PROTOCOL: *Eye Trauma*. Do not apply Bacitracin to eye.

Tourniquets should be used if:

1. There is life threatening or uncontrollable bleeding to any extremity.
2. An MCI, Tactical, or Technical situation occurs where extremity bleeding is occurring and there are limited resources or ability to apply direct pressure for initial bleeding control.

Combat Application Tourniquet (CAT) Procedures

Guidelines:

1. Wrap band around the extremity and pass the free (running) end through the inside slit of the buckle – or – insert the wounded extremity through the loop of the self- adhering band
2. Pass band through the outside slit of the buckle
   (This utilizes the Friction Adaptor Buckle, which will lock the band in place)
3. Pull the band tight and securely fasten the band back on itself
4. Twist the windlass rod until bleeding has stopped and no distal pulse
5. Lock the rod with the clip
6. Secure the rod with the strap
7. Document time of application

The tourniquet should be: at least 1-1.5 inches wide, applied directly to exposed skin, unless unsafe, then place over clothing, as close to the wound as possible, not over a joint. If available, a blood pressure cuff may be used and inflated 20 mmHg above systolic blood pressure, with frequent rechecking to ensure cuff has not lost pressure.

An appropriately applied tourniquet should occlude both venous and arterial blood flow and is often painful. **If a distal pulse is present, the tourniquet is not tight enough.**

Note: Once placed, tourniquets should be left in place and rapid transport should be initiated/arranged. Base contact should be made early if tourniquet applied (see special considerations for prolonged care/tourniquet removal).

Tourniquets: SPECIAL CONSIDERATIONS

Do not attempt removal/deflation of a tourniquet if the patient is in shock. Tourniquet should not be removed by EMS, **UNLESS:**

1. Tourniquet was placed initially in MCI, technical or tactical environments where a limited assessment was performed. Once the scene is stabilized and assessment/treatment can continue, the tourniquet may be loosened and bleeding assessed and managed as above.
2. Prolonged care (more than 2 hours) is encountered. Base contact should be attempted to discuss tourniquet removal, if Base unavailable and vital signs are stable (SBP > 90), slowly deflate/release tourniquet to assess bleeding/circulation with the goal of completely loosening the tourniquet. Do not remove tourniquet from limb, only loosen, in case reapplication is needed. When deflating/releasing a tourniquet, if life-threatening bleeding returns, immediately reapply tourniquet. If mild bleeding returns, attempt to use direct pressure and pressure dressing as described above.

Careful monitoring is necessary to ensure bleeding does not return, and swelling of limb doesn't cause compromised blood flow.

As tourniquet is being released, if no bleeding is noted, care should be taken to not create a venous tourniquet (occluding venous flow from the extremity while allowing arterial flow to resume). This may cause pressure to buildup in the extremity and cause compartment syndrome or bleeding to resume. i.e. If you can feel a distal pulse and venous return is occluded you have created a venous tourniquet.

Tourniquets left in place for more than 12 hours should be left in place until definitive care is reached.

After placing a tourniquet that successfully controls bleeding, wound irrigation can be considered, within the irrigation parameters above, if transport is prolonged.

Cross Reference

Procedures:	**Protocols:**
Fracture/Dislocation Management	Bites and Stings
	Burns
	Electrical and Lightning Injuries
	Eye Trauma
	Major Trauma – Adult
	Minor or Extremity Trauma
	Pediatric – Major Trauma

ABDOMINAL PAIN

Emergency Medical Responder

1. ABC's
    A. Airway
        Assess for adequate airway (15 seconds)
        - If awake and speaking clearly go to breathing
        - If unconscious – look, listen, feel for air movement

        If airway inadequate:
        - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
        - Adjuncts – OPA, NPA (adults only), Suction

        Do not place objects in the mouth while seizing
        If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

    B. Breathing
        Assess for adequate breathing (15 seconds)
        - Good chest rise
        - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
        - No cyanosis

        If breathing is inadequate assist as below
        - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
        - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

    C. Circulation
        Assess for adequate circulation (15 seconds)
        - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
        - Apply AED if non-trauma situation

        If pulse is present
        - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
        - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
        - Bring AED to patient's side if non-trauma situation
        - Cover patient (except hyperthermia)

1. Assessment — Vitals, PQRST, fever, vomiting/diarrhea, pregnancy, tenderness

2. Transport/ Backup — Consider air transport for abnormal vitals, syncope, active bleeding, altered level of consciousness, absent distal pulses

3. Base Contact

ABDOMINAL PAIN

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (>30), may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation
- Consider insulating patient from the ground with blankets

If available bring AED to patients side.

Assessment

Female: Possibility of pregnancy, last menstrual period, vaginal bleeding, history of ectopic pregnancy Male or Female: palpable pulsatile abdominal mass with age >40 years, PQRST, trauma, syncopal episode,

vomiting (color, amount, frequency), previous episodes of similar pain, pain or blood with urination, fever, previous abdominal surgery, diarrhea.

Differential

Ectopic pregnancy, abdominal aortic aneurysm, gallstones, kidney stone, appendicitis, pneumonia, diabetic ketoacidosis.

Remember, a heart attack or pneumonia can present as upper abdominal pain.

AMA/TAR

No treat and release without base contact
Parks without base hospitals should follow local medical control protocol.

Transport

Consider air transport for suspected ectopic pregnancy or abdominal aortic aneurysm.

Documentation

Relevant assessment features, reassessment, response to therapy

Cross Reference

Procedures:	**Protocols:**
Airway Obstruction	Cardiac Arrest (Adult Medical)
Oxygen Administration	Pediatric – Medical Arrest
Wound Care	Pediatric – Vital Signs
	Shock Without Trauma

ALLERGIC REACTIONS

Emergency Medical Responder

1. ABC's
   A. Airway
      Assess for adequate airway (15 seconds)
      - If awake and speaking clearly go to breathing
      - If unconscious – look, listen, feel for air movement

      If airway inadequate:
      - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
      - Adjuncts – OPA, NPA (adults only), Suction

      Do not place objects in the mouth while seizing
      If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing
      Assess for adequate breathing (15 seconds)
      - Good chest rise
      - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
      - No cyanosis

      If breathing is inadequate assist as below
      - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
      - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation
      Assess for adequate circulation (15 seconds)
      - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
      - Apply AED if non-trauma situation

      If pulse is present
      - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
      - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
      - Bring AED to patient's side if non-trauma situation
      - Cover patient (except hyperthermia)

2. Assessment — Airway edema, vital signs, mental status, wheezes/stridor, rash, history

3. Classify — **Mild** reaction: local swelling and/or hives. Go to #4
   Severe reaction (ANY of the following): hypotension, wheezing, respiratory distress, oral swelling, altered mental status, chest tightness.

4. Administer Epinephrine — Epinephrine auto injectors – encourage use or assist with administration

5. Remove allergen — If possible. Example bee stinger. (*Bites and Stings*)

6. Transport/backup

7. Treat for shock if present. (*Shock*)

8. Base Contact — For further orders, AMA or Treat and Release

ALLERGIC REACTIONS

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (>30), may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation
- Consider insulating patient from the ground with blankets

Assessment

1. Known or suspected exposure to allergen. Sting? If unclear contact base.
1. History of allergic reactions
2. Medication use prior to arrival. AnaGuard/Epi-pen, Benadryl?
3. PMH: heart disease, stroke, hypertension?
4. Medications: Beta-blockers (atenolol, propranolol)? May block effects of epinephrine
5. Vitals signs including mental status
6. Respiratory status: Airway swelling? Wheezes? Stridor? If patient has a beta agonist inhaler (Albuterol) encourage use or assist with administration.

Transport Priorities: Any patient with signs or symptoms of a severe reaction requires immediate evacuation. Consider helicopter and/or rendezvous with higher level of care.

AMA/TAR

Patients may not be released at scene without base contact. Criteria for TAR:

1. Mild local reaction not involving head/neck (No systemic signs or symptoms including hives)
2. Patient observed at least 30 minutes since onset or exposure
3. No history of severe allergic reactions
4. No medications taken by patient or assisted by EMR.
5. Normal vital signs

Parks without base hospitals should follow local medical control protocol.

Documentation

History of allergies, Possession of Epi-pen/AnaGuard Kit, Rash,
Patient not driving and taking epinephrine or diphenhydramine (Benadryl)
Response to any therapy administered

Cross References

Procedures:	**Protocols:**	**Drugs**
Airway Obstruction	Bites and Stings	Albuterol or Metaproterenol Sulfate
Oxygen Administration	Cardiac Arrest (Adult Medical)	Epinephrine (AnaGaurd)
Spine Immobilization	Pediatric – Medical Arrest	
Wound Care	Pediatric Vital Signs	
	Shock without Trauma	

ALTERED MENTAL STATUS/ALTERED LEVEL OF CONSCIOUSNESS (ALOC)

Emergency Medical Responder

If signs or setting of trauma (*Spinal Immobilization*)

1. ABC's
   A. Airway
      Assess for adequate airway (15 seconds)
      - If awake and speaking clearly go to breathing
      - If unconscious – look, listen, feel for air movement

      If airway inadequate:
      - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
      - Adjuncts – OPA, NPA (adults only), Suction

      Do not place objects in the mouth while seizing
      If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing
      Assess for adequate breathing (15 seconds)
      - Good chest rise
      - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
      - No cyanosis

      If breathing is inadequate assist as below
      - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
      - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation
      Assess for adequate circulation (15 seconds)
      - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
      - Apply AED if non-trauma situation

      If pulse is present
      - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
      - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
      - Bring AED to patient's side if non-trauma situation
      - Cover patient (except hyperthermia)

      If signs or symptoms of allergic reaction **GO TO** PROTOCOL *Allergic Reaction*
      If signs of hemorrhage with shock **GO TO** PROTOCOL *Major Trauma*

2. Restraints — If needed to protect patient or caregivers from injury

3. Assessment — Setting/History, Vitals, Temperature, Neuro deficits, Trauma, PMH, Consider differential: AEIOUTIPS
   GO TO PROTOCOL *Cardiac Arrest, Altitude Illness (HACE), Electrical Injuries, Heat Illness* or *Hypothermia, Major Trauma, Near Drowning* as appropriate
   Consider carbon monoxide, nerve agent/organophosphate exposure if multiple victims and/or AB- SLUDGEM (A-Altered mental status; B-Bronchorrhea, Breathing difficulty or wheezing, Bradycardia; S-Salivation, Sweating, Seizures; L-Lacrimation (tearing); U-Urination; D- Defecation or Diarrhea, G-GI upset (abdominal cramps), E-Emesis (vomiting), M- Miosis/Muscle activity (twitching) **GO TO** PROTOCOL *Ingestion/Poisoning***.**

ALTERED MENTAL STATUS/ALTERED LEVEL OF CONSCIOUSNESS (ALOC)

4. Transport/Backup — Consider air transport if decreasing mental status, GCS < 12 or airway not secure.

5. Base contact

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (>30), may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation
- Consider insulating patient from the ground with blankets
- AED should not be applied to patients less than 1 year old

If available bring AED to patients side.

Assessment

AEIOUTIPS-mnemonic for causes of ALOC
A Alcohol, Altitude
E Epilepsy, Electrolytes, Electrocution, Eclampsia
I Insulin (hypo/hyperglycemia)
O Overdose, Opiates, Oxygen(hypoxemia)
U Uremia (kidney failure)
T Trauma, Tumor, Temperature
I Infection, Infarction (stroke, MI)
P Psychosis, Poisons
S Stroke, Shock, Hypertensive Encephalopathy

Physical Exam

Mental Status via Glasgow Coma Score (GCS). Vitals, pupils, neurologic deficits, seizures, medications, track marks, pill bottles, alcohol, drug paraphernalia, trauma, setting

Differential Diagnosis

A. Stroke
History: numbness/tingling/weakness to one side of body or face. May have history of prior stroke. No trauma.
Exam: difficulty speaking or understanding, weakness to one side of body or face. May have altered mental status but usually not.
No specific treatment in field.
Patients whose deficit has resolved (probable TIA or transient ischemic attack) still need hospital transport because they are at risk for stroke.

B. Opiate overdose
Exam: Depressed mental status, decreased respiratory rate, pinpoint pupils (may not be present in multidrug ingestion), drug paraphernalia or pill bottles
Treatment: IN Naloxone – **REFERENCE** DRUG *Naloxone* and PROCEDURE *Mucosal Atomizer Device*
Patients who respond to reversal still need transport to hospital for observation as naloxone is shorter acting than many opiates and toxicity may recur

C. Syncope/Near Syncope
Causes include heart rhythm disturbances, seizures, stroke, dehydration, internal bleeding.
These patients require stabilization and transfer to higher level of care with cardiac monitoring

ALTERED MENTAL STATUS/ALTERED LEVEL OF CONSCIOUSNESS (ALOC)

D. HACE/HAPE

May cause alterations in mental status. **REFERENCE** PROTOCOL *Altitude Illness*

E. Heat Illness or Hypothermia

May cause alterations in mental status. In appropriate setting check temperature and institute cooling or warming measures **REFERENCE** PROTOCOL *Heat Illness or Hypothermia*.

F. Hypertensive Encephalopathy

This entity exists with elevated blood pressure (usually systolic > 200 and diastolic >120), along with central nervous system dysfunction such as AMS, severe headache, seizure or stroke. Patients may also have chest pain or pulmonary edema.

Isolated hypertension, without symptoms, need not be treated in the field, regardless of the degree of elevation.

Contact base for guidance.

G. Diabetic Emergencies

Hypoglycemia may cause altered mental status and/or focal neurologic deficits and thereby mimic stroke or coma.

Hyperglycemia may occasionally cause altered mental status, usually secondary to dehydration and coexisting illness. Treatment is with fluids, preferably IV. Contact base for guidance.

H. Behavioral Emergencies

Causes include drug and alcohol intoxication, psychiatric illness, developmental delay and any cause of altered mental status.

Any patient that may be a danger to self or others including impaired judgment must be transported. Consider 5150.

If due only to psychiatric illness patients are usually alert and oriented. Speak to patients in a calm non-threatening manner

I. Carbon Monoxide Poisoning

Carbon monoxide poisoning can cause vague flu like symptoms including headache, nausea, vomiting, dizziness and eventually coma. Suspect carbon monoxide exposure when encountering patients with this symptoms or comatose, especially if multiple victims, if found in enclosed spaces and may have been exposed to carbon monoxide. Causes of exposure may include malfunctioning gas appliances, vehicle exhaust, improper use of gas burning heaters, environmental waste and fires. Treatment includes removal from continued exposure, oxygen/airway support and transport.

Transport

Consider air transport or rendezvous with higher level of care for patients with unmanageable airways, unstable vital signs, rapid progression of symptoms, or failure to respond to treatment.

Restraint Issues

Use only if necessary to protect patient or personnel from injury.
Check distal neurovascular status of restrained extremities every 30 minutes
Reassess mental status and vital signs every 10 minutes
Consider restraining patient in swimmers position for airway protection
Contact base whenever restraints used

ALTERED MENTAL STATUS/ALTERED LEVEL OF CONSCIOUSNESS (ALOC)

AMA/TAR

Release at scene is not acceptable for patients who have had an alteration in mental status or focal neurologic deficit, even if it has resolved. AMA is possible for patients that currently have a normal mental status. This is most likely to occur in diabetic patients with hypoglycemia that has been treated. It should be noted that despite treatment, hypoglycemia can recur. All patients who leave the scene against medical advice should be told to avoid any situation that would be dangerous if symptoms recurred, including heights, trails, swimming, or driving.
Parks without base hospitals should follow local medical control protocol.

Documentation

All pertinent positives and negatives under assessment
Frequent vital signs
Neurologic exam (pupils, facial droop, weakness of arms or legs)
Blood glucose
Reassessments of mental status/symptoms and any change
Treatments rendered and response

Cross References

Procedures:
Airway Obstruction
Mucosal Administration Device (MAD)
Oxygen Administration
Spine Immunization
Wound Care

Protocols:
Altitude Illness
Cardiac Arrest (Adult Medical)
Chest Pain – Cardiac
Heat Illness
Hypothermia
Major Trauma – Adult
Pediatric – Medical Arrest
Pediatric – Vital Signs

Drugs
Naloxone (Narcan)

ALTITUDE ILLNESS

Emergency Medical Responder

Acute Mountain Sickness (AMS)

1. ABC's
   A. Airway
      Assess for adequate airway (15 seconds)
      - If awake and speaking clearly go to breathing
      - If unconscious – look, listen, feel for air movement

      If airway inadequate:
      - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
      - Adjuncts – OPA, NPA (adults only), Suction

      Do not place objects in the mouth while seizing
      If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing
      Assess for adequate breathing (15 seconds)
      - Good chest rise
      - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
      - No cyanosis

      If breathing is inadequate assist as below
      - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
      - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation
      Assess for adequate circulation (15 seconds)
      - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
      - Apply AED if non-trauma situation

      If pulse is present
      - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
      - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
      - Bring AED to patient's side if non-trauma situation
      - Cover patient (except hyperthermia)

2. Assessment — Vitals signs, mental status, coordination, vomiting, respiratory status
   GO TO *HACE Protocol* IF: altered mental status, inability to walk, severe headache, persistent vomiting
   GO TO *HAPE Protocol* IF: short of breath, wet lung sounds

3. Descent — Advise descent if symptoms moderate to severe, persistent or worsening.

4. Base contact — If severe symptoms, possible HAPE, HACE, any AMA/TAR.

ALTITUDE ILLNESS

High Altitude Pulmonary Edema (HAPE)

1. ABC's
   A. Airway
      Assess for adequate airway (15 seconds)
      - If awake and speaking clearly go to breathing
      - If unconscious – look, listen, feel for air movement

      If airway inadequate:
      - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
      - Adjuncts – OPA, NPA (adults only), Suction

      Do not place objects in the mouth while seizing
      If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing
      Assess for adequate breathing (15 seconds)
      - Good chest rise
      - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
      - No cyanosis

      If breathing is inadequate assist as below
      - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
      - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation
      Assess for adequate circulation (15 seconds)
      - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
      - Apply AED if non-trauma situation

      If pulse is present
      - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
      - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
      - Bring AED to patient's side if non-trauma situation
      - Cover patient (except hyperthermia)

2. Assessment — Vitals signs, respiratory distress at rest, lung sounds, sputum, mental status
3. Descent — Assist patient with rapid descent, consider helicopter
4. Transport/Backup — Do not delay descent waiting for backup.
5. Base Contact — For all patients.

ALTITUDE ILLNESS

High Altitude Cerebral Edema (HACE)

1. ABC's
   - A. Airway
     - Assess for adequate airway (15 seconds)
       - If awake and speaking clearly go to breathing
       - If unconscious – look, listen, feel for air movement
     - If airway inadequate:
       - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
       - Adjuncts – OPA, NPA (adults only), Suction
     - Do not place objects in the mouth while seizing
     - If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   - B. Breathing
     - Assess for adequate breathing (15 seconds)
       - Good chest rise
       - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
       - No cyanosis
     - If breathing is inadequate assist as below
       - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
       - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   - C. Circulation
     - Assess for adequate circulation (15 seconds)
       - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
       - Apply AED if non-trauma situation
     - If pulse is present
       - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
       - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
       - Bring AED to patient's side if non-trauma situation
       - Cover patient (except hyperthermia)

2. Assessment — Vitals, severe headache/vomiting, mental status, coordination/ability to walk
   Consider differential: carbon monoxide, hypothermia, stroke, drugs/alcohol, and hypoglycemia

4. Descent — Consider helicopter.

5. Transport/Backup — Do not delay descent waiting for backup.

6. Base contact — For all patients.

ALTITUDE ILLNESS

AMA/TAR

Base contact should be attempted in all cases. In the event that base contact cannot be made, patients may only be released IF:

1) They will be with a competent adult.
2) They have a means of re-contacting help.
3) Acute Mountain Sickness is clearly the most likely cause of their symptoms.
4) They have normal vital signs.
5) They do not meet any of the criteria for HAPE or HACE.
6) They did not require any treatment other than acetaminophen.

Any patient released should be instructed to:

1) Descend or remain at current elevation until symptoms resolve.
2) Drink plenty of fluids.
3) Use over the counter analgesics as directed on the bottle.
4) Avoid heavy exertion.
5) Descend and call for help if symptoms worsen.

Parks without base hospitals should follow local medical control protocol.

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (>30), may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates 10 – 30 with shallow breaths may still need your assistance due to hypoventilation
- Consider insulating patient from the ground with blankets

General: High altitude illness usually occurs above 8,000 ft. in individuals who have ascended rapidly. Exertion, underlying illness, and respiratory depressants (alcohol, sleeping pills) may play a role. Syndromes may overlap and patients may need to be simultaneously treated for High Altitude Pulmonary Edema (HAPE) and Acute Mountain Sickness (AMS) or Cerebral Edema (HACE).

In all types of altitude illness, descent is the definitive treatment. Do not wait for higher level of care if descent is possible

Diagnostics/Differential Diagnosis

1. Acute Mountain Sickness (AMS). Think of this as very mild HACE.
   - Headache
   - Fatigue
   - Nausea/vomiting
   - Decreased appetite
   - Insomnia

2. High Altitude Pulmonary Edema (HAPE)
   - Shortness of breath at rest
   - Faster breathing and heart rates than would be anticipated for altitude
   - Orthopnea (worsening respiratory distress when lying flat)
   - Cough - classically with pink frothy sputum
   - Crackles in lung fields
   - Cyanosis
   - Altered mental status if significantly hypoxic
   - Consider Albuterol
   - Differential diagnosis: CHF, pneumonia

ALTITUDE ILLNESS

3. High Altitude Cerebral Edema (HACE)
   Severe headache
   Altered level of consciousness - lethargy to coma
   Ataxia/incoordination
   Focal deficits
   Seizures

   Differential diagnosis: Carbon monoxide poisoning (cooking without ventilation), hypo/hyperthermia, HAPE with severe hypoxia, stroke, hypoglycemia, meningitis, drug/alcohol intoxication

Assessment

Vitals including temperature, skin signs, and mental status
Blood glucose
Neuro - mental status, focal deficits, gait/coordination
Lung exam

Cross References

Procedures:	**Protocols**	**Drugs:**
Airway Obstruction	Altered Mental Status/Altered Level of Consciousness (ALOC)	Albuterol or Metaproterenol Sulfate
Oxygen Administration	Cardiac Arrest (Adult Medical)	
Wound Care	Pediatrics – Medical Arrest	
	Pediatrics – Vital Signs	
	Respiratory Distress	

BITES AND STINGS

Emergency Medical Responder

1. ABC's

A. Airway Assess for adequate airway (15 seconds)

- If awake and speaking clearly go to breathing
- If unconscious – look, listen, feel for air movement

If airway inadequate:

- Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
- Adjuncts – OPA, NPA (adults only), Suction

Do not place objects in the mouth while seizing

If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

A. Breathing

Assess for adequate breathing (15 seconds)

- Good chest rise
- Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
- No cyanosis

If breathing is inadequate assist as below

- Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
- Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

B. Circulation

Assess for adequate circulation (15 seconds)

- If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
- Apply AED if non-trauma situation

If pulse is present

- Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
- Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
- Bring AED to patient's side if non-trauma situation
- Cover patient (except hyperthermia)

If signs or symptoms of allergic reaction **GO TO** PROTOCOL *Allergic Reaction*
If signs of hemorrhage with shock **GO TO** PROTOCOL *Major Trauma*

2. Assessment — Vitals, mental status. Type, time, location and circumstances of injury. Progression of injury/bite (draw marks on patient if appropriate). Behavior of animal prior to and after bite. Associated injuries. Distal neurovascular and tendon exam.

3. Classify bite — Reassure patient and keep calm. Treat as specified in sections below:

A. **Insect Sting/Bite**

1 Remove	Remove constricting items (e.g. rings) from area of bite/swelling. Remove stinger if visible
2. Ice	Use ice and/or "sting ease" if available for symptomatic relief

B. **Snake Bite**

1. Remove	Remove constricting items (e.g. rings) from area of bite/swelling
2. Document	Mark area of swelling and record progression over time
3. Irrigate	Sterile saline or potable water per PROCEDURE: *Wound Care*
4. Immobilize	Splint injured extremity below level of heart **REFERENCE** PROCEDURE: *Fracture/dislocation Management*

C. **Animal Bite**

1. Remove	Remove constricting items (e.g. rings) from area of bite/swelling.
2. Control Bleeding	**REFERENCE** PROCEDURE: *Wound care*
3. Irrigate	Sterile saline or potable water
4. Splint	Splint injury as **REFERENCE** PROCEDURE- *Fracture/Dislocation Management*

BITES AND STINGS

D. **Marine Envenomation:**

1. Remove — Remove constricting items (e.g. rings) from affected extremity.
2. Document — Mark area of swelling and record progression over time
3. Note — Allergic reactions are very common. Watch for signs of allergy and **GO TO** PROTOCOL *Allergic Reactions* as needed.

If envenomation by stingray, sea urchin, stone fish, spine fish, scorpion fish, catfish:

1. Remove the victim from the aquatic environment
2. Clean wound immediately with sea water
3. Remove any pieces of debris or stingers with tweezers or gloved hand
4. Soak the wound in non-scalding HOT water as soon as possible for 30 – 60 minutes. Hot water temperature should only be as hot as the unaffected extremity can tolerate for 1-minute.
5. Bandage loosely and Immobilize/Splint injured extremity. **REFERENCE** PROCEDURE: *Fracture/Dislocation Management*

If envenomation by Nematocysts/Coelenterates (jellyfish, fire coral, Portuguese man-of-war, sea wasp, stinging anemone):

1. Remove the victim from the aquatic environment
2. Rinse irritated area of skin with sea water (do NOT use fresh water)
3. Physically lift off any tentacles that still cling to the patient with a gloved hand or tweezers
4. Wash affected area with vinegar for 15-30 minutes
5. Remove embedded nematocysts by scraping off gently.
6. Bandage loosely and Immobilize/Splint injured extremity. **REFERENCE** PROCEDURE: *Fracture/Dislocation Management*

If source of envenomation is unknown:

1. Remove the victim from the aquatic environment
2. Rinse irritated area of skin with sea water (Do NOT use fresh water)
3. Rinse a small portion of the irritate area of skin with hot water. If the patient gets relief with this, continue with a larger area and then progressively to the entire area. If the patient complains of worsening or no relief with this, move to step 4 below.
4. Wash a small portion of the affected area with vinegar. If the patient gets relief with this, continue with a larger area and then progressively to the entire area. Continue for 15-30 minutes. If the patient complains of worsening or no relief with this, move to step 5 below.
5. Bandage loosely and Immobilize/Splint injured extremity. **REFERENCE** PROCEDURE: *Fracture/Dislocation Management*

4. Base contact

5. Transport/Backup — As required for patient condition. ALS backup if vitals unstable or long transport and high risk of infection. Transport all snakebites. See special considerations for AMA/TAR criteria.

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (>30) may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates (10 – 30 per minute) with shallow breaths may still need your assistance due to hypoventilation
- Consider insulating patient from the ground with blankets

Assessment

Insect Sting or Bite

Some insects leave their stinger in the victim. Try to remove the stinger as soon as practical. Spider bites may not be painful immediately. Ice can be helpful in treating pain.

BITES AND STINGS

Snakebite

Remember personal protection. Many snakes thought to be "dead" have bitten rescuers. Even the severed head may still be able to inflict a venomous bite. Do not engage in a search for the snake.

Some (25-50%) snakebites are "dry," i.e. no venom is injected.

If envenomated some of the following should occur in 5 – 30 minutes:

1. Severe burning pain out of proportion to the wound
2. Edema around the bite out of proportion to the wound
3. Small, non-blanching purple spots (petechiae), bruising or continued oozing from the site
4. Numbness or tingling of the mouth, extremities or bite site
5. Metallic taste in the mouth
6. Involuntary twitching of the mouth, extremities, or bite site
7. Weakness

Exotic snakes (Coral, Cobra, Krait, etc.) or the Mojave Rattlesnake may cause neurologic and respiratory depression prior to a local reaction. Observe for mental status change, respiratory depression, convulsions or paralysis.

Do not apply ice to snake bites. Do not incise wound or try to "suck" the venom out.

Animal Bites

Depending on the animal there can be a great deal of traumatic injury. Consider penetration of the abdomen and/or thorax, fractures, etc.

If the animal is suspected of having rabies, an attempt should be made to obtain the animal. However, the patient and rescuers take priority. Be careful not to injure other personnel in an attempt to capture the animal. If the animal is killed, try to preserve the head for autopsy.

Most wounds should be irrigated with Normal Saline if available. Plain soap and water is also effective in decreasing infection rates. If there is a high suspicion for rabies, the wound should be scrubbed. (Scrubbing in the wound is not recommended for other wounds). If uncertain, address wounds, **REFERENCE** PROCEDURE: *Wound Care.*

Marine Envenomations

Rescuers on scene need to protect themselves from injury and protect the patient from further injury. When entering the water for rescue, protective clothing with wet suits and gloves is ideal.

If the stinger or tentacle is not able to be removed easily with gentle traction, do not compress with bandages as additional envenomation may occur

Portuguese man-of-war, although often mistaken for a "Jellyfish", is treated differently than most Coelenterates, using hot water and not vinegar.

Stonefish envenomation can cause systemic toxicity with hypotension, tachycardia, cardiac arrhythmias, diaphoresis, dyspnea and pulmonary edema. Most cases are successfully managed with hot water immersion and symptomatic care, however some may require a specific antivenom.

Transport: Consider air transport for serious bites to head or neck, airway difficulties, respiratory distress, major trauma, shock, or neurologic deficits.

AMA/TAR

Minor insect bites or stings that require no treatment beyond local wound care may be released at scene after infection precautions have been given and the patient observed for 30 minutes.

Tetanus immunization should be recommended if last vaccination was over 5 years ago.

All animal and snakebite patients should be transported or AMA after base contact.

Parks without base hospitals should follow local medical advisor approved EMS policy.

Cross Reference

Procedures:	**Protocols:**
Airway Obstruction	Allergic Reaction
Fracture/Dislocation Management	Cardiac Arrest (Adult Medical)
Oxygen Administration	Major Trauma - Adult
Wound Care	Pediatric – Medical Arrest
	Pediatric – Vital Signs

BURNS

Emergency Medical Responder

1. Scene Safety — Beware of Hazardous Material (HazMat), protect yourself from injury.

2. Rescue — Remove patient from source of injury. Stop burning process (see special considerations) Decontaminate HazMat.

3. ABC's

   A. Airway

   Assess for adequate airway (15 seconds)
   - If awake and speaking clearly go to breathing
   - If unconscious – look, listen, feel for air movement

   If airway inadequate :
   - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
   - Adjuncts – OPA, NPA (adults only), Suction

   Do not place objects in the mouth while seizing
   If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing

   Assess for adequate breathing (15 seconds)
   - Good chest rise
   - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
   - No cyanosis

   If breathing is inadequate assist as below
   - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
   - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation

   Assess for adequate circulation (15 seconds)
   - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
   - Apply AED if non-trauma situation

   If pulse is present
   - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
   - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
   - Bring AED to patient's side if non-trauma situation
   - Cover patient (except hyperthermia)

4. Assessment — Vitals, shock, mental status, airway burns, lung sounds, stridor, singed hair, circumferential burns to torso or extremity. Mechanism of burn (materials, closed space, flame, oil, water). Percentage and degree of burn (2nd degree or higher).

5. Oxygen — Per protocol *(Oxygen).* In addition:
   High flow for: possible inhalation injury, carbon monoxide exposure, or total body surface area (TBSA) burns greater than 15%

6. Dressing — Small burns (<15% TBSA) cover with moist sterile dressings
   Large burns cover with dry sterile dressings to prevent hypothermia

7. Prevent Hypothermia — Cover patient with blanket and remove wet clothing

8. Transport/Backup — Consider air transport for >15% TBSA, shock, airway involvement. Transport to Regional Burn Center unless directed elsewhere by base. See special considerations for TAR guidelines.

9. Base contact

BURNS

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (>30), may need assisted ventilations, but may not tolerate your attempts.
- Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation.
- Consider insulating patient from the ground with blankets.

Assessment

1. Check for evidence of airway burn (singed nose or facial hair, black tinged sputum, hoarse voice, or abnormal lung sounds.) Check nature and extent of burn (rule of nines), mental status, smoke inhalation, duration of exposure, depth of wounds. Evaluate for associated trauma and/or drug/alcohol intoxication.
2. Consider all enclosed space burn victims to have carbon monoxide poisoning and possible inhalation injury.
3. Thermal Burns: Protect yourself. Remove patient from source of burn to fresh air, remove burning or smoldering clothing, stop burning process. Use any water available. Consider ways of smothering the fire.
4. Chemical Burns: Protect yourself. Remove all contaminated clothing. Wash with copious amounts of water. Do not scrub. Sterile water or saline is preferred, but any available water may be used. Record type of chemical and manner and time of exposure.
5. Electrical Burns: Protect yourself. Be aware of likelihood of cardiac arrhythmias. **REFERENCE** PROTOCOL *Lightning/Electrical Shock*. Treat as medical arrest, not trauma.
6. Depth of Burn:
   Superficial (first degree): Erythema only
   Partial Thickness (second degree): Blisters, sensation and capillary refill present
   Full Thickness (third degree): White or charred, firm to touch, lack of sensation
   - Only 2nd and 3rd degree count towards TBSA %
   - May be difficult to distinguish for first 24 hours
7. Burns involving the eyes, hands, feet, airway, genitalia or circumferential are concerning.
8. Burns often have greatly increased fluid requirements, especially in the first eight hours. Contact base hospital for further fluid requirements.
9. Remember that inhalation injuries may have delayed presentation of life threatening lung injuries.

Transport

All patients with the following should be transported to a burn center unless directed otherwise by base: airway burns or respiratory distress; burns greater than 15% TBSA; burns with major trauma; face, hands, feet, genitalia involvement; circumferential extremity burns; any 3rd degree burn; extremes of age.

All other patients may go to the hospital of their choice.

AMA/TAR

Only the following may be treated and released without base contact: first-degree burns without systemic symptoms, burns less than 5% TBSA NOT involving the hands, face, genitals or feet.

All patients not transported (AMA) with 2nd or 3rd degree burns should be advised to seek medical attention immediately. Base hospital contact for all others.

Parks without base hospitals should follow local medical control protocol.

Documentation

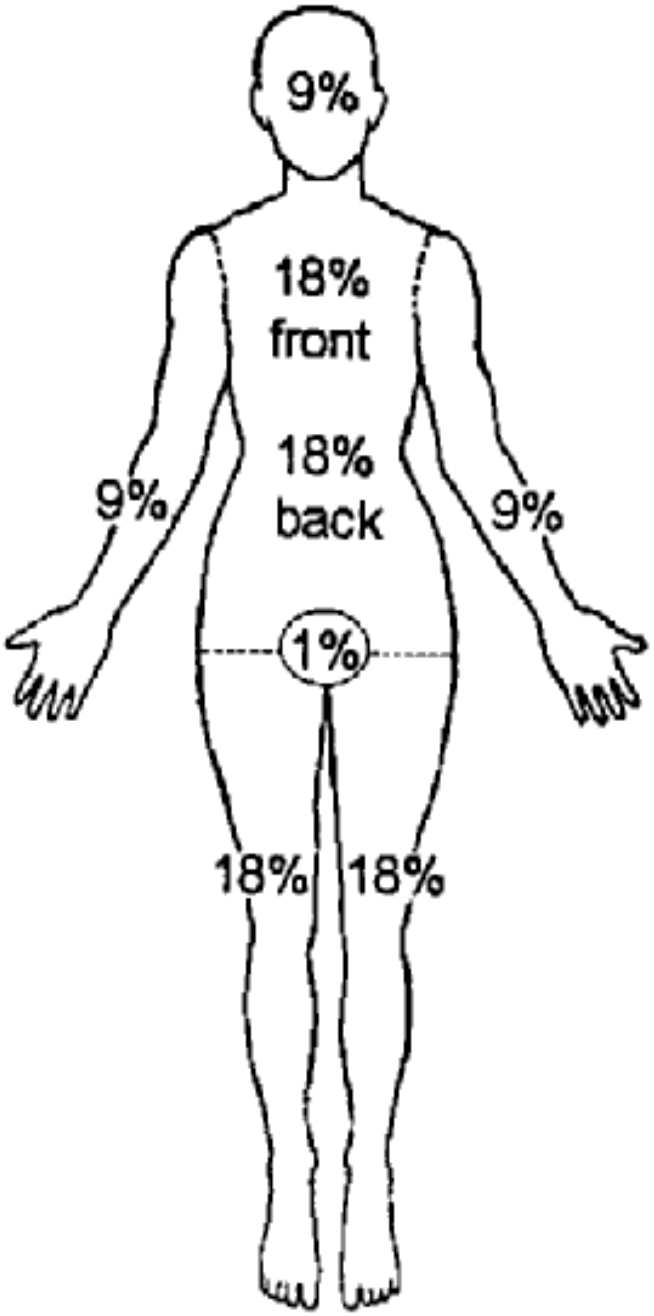
Degree and extent of burn using the "rule of nines," mechanism of burn, time of burn, associated injuries, tetanus status.

Cross Reference

Procedures:	**Protocols:**
Airway Obstruction	Cardiac Arrest (Adult Medical)
Oxygen Administration	Lightning/Electrical Injuries
Wound Care	Major Trauma – Adult
	Pediatric – Medical Arrest
	Pediatric – Vital Signs
	Shock Without Trauma

BURNS

Estimation of
Total Body Surface Area Burned



CARDIAC ARREST (Adult Medical)

Emergency Medical Responder

1. Confirm Arrest

No response to aggressive stimulation. Call for backup as soon as possible.
Check breathing and pulse for *10* seconds as noted below under A.B.C.. If pulse is present, patient is NOT in cardiac arrest, **GO TO** PROTOCOL *Altered Mental Status or appropriate*. If pulse is absent continue this protocol. After each intervention reassess (check for pulse). If pulse still absent continue down protocol. If pulse present go to # 6.

Do not attempt resuscitation (CPR) in the following cases:

- Documented pulseless downtime more than 15 minutes. EXCEPTIONS: cold water drowning, hypothermia, pediatric cases, barbiturate ingestion, electrocution or lightning strike. For these, down time is extended to 30 minutes.
- Rigor mortis or lividity

2. ABC's

A. Airway

Assess for adequate airway (15 seconds)

- If awake and speaking clearly go to breathing
- If unconscious – look, listen, feel for air movement

If airway inadequate :

- Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
- Adjuncts – OPA, NPA (adults only), Suction

Do not place objects in the mouth while seizing
If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

B. Breathing

Assess for adequate breathing (15 seconds)

- Good chest rise
- Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
- No cyanosis

If breathing is inadequate assist as below

- Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
- Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

C. Circulation

Assess for adequate circulation (15 seconds)

- If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
- Apply AED if non-trauma situation

If pulse is present

- Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
- Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
- Bring AED to patient's side if non-trauma situation
- Cover patient (except hyperthermia)

3. AED **REFERENCE** PROCEDURE *AED*

CARDIAC ARREST (Adult Medical)

4. CPR	Check for carotid pulse, if none, start CPR. Perform CPR using a 30:2 compression to ventilation. Compressions are given at a rate of 100 per minute. During CPR check pulse every 2 minutes (after 5 cycles of CPR)
5. Assessment	Downtime, rigor mortis, lividity, bystander CPR, preceding events and symptoms, PMH
6. Transport/ Backup	Transport if patient regains pulse or is within 10 minutes of health care facility. Transport special cases (noted below) if patient regains pulse or is within 30 minutes of health care facility. If not previously performed, all patients should have AED applied and assessed for airway intervention.
7. Base Contact	

Emergency Medical Responder Base Hospital/Communication Failure Orders

a. CPR	CPR should be continued until ALS arrives If backup is NOT available for more than 10 minutes, perform CPR for 10 minutes. Recheck pulse for 30 seconds and listen for heart sounds (confirm with second provider if available). If there are none, CPR may be terminated.
b. Special	If special circumstance (cold water drowning, hypothermia, pediatric barbiturate cases ingestion electrocution or lightning strike), CPR time is extended to 30 minutes and patient should be transported if within 30 minutes of health care facility.

CARDIAC ARREST (Adult Medical)

SPECIAL CONSIDERATIONS

Initiation/Termination of CPR

Do not start CPR in any of the following cases:

1. Documented pulselessness and non-breathing for more than 15 minutes by a reliable witness who has observed the patient carefully. Start CPR in all of the following circumstances: cold water drowning, hypothermia, and barbiturate ingestion all of which prolong brain viability, and electrocution or lightning strike in which case the time period for not starting CPR is extended to 30 minutes.
2. A pulseless, non-breathing patient who has signs of prolonged lifelessness, skeletal/decomposing remains, rigor mortis (fairly reliable) or lividity (less reliable, requires an undressed patient).
3. A pulseless, non-breathing patient with an injury which is not compatible with survival, i.e. severe (100% 3rd degree) burn or decapitation
4. A valid DNR document/medallion/order accepted in your jurisdiction

Assessment

History: Was there chest pain prior to arrest?

- Was there complaint of shortness of breath prior to arrest?
- Are there signs of GI bleeding or other acute blood loss?
- Is there history of depression or drug ingestion?
- Are there any signs of trauma?
- Past medical history, medications, and allergies Down time before CPR
- Duration of CPR?
- By whom?
- Training?

Physical Exam

- Lungs, describe respirations, (shallow, rate, spontaneous) breath sounds, (equal, crackles, rhonchi)
- Heart: Beating, Regular vs irregular
- Abdomen, soft, tender, distended
- Pulses, Carotid, Peripheral, Regular
- Skin: Warm, Dry, Cyanosis
- Pupils: Reactive, Size
- Evidence of trauma

Differential Diagnosis

Cardiac arrest secondary to myocardial infarction, arrhythmia, hypovolemia, tension pneumothorax, or pericardial tamponade
Respiratory arrest
Allergic reaction
Drug or toxin ingestion
Hypo/hyperthermia
Drowning
Trauma
Electrical injury

Transport

Once cardiac arrest is suspected, begin arrangements for transport or ALS rendezvous.
Actual patient transport should NOT commence unless patient has return of pulse or as designated in protocol.

Documentation

Should include: initial and subsequent vital signs and mental status, down time before CPR, duration of CPR and by whom, time and response to medications administered, time of death if applicable.

CARDIAC ARREST (Adult Medical)

Cross References

Procedure	**Protocol**
Airway Obstruction	Altered Mental Status/Altered Level of Consciousness (ALOC)
Automatic External Defibrillator (AED)	Cardiac Arrest (Adult Medical)
Oxygen Administration	Pediatrics – Medical Arrest
Wound Care	Pediatrics – Vital Signs

CHEST PAIN - CARDIAC

Emergency Medical Responder

1. ABC's
   A. Airway
      Assess for adequate airway (15 seconds)
      - If awake and speaking clearly go to breathing
      - If unconscious – look, listen, feel for air movement

      If airway inadequate:
      - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
      - Adjuncts – OPA, NPA (adults only), Suction

      Do not place objects in the mouth while seizing
      If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing
      Assess for adequate breathing (15 seconds)
      - Good chest rise
      - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
      - No cyanosis

      If breathing is inadequate assist as below
      - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
      - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation
      Assess for adequate circulation (15 seconds)
      - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
      - Apply AED if non-trauma situation

      If pulse is present
      - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
      - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
      - Bring AED to patient's side if non-trauma situation
      - Cover patient (except hyperthermia)

2. Assessment — PQRST, vital signs, lung sounds (rales), mental status, cardiac history or medications.

3. Oxygen — **REFERENCE** PROTOCOL *Oxygen Administration* in addition: Use high flow if signs of shock or respiratory distress

4. Aspirin — If the patient has their own Aspirin encourage them to take it ONLY IF they have no allergy to aspirin, no neurologic complaints AND a normal mental status.
   Administer (two 81mg or one 325 mg tablet)

5. Nitroglycerin Tablets/Spray — If patient has their own Nitroglycerin, encourage them to take it
   IF ALL are present:
   - SBP greater than 100
   - Ongoing chest pain
   - Normal mental status and neuro exam

   One tablet under tongue or one spray in back of mouth. Repeat every 5 minutes IF above conditions are still met.
   Re-check vitals and symptoms after each tablet/spray, up to eight tablets/sprays.

CHEST PAIN - CARDIAC

6. Reassurance	Provide reassurance and prevent patient exertion
7. Transport/ Backup	Transport in position of comfort. Consider air transport for ongoing pain, abnormal vitals. Do not delay transport. Rendezvous as soon as possible.
8. Base Contact	

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (>30), may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation
- Consider insulating patient from the ground with blankets
- AED should not be applied to patients less than 1 month old

Assessment

1. History of pain "P, Q, R, S, T"
   - P: Provoking factors
   - Q: Quality of pain
   - R: Region and radiation of pain
   - S: Setting, severity (scale 1-10)
   - T: Time (onset and duration of pain)
2. General appearance: ashen, cyanotic, anxious, sweating, respiratory distress
3. PMH: heart attack, high blood pressure, heart disease, CHF, diabetes
4. Predisposing factors: age > 40, smoking, high blood pressure, high cholesterol, family history of heart disease, prior heart problems or prior heart attack, diabetes.
5. Medications - heart/blood pressure medicine (aspirin, nitroglycerine), insulin
6. Allergies - Aspirin , morphine
7. Social - smoking, recent drug use
8. Mental status
9. Blood pressure
10. Heart rate and irregular rhythms
11. Quality of pulses
12. Lungs

Diagnosis

Etiology of chest pain is difficult to diagnose. History is the most important. Assume and treat as if life-threatening condition. **If unclear, contact base early.**

1. Symptoms suggestive of cardiac ischemia/MI: chest pressure/tightness, radiation to neck, jaw, arms.
2. Associated symptoms: shortness of breath, dizziness, syncope, diaphoresis, nausea/vomiting, abdominal pain, palpitations, anxiety and agitation. Symptoms often worsen with exertion and improve with rest.
3. Signs of heart failure: rales, distended neck veins, shortness of breath

CHEST PAIN - CARDIAC

Differential Diagnosis

Cardiac ischemia (angina) and MI are frequent causes of chest pain but consider other life threatening causes and treat accordingly.

1. Pulmonary
   a. Pneumothorax (young people, asthmatics, COPD, trauma)-sudden onset, unilateral diminished breath sounds, tachypnea. Some may have positional/pleuritic component.
   b. Pulmonary embolus (pregnant women or women taking oral contraceptives, people with immobilized lower extremities and cancer, prolonged travel)-tachypnea, sudden onset of coughing blood, shortness of breath.
   c. Pneumonia – fever, cough, sputum, shortness of breath.
   d. Asthma – wheezing, history of asthma, shortness of breath.
2. Other cardiac
   a. Aortic aneurysm or dissection (age > 50 with atherosclerotic disease) – "tearing pain" radiating to the back, hyper/hypotension, unequal upper extremity pulses and blood pressure. If suspected, transport immediately. Refer to shock protocol if in shock.
   b. Pericarditis-pain improves when leaning forward, gradual onset, may have a positional/pleuritic component.

Transport

1. If suggestive of cardiac origin, begin immediate rapid evacuation.
2. Do not delay on scene, arrange rendezvous
3. Consider air transport if shock, ongoing pain, unstable vitals, SOB
4. Continue frequent re-assessment of vitals.

AMA/TAR

NO patient with chest pain should be TAR without base contact or AMA.
Parks without base hospitals should follow local medical control protocol.

Cross References

Procedures:
Airway Obstruction
Oxygen Administration
Wound Care

Protocols:
Cardiac Arrest (Adult Medical)
Pediatrics – Medical Arrest
Pediatrics – Vital Signs
Respiratory Distress

CHILDBIRTH

Emergency Medical Responder

Treatment of the Mother (for Baby **GO TO** PROTOCOL Pediatric – Neonatal (Newborn) Resuscitation)

1. ABC's
   - A. Airway
     - Assess for adequate airway (15 seconds)
       - If awake and speaking clearly go to breathing
       - If unconscious – look, listen, feel for air movement
     - If airway inadequate :
       - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
       - Adjuncts – OPA, NPA (adults only), Suction
     - Do not place objects in the mouth while seizing
     - If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*
   - B. Breathing
     - Assess for adequate breathing (15 seconds)
       - Good chest rise
       - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
       - No cyanosis
     - If breathing is inadequate assist as below
       - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
       - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less
   - C. Circulation
     - Assess for adequate circulation (15 seconds)
       - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
       - Apply AED if non-trauma situation
     - If pulse is present
       - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
       - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
       - Bring AED to patient's side if non-trauma situation
       - Cover patient (except hyperthermia)
2. Assessment
   - Vitals, contractions, ruptured bag of water, due date, urge to push, prenatal care, expected complications, prior deliveries, bleeding
   - If urge to push, inspect perineum
   - If crowning prepare for imminent delivery
   - If prolapsed cord or breech see special considerations
3. Transport/ Backup
   - Begin transport unless delivery imminent (crowning/pushing)
   - Place mother on left side unless crowning/pushing
   - Consider air transport if complications
4. Base Contact

CHILDBIRTH

5. Delivery — Assist with delivery (*Childbirth Procedure*) Control head
Suction mouth
Check for cord around neck
Deliver upper shoulder then lower shoulder
Suction mouth and nose
Dry, stimulate and wrap baby Clamp cord
If placenta delivers, wrap it and ¾ of the umbilical in a towel or newspaper and place in a bag for transport
If profuse bleeding, massage uterus by placing the heel of one hand just above the pubic bone with fingers extended over the lower abdomen. Use other hand to palpate the upper margin of the uterus then, press downwards and massage in circular motion until uterus feels firm.
Newborn
Evaluate newborn color, pulse, breathing, movement If healthy, place to mother's breast (this will facilitate delivery of placenta and reduce bleeding)

6. Resuscitate newborn — For care of the newborn GO TO PROTOCOL *Neonatal Resuscitation*
For care of the mother remain on this protocol

7. Deliver placenta — Allow placenta to deliver on its own, do not pull on cord. Bring to hospital.

8. Massage uterus — If uncontrolled heavy bleeding or placenta not delivered (see special considerations)

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (> 30), may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation

Assessment History: What is the expected birth date?
Prenatal care? Ultrasound?
Has patient had or expect any complications (i.e. twins, breech, hypertension, diabetes) Number of pregnancies?
Number of vaginal deliveries? Any prior problems? When did contractions start and how long do they last? Have the membranes ruptured (bag of water)?
Exam: Vital signs (high blood pressure?)
Contractions: frequency, duration
Perineum (External exam if urge to push. No digital exams): crowning, bleeding, cord prolapsed

Childbirth Complications

Hypertension: blood pressures above 180 systolic or 110 diastolic are particularly worrisome, especially if associated with headaches, vomiting, blurry vision, chest pain or seizures. The most important aspect of treatment is recognition and rapid transport to the hospital. Treat seizures per Seizure protocol.

Placenta abruptio / previa: vaginal bleeding in the last trimester of pregnancy not associated with labor. Parkmedic backup, oxygen. Transport in left lateral decubitus position Air transport if available.

Shoulder Dystocia: shoulders are stuck preventing delivery and leading to neonatal asphyxiation if not corrected rapidly. Work through these steps in order stopping when shoulder is disengaged:

1. While mother is lying on her back bring her knees as close to her armpits as possible.
2. Apply firm steady pressure to the lower abdomen just above the pubic bone. Pressure should be directed downwards and angled towards the side of the baby's face. The purpose of this maneuver is to rotate the shoulder towards the baby's face while pressing downwards.

CHILDBIRTH

3. "Corkscrew" the shoulders. Rotate the shoulders 180° by pushing the most accessible shoulder toward the chest.
4. Grab the lower arm of the baby and sweep it across the chest to the chin and then pull out of the canal, bringing the fetal hand up to the chin.

Breech Presentation: foot or buttocks first instead of head first. Suffocation may occur if the baby's umbilical cord is compressed by its head in the birth canal and its face is pressed against the vaginal wall for more than 3 minutes.

1. Do not attempt to pull the baby out
2. Insert gloved hand into vagina, palm towards baby's face, forming a "v" with your fingers on either side of the baby's nose to push the vaginal wall away from the baby's face until the head is delivered.
3. Provide blow-by oxygen
4. Begin transport immediately with mother's hips elevated above head and her on left side while still maintaining breathing passage with fingers
5. Be careful not to hyperextend or hyperflex the baby's neck during transport as this can kink the airway.

Prolapsed Cord: Visible umbilical cord preceding delivery

1. Place mother in Trendelenberg position (head lower than hips) or knee-chest position. Check for pulse in cord.
2. With gloved hand, gently push the baby up the vagina to take pressure off the cord and maintain this position
3. Do not attempt to push the cord back.
4. Cover the exposed cord with a moist dressing
5. Air transport if available

EXCEPTION: when head is crowning with the prolapsed cord, deliver immediately at the scene as this is the most rapid means of restoring oxygen to the neonate.

Cord Entanglement: Umbilical cord knots may be pulled tight at delivery and may cause fetal distress. Rapid delivery and avoidance of further traction will maximize fetal outcome. Long umbilical cords may loop around body or neck. Reduce if possible by slipping the cord over the head. If loop is impeding delivery, clamp, carefully cut cord, and deliver as soon as possible. Be careful not to cut the baby's neck.

Postpartum Hemorrhage: Perform external exam to determine site of bleeding If vaginal laceration seen apply direct pressure. Firmly massage uterus.

If bleeding is not due to laceration and not controlled with fundal massage allow mother to breast feed if possible or stimulate her own nipples to promote uterine contraction.

Transportation

Many EMS helicopters cannot transport patients in active labor or at high risk of delivery due to space constraints.

AMA/TAR

No patients may be released at scene without base contact
Parks without base hospitals should follow local medical control protocol.

Documentation

All pertinent issues under assessment
Neonate vital signs and APGAR score at 1 and 5 minutes. Treatment rendered and response recorded.
Whether cord was cut by sterile or non-sterile equipment
Times: contractions began, delivery of baby, delivery of placenta

Cross References

Procedure	**Protocol**
Airway Obstruction	Cardiac Arrest (Adult Medical)
Oxygen Administration	Childbirth
Wound Care	Pediatrics – Medical Arrest
	Pediatrics – Vital Signs
	Pediatrics – Neonatal (Newborn) Resuscitation

ELECTRICAL AND LIGHTNING INJURIES

Emergency Medical Responder

1. Scene safety — Protect yourself and other rescuers from injury

2. Rescue — Remove victim from unsafe environment including electrical hazard, cold/heat exposure; turn off power source or call electrical company if patient may still be part of live circuit.

3. Spinal Precautions — If secondary trauma suspected or cannot be ruled out, protect C-spine per REFERENCE PROCEDURE: *Spine immobilization*

4. ABC's

A. Airway

Assess for adequate airway (15 seconds)

- If awake and speaking clearly go to breathing
- If unconscious – look, listen, feel for air movement

If airway inadequate :

- Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
- Adjuncts – OPA, NPA (adults only), Suction

Do not place objects in the mouth while seizing

If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

B. Breathing

Assess for adequate breathing (15 seconds)

- Good chest rise
- Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
- No cyanosis

If breathing is inadequate assist as below

- Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
- Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

C. Circulation

Assess for adequate circulation (15 seconds)

- If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
- Apply AED if non-trauma situation

If pulse is present

- Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
- Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
- Bring AED to patient's side if non-trauma situation
- Cover patient (except hyperthermia)

5. Oxygen — Per PROCEDURE: *Oxygen Administration*

6. Assessment — Vitals, mental status, burns, fractures and dislocations, blunt trauma (from falls or being thrown),hypothermia, entry/exit wounds, burns

7. Treat temperature — If indicated treat hypo/hyperthermia **REFERENCE** PROTOCOL: *Hypothermia, Heat Illness*

ELECTRICAL AND LIGHTNING INJURIES

8. Consider trauma	Treat for shock. If suspected, **REFERENCE** PROTOCOL: *Burns; Major Trauma – Adult; or Pediatric – Major Trauma* If applicable, **REFERENCE** PROCEDURE: *Fracture/Dislocation Management*; or *Wound Care*
9. Transport/ Backup	Consider air transport if cardiac or respiratory arrest, altered mental status, hypotension or major trauma.
10. Base contact	Contact early if questions about destination, mode of transport, termination of resuscitation, or other problems.

ELECTRICAL AND LIGHTNING INJURIES

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (> 30), may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation
- Consider insulating patient from the ground with blankets
- AED should not be applied to patients less than 1 month old

If available bring AED to patient's side.

Mechanism of Electrical Injury

If possible, determine voltage, type (AC vs DC,) duration and pathway of exposure of electrical injuries

High-voltage = greater than 1000 Volts. Usually industrial, high-tension wires, lightning.
Low-voltage = less than 1000 Volts. Usually household current.

High voltage creates worse injuries.

AC current will prevent the victim from releasing so they sustain greater internal electrical injury, while DC current will often throw the victim so they sustain less electrical injury but greater trauma.

In lightning strikes, although voltage is tremendous, the exposure is very brief, making lightning strikes much more survivable than would be otherwise expected. Lightning exposure may occur as direct strike, side flash, or ground current.

Cardiac arrest is the usual cause of death.

Respiratory arrest may last longer than cardiac arrest so that you may need to assist respirations after pulse returns.

Triage: With multiple patients, triage priorities are different: Patients in cardiac or respiratory arrest from electrocution have a better prognosis than patients in cardiac or respiratory arrest from other causes. Therefore, in multiple patient triage situations, attend to patients in cardiac or respiratory arrest first.

Common Findings

- High-voltage/lightning injury: cardiac and/or respiratory arrest, arrhythmias, ALOC, trauma.
- High-voltage electrical: entry/exit burns; fractures/dislocations; internal burns with resultant compartment syndrome, hypovolemia and kidney failure requiring vigorous hydration.
- Hypovolemic shock may occur from internal burns or blunt trauma. Cardiogenic shock may occur from direct electrical injury to heart.
- Lightning injuries: ruptured eardrums, transient paralysis of legs, "fern-like" or punctuate burns.
- Compared to major electrocutions, internal burns with relative hypovolemia and kidney failure rarely occurs, so IV hydration is much less important unless there is concomitant trauma

Disposition

Victims of low-voltage electrical injury with mild or no symptoms may be transported to the closest facility.
Consider transport to nearest burn/trauma center for patients with burns, significant trauma, lightning or high-voltage electrical injuries.

ELECTRICAL AND LIGHTNING INJURIES

AMA/TAR:

No patient suffering an electrical or lightning injury may be released at scene without base contact. Parks without base hospitals should follow local medical advisor approved EMS policy.

Cross References

Procedures:	**Protocols:**
Airway Obstruction	Burns
Automated External Defibrillator (AED)	Cardiac Arrest (Adult Medical)
Fracture/Dislocation Management	Major Trauma – Adult
Oxygen Administration	Pediatric – Medical Arrest
Spine Immobilization	Pediatric – Vital Signs
Wound Care	

EYE TRAUMA

Emergency Medical Responder

1. ABC's
   A. Airway
      Assess for adequate airway (15 seconds)
      - If awake and speaking clearly go to breathing
      - If unconscious – look, listen, feel for air movement

      If airway inadequate:
      - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
      - Adjuncts – OPA, NPA (adults only), Suction

      Do not place objects in the mouth while seizing
      If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing
      Assess for adequate breathing (15 seconds)
      - Good chest rise
      - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
      - No cyanosis

      If breathing is inadequate assist as below
      - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
      - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation
      Assess for adequate circulation (15 seconds)
      - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
      - Apply AED if non-trauma situation

      If pulse is present
      - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
      - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
      - Bring AED to patient's side if non-trauma situation
      - Cover patient (except hyperthermia)

2. Assessment — Vision, foreign body in eye, pupil response, chemical (alkali/acid), welding or sun exposure, contact lenses, globe rupture (if globe rupture suspected skip to #4 and see special considerations. Signs of globe rupture are noted below under 'General', #2.)

3. Irrigate — If chemical exposure, immediately irrigate with LR, NS or any available potable water for 15 minutes

4. Protect — If impaled object or foreign body, cover eye loosely putting no pressure on the globe. Cover BOTH eyes if practical (i.e. patient needs to walk)

5. Contact base

6. Transport/ Backup — All patients unless discussed with base hospital

EYE TRAUMA

SPECIAL CONSIDERATIONS

General

1. Document eye exam and assessment. Especially vision.
2. If globe rupture is suspected (high velocity mechanism, impaled object, irregular pupil, significantly decreased vision in the acute setting) eye should be protected as in #4 and no irrigation or ointment should be administered.
3. Do not remove impaled objects. Protect them from movement with a protective dressing (eye cup) and cover BOTH eyes to prevent eyes from moving. Explain to patient injured eye moves with other eye and can worsen injury.
4. LR is the preferred solution for irrigation but NS or any potable water should be used if LR is not available

Cross References

Procedures:	**Protocols:**
Airway Obstruction	Cardiac Arrest (Adult Medical)
Oxygen Administration	Pediatric – Medical Arrest
Wound Care	Pediatric – Vital signs

FROSTBITE

Emergency Medical Responder

1. ABC's
   A. Airway
      Assess for adequate airway (15 seconds)
      - If awake and speaking clearly go to breathing
      - If unconscious – look, listen, feel for air movement

      If airway inadequate:
      - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
      - Adjuncts – OPA, NPA (adults only), Suction

      Do not place objects in the mouth while seizing
      If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing
      Assess for adequate breathing (15 seconds)
      - Good chest rise
      - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
      - No cyanosis

      If breathing is inadequate assist as below
      - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
      - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation
      Assess for adequate circulation (15 seconds)
      - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
      - Apply AED if non-trauma situation

      If pulse is present
      - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
      - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
      - Bring AED to patient's side if non-trauma situation
      - Cover patient (except hyperthermia)

2. Assessment — Vitals, trauma, circulation/sensation/function/skin of all extremities, especially fingers and toes, face - nose and ears, duration of exposure, PMH/meds **GO TO** A*ltered Mental Status* or *Hypothermia* if appropriate

3. Protect — Prevent further heat loss or injury. Remove tight/wet clothing, jewelry, and cover with dry clothing or dry dressings

4. Transport/ backup — Backup indicated if field re-warming is to be attempted

5. Base Contact

Emergency Medical Responder Base Hospital/Communication Failure Orders

1. Rewarm — Rarely performed in field. Consider only if all of the following:
   - Evacuation is not possible in less than 6 – 12 hours
   - Patient is not hypothermic
   - There is a sufficient supply of warm water
   - There is NO risk of refreezing

   Use 38 – 42 degree centigrade water only. Use thermometer.
   Provide analgesia if Parkmedic available
   Immerse until skin is soft, pink, pliable and painful. Do NOT rub. After re-warming place gauze between toes/fingers and dress. Protect from further injury/refreezing.

FROSTBITE

Cross References

Procedures
Airway Obstruction
Oxygen Administration
Wound Care

Protocols
Altered Mental Status/Altered Level of Consciousness (ALOC)
Cardiac Arrest (Adult Medical)
Hypothermia
Pediatric – Medical Arrest
Pediatric Vital Signs

HEAT ILLNESS

Emergency Medical Responder

1. ABC's
    A. Airway
        Assess for adequate airway (15 seconds)
        - If awake and speaking clearly go to breathing
        - If unconscious – look, listen, feel for air movement

        If airway inadequate :
        - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
        - Adjuncts – OPA, NPA (adults only), Suction

        Do not place objects in the mouth while seizing
        If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

    B. Breathing
        Assess for adequate breathing (15 seconds)
        - Good chest rise
        - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
        - No cyanosis

        If breathing is inadequate assist as below
        - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
        - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

    C. Circulation
        Assess for adequate circulation (15 seconds)
        - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
        - Apply AED if non-trauma situation

        If pulse is present
        - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
        - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
        - Bring AED to patient's side if non-trauma situation
        - Cover patient (except hyperthermia)

2. Assessment — Vitals, mental status (coordination, confusion), temperature, skin signs (sweaty or dry), or shock.

3. Cooling — Remove patient from environment if possible, place in the shade or cool area.
    Remove constricting and warm clothing.
    - If altered mental status or severe symptoms begin evaporative cooling (see special considerations)
    - Don't let cooling delay transport – cool in route!

HEAT ILLNESS

4. Oral fluids — If alert may give up to 1 liter of fluid for adult. Peds: 10cc/kg
   Give frequent small amounts of or water with 1/4 tsp of salt if available or sport drink, otherwise plain water.

5. Transport/Backup — If altered mental status, unable to ambulate easily or severe symptoms. Consider air transport for heat stroke.

6. Base contact — Any AMA/TAR should be approved by base. Contact for further orders.

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (> 30), may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation

Assessment

1. Try to differentiate heat stroke from other heat illness early! Assessment of temperature (if available), mental status and hypotension are very important. It is a continuum from heat exhaustion to heat stroke.
2. Mental status: ataxia (incoordination) and combativeness are often early signs of heat stroke. If altered mental status, patient has heat stroke until proven otherwise and rapid cooling must be initiated.
3. Seizures often occur in heat stroke. Be prepared to protect their airway and treat for seizures.
4. Temperature: use oral only if normal mental status, otherwise take rectal temperature if able.
5. Sweating: If NOT present then assume heat stroke. However, a patient may still have heat stroke and sweating so don't use this alone to distinguish heat exhaustion from heat stroke.
6. History: heat exposure, exertion, age, recent alcohol use, re-hydration status and fluid
7. PMH: thyroid disease, psychiatric history, heart disease, seizures
8. Medications: Haldol (other antipsychotics), blood pressure or heart medications (diuretics, beta blockers), antihistamine (over the counter cold medicine and herbal medicine) can worsen heat illness.
9. Many factors alter the body's ability to regulate temperature. These include: being elderly or very young, heart disease, heart medications (diuretics-Lasix, beta blockers), antihistamines (alter sweating), alcohol, acclimatization to warm environment, amount and type of fluid replacement, dehydration, humidity, altitude.

Differential Diagnosis

1. Drug overdose (amphetamines, antihistamines, tri-cyclic antidepressants, aspirin)
2. Alcohol withdrawal
3. Sepsis, febrile illness
4. Diabetic ketoacidosis
5. Meningitis, encephalitis
6. Thyroid storm (hyperthyroidism)
7. Cerebral hemorrhage
8. Medication reaction (antipsychotics, e.g. Haldol)
9. Status Epilepticus

Treatment

Judicious fluid replacement: In elderly patients, overzealous fluid replacement may be detrimental.
Cooling measures:

1. Evaporative cooling is the most effective. Spray or wipe skin with water and evaporate water with air using a fan, fanning or wind. Applying a moist cloth that dries quickly (cotton) is also effective.
2. Immersion is the next most effective but potentially dangerous. Use only if you can't provide evaporative cooling. Immerse the patient in cool/cold water for 10 minutes, remove patient and recheck temperature. Be cautious! Keep patient's head out of the water. It is difficult to protect an airway and manage a seizing patient in a stream! Also, it is easy to make the patient hypothermic using this method. Cool only to goal temperature of 39°C (102.5°F) Cooling will continue after you stop. If first attempt not successful then re-immerse for 5 minute intervals, rechecking temperature 5 minutes after each immersion.

HEAT ILLNESS

3. Adjunctive measures – Placing ice or cool towels in areas of high blood flow (neck veins, armpits, groin) is another method but much less effective.
   AVOID cooling below 39° C (102.5° F) and stop if the patient starts shivering (hypothermic overshoot). Shivering increases body temperature and reflects over cooling.

Transport

Any patient with signs of severe heat exhaustion or heat stroke should be transported. Heat stroke may warrant air transport.

AMA/TAR

Mild forms of heat illness may be treated and released after base contact if all symptoms have resolved. Parks without base hospitals should follow local medical control protocol.

Cross References

Procedures	**Protocols**
Airway Obstruction	Altered Mental Status/Altered Level of Consciousness (ALOC)
Oxygen Administration	Cardiac Arrest (Adult Medical)
Wound Care	Pediatric – Medical Arrest
	Pediatric Vital Signs
	Seizures

HEAT ILLNESS

Types of Heat Illness

	Who/Why	Symptoms	Treatment	Disposition
Heat Edema	Elderly, un-acclimatized to hot environment. History of rigorous activity then sitting/standing for long periods	Redness, swelling of hands, ankles and feet	Resolves with elevation and acclimatization	Transport/Backup Base Contact
Heat Rash (prickly heat)	Anyone, usually in tropical / humid environment	Blockage of sweat glands causing red painful, itchy rash in areas where clothing rubs	None prehospital.Anti bacterial cream, loose clothing, antihistamines	Base Contact
Heat Syncope	Elderly most common. Relative volume depletion. Must rule out other serious causes of syncope	Dizziness and syncope with postural changes in hot environment	Oral or IV fluids	All symptoms should resolve with shade and fluid. But, you can't rule out other causes of syncope so transport all patients.
Heat Tetany	Anyone doing vigorous activity in a hot environment	Hyperventilation, hand/foot spasm and tingling/ numbness	Shade and normal breathing	All symptoms should resolve with shade, rest and cessation of hyper-ventilation. Base contact for disposition.
Heat Cramps	Unconditioned people starting vigorous activity in the heat. Fluid replacement with water and lack of adequate salt and potassium replacement	Involuntary, spasmodic, painful cramps in calves, thighs or shoulders during or after exercise	Rest and re-hydration with sport drink or sated water. (NOT salt pills)	All symptoms should resolve with shade, rest and adequate electrolyte replacement . Base contact for disposition.
Heat Exhaustion normal mental status, temp less than 104°F or 40°C	Anyone active in hot environment without adequate fluid replacement. Caused by water and/or salt depletion.	Dizziness, weakness, fatigue, body aches, headache, nausea, sweating, vomiting, syncope, positional hypotension, tachy-cardia, elevated temp. but NORMAL MENTAL STATUS!	Rest, cooling, aggressive fluid/electrolyte replacement	Transport. Ground if stable and improving. May be early heat stroke and must rule out other conditions.
Heat Stroke altered mental status, temp over 104° F or 40° C A medical emergency!	Anyone active in hot environment without adequate fluid replacement. Water and/or salt depletion Classic=elderly in heat wave. Poor ability to regulate heat because of age/meds Exertional=young, healthy athletes after strenuous exercise in hot environment	Same as heat exhaustion but no longer able to regulate heat so they develop neuro signs: in-coordination, combative, hallucinations, seizures. Severe vasodilation = hypotension, tachy-cardia. Dry skin = loss of sweating mechanism.	Rapid cooling, airway protection, IV fluids, seizure treatment if present.	Air transport if possible.

HYPOTHERMIA

Emergency Medical Responder

1. ABC's
   A. Airway
      Assess for adequate airway (15 seconds)
      - If awake and speaking clearly go to breathing
      - If unconscious – look, listen, feel for air movement

      If airway inadequate:
      - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
      - Adjuncts – OPA, NPA (adults only), Suction

      Do not place objects in the mouth while seizing
      If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing
      Assess for adequate breathing (15 seconds)
      - Good chest rise
      - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
      - No cyanosis

      If breathing is inadequate assist as below
      - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
      - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation
      Assess for adequate circulation (15 seconds)
      - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
      - Apply AED if non-trauma situation

      If pulse is present
      - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
      - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
      - Bring AED to patient's side if non-trauma situation
      - Cover patient (except hyperthermia)

2. Assessment
   Vitals, trauma, mental status, temperature, shivering. Palpate carotid and radial arteries for pulse and listen over left chest for heart sounds for <u>two minutes</u> before assuming cardiopulmonary arrest.
   If no pulse after two minutes **GO TO** PROTOCOL *Cardiac Arrest -Medical*
   If isolated extremity, nose, or ears **GO TO** PROTOCOL *Frostbite*

3. Stop heat loss
   Shelter from wind and wet
   Move to a warmer location if possible (e.g. inside a building or vehicle)
   Insulate from ground or snow Remove wet clothes
   Dry patient
   Protect head and neck from heat loss
   Dress in dry insulated clothing or sleeping bag

4. Transport/Backup
   Prepare for transport early in the rewarming effort. Avoid shaking or jostling patient.
   Keep patient horizontal if moderate to severe hypothermia. If altered mental status arrange Parkmedic backup.

5. Base contact

HYPOTHERMIA

6. Active re-warming — Warm trunk, not extremities. Apply warm/dry blankets if possible
Place near heater or fire – monitor to prevent burns.
Apply hot water bottles or thermal packs (insulate from skin to prevent burns) to thermal windows (head, neck, axilla, and groin.)
Warm patient with a second person in sleeping bag

7. Hydration — If able to sit up on their own and protect airway, give warm sugary drinks (provides energy for shivering). Otherwise, nothing by mouth. No alcohol or tobacco use.

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (>30), may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation
- Consider insulating patient from the ground with blankets, tarps, etc
- AED should not be applied to patients less than 1 month old

General

1. Hypothermia usually results from patients being unable to remove themselves from a cold environment. Consider preceding trauma, alcohol /drug use or other underlying medical cause. Can occur in environments as warm as 10C (50F)!
2. Degrees of hypothermia:
   Mild Hypothermia (core temp 32-35C or 90-95F)
   -body still able to control temperature
   -Signs/Symptoms: cold sensation, tachycardia, hypertension, shivering, normal mental status
   Moderate Hypothermia (28-32C or 82-90F)
   -body unable to control temperature
   -Exam: loss of shivering, slowing of functions, decreasing BP/HR, slurred speech, unsteady gait, increasing AMS with eventual loss of consciousness
   Severe Hypothermia (< 28C or < 82F)
   -Hypotension and bradycardia
   -Severe risk of ventricular fibrillation if patient moved roughly
3. Spontaneous ventricular fibrillation or asystole below 24C (77F). The central nervous system is the most sensitive to hypothermia. Patient has progressive decline in mental ability from incoordination, confusion, lethargy to coma.
4. Hypothermic patients may still be alive and have unreactive pupils, minimal respirations, bradycardia and hypotension. This warrants careful assessment of vitals! PALPATE AND LISTEN for 2 MINUTES when checking vitals.
5. Cold irritates the heart muscle. Hypothermic patients often have a slow heart rate or arrhythmias which usually resolve with warming. They are also susceptible to ventricular fibrillation if handled roughly.
6. When rewarming, warm the trunk first. Warming the extremities causes dilation of peripheral blood vessels. This can cause hypotension and circulates cold blood to the core, making core temperature cooler.

Transport

1. Consider air evacuation if altered mental status or abnormal vitals, and arrange transport early in the rewarming effort

2. Avoid shaking or jostling patient as rough handling can precipitate arrhythmias.

HYPOTHERMIA

3. Transport all hypothermic patients with ANY of the following:
   - Altered mental status, abnormal vital signs or signs of frostbite.
   - Moderate/Severe hypothermia even if successfully rewarmed.
   - Evidence of shock or other significant injury or illness. Rewarming not possible in the field.
   - Inadequate clothing, shelter, food, water.

AMA/TAR

Base contact should be made in all cases. Patients may be treated and released (AMA) in radio failure only if normal mental status, mild hypothermia and all symptoms have resolved, no underlying medical problems, and has adequate protection from further hypothermia.
Parks without base hospitals should follow local medical control protocol.

Cross References

Procedures	**Protocols**
Airway Obstruction	Altered Mental Status/Altered Level of Consciousness (ALOC)
Oxygen Administration	Cardiac Arrest (Adult Medical)
Wound Care	Pediatric – Medical Arrest
	Pediatric Vital Signs

INGESTIONS/POISONING

Emergency Medical Responder

1. ABC's
   A. Airway
      Assess for adequate airway (15 seconds)
      - If awake and speaking clearly go to breathing
      - If unconscious – look, listen, feel for air movement

      If airway inadequate:
      - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
      - Adjuncts – OPA, NPA (Adults only), Suction

      Do not place objects in the mouth while seizing
      If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing
      Assess for adequate breathing (15 seconds)
      - Good chest rise
      - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
      - No cyanosis

      If breathing is inadequate assist as below
      - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
      - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation
      Assess for adequate circulation (15 seconds)
      - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
      - Apply AED if non-trauma situation

      If pulse is present
      - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
      - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
      - Bring AED to patient's side if non-trauma situation
      - Cover patient (except hyperthermia)

   If signs of *Altered Mental Status, Seizures or Shock* **GO TO appropriate protocol.** Place patient in the recovery position if vomiting and has altered mental status (AMS)

2. Assessment — Mental status, vitals, pupils, time of ingestion, inhalation, injection, or skin exposure, substance taken, empty pill bottles, suicide note, drug paraphernalia, vomiting on scene.

   Consider carbon monoxide, nerve agent/organophosphate exposure if multiple victims and/or AB- SLUDGEM (A-Altered mental status; B-Bronchorrhea, Bronchospasm (wheezing/dyspnea), Bradycardia; S- Salivation, Sweating, Seizures; L-Lacrimation (tearing); U-Urination; D-Defecation or Diarrhea, G-GI upset (abdominal cramps), E-Emesis (vomiting), M-Miosis/Muscle activity (twitching)

   Note: These body fluids can poison the provider.

3. Transport/ Backup — Arrange backup and consider air transport if abnormal vital signs, worsening or altered mental status or potentially toxic ingestion. Contact base for guidance. If non-accidental, patient must be placed on legal hold. NO AMA/TAR. Decontaminate prior to transport in Haz Mat situations

4. Base Contact — For all ingestions/poisonings

INGESTIONS/POISONING

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (> 30), may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation

If available bring AED to patient's side.

Assessment

1. History is very valuable in guiding therapy, but do not delay transport of potentially unstable patient for prolonged medication container search or prolonged questioning.
2. Physical Exam should pay special attention to airway, lung sounds, mental status, bowel sounds, skin signs, pupils, oral burns, gag reflex, odors, track marks, pill bottles or drug paraphernalia.
3. All overdose patients need to be monitored with vital signs at least every 15 minutes. They can have rapid decline in their status.
4. Poison control centers may not have specialized knowledge regarding your unique environment. Contact base hospital prior to any attempt to contact poison control center.
5. Beware of possible co-ingestions. For example, it is not uncommon for an overdose victim to mix drugs and alcohol.
6. Particularly toxic ingestions include:
   Beta blockers, Calcium channel blockers, Tri-cyclic antidepressants, Organophosphates Digoxin / Lanoxin, Caustic agents

Transport: Consider air transport if unstable vital signs, decreasing level of consciousness or large toxic ingestion.

AMA/TAR

Any significant ingestion may not be released at scene without base hospital approval. Any suicide attempt patient is not competent to leave AMA, this may require placing the patient on a legal hold. Parks without base hospitals should follow local medical control protocol.

Documentation

Physical exam findings
Vital signs
Time of ingestion
Circumstances of ingestion
Substances available
Substances ingested
Any vomiting that occurred and whether pill fragments or other ingested substances were seen

Cross References

Procedures	**Protocols**
Airway Obstruction	Cardiac Arrest (Adult Medical)
Oxygen Administration	Pediatric – Medical Arrest
Wound Care	Pediatric Vital Signs

MAJOR TRAUMA-Adult

Emergency Medical Responder

1. ABC's
   A. Airway
      Assess for adequate airway (15 seconds)
      - If awake and speaking clearly go to breathing
      - If unconscious – look, listen, feel for air movement

      If airway inadequate:
      - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
      - Adjuncts – OPA, NPA (adults only), Suction

      Do not place objects in the mouth while seizing
      If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing
      Assess for adequate breathing (15 seconds)
      - Good chest rise
      - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
      - No cyanosis

      If breathing is inadequate assist as below
      - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
      - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation
      Assess for adequate circulation (15 seconds)
      - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
      - Apply AED if non-trauma situation

      If pulse is present
      - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
      - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
      - Bring AED to patient's side if non-trauma situation
      - Cover patient (except hyperthermia)

2. Spine immobilization
   Unstable: ALL patients
   Stable: if indicated
   REFERENCE PROCEDURE *Spine Immobilization*

3. Initial assessment
   Vitals – categorize:
   Stable if ALL present: SBP over 100; pulse under 100; RR under 24; GCS=15
   Unstable if ANY present: SBP under 100; pulse over 100; RR under 10 or over 24; GCS less than 15; signs of pelvic, femur, head or abdominal trauma; unstable airway; neurologic deficits; any non-extremity penetrating trauma.

3. Control bleeding
   Direct pressure. Four-sided dressing to any open chest or neck wounds. Bandage other injuries in route.

4. Transport/ Backup
   On scene time should be less than 10 MINUTES when transport available.
   Consider air transport, especially if ALOC or abnormal vital signs.
   Consider trauma center for unstable patients.

MAJOR TRAUMA-Adult

5.	Oxygen	**Stable:** Low flow **REFERENCE** PROCEDURE *Oxygen Administration* **Unstable:** Hi flow
6.	Prevent hypothermia	Remove wet clothing, apply blankets
7.	Secondary assessment	Repeat vital signs, mental status, secondary survey, significant past medical history, medications, allergies
8.	Base contact	
9.	Splint and bandage injuries	Immobilize and splint fractures in route. REFERENCE PROCEDURE *Wound Care and/or Fracture/Dislocation Management* Reduce any fracture with significant deformity affecting ability to splint/transport or with decreased distal pulses.

SPECIAL CONSIDERATIONS

General

- Patients with rapid respirations (>30), may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation
- Consider insulating patient from the ground with blankets

1. On scene - Time **SHOULD BE LESS THAN 10 MINUTES** unless multiple patients, prolonged extrication or transport unavailable. All delays on scene must be documented. On-scene treatment should be limited to airway management, pressure control of major bleeding, covering an open chest wound and spine immobilization.

2. Begin organizing transport immediately

3. Base contact – Contact base early, as soon as transport underway, or immediately if transport delayed.

4. Reassessment – Continue to reassess vital signs frequently once in route and after any treatment.

Assessment

Initial assessment:

A: Airway with cervical spine control
B: Breathing
C: Circulation/uncontrolled bleeding
D: Disability/neuro status
E: Exposure (undress) with Environmental control (temperature)

Secondary assessment: (head to toe) Identify immediate life threats – equal lung sounds, neck vein distention, tracheal shift, shock, chest trauma/flail chest, pelvic/femur fractures, head injury, major hemorrhage. If altered mental status, document pupil size and reactivity and continuously monitor neuro status.

History: Mechanism of injury-penetrating or blunt trauma? Speed of vehicle? Patient ejected? Loss of consciousness? Pt wearing seatbelt? Damage to steering wheel or windshield? Airbags deployed? Fatality on scene? Extrication time longer than 20 minutes? Height of fall? Possible cause of injury: medical problem, drug overdose, alcohol, MI, seizure? SAMPLE history

Vitals: Repeat frequently during transport, including mental status. Tachycardia is an early sign of shock.

MAJOR TRAUMA-Adult

A palpable radial pulse generally corresponds to a SBP of at least 80 and a palpable carotid pulse to a SBP of at least 60.

Shock – In trauma, hypotension is usually from internal blood loss, NOT isolated head injury. Head Trauma - repeated neuro exams are essential (GCS, pupils, respiratory pattern, posturing).

Deteriorating mental/neuro status is an emergency and air transport should be utilized if available. Agitation may suggest head trauma. Patient should be hyperventilated with 100% oxygen if mental status is deteriorating

Amputations - Wrap extremity in dry sterile gauze, place in plastic bag and keep cool (put on ice if possible). Amputated part should NOT be wet or placed directly in water/ice.

Open fractures – Check pulse, capillary refill, and sensation. Irrigate with potable water, apply sterile dressing and splint. Recheck pulse, capillary refill, and sensation. Elevate extremity if possible. Apply moist sterile dressing to exposed bone or tendon.

Penetrating trauma – Secure impaled objects and transport. Do not remove object unless necessary for transport.

Neck/Chest trauma – for open wounds or flail chest (multiple rib fractures) dress with 4-sided occlusive dressing.

Transport: For unstable trauma patients initiate immediate transport with ALS treatment in route and ultimate air transport if available.

AMA/TAR: No patient may be Treated and Released without base contact in the setting of multisystem trauma. A patient with a normal mental status over age 18 may AMA with base contact or radio failure. Parks without base hospitals should follow local medical control protocol.

Documentation: Document mechanism of injury, LOC and duration, initial vitals and pertinent exam findings (breath sounds, pelvic stability, fractures and bleeding) are essential. Document repeat vital signs. If on scene more than 10 minutes, document reason.

Cross References

Procedures	**Protocols**
Airway Obstruction	Cardiac Arrest (Adult Medical)
Fracture/Dislocation Management	Pediatric – Medical Arrest
Oxygen Administration	Pediatric – Vital Signs
Spine Immobilization	Trauma Arrest (Adult and Pediatric)
Wound Care	

MINOR OR EXTREMITY TRAUMA

Emergency Medical Responder

1. ABC's
   A. Airway
      Assess for adequate airway (15 seconds)
      - If awake and speaking clearly go to breathing
      - If unconscious – look, listen, feel for air movement

      If airway inadequate:
      - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
      - Adjuncts – OPA, NPA (adults only), Suction

      Do not place objects in the mouth while seizing
      If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing
      Assess for adequate breathing (15 seconds)
      - Good chest rise
      - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
      - No cyanosis

      If breathing is inadequate assist as below
      - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
      - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation
      Assess for adequate circulation (15 seconds)
      - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
      - Apply AED if non-trauma situation

      If pulse is present
      - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
      - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
      - Bring AED to patient's side if non-trauma situation
      - Cover patient (except hyperthermia)

      In unstable or ALOC **GO TO** *Adult/Pediatric Major Trauma or Altered Mental Status/Altered Level of Consciousness (ALOC)*

2. Assessment — Vital signs, other injuries, bones and joints above and below injury, open wounds, deformity, distal circulation (pulse), capillary refill, sensation and motor function.

3. Control Bleeding — Direct pressure.

4. Wound Care — Irrigate thoroughly unless bleeding is or was heavy and apply dressing. Final dry, sterile compression dressing should be applied after reduction if indicated.

5. Reduce Fracture — Any fracture with significant deformity affecting ability to splint/transport or with decreased distal pulses. **REFERENCE** PROCEDURE *Fracture/Dislocation Management*)

6. Immobilize — Splint any extremity that has been reduced, or has a gaping wound, wounds with excessive bleeding, large wounds over joints or for patient comfort.

7. Reassess — Distal circulation (pulse and capillary refill), sensation and motor function. Elevate extremity

MINOR OR EXTREMITY TRAUMA

8. Transport/ Backup — See special considerations for treat and release criteria.

9. Base contact — For abnormal vitals, orders or any AMA

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (> 30), may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation
- Consider insulating patient from the ground with blankets

Assessment

1. Other injuries
2. Distal circulation, sensation, and motor function before and after reduction or splinting.
3. Tenderness, deformity, crepitus
4. Open wounds and degree of contamination
5. Joint above and below fracture. Bones above and below joint injury.
6. If isolated joint injury without obvious fracture (i.e. no deformity, crepitus or extreme pain) test active pain-free range of motion
7. If isolated lower extremity injury and no obvious fracture (i.e. no deformity, crepitus or extreme pain) test ability to bear weight.
8. Suspect a fracture if there is an appropriate mechanism of injury and associated focal pain and tenderness, deformity, significant swelling, or loss of function (ex: unable to walk on leg or grab with hand)
9. Suspect a joint injury (sprain with or without associated fracture) when there is an appropriate mechanism of injury with pain, swelling and loss of function or range of motion. Joint injuries may not have significant tenderness.
10. Suspect a joint dislocation when any of the findings for joint injury are associated with deformity.
11. Wounds potentially needing suture repair: Cosmetic areas: hands, face, neck Gaping laceration Fat/muscle/tendon visible
12. Assess risk for rabies:
    Species: skunk, fox, bat. Animal with unusual behavior, ill appearing, unprovoked attacks

Treatment Issues

A splint should be applied whenever a fracture or joint injury is suspected with loss of function. Exceptions: an isolated knee or ankle injury which does not limit function (i.e. patient states and demonstrates that they can still walk) may be supported without splinting to allow self-evacuation from the backcountry. This may include heavy hiking boots for an ankle or improvised knee immobilizer.

Transport

Consider helicopter evacuation for any of the following:

1. Any fracture or dislocation with vascular compromise
2. Transport time greater than 6 hours with: Corrected vascular compromise Open fracture Unreduced dislocations
   Femur, humerus or tib-fib fracture

MINOR OR EXTREMITY TRAUMA

AMA/TAR

May treat and release if **NONE OF THE FOLLOWING ARE PRESENT**

1. Signs of shock
2. Signs of neuro-vascular compromise (i.e. abnormal distal neurovascular function)
3. Tourniquets used (including those applied by patient)
4. Gross wound contamination, signs of infection, or suspicion of retained foreign bodies (shattered glass)
5. Bite wounds or injuries breaking skin
6. Vital structures damaged (tendons, muscle, vessels)
7. Depth > 1cm
8. Crush or contaminated wounds to hands, feet.
9. Open fractures
12. Head, neck or torso involvement
13. Splint or reduction required
14. History of diabetes, age > 65, current steroid use, or known immunocompromised state

Advise any patient released to:

Keep wound clean, dry, bandaged
Seek medical attention ASAP to evaluate wound for possible suturing and tetanus immunization
See a doctor ASAP for any redness, swelling, warmth, pain, pus, fevers
See a doctor ASAP for any limitation of function or mobility.
See a doctor ASAP for any other concerns.

Base contact should be attempted in all other patients not meeting above criteria.
Parks without base hospitals should follow local medical control protocol.

Documentation

Mechanism
Tetanus status
Distal neurovascular function
Location, depth, length and width of wound
Tendon, muscle or vessel exposure
Contamination
Active/pulsatile bleeding
Care provided: bleeding control, irrigation, foreign material removal, bandaging, splinting, reduction, pre and post procedure exam, etc.
Instructions provided

Cross References

Procedures	**Protocols**
Airway Obstruction	Cardiac Arrest (Adult Medical)
Fracture/Dislocation Management	Major Trauma – Adult
Oxygen Administration	Pediatric – Major Trauma
Wound Care	Pediatric – Medical Arrest
	Pediatric – Vital Signs

NEAR DROWNING

Emergency Medical Responder

1. Scene safety

2. Rescue — Handle patient as gently as possible. Maintain spinal precautions.

3. ABC's
   A. Airway
      Assess for adequate airway (15 seconds)
      - If awake and speaking clearly go to breathing
      - If unconscious – look, listen, feel for air movement

      If airway inadequate:
      - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
      - Adjuncts – OPA, NPA (adults only), Suction

      Do not place objects in the mouth while seizing
      If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing
      Assess for adequate breathing (15 seconds)
      - Good chest rise
      - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
      - No cyanosis

      If breathing is inadequate assist as below
      - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
      - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation
      Assess for adequate circulation (15 seconds)
      - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
      - Apply AED if non-trauma situation

      If pulse is present
      - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
      - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
      - Bring AED to patient's side if non-trauma situation
      - Cover patient (except hyperthermia)

2. Spine Immobilization — If indicated per protocol or suspicion of neck injury (diving) **REFERENCE** PROCEDURE *Spinal Immobilization*

3. Assessment — Vitals, temperature, mental status, trauma, lung sounds, preceding events (medical, trauma, intoxication), down/submersion time, loss of consciousness, coughing, water temperature/type

4. Treat Hypothermia — Remove wet clothing and apply dry blankets

5. Transport/ Back-up — Consider air transport for altered mental status or respiratory distress and treat per protocol

6. Base Contact

NEAR DROWNING

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (>30), may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation
- Consider insulating patient from the ground with blankets

If available bring AED to patients side.

General:

Cardiac arrest in the setting of cold water drowning has an increased chance of survival especially in pediatrics. Rewarming should therefore be attempted in cold water drowning.

Differential diagnosis:

Hypothermia
Spinal Injury- *Spine Immobilization*
Trauma (initiating drowning or secondary)
Intoxication- *Altered Mental Status*
Preceding Medical Event (i.e. seizure, hypoglycemia, cardiac arrest)

AMA/TAR:

No Patients may be released without base contact. Symptomatic patients should be transported due to possibility of delayed pulmonary complications. Any history of apnea, unconsciousness, or hypoxia, requires base contact and transport or AMA.
Parks without base hospitals should follow local medical control protocol.

Documentation:

Vital Signs, mental status, lung sounds and pulse oximetry, serial exams
All pertinent issues under assessment
Treatment rendered and response to therapy

Cross Reference

Procedures	**Protocols**
Airway Obstruction	Altered Mental Status/Altered Level of Consciousness (ALOC)
Oxygen Administration	Cardiac Arrest (Adult Medical)
Spine Immobilization	Hypothermia
Wound Care	Pediatric – Medical Arrest
	Pediatric – Vital Signs

Pediatric MAJOR TRAUMA

Emergency Medical Responder

Children taller than Broselow Tape (> 5 feet tall), refer to adult protocols

1. ABC's
   - A. Airway
     - Assess for adequate airway (15 seconds)
       - If awake and speaking clearly go to breathing
       - If unconscious – look, listen, feel for air movement
     - If airway inadequate:
       - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
       - Adjuncts – OPA, NPA (adults only), Suction
     - Do not place objects in the mouth while seizing
     - If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   - B. Breathing
     - Assess for adequate breathing (15 seconds)
       - Good chest rise
       - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
       - No cyanosis
     - If breathing is inadequate assist as below
       - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
       - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   - C. Circulation
     - Assess for adequate circulation (15 seconds)
       - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
       - Apply AED if non-trauma situation
     - If pulse is present
       - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
       - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
       - Bring AED to patient's side if non-trauma situation
       - Cover patient (except hyperthermia)

     If Trauma Arrest –GO TO *Trauma Arrest Protocol*

1. Spine immobilization — Consider car seat for immobilization. (*Spine Immobilization)*

2. Primary assessment — Assess for shock – see Pediatric Vital Sign Chart. Broselow tape.

4. Control bleeding — Direct pressure.

5. Oxygen — High flow if unstable vitals *(Oxygen)*
   Head injury with deteriorating mental status: hyperventilate 100% O2
   (10 more than normal for age-see chart)

6. Prevent hypothermia — Remove wet clothing, apply blankets

7. Transport/ backup — On scene time should be less than 10 MINUTES when transport available. Consider air transport , especially if ALOC or abnormal vital signs. If transport delayed, continue with protocol
8. Secondary assessment — Repeat vital signs, mental status, secondary survey, medications, allergies
9. Base contact
10. Splint and bandage injuries — Immobilize and splint fractures in route. (*Wound Care and Splinting)*

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (>30), may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation
- Consider insulating patient from the ground with blankets
- AED should not be applied to patients less than 1 year old

General

1. Airway management – Most children can be easily BVM ventilated if proper head position is maintained. Use chest rise/fall to indicate adequate ventilation.
2. Equipment – use size appropriate equipment (BVM, oral airways, cervical collars, BP cuffs, suction). Refer to Broselow tape.
3. On scene - Time **SHOULD BE LESS THAN 10 MINUTES** unless multiple patients, prolonged extrication or transport unavailable. All delays on scene must be documented. On-scene treatment should be limited to airway management, pressure control of major bleeding, covering an open chest wound and spine immobilization.
4. Begin organizing transport immediately
5. Base contact – Contact base early, as soon as transport underway, or immediately if transport delayed.
6. Assessment of children is difficult. You must rely on repeated observation, especially for mental status.

Assessment

Initial assessment:

A: Airway (with cervical spine control) -choking, drooling, stridor
B: Breathing – nasal flaring, retractions, grunting, effort
C: Circulation/uncontrolled bleeding –assess for shock
D: Disability/neuro status
E: Exposure (undress) with Environmental control (temperature control)

Secondary assessment: (head to toe) Identify immediate life threats –equal lung sounds, neck vein distention, tracheal shift, shock, chest trauma/flail chest, pelvic/femur fractures, head injury, major hemorrhage. Often the only sign of a fracture is that the child won't move that extremity.

Mental status: Consider what would be normal behavior for a child that age. Crying is probably appropriate. A lethargic, non-crying child is often a sign of head injury or shock. If parents are available, see if the child responds appropriately to them. If altered mental status, document pupil size, reactivity and continuously monitor neuro status. Protect airway if needed. GCS calculation is the same except for the verbal component as follows:

Appropriate words, smile, tracks with eyes	5
Cries, but consolable	4
Persistently irritable	3
Restless, agitated	2
None	1

Vitals: Repeat frequently during transport, including mental status. See chart for age specific vitals.

Systolic BP = 80 + (2 x Age) years Diastolic BP = 2/3 SBP

Weight (kg) = [Age (yrs) x 2] + 10 < 1 yr: Weight (kg) = [Age (mos) / 2] + 4

Shock – Children have a large capacity to compensate for shock. Tachycardia or altered mental status is the best signs and **hypotension is a very late sign**. In trauma, hypotension should be considered from internal blood loss, NOT head injury. Children have a much higher incidence of internal injuries than adults.

Blood Volume Loss	<25%	25-45%	> 45%
Cardiac	Tachycardia, Normal BP	Tachycardia Normal BP	Tachy OR Bradycardia Low BP
Central Nervous System	Lethargic, Irritable	Altered MS, dulled pain response	Comatose
Skin	Cool, clammy	Pale, >3 sec cap. refill	Pale, cold

A fluid bolus of 20cc/kg represents 25% blood volume. A positive response is indicated by decreased heart rate, increased blood pressure, improved perfusion and improved mental status.

History: Mechanism of injury-penetrating or blunt trauma? Speed of vehicle? Patient ejected? Height of fall? Loss of consciousness? Pt wearing seatbelt or car seat? Damage to steering wheel or windshield? Fatality on scene? Extrication time longer than 20 minutes? Consider child abuse. AMPLE history

Head Trauma - repeated neuro exams are essential (GCS, pupils, respiratory pattern, posturing). Agitation and/or lethargy suggests head trauma. These patients should be hyperventilated with 100% oxygen.
Deteriorating mental/neuro status is an emergency and air transport should be utilized if available.

Fractures – Children will often have no external signs of trauma over a fracture. Failure to move an extremity is often a sign of fracture and failure to move legs could indicate a pelvic fracture. Irrigate open fractures with potable water, apply sterile dressing and splint. Apply moist sterile dressing to exposed bone or tendon.

Penetrating trauma – Secure impaled objects and transport. Modify object or patient position for transport as needed. Do not remove unless absolutely necessary for transport.

Neck/Chest trauma – for open wounds or flail chest (multiple rib fractures) dress with 3 sided occlusive dressing.

Transport

Immediate transport with ALS treatment in route and ultimate air transport if available to Trauma Center.

AMA/TAR

No patient may be Treated and Released without base contact in the setting of multisystem trauma. Parents or legal guardian must be on scene to sign a pediatric patient AMA after base contact.
Parks without base hospitals should follow local medical control protocol.

MAJOR TRAUMA

Documentation

Documentation of mechanism of injury, LOC and duration, initial vitals and pertinent exam findings (breath sounds, pelvic stability, fractures and bleeding) are essential. Document repeat vital signs. If on scene more than 10 minutes document reason.

Cross References

Procedures:	**Protocols:**
Airway Obstruction	Cardiac Arrest (Adult Medical)
Fracture/Dislocation Management	Pediatrics – Medical Arrest
Oxygen Management	Pediatrics – Vital Signs
Spine Immobilization	Trauma Arrest (Adult and Pediatric)
Wound Care	

Pediatric MEDICAL ARREST

Emergency Medical Responder

1. Confirm arrest

No response to aggressive stimulation. Call for backup as soon as possible.
Check breathing and pulse for *15* seconds as noted below under A.B.C. If pulse is present, patient is NOT in cardiac arrest, **GO TO** PROTOCOL *Altered Mental Status or appropriate protocol*. If pulse is absent continue this protocol. After each intervention reassess (check for pulse). If pulse still absent continue down protocol. If pulse present go to # 6.

Do not attempt resuscitation in the following cases:
a. Documented pulseless downtime more than 30 minutes.
b. Rigor mortis or dependent lividity

2. ABC's

A. Airway

Assess for adequate airway (15 seconds)
- If awake and speaking clearly go to breathing
- If unconscious – look, listen, feel for air movement

If airway inadequate:
- Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
- Adjuncts – OPA, NPA (adults only), Suction

Do not place objects in the mouth while seizing
If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

B. Breathing

Assess for adequate breathing (15 seconds)
- Good chest rise
- Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
- No cyanosis

If breathing is inadequate assist as below
- Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
- Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

C. Circulation

Assess for adequate circulation (15 seconds)
- If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
- Apply AED if non-trauma situation

If pulse is present
- Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
- Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
- Bring AED to patient's side if non-trauma situation
- Cover patient (except hyperthermia)

3. AED

Use a child dose-reduction system with AEDs (e.g. pediatric pads/cable), when available, for children from 1 month to 8 years old. Do not use AED on neonates. **REFERENCE** PROCEDURE *AED*

4. CPR	Oral/nasal airway, support respirations by BVM with 100% oxygen. If unable to ventilate consider foreign body obstruction Check carotid pulse. If pulseless START CPR. Perform CPR using a 30:2 compression to ventilation ratio. Compressions are given at a rate of 100 per minute. If performing 2-rescuer CPR use a 15:2 compression to ventilation ratio for pediatric patients. Do not start CPR in the following cases: a. Known pulseless for 30 minutes. b. Rigor mortis or dependent lividity
5. Assessment	Downtime, rigor mortis, lividity, bystander CPR, preceding events and symptoms, PMH
6. Transport/ Backup	Transport if patient regains pulse or is within 30 minutes of health care facility.
7. Base Contact	

Emergency Medical Responder Base Hospital/Communication Failure Orders

1. CPR Termination	If backup will NOT arrive for more than 30 minutes: maintain airway and perform CPR for 30 minutes. Recheck pulse every 2 minutes. If no pulse or spontaneous breathing after 30 minutes terminate CPR. Check pulse for 30 seconds prior to termination.

SPECIAL CONSIDERATIONS

Consider insulating patient from the ground with blankets
AED should not be applied to patients < 1 month old

General

Cardiac arrest in children is usually secondary to respiratory arrest or shock. Often supporting ventilations/oxygenation will improve cardiac status.

Assessment

History:

Recent respiratory or other illness, fever.
Past cardiac history, medications, and allergies
Is there history of drug ingestion
Are there any signs of trauma
Down time before CPR, duration of CPR, by whom, training.

Physical Exam:

Lungs, describe respirations, (shallow, rate, spontaneous) breath sounds, (equal, crackles, rhonchi)
Heart, beating, regular vs. irregular
Abdomen, soft
Pulses, carotid, axillary, femoral
Skin, warm, dry, cyanosis, cool, mottled
Pupils, reactive size
Evidence of trauma?

Differential Diagnosis

Respiratory arrest, shock from infection, dehydration, allergic reaction, drug or toxin ingestion, hypothermia, drowning, trauma, electrical injury, cardiac event.

Transport

Once cardiac arrest is suspected, begin arrangements for transport or ALS rendezvous.
Actual patient transport should NOT commence unless patient has return of pulse or as designated in protocol.

AMA/TAR: Not applicable

Parks without base hospitals should follow local medical control protocol.

Documentation

Vital Signs and mental status, down time before CPR, duration of CPR and by whom, time and response to medications administered, time of death if applicable

Cross References

Procedures	**Protocols**
Airway Obstruction	Altered Mental Status/Altered Level of Consciousness (ALOC)
Oxygen Administration	Cardiac Arrest (Adult Medical)
Wound Care	Pediatric – Medical Arrest
	Pediatric – Vital Signs

Pediatric MEDICAL ILLNESS/FEVER

Emergency Medical Responder

1. ABC's
   A. Airway
      Assess for adequate airway (15 seconds)
      - If awake and speaking clearly go to breathing
      - If unconscious – look, listen, feel for air movement

      If airway inadequate:
      - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
      - Adjuncts – OPA, NPA (adults only), Suction

      Do not place objects in the mouth while seizing
      If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing
      Assess for adequate breathing (15 seconds)
      - Good chest rise
      - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
      - No cyanosis

      If breathing is inadequate assist as below
      - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
      - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation
      Assess for adequate circulation (15 seconds)
      - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
      - Apply AED if non-trauma situation

      If pulse is present
      - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
      - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
      - Bring AED to patient's side if non-trauma situation
      - Cover patient (except hyperthermia)

2. Assessment — Vitals including temperature, mental status, seizures, rash, vomiting, diarrhea. If altered mental status or shock **GO TO** *Altered Mental Status* or *Shock Protocols*

3. Oral fluids — If normal mental status and protecting airway, trial of water, electrolyte solution or any salt containing liquid 10-15 cc at a time (small sips if vomiting)

4. Base Contact

5. Transport — Any child with abnormal vitals or decreased mental status (unless high temperature is the only abnormal vital sign) NO AMA/TAR without base contact.

Pediatric MEDICAL ILLNESS/FEVER

SPECIAL CONSIDERATIONS

Assessment

History-Duration of symptoms, subjective fever or measured (oral, tympanic, rectal). Associated symptoms-runny nose, cough (productive or dry), respiratory difficulties vomiting, diarrhea (frequency, soft or watery, bloody), sore throat, headache, neck pain, sick contacts, tolerating fluids or not, change in urine output (# of wet diapers), jaundice, irritability.

PMH- Immunization status, recent or past hospitalizations if any, operations, birth and perinatal history, congenital problems.

Physical Exam:

Overall appearance of child-lethargic, active, playful, eye contact, attentiveness for age, consolable or not, ability to sit, stand, ambulate.

ABCs, vitals, full physical exam with particular attention to capillary refill, fontanelle, mucous membranes (moist or dry), skin turgor, color, rash.

Differential Diagnosis

Common causes: Upper respiratory illness including croup, epiglottitis, common cold, ear infection; pneumonia, meningitis, measles, chickenpox, acute gastroenteritis.

AMA/TAR

No child should be TAR without base contact.

Parks without base hospitals should follow local medical control protocol.

Documentation

Overall appearance of child, vitals, ability to tolerate oral fluid.

Cross Reference

Procedures:

Airway Obstruction
Oxygen Administration
Wound Care

Protocols:

Altered Mental Status/Altered Level of Consciousness (ALOC)
Cardiac Arrest (Adult Medical)
Pediatric – Medical Arrest
Pediatric – Vital Signs
Shock without Trauma

Pediatric NEONATAL (NEWBORN) RESUSCITATION

Emergency Medical Responder

1. Dry infant — Dry the infant and place in as warm an environment as possible, removing all wet towels and replacing with dry ones. Keep the infant covered, especially the head and body, to minimize heat loss

2. Position — Place on back with head to side in neutral position. A towel may be under the neck to maintain position.

3. Wiping/ suctioning — Use a gauze pad to wipe and clear fluid from the newborn's mouth and nose. If airway is still obstructed (newborn is not crying and/or no effective respirations) after wiping, use a bulb syringe (if available) to suction the mouth and then suction the nose
   - Note – Healthy vigorous newborns do not require suctioning and IF needed do not place bulb syringe too deep or too aggressively into pharynx, as either can cause bradycardia from vagal stimulation

4. Stimulate respiration — If newborn is still not crying or having effective respirations, then flick the soles of the feet and/or rub the back to stimulate respirations

5. Check breathing — A rate of 40 breaths/minute or 4 breaths in 6 seconds is normal

6. Oxygen/BVM — <u>IF abnormal RR, cyanosis or distress</u> (grunting, nasal flaring, retractions):
   -Give blow by 100% O2
   -IF no improvement in 10 seconds assist ventilation with BVM 100% O2
   <u>IF apneic</u>:
   -Start BVM with 100% O2 at 40 breaths/minute
   -Watch for good chest rise and fall to ensure adequate ventilation
   Note – Ensure proper fit of mask and AVOID pressure on the newborns eyes, which can cause bradycardia

7. Check heart rate — Palpate HR at the base of the umbilical cord or at brachial artery (for 6 seconds)
   -IF HR >100 and RR>40: Continue assessment
   -IF HR 60-100, any RR: Start BVM ventilations with 100% O2 at 40/min
   -IF HR<60, any RR: Begin chest compressions for 1 minute

   -CPR Rate/Cadence:
   2 provider rescue -Should give 3 compressions, then 1 ventilation in less than 2 seconds and repeat to goal of 100-120 compressions/min
   1 provider rescue- Should give 15 compressions to 2 ventilations
   -Technique: Use 2 fingers on sternum at nipple line and compress 1/3 of diameter of the A/P chest or ½-1 inch
   -Do NOT use AED on infants

8. Transport/ Backup — Transport all patients
   Note – If in cardiac arrest **GO TO** PROTOCOL *Pediatric Medical Arrest* and contact Base

9. Reassess every 2 minutes
   IF HR >100 and RR>30 -No intervention needed
   IF HR 60-100, any RR -BVM ventilations with 100% O2 at 40/min
   IF HR <60 -Start chest compressions with BVM ventilation

10. Base hospital contact

Pediatric NEONATAL (NEWBORN) RESUSCITATION

General

1) Asphyxiation/respiratory difficulty is the most common cause of neonatal arrest. A good neonatal resuscitation focuses on good respirations
2) Prompt warming, wiping of fluid/drying neonate and giving oxygen when needed is the key to a successful resuscitation
3) If the neonate does not respond immediately to BVM ventilations, successful resuscitation is unlikely
4) NOTIFY BASE as soon as possible to help utilize all available resources
5) Begin transport EARLY
6) Heat loss is critical as cold stress increases oxygen consumption and all measures to minimize heat loss should be taken
7) Neonates less than 500 grams (approximately the size of a 12 oz soda can) DO NOT survive and resuscitation should NOT be attempted

Assessment

1) Vitals
   a) Normal neonatal HR = 120-190 beats per minute
   b) Respiratory rate = 40-60 breaths per minute
   c) SaO2 = a normal SaO2 in a newborn may be as low at 60% in the first minute
      i) Should get to 85-95% within 10 minutes
2) Color
      i) Cyanosis – True cyanosis is a sign of poor oxygenation and is a bluish color of the skin, nailbeds, or mucous membranes (lips and tongue)
      ii) Peripheral cyanosis of the extremities is a normal finding in neonates
3) Responsiveness and tone
   a) Reassuring signs are a neonate who is alert, crying and has flexed upper extremities; lack of these signs should cause concern and should reassess ventilation and circulation
4) History
   a) Number of weeks pregnant by last menstrual period?
      i) <24 weeks gestation neonate will likely not survive
   b) Expected delivery date?
      i) Another way to figure out gestation age if LMP not known
   c) Prenatal care?
   d) Maternal medications/drug use?
   e) Problems or complications during pregnancy?
      i) This information is very useful for staff at receiving facility

AMA/TAR

1) ALL neonates should be transported!
2) Parks without base hospitals should follow local medical control protocol

Documentation

1) Detailed maternal history, including drug, tobacco and alcohol use, previous pregnancy history, hypertension, gestational diabetes, maternal medications, any complications with pregnancy
2) Continuous monitoring of neonatal heart rate, respiratory rate, color and responsiveness
3) Detailed account of resuscitation drugs and interventions utilized and response to treatment

Cross Reference

Procedure
Oxygen Administration

Pediatric Vital Signs

Emergency Medical Responder

Age	Pulse Rate (beats per minute)	Respirations (breaths per minute)	Systolic Blood Pressure (mm Hg)
Infants (newborn to age 1 year)	90-180	25-60	50-95
Children (ages 1 to 12 years	70-150	15-30	80-110
Adults (age >12 years)	60-100	12-20	90-140

Broselow Tape:

This is your best resource for pediatric weights and drug dosages.

****If the child is too long (> 5 feet) for the tape, treat them as an adult.****

****Broselow tape is 4 feet at the blue/orange junction** Pediatric Formulas:**

1. Weight: Less than 1 yr: $\frac{\text{Age (months)}}{2} + 4 = \text{Weight (kg)}$

   Over 1 yr: (Age in years x 2) + 10 = Weight (kg)

2. Lower SBP Limit: Systolic BP = 70 + (2x age in yrs) 3 . Respiratory : Heart rate ratio = 1: 4

Child/Infant CPR:

YEARS	COMPRESS	DEPTH	RATE	VENT: COMPRESSION RATIO 1 RESCUER	VENT: COMPRESSION RATIO 2 RESCUERS
0-1 Infant	Mid-sternum 2 fingers	½ - 1 "	100/min	2 : 30	2 : 15
1-8 Child	Mid-sternum 2 hands	1– 1 ½ "	100/min	2 : 30	2 : 15

Pediatric Glasgow Coma Score:

GCS calculation is the same as adults except for the verbal component as follows:

Appropriate words, smile, tracks with eyes	5
Cries, but consolable	4
Persistently irritable	3
Restless, agitated	2
None	1

RESPIRATORY DISTRESS

Emergency Medical Responder

1. ABC's
   A. Airway
      Assess for adequate airway (15 seconds)
      - If awake and speaking clearly go to breathing
      - If unconscious – look, listen, feel for air movement

      If airway inadequate:
      - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
      - Adjuncts – OPA, NPA (adults only), Suction

      Do not place objects in the mouth while seizing
      If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing
      Assess for adequate breathing (15 seconds)
      - Good chest rise
      - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
      - No cyanosis

      If breathing is inadequate assist as below
      - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
      - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation
      Assess for adequate circulation (15 seconds)
      - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
      - Apply AED if non-trauma situation

      If pulse is present
      - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
      - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
      - Bring AED to patient's side if non-trauma situation
      - Cover patient (except hyperthermia)

      If signs or symptoms of allergic reaction **GO TO** PROTOCOL *Allergic Reaction*
      If signs of hemorrhage with shock **GO TO** PROTOCOL *Major Trauma*

2. Assessment — Vitals including temperature if available, mental status, lung sounds, pulse ox if available. Obtain history of present illness, meds, past medical history.
   Consider carbon monoxide exposure or nerve agent/organophosphate exposure if multiple victims and/or AB-SLUDGEM (A-Altered mental status; B-Bronchorrhea, Breathing difficulty or wheezing, Bradycardia; S-Salivation, Sweating, Seizures; L-Lacrimation (tearing); U-Urination; D-Defecation or Diarrhea, G-GI upset (abdominal cramps), E-Emesis (vomiting), M-Miosis/Muscle activity (twitching) **GO TO** PROTOCOL *Ingestion/Poisoning.*

3. Classify — Based on assessment, make a provisional diagnosis and go to appropriate section.
   Consider early base contact if diagnosis unclear.

RESPIRATORY DISTRESS

Note: This table gives you the most common findings to help you differentiate cause of distress. Each case is unique and may not exactly fit one category. These are guidelines.	**HISTORY**	**SPUTUM**	**PHYSICAL EXAM FINDINGS**
UPPER AIRWAY OBSTRUCTION **Croup/Epiglottitis**	Fever, drooling, sore throat	None	**Inspiratory stridor,** anxious, leaning forward to breathe, drooling,
Mechanical (food/foreign body)	Onset during meal/play	None	Grabbing neck, unable to speak.
BRONCHOSPASM **Asthma/COPD**	PMH: asthma, emphysema, bronchitis, heavy smoking. Meds: albuterol, atrovent, prednisone, home oxygen.	Thick white or yellow/green	**Prolonged expiration with wheezes**, poor air movement, very little to no pitting edema, pursed lip breathing in emphysema.
PULMONARY EDEMA **Congestive Heart Failure (CHF)**	PMH: CHF, Paroxysmal Nocturnal Dyspnea (awakes short of breath), orthopnea (difficulty lying flat), angina or heart attack. Meds: Digoxin, blood pressure medications (diuretics, ACE inhibitors, Lasix), Nitroglycerin	May have watery, foamy white. May be pink or blood tinged.	**Inspiratory crackles**. May have pitting edema (swelling) in legs and distended neck veins.
HIGH ALTITUDE PULMONARY EDEMA	Rapid ascent to altitudes higher than 8,000 feet with worsening SOB.	Watery, foamy white. May be pink/ blood tinged.	**Inspiratory crackles**. Usually no lower extremity pitting edema (swelling).
PNEUMONIA	Any age. Progressive SOB with cough, fever, chills, sputum. May be on antibiotics.	Thick. Any color	**Asymmetric or localized crackles**, may have some mild wheezing. No peripheral edema (swelling).

RESPIRATORY DISTRESS

Upper Airway Obstruction

Emergency Medical Responder Standing Orders

1.	If mechanical (food, foreign body) **GO TO** PROCEDURE *Airway Obstruction*
2.	If medical: • Conscious – place in position of comfort • Unconscious – airway maneuvers/adjuncts
3. Assessment	Vitals, mental status, lung sounds, presence of stridor or drooling, ability to speak, temperature if possible. If patient loses consciousness: Basic Airway maneuvers (reposition airway, attempt ventilation, 30 chest thrusts, look for foreign object, finger sweep if you see object, 2 rescue breaths, repeat until breaths go in.
4. Transport/ Backup	Consider air transport if febrile child, severe distress or unstable vitals.
5. Base contact	No TAR without base contact

RESPIRATORY DISTRESS

Bronchospasm (COPD/Asthma)

Emergency Medical Responder Standing Orders

1. ABC's	
2. Assessment	Vitals, including temperature if possible, mental status, lung sounds.
3. Transport/ Backup	Consider air transport for patients in severe distress or unstable vitals.
4. Base Contact	No TAR without base contact.
5. Inhaler	If patient has an albuterol or other short acting Beta agonist inhaler, give 4 puffs on consecutive breaths during mid inspiration followed by one puff every minute up to 10 minutes. (Examples: Ventolin, Proventil, Bronkosol, Alupent) See special considerations for other types of inhalers.
6. Reassess Patient	Recheck vitals and lung sounds.
7. Inhaler	Repeat Albuterol dosing, 1 puff every minute up to 10 minutes if symptoms persist.

Emergency Medical Responder Base Hospital/Communication Failure Orders

1. Epinephrine Auto-injector	Indications: -severe distress (unable to speak, cyanotic, severe retractions, accessory muscle use) -no history of angina or MI (heart attack) Dose: 0.3 ml IM (1 ml = 1 mg)

RESPIRATORY DISTRESS

Pulmonary Edema (CHF)

Emergency Medical Responder Standing Orders

1. ABC's

2. Assessment — Vitals, mental status, lung sounds, sputum, peripheral edema.

3. Sit patient up — Legs lower than heart if possible

4. HAPE — If suspected, **GO TO** PROTOCOL *Altitude Illness* **(***HAPE).*

5. Transport/ backup

6. Base Contact

Emergency Medical Responder Base Hospital/Communication Failure Orders

1. Nitroglycerine — (Spray or tablets) If SBP 100-120: 0.4 mg (1 tab/spray) sublingual
   If SBP 120-200: 0.8 mg (2 tabs/sprays) sublingual
   If SBP > 200: 1.2 mg (3 tabs/sprays) and call base
   Repeat single dose 0.4 mg (1 tab/spray) every 5 minutes if patient still symptomatic and SBP >100 to a total of 8 tablets/sprays.

RESPIRATORY DISTRESS

Pneumonia

Emergency Medical Responder Standing Orders

1. ABC's

2. Assessment — Vitals including temperature if possible, mental status, lung sounds.

3. Transport/backup

4. Base Contact

SPECIAL CONSIDERATIONS (for entire respiratory distress section)

Patients with rapid respirations (>30), may need assisted ventilations, but may not tolerate your attempts
Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation
Consider insulating patient from the ground with blankets

If available bring AED to patient's side.

Assessment

1. Mental status, vital signs, breath sounds, peripheral edema, cyanosis, inspiratory/expiratory ratio, accessory muscle use, retractions, neck vein distention, tracheal position, increased AP diameter of chest, diaphoresis, chest pain.
2. Be prepared to assist ventilations.
3. Patients with severe COPD may retain CO2 as they recover from hypoxemia. All patients on high flow oxygen must be watched carefully for decreasing mental status and decreased respiratory effort-respirations may need to be assisted.

Differential diagnosis

Other causes of respiratory distress may include hyperthyroidism, aspirin overdose, diabetic ketoacidosis, pulmonary edema, amphetamine or cocaine abuse, anxiety attack, hyperventilation, pulmonary embolism, anemia, early shock.

AMA/TAR

Transport ALL patients that:

- requiring more than 10 minutes of Albuterol MDI therapy.
- with residual wheezes or symptoms (tachypnea) after treatment
- abnormal vitals

All patients are transported or AMA unless specified otherwise by base.
TAR only after base contact.
Parks without base hospitals should follow local medical control protocol.

Documentation

Document repeat lung exams and vitals and any response to treatments.

Medication Issues

Albuterol – while contraindicated in active heart disease, there is no maximum dose for a young asthmatic. Multiple other medications are prescribed to patients in inhaled form (inhalers). These include steroids, anticholinergics and others. Although these may help in asthma, they all take longer to work than Beta agonists.

RESPIRATORY DISTRESS

Cross Reference

Procedures:	**Protocols:**	**Drugs:**
Airway Obstruction	Allergic Reactions	Epinephrine Auto Injector
Oxygen Administration	Altitude Illness (HAPE)	Nitroglycerine
Wound Care	Cardiac Arrest (Adult Medical)	
	Ingestion/Poisoning	
	Major Trauma - Adult	
	Pediatric – Medical Arrest	
	Pediatric Vital Signs	
	Respiratory Distress (HAPE)	
	Shock without Trauma	

SCUBA/Dive Injury

Emergency Medical Responder

Note: There are multiple medical and trauma circumstances that may occur simultaneously and complicate a dive injury. Ideally both the dive injury and any other underlying issues (e.g. bite, sting, anaphylaxis, trauma, airway obstruction, hypothermia) may need to be addressed simultaneously.

For example, a patient with a sting inducing anaphylaxis and subsequent rapid ascent may need epinephrine, oxygen and rapid transport to a dive chamber. If there is an obvious medical or trauma complaint e.g., an extremity fracture, and a scuba/dive injury follow the dive injury and the minor and isolated extremity trauma simultaneously.

Exceptions: If pulseless or in cardiac arrest; **GO TO** PROTOCOL: *Cardiac Arrest/Dysrhythmia or Pediatric – Arrest/Dysrhythmia* .

1. ABC's

   A. Airway

   Assess for adequate airway (15 seconds)
   - If awake and speaking clearly go to breathing
   - If unconscious – look, listen, feel for air movement

   If airway inadequate:
   - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
   - Adjuncts – OPA, NPA (adults only), Suction

   Do not place objects in the mouth while seizing

   If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing

   Assess for adequate breathing (15 seconds)
   - Good chest rise
   - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
   - No cyanosis

   If breathing is inadequate assist as below
   - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
   - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation

   Assess for adequate circulation (15 seconds)
   - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
   - Apply AED if non-trauma situation

   If pulse is present
   - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
   - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
   - Bring AED to patient's side if non-trauma situation
   - Cover patient (except hyperthermia)

2. Spinal Immobilization — If indicated per PROCEDURE: *Spine Immobilization.*

3. Assessment — Vital signs, temperature, mental status, frequent respiratory examinations, trauma exam, PMH.

SCUBA/Dive Injury

4.	Oxygen	10–15 L/min by non-rebreather mask. DO NOT discontinue even if symptoms improve. Keep patient on oxygen throughout transport unless instructed to discontinue by base hospital or Diver's Alert Network (see Special Considerations).
5.	Position	If conscious, position patient horizontally on left side with head slightly lowered and no obstruction to blood flow (no crossed arms/legs). Protect from excess heat, cold, wet, and noxious fumes.
5.	Consider Hypothermia	Remove wet clothing and apply dry blankets **REFERENCE** PROTOCOL: *Hypothermia*
6.	Base Contact	
7.	Transport/ Backup	Consider air transport (see Special Considerations)

SCUBA/Dive Injury

SPECIAL CONSIDERATIONS

General

Base hospital may use DIVER'S ALERT NETWORK (DAN) at 919-684-9111 for consultation. Field providers should use base hospital as primary source of advice, but may use DAN if unable to contact base hospital.
Choose the closest ER if stabilization of life threatening injuries is required, before considering transport to hyperbaric chamber.

Assessment

History of Dive: (dive computer, maximum depth, type of air)
If possible, obtain details leading up to event from the victim as well as from witnesses (dive buddy).
Careful neurologic exam is key to identifying subtle findings caused by Decompression Illness. Repeat every 60 minutes and include:

- Pain (O-P-Q-R-S-T questions)
- Nausea/Vomiting
- Ability to urinate
- Mental function by GCS and orientation
- Cranial nerves (vision & ocular motion, facial nerves & muscles, hearing)
- Motor function (strength of major joints)
- Sensory (light touch & pin prick intact everywhere?)
- Coordination & Balance

Transport

If evacuation is by air, fly as low as safety allows (generally 1,000ft) to minimize barometric pressure changes.
Send all equipment, trip dive log, and medical history with diver if possible.

In-Water Recompression

Is defined as re-entering the water to treat Decompression Illness.

Should never be performed by those without training.

Is not a substitute for transport to a recompression chamber and should never delay transport.
May be performed by certified National Park Service employees with LEMA approval

Cross References

Procedures:	**Protocols:**
Airway Obstruction	Allergic Reaction
Oxygen Administration	Cardiac Arrest (Adult Medical)
Wound Care	Hypothermia
	Pediatric – Medical Arrest
	Pediatric – Vital Signs
	Major Trauma
	Spine Immobilization

SEIZURES

Emergency Medical Responder

1. ABC's
   A. Airway
      Assess for adequate airway (15 seconds)
      - If awake and speaking clearly go to breathing
      - If unconscious – look, listen, feel for air movement

      If airway inadequate:
      - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
      - Adjuncts – OPA, NPA (adults only), Suction

      Do not place objects in the mouth while seizing
      If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing
      Assess for adequate breathing (15 seconds)
      - Good chest rise
      - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
      - No cyanosis

      If breathing is inadequate assist as below
      - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
      - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation
      Assess for adequate circulation (15 seconds)
      - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
      - Apply AED if non-trauma situation

      If pulse is present
      - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
      - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
      - Bring AED to patient's side if non-trauma situation
      - Cover patient (except hyperthermia)

   Note: Protect C-spine if there is evidence of trauma per PROCEDURE: *Spine Immobilization*, and protect patient from additional injury. If there is no evidence of trauma, and actively seizing patient, place patient in lateral decubitus position.

2. Assessment — Vitals including temperature and mental status; signs of trauma or drug use; pregnancy; altitude 8,000 feet; history of seizures/diabetes, recent illness, or exercise with water intake but little food
   - Protect patient from additional injury.
   - Consider spinal immobilization if there is evidence of trauma.
   - If there is no evidence of trauma, place patient in lateral decubitus position

3. Cause — If seizure likely to be secondary to altitude, fever, trauma or heatstroke **GO TO** appropriate protocol.

4. Transport Backup — Consider air transport if altered mental status or seizures persist

5. Base Contact

SEIZURES

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (> 30), may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation
- Consider insulating patient from the ground with blankets
- AED should not be applied to patients less than 1 month old. **REFERENCE** PROCEDURE *AED* for parameters.

AED If available, bring AED to patient's side.

Assessment History: **FACTS**

F- focus
A- activity (tonic, clonic)
C- color during and after seizure T- time (onset, duration)
S- supplemental history: seizures, meds/compliance, drugs, trauma, preceding headache, numbness/weakness, recent illness/fever, heavy exercise with water intake but little food

Exam: Mental status, vitals, focal neurologic deficits (pupils, facial symmetry, strength/sensation all extremities, trauma)

Differential High Altitude Cerebral Edema (HACE), heatstroke, fever, hypoglycemia, meningitis, stroke, drugs/overdose, eclampsia (seizures in pregnancy), hyponatremia.
Remember, patients with a known seizure disorder may have another cause for their seizures. Always consider trauma.

There are multiple causes for seizures, so ideally both the seizure and the underlying cause are addressed simultaneously. When following this protocol, primary focus should be controlling the seizure and protecting the patient from complications (e.g. aspiration, trauma). However, if a known/suggested cause exists, this should also be addressed (e.g. High Altitude Cerebral Edema [HACE], dehydration, or hyperthermia).

Contact base hospital for guidelines as this is one of the rare circumstances where two protocols may need to be followed simultaneously. For example, a seizing patient with High Altitude Cerebral Edema (HACE) may need Dexamethasone, Midazolam, and rapid descent to lower altitudes; a hyperthermic and seizing patient may need Acetaminophen, Midazolam, and active cooling measures.

Transport Priorities Consider air transport for patients with unmanageable airways, unstable vital signs, worsening mental status, mental status failing to improve, continuing to seize, hyperthermia, or HACE.

AMA/TAR **TAR is not acceptable for patients who have seized.**
AMA is possible for a patient who has seized but now has a completely normal mental status. This is most likely to occur in a patient with a known seizure disorder who has a typical seizure. All seizure patients should be told to avoid situations that would be dangerous were they to have another seizure, including driving.
Parks without base hospitals should follow local medical advisor approved EMS policy.

Documentation Issues under assessment Reassessment of mental status
Treatment rendered and Response to therapy

SEIZURES

Cross References

Procedures:
Oxygen Administration
Spine Immobilization
Wound Care

Protocols:
Altered Mental Status/Altered Level of Consciousness (ALOC)
Altitude Illness (HACE)
Cardiac Arrest (Adult Medical)
Heat Illness
Major Trauma – Adult
Pediatric – Medical Arrest
Pediatric Vital Signs

SHOCK WITHOUT TRAUMA

Emergency Medical Responder

1. ABC's

A. Airway

Assess for adequate airway (15 seconds)

- If awake and speaking clearly go to breathing
- If unconscious – look, listen, feel for air movement

If airway inadequate:

- Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
- Adjuncts – OPA, NPA (adults only), Suction

Do not place objects in the mouth while seizing

If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

B. Breathing

Assess for adequate breathing (15 seconds)

- Good chest rise
- Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
- No cyanosis

If breathing is inadequate assist as below

- Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
- Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

C. Circulation

Assess for adequate circulation (15 seconds)

- If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
- Apply AED if non-trauma situation

If pulse is present

- Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
- Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
- Bring AED to patient's side if non-trauma situation
- Cover patient (except hyperthermia)

2. Oxygen — **REFERENCE** PROCEDURE**:** *Oxygen Administration*

Stable: Low flow

Unstable: High flow or BVM as indicated

3. Assessment — Vitals, mental status, history, JVD, heart sounds, lung sounds, edema, fever, pain, bleeding, pregnancy, PMH, medications, capillary refill.

Classify type of shock – see Special Considerations.

If anaphylaxis, **GO TO** PROTOCOL: *Allergic Reactions*, and start with Step 4: "Epinephrine;" otherwise, continue this protocol.

Signs of Shock: ANY PERSON WHO IS COOL AND TACHYCARDIC IS CONSIDERED TO BE IN SHOCK UNTIL PROVEN OTHERWISE.

<u>Adults:</u>

Cool moist skin

Decreased Mental Status SBP < 100 (later sign) Tachycardia > 100

<u>Pediatric</u>:

Children compensate for shock better than adults. This will present as tachycardia. DECREASED BLOOD PRESSURE IS A SIGN OF LATE/CRITICAL SHOCK. Other signs include lethargy and cool pale skin.

SHOCK WITHOUT TRAUMA

4. Transport/
   ALS Backup — Consider air transport for all patients

5. Base contact

Emergency Medical Responder Base Hospital/Radio Failure Orders

1. Epinephrine Auto-injector — Repeat dose every 10 minutes until severe symptoms resolve. Increase frequency to every 5 minutes if symptoms worsening.

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (>30) may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates (10 – 30 per minute) with shallow breaths, may still need your assistance due to hypoventilation
- Consider insulating patient from the ground with blankets

General Signs of Shock: Any person who is cool and tachycardic is considered to be in shock until proven otherwise.

Adults: Skin signs may cary from cool/moist to hot/flushed
Altered mental status
Tachycardia (HR>100)
Hypotesnive (SBP<100, later sign)

Pediatric: Skin signs may vary from cool/moist to hot/flushed
Altered mental status or lethargy
Tachycardia (PROTOCOL: *Pediatric Parameters)*
School age: HR > 120
Preschool: HR > 140
Infant: HR > 160

Note: Hypotensive: Children compensate for shock better than adults.
Tachycardia is an early sign. Decreased blood pressure is a sign of critical shock.

Types of Shock:

Cardiogenic: Inability of heart to pump blood secondary to pump failure (CHF).
May be due to MI without chest pain, consider aspirin.

Obstructive shock: Inability of the heart to properly fill, thereby reducing cardiac output (e.g. tamponade, pulmonary embolism, tension pneumothorax).

Hypovolemic: Low blood volume secondary to:
Hemorrhagic shock: external or internal bleeding.
Dehydration: fluid loss (internal or external) or poor fluid intake.

Distributive: Inability to properly distribute fluid in the body due to peripheral vasodilation.
Examples are:
Neurogenic: CNS damage/cord injury
Septic shock: overwhelming infection
Anaphylaxis
Drug ingestion

SHOCK WITHOUT TRAUMA

Transport

Consider air transport for all patients in shock.

AMA/TAR

All should be transported or AMA after base contact.
Parks without base hospitals should follow local medical control protocol.

Classify Type of Shock: (Usual signs/symptoms listed below)

Type of Shock	History	Physical Exam	Patient Medications	Treatment Considerations
Cardiogenic	Heart disease; Chest pain; Orthopnea; SOB; PMH: MI, angina, CHF, dialysis.	Pulmonary edema (wet lung sounds); cool; diaphoretic; peripheral edema.	Lasix; Nitroglycerine; Digoxin; Beta-blocker; Calcium channel blocker; ACE inhibitors, Aspirin.	Difficult to treat in the field.
Pericardial Tamponade	MI in last 2 wks; Chest trauma; Recent heart/chest surgery; Cancer	Normal lung sounds; +/- Muffled heart sounds; JVD.	Similar to cardiogenic meds.	Fluids
Pulmonary Embolism	Postpartum; Blood clot in leg; Long car/plane ride; Immobilized (cast).	Normal lung sounds; JVD; +/- Swollen leg; +/- Normal exam; +/- Smoker.	Birth control pills; Coumadin.	Fluids
Tension Pneumothorax	Chest pain; SOB; Recent procedure or prior pneumothorax; Lung disease (COPD); HIV.	Absent breath sounds on one side with hyperresonnance; Deviated trachea; JVD.	Inhalers; Isoniazid.	Needle thoracostomy; Consider fluids.
Hypovolemic	Vomiting; diarrhea; fever; GI/Vaginal bleeding; Decreased PO; Abdominal pain.	Normal lung sounds; Flat neck veins; Signs of bleeding; Fever.	Anti-diarrheal; Anti-emetic; Proton pump inhibitor.	Multiple fluid boluses may be necessary.
Neurogenic	PMH: spinal cord injury; Lower extremity weakness.	Normal lung sounds; Flat neck veins; Warm skin; Lower extremity weakness; Bradycardia.		IV fluid boluses.
Septic	Recent fever or infection,	Normal/Wet lung sounds; Flat neck veins; Warm skin; Lethargic.	Antibiotics	Multiple fluid boluses may be necessary.
Anaphylactic	Onset after food/drug/ sting exposure; Prior reactions.	Normal lung sounds or wheezing/stridor; Flat neck veins; Rash; Red skin; Airway edema; +/- Med Alert Tag.	Epinephrine auto-injector; Benadryl.	Consider Epinephrine, Benadryl, Albuterol and fluids.
Heat Stroke	Hot weather and exertion; Dehydration.	Normal lung sounds; Flat neck veins; High temperature.	None	IV fluid bolus; Cooling measures.
Drugs (toxin, street drugs, carbon monoxide, organophosphate, cyanide)	IV drug abuse; Closed environment with chemicals or fire; Farm worker.	Highly variable vitals, skin, lung, eye and mental status findings.	None	Give Naloxone before ALS airway if suspect narcotics; Fluids.

Cross References

Procedures:
Epinephrine Auto-Injector
Oxygen Administration

TRAUMA ARREST
(Adult and Pediatric)

Emergency Medical Responder

1. Confirm arrest

Confirm (when possible two rescuers should perform examination):
No response to aggressive stimulation
No pulse for 15 seconds
No spontaneous respirations for 15 seconds If all of the above criteria are met start CPR

Do not attempt CPR in the following cases:
- Rigor mortis, lividity, or obviously fatal trauma.
- Documented pulseless downtime greater than 15 minutes. In specific SPECIAL CASES (cold water drowning, hypothermia, barbiturate ingestion, pediatric patients, electrocution or lightning strike) downtime is extended to 30 minutes.

2. ABC's

A. Airway

Assess for adequate airway (15 seconds)
- If awake and speaking clearly go to breathing
- If unconscious – look, listen, feel for air movement

If airway inadequate:
- Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
- Adjuncts – OPA, NPA (adults only), Suction

Do not place objects in the mouth while seizing
If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

B. Breathing

Assess for adequate breathing (15 seconds)
- Good chest rise
- Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
- No cyanosis

If breathing is inadequate assist as below
- Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
- Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

C. Circulation

Assess for adequate circulation (15 seconds)
- If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
- Apply AED if non-trauma situation

If pulse is present
- Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
- Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
- Bring AED to patient's side if non-trauma situation
- Cover patient (except hyperthermia)

3. Transport/ Backup

Transport if patient regains pulse or is within 5 minutes of health care facility (15 minutes for pediatrics).

4. Reassess

If still in arrest (all of the above criteria are still met) TERMINATE CPR. Do not attempt further resuscitation. Patient shall be pronounced dead and the appropriate law enforcement actions taken after other injured parties are cared for.

5. Base Contact

TRAUMA ARREST
(Adult and Pediatric)

SPECIAL CONSIDERATIONS

Regardless of age, victims of traumatic arrest almost never survive unless they are within minutes of a hospital and even in that setting survival without neurological impairment is rare. Providing futile care will distract you from caring for potentially viable patients, keeps personnel out of service and unavailable for other emergencies, and puts park personnel at risk of injury from rescue, transportation, and body fluid exposures (e.g. needle stick). On rare occasions an AED may be lifesaving with isolated blunt chest trauma (especially in pediatrics). This can include trivial trauma e.g. baseball to chest.

Assessment

Pupils that are fixed and dilated may be misleading and are not always reliable as a sign of death. Hypothermic patients have a higher likelihood of survival and can mimic death.

Cross Reference

Procedures	**Protocols**
Airway Obstruction	Altered Mental Status/Altered Level of Consciousness (ALOC)
Oxygen Administration	Cardiac Arrest (Adult Medical)
Wound Care	Hypothermia
	Major Trauma – Adult
	Pediatric – Medical Arrest
	Pediatric – Vital Signs

VAGINAL BLEEDING

Emergency Medical Responder

1. ABC's
   A. Airway
      Assess for adequate airway (15 seconds)
      - If awake and speaking clearly go to breathing
      - If unconscious – look, listen, feel for air movement

      If airway inadequate:
      - Maneuvers - head tilt, chin lift (medical patients) or jaw thrust (trauma patients)
      - Adjuncts – OPA, NPA (adults only), Suction

      Do not place objects in the mouth while seizing
      If foreign body obstruction – **REFERENCE** PROCEDURE: *Airway Obstruction*

   B. Breathing
      Assess for adequate breathing (15 seconds)
      - Good chest rise
      - Rate between 10 and 30 (adults), Age appropriate in pediatric patients – **REFERENCE** PROTOCOL: *Pediatric Vital Signs*
      - No cyanosis

      If breathing is inadequate assist as below
      - Administer oxygen (nasal cannula/face mask/BVM); **REFERENCE** PROCEDURE *Oxygen Administration*
      - Assist ventilation – mouth to mask, BVM when respiratory rate < 10 or AVPU of P or less

   C. Circulation
      Assess for adequate circulation (15 seconds)
      - If no pulse, begin compressions - **GO TO** PROTOCOL *Cardiac Arrest (Adult Medical) or Pediatric – Medical Arrest*
      - Apply AED if non-trauma situation

      If pulse is present
      - Assess for adequate circulation (blood pressure, capillary refill, mental status, skin signs)
      - Obvious blood loss (apply pressure/bandage/tourniquet) **REFERENCE** PROCEDURE *Wound Care*
      - Bring AED to patient's side if non-trauma situation
      - Cover patient (except hyperthermia)

2. Assessment — Mental status, dizziness/syncope, amount of bleeding, pregnancy, date of last period, abdominal pain, blood pressure (high or low) if pregnant
   If greater than 5 mos. pregnant, consider labor. **REFERENCE** Protocol *Childbirth*

3. Treat shock — If in shock and pregnant, lay patient in left lateral decubitis position, (flat on left side) and arrange immediate backup

4. Transport — All patients are transported unless cleared by base.
   If signs of shock, consider air transport.
   If patient is greater than 5 months pregnant, place on left side.

5. Base contact

VAGINAL BLEEDING

SPECIAL CONSIDERATIONS

- Patients with rapid respirations (> 30), may need assisted ventilations, but may not tolerate your attempts
- Normal respiratory rates 10 – 30 with shallow breaths, may still need your assistance due to hypoventilation
- Consider insulating patient from the ground with blankets

Assessment

A. Signs of shock – tachycardia, hypotension, dizziness, syncope
B. Bleeding – duration and amount (soaked pads per hour), passing tissue
C. Menstrual history – date of last menstrual period (LMP), Is this a typical period, was the last period normal and on time?
D. Pregnancy – If known pregnancy, how many weeks? Any problems with pregnancy? (high blood pressure / eclampsia), assess for signs of labor (visible/palpable abdominal contractions, urge to push)
E. Abdominal pain – location (suprapubic, back, isolated R or L lower quadrant), cramping, Is this like prior labor pain or menstrual cramps?
F. If hypotensive, tachycardic or dizzy, treat as hypovolemic shock.
G. PMH: prior pregnancy problems including ectopic (tubal pregnancy), pelvic infections, STD's

Differential Diagnosis

1. First and Second Trimester bleeding (up to 20 wks)
   a. Ectopic pregnancy – a ruptured ectopic pregnancy is a life threatening emergency. There may be little to no vaginal bleeding but internal hemorrhage may be present. Patients typically have more abdominal pain than bleeding. Watch for shock.
   b. Threatened abortion (bleeding during pregnancy) – Many women will not know or may be in denial about being pregnant. ALWAYS ask LMP (last menstrual period) and if more than a month, assume pregnancy if in child bearing years (10-50 y.o.)
   c. Spontaneous Abortion (miscarriage) – If patient is passing tissue, save it and bring it to the hospital. It can be important to determine if all fetal contents have passed.
2. Delivery – be prepared for possible premature delivery if late term pregnancy. See Childbirth Protocol.
3. Third trimester bleeding (over 20 wks)
   a. Abruptio placentae (placenta separates from uterus) high risk of fetal death, can occur after blunt trauma
4. Regular menses – common cause of vaginal bleeding
5. Trauma - consider pelvic fracture or placental bleeding if in third trimester
6. Foreign body (IUD, rape) – consider uterine perforation (rare)
7. Hormonal imbalance – irregular menses (very common)
8. Tumors – cervical and uterine
9. Non-vaginal sources – rectal or urethral

Transport – Immediate transport if suspect pregnancy and/or abnormal vital signs.

Treat and Release – No patient should be released at scene without base contact.

Documentation

1. Frequent vital signs and symptoms of shock (dizziness, syncope, pallor)
2. Menstrual history (as above)
3. Bleeding – amount and duration
4. Presence of passed tissue
5. Abdominal Pain

Cross Reference

Procedure	**Protocol**
Airway Obstruction	Cardiac Arrest (Adult Medical)
Oxygen Administration	Childbirth
Wound Care	Pediatric – Medical Arrest
	Pediatric – Vital Signs

Acetaminophen (Tylenol)

Scope Emergency Medical Responder – encourage patient to take their own

Class Antipyretic, analgesic

Action Elevates pain threshold and readjusts hypothalamic temperature-regulatory center.

Onset PO/PR: 20 minutes

Duration 4 hours

Indications
Altitude illness
Febrile seizure
Fever
Mild pain

Contraindications Known hypersensitivity (rare)

Form
325 or 500 mg tablets
160 mg/5 ml liquid

Dosage

> 10-Adult: 1,000 (975)_mg PO every 4-6 hours.
Do not exceed 4,000 mg in 24 hours.

0-10 yrs.: 15mg/kg PO every 4-6 hours, max dose 1,000mg.
Do not exceed 4,000 mg in 24 hours.

Notes Small quantities of Acetaminophen may be supplied to any person if requested for self administration. The person should be offered an evaluation. A PCR does not need to be filled out if the person declines the evaluation and appears well. **REFERENCE** PROCEDURE: *When to Initiate a PCR (Patient Care Report/Run Sheet).*
If the person appears acutely ill in your judgment, do your best to convince the person of the need for evaluation. A PCR shall be completed in this instance, even if the evaluation is declined.
In general, Acetaminophen and Ibuprofen are interchangeable. The decision should be based on patient preference and contraindications.

Cross Reference

Procedures:
When to Initiate a PCR (Patient Care Report/Run Sheet)

Protocols:
Altitude Illness
Bites and Stings
Burns
Childbirth
Electrical and Lightning Injuries
Eye Trauma
Frostbite
General Medical Illness - Adult
Minor or Isolated Extremity Trauma
Pediatric – Medical Illness/Fever
Respiratory Distress
Seizures
Vaginal Bleeding

Drugs:
Ibuprofen (Motrin, Advil)

Albuterol or Metaproterenol Sulfate
(Alupent, Metaprel, Albuterol)

Emergency Medical Responder

Scope: Emergency Medical Responder – encourage patient to take their own.

Class: Sympathomimetic B2 agonist

Actions: Relaxes bronchial smooth muscle causing bronchodilation

Onset: Immediate

Duration: 2-4 hours

Indications: Respiratory distress with bronchospasm (allergic reaction, asthma, COPD)

Contraindications:
Chest pain suspected to be of cardiac origin
Acute MI within the past 6 weeks
Severe hypertension

Side Effects: (uncommon when taken in recommended doses)
Palpitations, tremor, anxiety

Dosage: Albuterol MDI:

Adult: 4 puffs, on consecutive breaths during mid inspiration.
Then one puff every minute for up to 10 minutes (14 puffs total).
Consider additional doses or nebulizer if symptoms persist.

Peds: < 1 year: 1 puff a minute up to six puffs then base contact
> 1 year: 2 puffs a minute up to six puffs then base contact
If symptoms persist, additional doses per protocol.

Forms: Metered Dose Inhaler (MDI)

Notes:
1. Assess breath sounds, respiratory effort, level of distress and vitals before and after administration.
2. Use nebulizer if age or respiratory distress precludes use of MDI.

Cross Reference

Procedures:	**Protocols:**	**Drugs:**
	Allergic Reactions	Atrovent
	Altitude Illness	
	HAPE – Special Considerations	
	Respiratory Distress	
	Bronchospasm (Asthma/COPD)	
	Pneumonia	

Aspirin (Acetylsalicylic acid)

Emergency Medical Responder

Scope: Emergency Medical Responder – encourage patient to take their own

Class: Analgesic
Anti-platelet – Anti-clotting

Action: Analgesia
Inhibits prostaglandin synthesis for anti-inflammatory and anti pyretic (fever) effect
Inhibits platelet aggregation and reduces chances of complete coronary artery blockage in an AMI therefore reducing the loss of heart muscle

Onset: 5-30 minutes

Duration: 1-4 hours

Indications: Chest pain suggestive of acute myocardial infarction

Contraindications:
Allergy to Aspirin OR other non-steroidal anti-inflammatory (Motrin, Ibuprofen)
*Many people are told not to take aspirin because it upsets their stomach or they have a history of GI bleeding (ie: ulcers). In the setting of cardiac chest pain this is NOT a contraindication.
Active, uncontrolled bleeding

Side Effects: Stomach irritation, nausea
Tinnitus (ringing in the ears) in an overdose situation
Bleeding with chronic use

Dosage: Adults: 325 mg PO single dose

Form: Two tablet packs, each tablet 325 mg

Notes:
1. Aspirin is THE MOST important drug to give during an acute myocardial infarction (MI).
2. The sooner aspirin is given to a patient having an acute MI, the less damage to the patients heart.
3. If patient has a history of a bleeding disorder or is on anticoagulants, contact base before administering aspirin.
4. If patient takes aspirin daily and has already taken it within 12 hours, you don't need to administer it. If there is any doubt, give the above dose.
5. An acute aspirin overdose is potentially lethal. Signs/symptoms include: tinnitus, vomiting, rapid respirations, high fever, seizure, hypoglycemia, altered mental status.
6. For fever reduction use Acetaminophen (Tylenol) NOT aspirin.

Cross Reference

Procedures:

Protocols:
Chest Pain – Cardiac
Respiratory Distress (Pulmonary Edema, CHF)

Epinephrine (Auto-Injector)

Emergency Medical Responder

Scope: Emergency Medical Responder (if certified in Auto-injector)

Class: Catecholamine
Sympathomimetic

Action: Cardiovascular - Increased strength of heart muscle contraction.
Increases heart rate.
Increases systolic blood pressure.
Respiratory - Bronchodilation

Onset: IV: Immediate IM: 5-15 minutes

Duration: IV: 5 minutes-1hour IM: 1-4 hours

Indications: Asthma exacerbation
Anaphylaxis/Allergic reaction
Shock without Trauma

Contraindications:
In hypoxic or severe asthma – none.
In anaphylaxis – none.

Relative contra-indications
Severe hypertension
Coronary artery disease
Cocaine use

Side effects: Hypertension, Tachycardia, Palpitations, Headache, Anxiety

Dosage: EMR: Asthma (severe) – Auto-injector
0.3 ml IM (1 ml = 1 mg)

Anaphylaxis (allergic reactions)
0.3 ml IM (1 ml = 1 mg)
May repeat dose every 10 minutes until severe symptoms resolve.
Increase frequency to every 5 minutes if symptoms worsen

Shock without trauma (base hospital radio failure order)
0.3 ml IM (1 ml = 1 mg)
Repeat dose every 10 minutes until severe symptoms resolve.
Increase frequency to every 5 minutes if symptoms worsening.

Forms: Auto-injector (1:1,000)

Cross Reference

Procedures:

Protocols:
Allergic Reactions
Respiratory Distress – Upper Airway Obstruction, Bronchospasm (Asthma/COPD)
Shock without Trauma

Ibuprofen (Motrin, Advil)

Scope	Emergency Medical Responder – encourage patient to take their own
Class	Antipyretic Analgesic Non-Steroidal Anti-Inflammatory Drug (NSAID)
Action	Prostaglandin synthetase inhibition
Onset	PO: 20 minutes
Duration	6–8 hours
Indications	Fever Pain
Contraindications	Known hypersensitivity Pregnancy Known ulcer or GI bleeding Trauma other than isolated extremity Known renal disease
Side Effects	GI upset
Form	200mg tablet 100mg/5ml liquid
Dosage	Adult: 600 mg PO every 6 hours 10-14 yrs: 200mg tablet PO every 6 hours 6mo-10yrs: 10 mg/kg (max dose 200mg) liquid PO every 6 hours
Notes	Small quantities of Ibuprofen may be supplied to any person if requested for self-administration. The person should be offered an evaluation. A PCR does not need to be filled out if the person declines the evaluation and appears well. **REFERENCE** PROCEDURE: *When to Initiate a PCR (Patient Care Report/Run Sheet).* If the person appears acutely ill in your judgment, do your best to convince the person of the need for evaluation. A PCR shall be completed in this instance, even if the evaluation is declined. In general, Ibuprofen and Acetaminophen are interchangeable. The decision should be based on patient preference and contraindications.

Cross Reference

Procedures:	**Protocols:**	**Drugs:**
When to Initiate a PCR (Patient Care Report/Run Sheet)	Bites and Stings Burns Electrical and Lightning Injuries Frostbite General Medical Illness – Adult Minor or Isolated Extremity Trauma Pediatric Medical Illness/Fever	Acetaminophen (Tylenol)

Naloxone (Narcan)

Scope	EMR, EMT, Parkmedic and Paramedic
Class	Narcotic Antagonist
Action	Competes with opiates for receptor sites in the brain that affect pain and breathing, thereby reversing the respiratory and CNS depressant effects of opiate drugs.
Onset	IN 3-5 minutes
Peak Effect	20 minutes
Duration	1- 2 hours
Indications	Suspected opiate intoxication (pinpoint pupils, decreased respiratory rate, drug paraphernalia) with depressed mental status AND apnea or slow shallow breathing.
Contraindications	Infants less then 28 days old, Known allergy to naloxone
Side Effects	Causes opiate withdrawal in patients with opioid addiction/chronic exposure (anxiety, agitation, piloerection, body aches, diarrhea, diaphoresis, yawning) Rare - Pulmonary edema, acute myocardial infarction, ventricular arrhythmias
Form	Ampule: Various sizes: 1mg, 2mg, 10mg Preload: 2mg in 2ml
Dosage	*See Mucosal Atomizer Device (MAD) Procedure for administration of IN dosing* > 10-Adults: IN: 2mg every 5 minutes prn ALOC (max 10mg) < 10 yrs: IN: 0.1mg/kg (max 2mg per dose) every 5 minutes (max 10 mg)

Notes	If 10mg of naloxone is given and there is no response, then ALOC is unlikely due to opiates (Other considerations- hypoglycemia, head injury, hypothermia, hypoxia, shock, stroke) Pinpoint pupils are the classic sign of narcotic use/overdose, but with multi-drug intoxications, pupil findings may be variable.

Naloxone (Narcan)

Naloxone has NO side effects in the absence of opiates or opiate addiction. It is remarkably safe, so do not hesitate to use if indicated
Naloxone has a shorter duration than many opiates, so observe closely for re-sedation and repeat doses as necessary. Also, important to strongly discourage patients who attempt to sign out against medical advice as life threatening symptoms may return as naloxone wears off

Some agents (e.g. Fentanyl) may require higher than usual doses for reversal.
Examples of narcotic preparations (natural and synthetic):

- Butorphanol (Stadol)
- Codeine (Tylenol #2,3,4)
- Dezocine (Dalgan)
- Diphenoxylate (Lomotil)
- Fentanyl (Duragesic Patch)
- Heroin
- Hydrocodone (Anexsia, Lorcet, Lortab, Vicodin, Vicoprofen)
- Hydromorphone (Dilaudid)
- Levorphanol (Levo-Dromoran)
- Loperamide (Immodium)
- Meperidine (Demerol)
- Methadone (Dolophine)
- Morphine (MS Contin, Oramorph, Roxanol)
- Nalbuphine (Nubain)
- Oxycodone (Percodan, Roxicodone, Tylox, Percocet, Roxicet)
- Pentazocine (Talwin, Talacen)
- Propoxyphene (Darvon, Darvocet)

Cross Reference

Procedures:
Mucosal Atomizer Device (MAD)

Protocols:
Altered Mental Status/Altered Level of Consciousness (ALOC)
Ingestions/Poisoning

Nitroglycerin

Emergency Medical Responder

Scope: Emergency Medical Responder– encourage patient to take their own

Class: Vasodilator

Action: Dilates the blood vessels causing: decreased peripheral arterial resistance (reduces afterload), decreased venous blood return (reduces preload) and increased blood flow to the heart by dilating coronary arteries.
Decreases blood pressure and cardiac output therefore reducing workload of the heart and oxygen demand

Onset: Tablet/Spray: Immediate to 2 minutes

Duration: Tablet/Spray: 10-30 minutes

Indications: Cardiac chest pain (angina or acute MI)
Pulmonary edema –CHF (NOT HAPE or non cardiogenic) and only with base order.

Contraindications:
Hypotension (SPB<100)
Cerebral edema/increased intracranial pressure

Side Effects: Headache, dizziness, hypotension, tachycardia, flushing, diaphoresis, rash

Dose: **Chest Pain:** Tablets/Sprays: 0.4mg (one tablet SL under tongue or spray actuation)
Repeat every 5 minutes to pain relief or a maximum of 3 tablets
Only repeat dose IF ALL are present: SBP greater than 100, ongoing chest pain and normal mental status and neuro exam.
Check vitals and symptoms after each dose.

CHF: Tablets/Sprays:
If SBP 100-120: 0.4mg (1 tab/spray) sublingual If
SBP 120-200: 0.8mg (2 tabs/sprays) sublingual
If SBP > 200: 1.2 mg (3 tabs/sprays) and call base

Paste: One inch applied to special paper and applied to anterior chest wall
Only apply IF SBP greater than 100. If SPB goes below 100, wipe paste off.

Form: Tablets: 0.4 mg per tablet (25 tablets per bottle)
Spray: 0.4 mg per actuation

Notes:
1. Not indicated for children
2. Recheck blood pressure, vitals, mental status and symptoms 2-3 minutes after each dose.
3. Patient should not chew or swallow tablets. They are designed to dissolve under the tongue.
4. Patients taking nitrates chronically may develop a tolerance to them and require higher doses.

Cross Reference

Procedures:

Protocols:
Chest Pain – Cardiac
Respiratory Distress – Pulmonary Edema (CHF)