

**JACKSON COUNTY  
EMS  
STANDING ORDERS**

**SEPTEMBER 2022**

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# AUTHORIZATION

This memorandum provides the authority for the EMS Providers - Emergency Medical Responders (EMRs), Emergency Medical Technicians (EMTs), Advanced Emergency Medical Technicians (AEMTs), Oregon EMT-Is, and Paramedics - employed by or providing volunteer services for EMS agencies in Jackson County listed below to function under their appropriate scope of practice and the written protocols contained herein.

Applegate Valley Fire District  
Ashland Fire and Rescue  
Butte Falls Fire Department  
Emergency Communications Center of Southern Oregon  
Evans Valley Fire  
Greensprings Rural Fire District  
Jackson County Fire District 3  
Jackson County Fire District 5  
Jacksonville Fire Department  
Medford Airport Fire  
Medford Fire Department  
Mercy Flights, Inc.  
Prospect Fire Department  
Rogue River Fire Department  
Shady Cove Fire Department

These written protocols for pre-hospital care operate on the principle that the EMS Providers assume considerable latitude in the decisions regarding assessment and treatment of patients on scene and during transport. The success of these protocols depends on the training, continuing education, clinical judgment, and personal integrity of all who provide medical services under this agreement.

These protocols shall be in effect September 1, 2023 until revised or amended. These new protocols supersede and make void any and all protocols written and approved prior to this date.

A handwritten signature in black ink, appearing to read 'Alicia Bond', is written over a vertical line that extends from the signature down to the typed name below.

Alicia Bond, MD  
Supervising Physician

# ACKNOWLEDGMENTS

Dr. Bond would like to thank the following partners who have contributed to the development of this protocol update and improving pre-hospital and inter-facility care in Jackson County:

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Thanks to all others from various agencies who provided valuable feedback.

# SUMMARY OF CHANGES

## ADMINISTRATIVE RULES AND OPERATING PROCEDURES

- F. Evaluate, Treat, Refusal – Added language on lift assists; added hospice patients to list of patients who can refuse after medical treatment without OLMC
- K. Continuous Quality Improvement Plan – Added ketamine administration to mandatory chart review
- T. ARMS – Clarified that ARMS is not activated from the field

## PATIENT CARE PROTOCOLS

- **Adrenal insufficiency – New**
- Altered Level of Consciousness – Added information about sudden-onset coma
- Anaphylaxis – Added oral diphenhydramine for EMT
- **Cardiac – STEMI – Activation criteria now includes posterior leads**
- Cardiac – PEA – Added calcium gluconate for slow/wide PEA and updated H/T tables
- Diltiazem/Narrow complex tachycardia – Clarified diltiazem administration for atrial flutter
- Dystonic Reaction – Added oral diphenhydramine for EMT
- Encephalopathy and Psychiatric Disorders – name changed from Delirium and Psychiatric Disorders, and updated suggested medications
- Hyperglycemia – Changed bolus fluids for pediatrics
- **Hyperkalemia – New**
- Nausea and Vomiting – Added oral diphenhydramine for EMT
- Pain management – Added cold/heat pack and acetaminophen
- Poisons and Overdose – Added one-pill kills
- Sepsis/shock – Clarified trauma indications for epinephrine/norepinephrine
- **Stroke – Updated flowsheet and added new screening tool for posterior stroke**
- **Trauma – Updated activation criteria to match new National Guideline; added MARCH**

## **PRE-HOSPITAL MEDICATIONS**

- Acetaminophen – Change to optional, added pain indication and clarified scope
- Albuterol – Added indication and dosing for hyperkalemia
- Amiodarone – Removed dilution instructions for push
- Calcium gluconate – Added indication for hyperkalemia and slow/wide PEA and adjusted dosing
- Cyanokit – Pediatric dosing table added
- Diphenhydramine – Added oral dosing for EMT
- **Epinephrine – Changed dose for pediatric bradycardia from cardiac dose to push-dose**
- Naloxone – Updated indications and removed maximum dose
- Norepinephrine – Clarified trauma indications
- Ondansetron – Added oral dosing for pediatrics 2-12
- Sodium bicarbonate – Updated indications and repeat dosing
- TXA – Updated indications and parameters for pediatrics

## **PROCEDURES**

- **12-lead – Added instructions for posterior leads**
- **CPR – High Performance – Clarified expectation for stay-and-play for both adults and pediatrics; added goal of early epinephrine**
- **CPR – Traumatic Cardiac Arrest – Updated flow and new flowsheet**
- **Defibrillation – Subsequent shocks for pediatrics increase by 2J/kg to adult dose**
- **Intraosseous infusion – Added distal femur for adults**
- Needle cricothyrotomy – BVM added as an option with instructions
- **PEEP Valve – New**
- Post-Intubation Management – Moved to procedures, updated and simplified
- Sedation - Clarified indications
- Vagal Maneuvers – Clarified scope

# **ADMINISTRATIVE RULES AND OPERATIONS PROTOCOLS**

## A. ROLE AND RESPONSIBILITY OF SUPERVISING PHYSICIAN / MEDICAL DIRECTOR

The EMS supervising physician will fulfill the responsibilities as described in current [Oregon Administrative Rules \(OAR 847-035\)](http://arcweb.sos.state.or.us/pages/rules/oars_800/oar_847/847_035.html)  
([http://arcweb.sos.state.or.us/pages/rules/oars\\_800/oar\\_847/847\\_035.html](http://arcweb.sos.state.or.us/pages/rules/oars_800/oar_847/847_035.html))

The EMS medical director of a licensed ambulance agency will fulfill the responsibilities as described in current Oregon Administrative Rules:

- [OAR 333-250](http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_250.html)  
([http://arcweb.sos.state.or.us/pages/rules/oars\\_300/oar\\_333/333\\_250.html](http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_250.html))
- [OAR 333-255](http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_255.html)  
([http://arcweb.sos.state.or.us/pages/rules/oars\\_300/oar\\_333/333\\_255.html](http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_255.html))
- [OAR 333-265](http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_265.html)  
([http://arcweb.sos.state.or.us/pages/rules/oars\\_300/oar\\_333/333\\_265.html](http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_265.html))

## **B. STANDARD OF CARE FOR EMS PROVIDERS**

1. All EMS Providers will be expected to conduct themselves in a professional manner.
2. EMS Providers will treat all patients with dignity and respect. Patient's medical information will be treated in a confidential manner.
3. EMS Providers' first priority in the field will be scene safety for themselves, patients and the public. This may include staging a safe distance away until scene is safe. This will include the use of appropriate personal protective equipment.
4. Patients with the most severe or life-threatening injuries or illnesses will be treated first, except in the event of a multiple patient scene/mass casualty incident where the field resources are overwhelmed (see MCI Protocol).
5. Patient management will begin with basic life support as appropriate. Once adequate life support is established, EMS personnel will perform the primary and secondary survey to determine and then treat illness or injury.
6. Treatment and drug standing orders will be followed based on the patient's condition and the EMS Providers' level of training and licensure.
7. Patient's condition will be monitored frequently including vital signs (pulse, blood pressure, temperature, respirations), pulse oximetry, mental status, etc.
8. EMS Providers are expected to use their knowledge, training, judgement and expertise in pre-hospital care when caring for patients under these standing orders. EMS Providers will not exceed their respective scopes of practice as established by Oregon law.
9. When possible and appropriate, pre-hospital personnel will follow the desires and wishes of patients and their families.
10. Patient care will include documentation in a professional and timely manner to facilitate further evaluation and treatment.
11. Differences of opinion and criticism of agencies or personnel will not interfere with patient care. If not quickly, quietly and easily resolvable in the field, such matters should be referred to the agencies involved or the supervising physician for investigation, discussion and resolution.

## C. SCOPE OF PRACTICE

EMS Providers shall always function within their scope of practice even if requested to do otherwise. EMS Providers operating under these standing orders have the scope of practice as described in current Oregon Administrative Rules (OAR) [847-035](http://arcweb.sos.state.or.us/pages/rules/oars_800/oar_847/847_035.html) ([http://arcweb.sos.state.or.us/pages/rules/oars\\_800/oar\\_847/847\\_035.html](http://arcweb.sos.state.or.us/pages/rules/oars_800/oar_847/847_035.html)) and [333-265](http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_265.html) ([http://arcweb.sos.state.or.us/pages/rules/oars\\_300/oar\\_333/333\\_265.html](http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_333/333_265.html)) and are expected to provide this level of care.

Oregon EMS personnel levels are now in line with those of the National Registry of EMTs (NREMT). Here are the current levels:

1. Emergency Medical Responder (EMR)
2. Emergency Medical Technician (EMT)
3. Advanced Emergency Medical Technician (AEMT)
4. EMT-Intermediate (EMT-I) *Oregon-only*
5. Paramedic

Registered Nurses (RNs) may operate under these protocols as follows:

- RNs employed on the Mercy Flights Critical Care team may operate with paramedic scope of practice under these Standing Orders, with additional practice duties as specified in the Mercy Flights Flight Standing Orders
- RNs who wish to volunteer with one of the Fire EMS Agencies will meet with the Supervising Physician at least annually to develop and review an individualized Scope of Practice Plan based on the experience and training of the RN



## **D. SCENE AUTHORITY**

### **MEDICAL DECISIONS**

EMS Providers on scene shall cooperate in providing the optimum care for the patient. It is important to recognize and utilize the training and expertise of all available personnel. The highest-level EMS Provider on the scene shall be responsible for patient care and transport decisions until released to an EMS Provider of equal or higher level. Upon making patient contact, the EMS Provider with the transporting agency shall be responsible for patient care and transport decisions. First responding unit may assist with the patient care during transport. Information regarding the injury or illness, as appropriate for continued medical care, shall be communicated to the transporting EMS Providers.

### **TRANSFER OF PATIENT CARE**

When patient care is being transferred from one EMS Provider to another, a formal transfer of patient care must take place. Upon arrival of the transporting agency the EMS Provider already on scene and the EMS Provider that is assuming care will clearly identify themselves to each other. As soon as is practical the on-scene EMS Provider shall then give an oral report to the EMS Provider from the transporting agency. Information regarding the injury or illness, as well as any treatment performed, shall be communicated to the transporting EMS Provider to ensure continued medical care. Under no circumstances shall transporting units arriving on scene be denied immediate access to the patient.

EMS Providers from the first responding agency may be asked to assist with the patient care during transport. During transport all EMS Providers present should work cooperatively to provide patient care. During transport, all patient care and transport decisions will remain the responsibility of the transporting EMS Provider.

### **CPR IN PROGRESS**

The EMS provider with the transporting agency is responsible for the patient care once they arrive on scene. If first response and transporting agencies arrive on scene within the first two minutes of resuscitation, either agency may take the lead role, but the ultimate discretion for role assignment lies with the transporting agency.

If the first response agency is on scene longer than two minutes before the transporting agency arrives AND have established roles and resuscitation rhythm, transfer of care may be delayed. When transporting agency or additional crew arrives, oncoming provider will identify themselves and ask, "How can I help?" and "Would you like to maintain lead?" (if appropriate). Lead Role provider will give a brief verbal report and either continue in the Lead Role, directing oncoming ALS providers to either the IV and Meds or Advanced Airway roles as appropriate, or give up Lead Role to the transport team.

In most scenarios, first responders will ideally maintain Lead Role so that incoming ALS providers can complete ALS tasks, and official handoff report and transfer of care from first response to transport will take place immediately after IV and advanced airway have been established. However, first response agency must provide handoff report and transfer care if

requested at any time by the transporting agency. Early handoff should generally be reserved for scenarios in which the resuscitation is not running smoothly or there are challenging scene factors. After handoff and transfer of care, transporting paramedic may reassign roles or may leave providers, including Lead, their established roles.

## **MEDICAL PROFESSIONALS ON THE SCENE**

Medical professionals at the scene of an emergency may provide assistance to EMS personnel, and shall be treated with professional courtesy.

Medical professionals who offer their assistance at the scene should be asked to identify themselves and their level of training. The EMS Provider should request that the medical professional provide proof of his/her identity if he/she wishes to assist with care given to the patient after the arrival of the EMS unit.

Physicians are the only medical professionals who may assume control of the care of the patient. The EMS Provider should recognize the knowledge and expertise of other medical professionals and use them for the best outcome of the patient. The authority for medical control of EMS Provider procedures rests with Oregon statutes, Oregon Administrative Rules, these written treatment protocols approved by the supervising physician or the receiving hospital's emergency physician when contacted.

A physician on the scene who is caring for a patient prior to the arrival of an EMS unit may retain medical responsibility for the patient if he/she so desires. The EMS Provider should advise the physician who wishes to supervise or direct patient care, that the physician must accompany the patient to the hospital to maintain continuity of patient care. The physician on the scene shall have made available to him/her the services and equipment of the EMS unit, if requested. There should be full documentation of these events, including the physician's name and address.

If a conflict arises about patient care or treatment protocols, the EMS Provider should contact the receiving hospital for assistance.

## **DISPUTES ON SCENE**

- Disagreements about care should be handled in a professional manner so as not to detract from patient care.
- Standing orders should be followed whenever possible and should be the basis for resolving disputes.
- If there is an unresolved dispute between EMS Providers and other medical professionals concerning the care of a patient, the receiving hospital may need to be contacted for resolution.
- A written incident report should be prepared concerning any dispute arising at the scene and given to the supervising physician for review.

## **FIRST RESPONDING TRANSPORT POLICY**

First responding rescue agencies, with licensed ambulance capability, may transport patients to local medical facilities under the following conditions:

- Any critical or unstable patient who is packaged and ready for transport, and whose clinical condition would likely deteriorate in the judgment of the most senior EMS Provider on scene, if there is a significant delay in the arrival of the transporting ambulance.
- If the patient requires immediate intervention beyond the capabilities of on-scene personnel, the first responding unit, whether ALS or BLS, may transport immediately.
- First responding units may transport if requested to by the ASA provider, if no provider is responding or if under contractual agreement with the ASA provider.
- In the event of a mass casualty incident, any first responding unit may transport, if directed to do so by on-scene medical branch director or incident commander.
- Any BLS responder who transports a patient that might benefit from ALS treatment must request an ALS intercept.

## **E. MEDICAL CONTROL**

### **OFF-LINE MEDICAL CONTROL**

Includes the following:

1. Standing orders approved by the supervising physician
2. Written patient orders and protocols pertaining to a specific transport
3. Case review conferences.
4. Educational programs.
5. Quality assurance case reviews.
6. Individual criticism, counseling, or advice concerning the care rendered to specific patients

### **ON-LINE MEDICAL CONTROL (OLMC)**

Refers to direct radio and/or phone communication between pre-hospital care personnel and hospital emergency departments that are staffed 24 hours a day by qualified emergency physicians. Emergency physicians should be familiar with ACLS and ATLS recommendations and be familiar with the pre-hospital care protocols and the capabilities of local EMS providers. On-line medical control may override written protocols when appropriate; such as:

1. Directing medical care for patients within pre-hospital care providers' scope of practice.
2. Routing patients to appropriate hospital destination considering the number of patients, patient needs (obstetric, pediatric, psychiatric, STEMI, stroke, trauma) or hospital availability of specialty beds, operating rooms or imaging procedures.

### **PROCEDURE FOR OBTAINING ON-LINE MEDICAL CONTROL**

1. EMS Providers will follow the appropriate standing orders for pre-hospital care. If uncertain of protocol or treatment, contact the emergency physician at the receiving hospital for on-line medical control.

ED direct phone numbers for EMS OLMC calls:

AACH - Asante Ashland Community Hospital	541-201-4100
ARRMC - Asante Rogue Regional Medical Center	541-789-7132
PMMC – Providence Medford Medical Center	541-732-6440

2. In situations where the patient's condition is judged to be critical or serious, and especially when there are multiple critically ill or injured patients, early notification of the receiving hospital is essential. This will allow proper allocation of medical resources and timely preparation for definitive care.

3. The OLMC report should be given in SBAR format:
  - S** – Situation – One sentence that explains why the EMS Provider is calling (refusal, help with medication, etc.)
  - B** – Background – Brief synopsis of the situation, including appropriate vital signs and exam findings
  - A** – Assessment – What the EMS Provider thinks the patient condition is/needs are
  - R** – Recommendation/Request – What specific thing the EMS provider wants from the OLMC physician
4. All requests by EMS Providers for medical guidance will be accommodated promptly and reflect an attitude of joint responsibility and cooperation. The on-line emergency physician shall issue treatment and transport instructions based on an objective analysis of the patient's needs and the hospital's capability and proximity. No effort shall be made to obtain institutional or commercial advantage through the use of such transport instructions and hospital assignments. When an emergency department at one hospital is acting as agent for another hospital, information regarding the patients shall be communicated to the receiving hospital in an accurate and timely manner. The transmission of information regarding patient's identity, condition, and treatment shall otherwise remain strictly confidential.
5. Documentation of OLMC consultations in the PCR will include the name of the hospital and emergency physician, as well as a summary of the OLMC request and the emergency physician direction provided. For all cases of OLMC, a copy of the PCR will be sent (faxed) to the OLMC hospital, regardless of whether or not the patient is transported.
6. All emergency departments and pre-hospital care providers operating under the protocols of these standing orders shall maintain radio communication equipment which meets the standards of the Oregon State Health Division. All first response units will have MEDNET 1 (155.340) frequency and all transport capable vehicles will have both MEDNET 1 and MEDNET 2 (155.400) frequencies.
7. Any difficulties or problems that arise within the medical control system shall be communicated to the supervising physicians for clarification or resolution.

Medical control should not unnecessarily delay medical or surgical treatment. For patients who fulfill the trauma system criteria, medical control shall rest with the emergency care facility which has received the highest category level in the catchment area as described in the trauma plan for ATAB 5 under the hospital resources section. In the event that two or more hospitals in the catchment area are categorized at the same level, medical control shall be assumed by the facility that will be receiving and caring for the patient.

## **TRIAGE AND TRANSPORT**

The decision concerning which hospital will be receiving the patient will be determined by a consideration of the following factors:

1. Trauma Activation patients:
  - a. Patients with an unstable or compromised airway will be taken to the nearest hospital for initial airway management.
  - b. Patients with a stable airway will be taken to RRMC who:
    - i. Are in the 2nd or 3rd trimester of pregnancy,
    - ii. Are 17 years of age or younger,
    - iii. Have a penetrating injury of the chest (level of the clavicle to level of the umbilicus), or
    - iv. Who may need urgent neurosurgical services by having any one of:
      - 1) GCS < 15,
      - 2) Penetrating injury of the head,
      - 3) Open or depressed skull fracture,
      - 4) Spinal cord injury with abnormal neurologic exam or
      - 5) Loss of consciousness (reported or observed).
  - c. All other Trauma Activation patients with a stable airway will be taken to either Rogue Regional Medical Center, Three Rivers Medical Center, or Providence Medford Medical Center based on the Trauma Activation protocol. Rogue Regional Medical Center is designated trauma level 2, Providence Medford Medical Center is designated trauma level 3, and Three Rivers Medical Center is designated level 3. Ashland Community Hospital no longer participates in the trauma system.
  - d. Trauma Activation patients will have Oregon State trauma band (green) applied.
2. Patients with severe hypothermia will go to RRMC.
3. Trauma Activation patients with burns go to either Rogue Regional Medical Center, Three Rivers Medical Center or Providence Medford Medical Center based on any trauma criteria, otherwise patient preference or nearest hospital.
4. Head Injury and Stroke patients – per protocol.
5. Stable and conscious patient: patient's preference.
6. Stable and unconscious: family or caregiver's preference.
7. Unstable patient: nearest facility capable of managing the patient's problem.
8. Whenever possible, keep family members together and transport a parent or other responsible family member along with any pediatric patient.
9. If a qualified physician is present with the patient and wishes to assume responsibility for patient care and accompany the patient, transport will be to the facility indicated by the physician.
10. For patients being transferred from one facility to another, medical control shall be assumed by the transferring facility.

## **F. EVALUATE, TREAT, REFUSAL**

### **PRESENTATION**

A patient is a person who presents with:

- a. Any obvious injury or acute medical condition
- b. A chief complaint or mechanism suggestive of injury, illness, or acute medical condition, including ground-level fall or new weakness
- c. Lack of capacity to make decisions
  - Patient is unable to understand the situation, possible risks, and concerns and explain these back reasonably to the EMS provider
  - Patient less than 15 years old
- d. Inability to care for self

These criteria are intended to be applied in the broadest sense. If there are questions or doubts, then the person should be considered a patient. A PCR shall be completed for every incident that involves a patient.

### **LIFT ASSISTS**

Anyone who has experienced a fall and requires EMS assistance getting up should be considered a patient, and should be evaluated for injury and the presence of new-onset weakness or a change in baseline function. These patients should have vital signs evaluated and a PCR completed, and should have a refusal form signed in the case of non-transport.

Patients who are at their baseline and need a lift assist for some other reason (for example, help with transfer, help up after being assisted to the ground) may be considered non-patients as long as that person and family/bystanders are in agreement that no medical evaluation is warranted.

### **REFUSALS**

Patients who refuse prehospital assessment, treatment or transport are at increased risk of morbidity and mortality. Patient refusals should be avoided when possible, although informed patients with capacity do have the right to refuse assessment, treatment or transport.

1. The patient must be:
  - a. Of age 15 years or older (ORS 109.640) and have decisional capacity OR
  - b. A legally responsible adult must authorize and assume custody of the patient.
  - c. Without suicidal intent, statements, or attempt
2. Refusal of assessment means that the patient (or responsible adult) has refused EMS provider assessment.
3. Refusal of treatment means that the patient has been assessed by an EMS provider and treatment has been recommended by the EMS provider which the patient (or responsible adult) has refused.
4. Refusal of transport means that the patient has been assessed and treated by an EMS provider, offered ambulance transport to the hospital and the patient (or

- responsible adult) has refused ambulance transport.
5. Clear documentation of patient refusal must be documented as part of the PCR and/or using the EMS Refusal Form, which must include:
    - a. What assessment, treatment or transport was offered and refused,
    - b. EMS assessment of decisional capacity,
    - c. Reasonably likely specific and significant risks that may result from the refusal,
    - d. Patient or responsible party signature documenting the refusal (if the patient refuses to provide or is incapable of providing a signature, at least one EMS provider must document this in the PCR),
    - e. A recommendation to seek medical attention and
    - f. An invitation to recall EMS if new or worsening concerns, symptoms or signs occur.
  6. On-line medical control (OLMC) consultation is required for patient refusal in the 8 situations listed below:
    - a. Unstable vital signs:
      - BP < 90 systolic or > 200 systolic
      - HR < 40 or > 120
      - SpO2 < 90% on baseline oxygen requirement
    - b. Respiratory distress
    - c. Patients over 40 years old with a complaint of non-traumatic chest pain or severe abdominal pain
    - d. Severe headache that is new for patient
    - e. High fever (>40 C or 104 F) in any age group
    - f. High risk of traumatic injury including such co-morbid factors as vehicular intrusion, injuries to others on scene, distance of fall or other concerns registered by the responding EMS Providers
    - g. Altered consciousness or a history of loss of consciousness, or any acute onset neurological deficit, EXCEPT as described below in #7.
    - h. Any patient who has been provided or received treatment by an EMS Provider, **EXCEPT** in the following three scenarios:
      - i. Hypoglycemia in patients with Diabetes Mellitus:  
A patient with diabetes mellitus who is taking insulin AND has a documented episode of hypoglycemia with an altered level of consciousness, which normalizes both CBG and mental status with the administration of glucose, AND the hypoglycemic episode is consistent with the patient's compliance with medications or typical blood sugars.
      - ii. Seizure in a patient with a Seizure Disorder:  
If a patient with a known seizure disorder experiences a seizure that is consistent with his or her normal frequency of seizures or compliance with medications AND the seizure is typical for the patient.
      - iii. Patient enrolled in hospice:  
If a patient is enrolled in hospice and the on-call hospice nurse, the patient, and family/caregivers are all in agreement with non-transport after appropriate symptomatic treatment.

In any of these scenarios, the patient does not necessarily require transport or on-line medical control consultation, providing that the patient is left in the care of a competent adult, self or other. The PCR must contain clear documentation of the event.



If the patient does not have decisional capacity and refuses care or transport, then it is necessary to contact the patient's personal physician, on-line medical control, concerned family members, friends or law enforcement to assist in arranging appropriate medical care.

The pre-hospital care report (PCR) must include documentation of all actions taken by the EMS Provider in attempting to arrange for medical treatment.

Persons in custody by law enforcement will not be "cleared for jail" by EMS; this action will be performed by hospital emergency department staff. Requests by law enforcement personnel to "check vital signs" or "look for illness or injury" will be considered as a request for an EMS assessment.

## **TREATMENT OF MINORS**

It is preferable for minors to have a parent or legal guardian who can provide consent for treatment on behalf of the child. As a general rule, when the prehospital professional's authority to act is in doubt, EMS providers should always do what they believe to be in the best interest of the minor. If a minor is injured or ill and no parent contact is possible, the provider may contact online medical control for additional instructions.

EMS Providers may presume consent and proceed with appropriate treatment and transport if the following four conditions are met:

1. The child is suffering from an emergent condition that places his or her life or health in danger
2. The child's legal guardian is unavailable or unable to provide consent for treatment or transport
3. Treatment or transport cannot be safely delayed until consent can be obtained
4. The prehospital professional administers only treatment for emergency conditions that pose an immediate threat to the child

## **G. DOCUMENTATION AND MEDICAL RECORD REQUIREMENTS**

All contacts with patients who are ill or injured must be documented on a Pre-hospital Care Report (PCR), whether hand-written or electronic.

All pre-hospital care report entries are to be dated and timed appropriately. Times are to be recorded as accurately as possible; however, the EMS provider's primary concern is patient care, which will take precedence over timekeeping. Times should represent the course and duration of events. Times may vary from those of other clocks, which are not regularly and continuously time-synchronized. Usually to the nearest minute – hh:mm:00 Machine time stamped to the nearest second, such as hh:mm:23. To the nearest 10 seconds (such as hh:mm:10 or hh:mm:50) if coordinating machine time stamped and non-machine time stamped events.

The pre-hospital care report provides written documentation of patient condition and treatment for medical and legal purposes and adds to the continuity of patient care after arrival to the hospital.

Pre-hospital care reports are to be filled out completely with all pertinent information. The report is a record that reflects on you and the profession as a whole, so be accurate, concise, write legibly, spell correctly and use accepted terminology.

A copy of any 12 lead ECG obtained pre-hospital will be labeled with the patient's name and date of birth, attached to the EMS 12 lead ECG Report Form also labeled with the patient's name and date of birth, and left with the patient at the receiving hospital.

Any on-line medical control communication will be documented on the PCR, regardless of whether or not the patient was transported, and will include instructions, receiving hospital and physician name.

A patient's refusal of care or transport, transfer to another agency or person, on-line medical control communications, deviations from these standing orders or determination of death in the field will be documented on the pre-hospital care report.

In compliance with state regulations a complete PCR must be left at the receiving hospital unless the patient's emergency department's nurse or physician receives an appropriate verbal report and gives verbal release, in which case a completed PCR must be provided to the receiving hospital within 12 hours or the end of your shift, whichever is sooner.

If a non-treating EMS provider does not agree with the care given, it is that EMS provider's responsibility to discuss his or her reservations with his or her partner and resolve the problem. If the problem cannot be resolved, the non-treating EMS provider should contact the agency supervisor and prepare an incident report documenting his or her reservations about the call. If there were any problems on the call with personnel or equipment which affected the patient outcome, complete an incident report and forward to the supervising physician/medical director.

The goal of the pre-hospital report is to provide information that explains what the patient's

complaint and condition was upon arrival, the treatment plan, and what happened between initial assessment and end of transport. Information does not need to be repeated in the narrative if it is entered into a flowsheet elsewhere in the chart. Pre-hospital care reports should include the following:

## **SUBJECTIVE**

- ID – age & gender
- Chief Complaint (why help was requested in the patient or reporter's own words)
- History of Event or Mechanism of Injury (What happened prior to call)
- Report of treatment prior to arrival and by whom.
- Relevant Past Medical History
- Meds
- Allergies
- Significant and Pertinent Negatives

## **OBJECTIVE**

- General Appearance, including scene description
- Initial Vital Signs
- Initial Physical Assessment:
  - Skin
  - Head, eyes, ears, nose, throat
  - Heart
  - Chest
  - Abdomen
  - Extremities
  - Spine, including neck
  - Neurological including level of consciousness or Glasgow Coma Score

## **WHAT HAPPENED AFTER INITIAL EVALUATION:**

- Actions taken, protocols followed, activations, on-line medical communications or deviations from these standing orders.
- Date and time interventions (may be in flowsheet) and changes in a patient's condition (should be in narrative).
- Patient refusals and statement of possible consequences.
- Condition on arrival at the hospital. To whom report was given and to whom the patient was transferred. Disposition of patient's personal items.

**ALL CURRENT MEDICATIONS SHOULD BE BROUGHT TO THE EMERGENCY DEPARTMENT WITH THE PATIENT.**

## **PROCEDURES DOCUMENTATION**

- Include time.
- Place in chronological order with most critical of any simultaneous events first.
- Note transfer of care to the ambulance crew or to hospital (ED) staff.

**Check spelling and grammar for correctness and accuracy.**

## **H. EQUIPMENT AND SUPPLIES**

The minimum equipment and supplies are those required by the Oregon State Health Division, Emergency Medical Services Section for all Basic and Advanced Life Support Ambulances. In addition, the supervising physician may require additional equipment and supplies in accordance with treatment protocols and included in the standing orders. It shall be the responsibility of the supervising physician to provide EMS providers with a rationale for requiring equipment that exceeds the minimum standards of the State of Oregon.

All transporting vehicles covered by these standing orders shall carry a copy of these standing orders.

# I. TIME ON SCENE

The purpose of this section is to delineate scene time requirements.

1. If at any time an EMS Provider cannot provide or protect a patent airway to a patient, s/he is **required** to transport the patient **immediately**.
2. If at any time an EMS Provider has been on the scene for more than thirty (30) minutes after patient encounter, and initiating emergency medical care, s/he is required to document the reason on the pre-hospital care form.
3. For **TRAUMA** cases, time spent on the scene should be ten (10) minutes or less after extrication has been accomplished and the patient can be moved away from the site.
4. When more than 3 patients are involved, the 10-minute scene rule begins when late-arriving units receive their patient.
5. Establishing an IV line in the field should not delay transport unless there is an immediate need for parenteral therapy; e.g., hypotension, hypoglycemia, cardiac arrest or unstable dysrhythmias.

# **J. AMBULANCE RESPONSE**

## **LIGHTS & SIRENS RESPONSE**

Ambulances will be driven in a manner consistent with public safety and the patient's condition as judged by the EMS provider.

Lights-and-siren responses or transports may be appropriate if the transport time is significantly reduced and must be carefully balanced by the increased risk to the patient, EMS providers and the general public of motor vehicle crashes associated with such responses. Lights-and-siren transports are generally inappropriate unless there is the need for a time-sensitive procedure with an outcome that might change in a 3-5 minute time frame (pregnant patient in cardiac arrest, trauma with cardiac arrest, airway obstruction).

## **EMS COMMUNICATION PROCEDURES**

Radio communication should be short and concise, providing enough information so that the hospital's emergency personnel will have a good idea of the patient's condition and type of injury or illness. Suggested format of the radio report is in the EMS Forms section.

Patients may be designated Trauma Activation or MCI, but not both. Communication for Trauma Activation patients will include entry criteria and NOT the terms "mandatory", "discretionary", "full" or "modified". Communication for MCI patients will include the triage color (red, yellow or green).

Communication with the receiving hospital should be established as soon as practical once the decision to transport has been made.

This report should relay only essential patient care information. Patient identification (name) information should not be given over the radio for emergency transports, unless essential such as for STEMI Activation patients who may have a local cardiologist. Patient initials may be used for direct admission and inter-hospital transfer patients.

EMS agencies responding to the scene of a 911 dispatched call may be cancelled en route only after dispatch has received a "non-injury", "non-illness" or "unable to locate" report by a fire or EMS, law enforcement, ODOT, US Forest Service or BLM unit on scene.

## **K. CONTINUOUS QUALITY IMPROVEMENT PLAN**

All agencies are required to develop and maintain a Quality Improvement plan. The plan must provide a mechanism for review of selected pre-hospital care, with an emphasis on critical care cases with high-risk issues and procedures. When a potential issue is identified, it will be brought to the attention of the supervising physician and appropriate corrective action implemented. Each agency's QI plan will be reviewed at least annually.

Each agency should perform retrospective reviews on any PCR involving:

- Cardiac arrest (with monitor download)
- Death in the field
- Field delivery
- Advanced airway (supraglottic or endotracheal intubation)
- Cricothyrotomy
- Chest decompression
- Tourniquet
- Major MCI (involving more than 2 agencies)
- Stroke Activation – every 1/3
- Random Review – 3/100 (minimum 3 per month per agency)
- STEMI – Review hospital feedback form
- Ketamine administration
- Other charts as designated by the Supervising Physician

In addition to PCRs, the supervising physician may also utilize several other methods to monitor the EMS system for Quality Assurance.

- Direct observation of EMS Provider field performance
- Monitoring or review of radio communications
- Conducting post-run interviews
- Conducting periodic case conferences
- Investigation of complaints

Ongoing skills training is an essential component of maintaining performance. At a minimum, agencies should observe and document competence annually for the following procedures:

- Supraglottic airway placement
- Endotracheal intubation
- Needle and surgical cricothyrotomy
- Rapid Sequence Intubation
- Intraosseous line placement
- Chest decompression
- Tourniquet placement
- High-performance CPR

Issues regarding quality of care that are not resolved between the supervising physician and the respective EMS agencies may be referred to the Jackson County EMS QA Committee for discussion, investigation, and resolution.



## **L. CONTINUING EDUCATION AND CONFERENCE STANDARDS**

Continuing educational activities for EMS Providers shall meet or exceed the minimum requirements of the State of Oregon. Local programs for EMS Providers shall include but are not limited to:

- Case Review Conferences.
- Multi-Disciplinary Trauma Conferences.
- Special EMS Conferences organized by the Emergency and/or Education Departments of each hospital or by local EMS agencies.
- State of Jefferson EMS Conference
- BLS, ACLS, and PALS courses.

Each EMS Provider affiliated with a first response or transporting agency must have 2 hours contact per year (4 hours/2 year EMS Provider recertification cycle) with your supervising physician or supervising physician agent. This contact time with your agency's supervising physician can be accomplished through Case Reviews, drill nights, EMS classes, EMS meetings, ride-along time, informal discussion of cases. and other activities as designated by and provided by your supervising physician.

If an EMS Provider has not been affiliated with a Jackson County EMS agency for the entire preceding 2 year (24 month) recertification cycle, then this requirement is prorated:

- Affiliated for 0 to 6 months - 0 (zero) contact hours are required;
- Affiliated for 6 to 12 months - 1 contact hour is required;
- Affiliated for 13 to 23 months - 2 contact hours are required;
- Affiliated for 24 months - 4 contact hours are required.

## **M. STANDING ORDER REVIEW AND REVISION**

There shall be at least an annual review of these standing orders by the supervising physician with input from interested parties. A committee composed of the supervising physician and other interested parties may be formed periodically for recommending revisions to the standing orders.

Education programs to update EMS providers on any pertinent changes and additions to the standing orders shall be organized by the supervising physician within a reasonable period of time after release of any revision to the standing orders.

# **N. INTER-HOSPITAL TRANSFER PROTOCOL**

## **POLICY**

A patient is identified for inter-hospital transfer when an attending physician determines that more appropriate facilities or services are available, and consent for the transfer has been obtained from the patient or the family.

Physician orders for inter-hospital transfer are the responsibility of the sending physician and are only covered by these protocols specifically designated as inter-hospital transfer or if an unanticipated change in patient condition occurs.

## **PROCEDURE**

1. The patient's sending (transferring) physician must contact the physician receiving the patient and the receiving hospital.
2. The patient must be stabilized to the best of the sending hospital's ability prior to transfer.
  - a. Patient is assured of an adequate airway and ventilation.
  - b. Control of hemorrhage has been initiated.
  - c. Patient's spine and fractures have been appropriately stabilized.
  - d. An adequate access route for fluid administration is established and appropriate fluid therapy has been initiated.
3. Responsibility for arrangements and details of the transfer, including transportation, are those of the sending physician at the sending hospital. The receiving physician will be involved with the details of such a transfer to insure optimum care of the patient.
4. Proper equipment and trained personnel will be utilized to handle the problems specific to the patient's condition.
5. Instructions will be given to the EMS Provider transferring the patient by the sending physician or nursing staff.
6. It is essential that a written record accompany the patient during the transfer including, including:
  - a. Patient information.
  - b. History of injury or illness.
  - c. Patient condition: vital signs, pertinent physical findings and neurological status.
  - d. Treatment rendered, including medications and fluids.
  - e. Diagnostic findings: including laboratory, ECG, CT scan and x-ray films.
  - f. Pre-hospital care report.
7. Medical Control during an inter-hospital transfer will be primarily the responsibility of the sending physician, and if unavailable, the receiving physician. In the event of a serious deterioration in the patient's condition the nearest appropriate medical facility will be utilized.
8. The Jackson County EMS Inter-hospital Transfer Orders form will be used to provide EMS Providers providing inter-hospital transfer with transfer orders by the sending physician if such orders differ from the Jackson County EMS standing orders.

## **O. USE OF HELICOPTER FOR PATIENT TRANSPORT**

These are guidelines to assist the on-scene EMS Providers in determining the appropriateness of requesting helicopter response. The helicopter ambulance can be put on standby or activated by request through Mercy Flights Dispatch Center. Whether or not helicopter transport is appropriate is ultimately at the discretion of the transporting agency.

Helicopter transport is likely to be beneficial in the care of trauma or medical patient when the total pre-hospital time for the patient would be reduced by 10 minutes or more.

Additional helicopter use factors include extended extrication, MCI, difficult patient access, need for resuscitation with blood products, and remote areas.

Any concerns about inappropriate helicopter activation or transport should be referred to the supervising physician for review.

### **TRAUMA**

- Glasgow Coma Score of <8.
- Intubation/need for advanced airway management
- Respiratory rate of <10 or >30. (Pediatrics: Respiratory rate of <10 or >60)
- Severe and uncontrolled bleeding or hypovolemic shock.
- Penetrating injuries of the head, neck, chest, abdomen or pelvis.
- Amputation proximal to the wrist or ankle.
- Spinal cord injury with paralysis.
- Flail chest.
- Two or more obvious proximal long bone (femur/humerus) fractures.
- Pediatric trauma
- Pelvic Fractures
- Significant Burns (>10% Body Surface Area) and/or with potential for airway compromise

### **MEDICAL**

- Cardiac chest pain, STEMI or recent CVA.
- Post cardiac arrest with stable ROSC.
- Significant hypothermia requiring active rewarming.
- Any other serious medical problem with unstable vital signs or requiring rapid treatment or immediate surgery.
- Near-drowning with hypoxia.
- Complicated poisoning or overdose.
- Difficult patient access (remote areas).

## **POTENTIAL RESTRICTIONS ON HELICOPTER TRANSPORT**

- Patients contaminated with hazardous materials until/unless they are properly decontaminated.
- Patients in cardiac arrest without ROSC.
- Patients who are combative or in custody unless they can be physically restrained or sedated. Restraint/sedation can be accomplished by the helicopter flight team on their arrival.
- Critically-ill patients without parenteral access

## P. EQUIPMENT LIST FOR NON-TRANSPORTING EMS

The following is a list of the minimum equipment suggested for a non-transporting EMS unit responding to EMS calls. The equipment is divided according to level of EMS service provided.

<b>EMR</b>	<b>EMT</b>	<b>AEMT</b>	<b>EMT-I</b>
4/4s	Everything to the left	Everything to the left and	Everything to the left and
AED	1 mL syringes and	Assorted needles	Assorted needles
Aspirin (ASA)	Alcohol preps	IO kit	ECG monitoring
Bag-Valve-Mask (BVM)	Broselow tape	IV multi sets	Orogastric (OG) tubes
B/P cuff - (regular, small, large)	Capnometry	IV needles	
Backboard	CBG kit	IV tourniquets	
Bite stick	Nebulizer set	Razors	
Blankets	Supraglottic Airways	Veni guards	
Burn kit	Adult size 3, 4, 5		
C-collars	Pediatric size 2, 2.5		
Emergency blanket	(smaller sizes		
Emesis basin or bag	recommended)		
EMS gloves			
Epinephrine auto-injector (optional)			
Glucose (oral)			
Hand disinfectant			Amiodarone
Head bed	Activated Charcoal	D10 (10% glucose)	Atropine
Hot & cold packs	Albuterol	Epinephrine 1:10,000	Diphenhydramine
Kling	Epinephrine 1:1,000	Ipratropium Bromide	Lidocaine 2%
K-Y jelly		Nitroglycerin	Ondansetron
Naloxone (Narcan)		Normal saline	
Nasal cannula			
Non-rebreather			
O <sub>2</sub> bottle			
O <sub>2</sub> regulator			
OB-kit w/blanket	<b>Optional:</b>	<b>Optional:</b>	<b>Optional:</b>
Occlusive dressing	CPAP	EZ-IO	Fentanyl
Pocket mask	Infant T-piece	Nitrous Oxide	Morphine
Portable suction	Acetaminophen – must be		
Ring cutter	packaged in 650mg dose		
Safety glasses	packets		
Set of NPAs	Diphenhydramine – must be		
Set of OPAs	packaged in 50mg dose		
Soft restraints	packets		
Splints			
Sterile water			
Stethoscope			
Surgi pads			
Tape			
Thermometer			
Trauma pads			
Trauma shears			
Triage tape or marker			
Triangular bandages			

## Equipment List for a Non-Transporting EMS Unit (continued)

### Paramedic

Everything on the previous page and  
2.5-8.0 ET tubes  
3" 14 ga needle 5mL-50mL syringes  
ET secure ties  
ET suction catheters  
Flutter valve  
Macintosh blades (sizes 0-4)  
Manual defibrillator with pacemaker, electrodes, spare battery and paper  
Miller blades (sizes 0-4)  
Nasogastric (NG) tubes  
Spare ET bulbs/batteries  
Stylet

Adenosine  
Calcium Gluconate  
Droperidol  
Oxymetazoline (Afrin)  
Sodium Bicarbonate

### Optional:

Transport Ventilator  
Acetaminophen liquid/suppository  
Lorazepam  
Hydroxocobalamin  
Ketamine  
Magnesium Sulfate  
Methylprednisolone  
Norepinephrine  
TXA – Tranexamic acid

### Required of all agencies performing RSI:

Etomidate  
Fentanyl  
Ketamine  
Midazolam  
Rocuronium

## Q. JACKSON COUNTY EMS RADIO FREQUENCIES

These radio frequencies and their corresponding names are the standards used by Jackson County EMS agencies for EMS communications.

Frequencies are reviewed by the Rogue Valley Fire Chiefs Association (RVFCA) annually.

All frequencies are set to NarrowBand per FCC regulations.

<b>PRIMARY FIRE DISPATCH FREQUENCIES – RVFCA ZONE 3</b>					
<b>FREQUENCY NAME</b>	<b>ALPHA NAME</b>	<b>RECEIVE</b>	<b>TO NE</b>	<b>TRANSMIT</b>	<b>TO NE</b>
NORTH COUNTY FIRE	NORTH CO	154.1300	162.2	154.1300	162.2
MEDFORD FIRE PRIMARY	MFD PRI	154.4450	146.2	153.7700	146.2
SOUTH COUNTY FIRE	SOUTH CO	154.3100	CSQ	154.3100	141.3
SOUTH COUNTY MT ASHLAND RPTR	MT ASH RPT	154.3100	141.3	153.8900	146.2
SOUTH COUNTY TALLOWBOX RPTR	SC TLBOX	154.3100	CSQ	153.8900	107.2
ASHLAND FIRE LOCAL	A LOCAL	158.8350	DPL 131	153.7850	DPL 131
GREEN SPRINGS FIRE	GRNSPRNGS	155.9550	12	153.8750	12
GRANTS PASS FIRE	GP FD	154.3850	12	155.5800	12
RURAL METRO FIRE	RM RPTR	154.1750	12	150.7750	12
ODF MEDFORD ROXYANNE RPTR	ODF ROXY	151.1750	179.9	159.4125	179.9

<b>PRIMARY EMS DISPATCH FREQUENCIES – RVFCA ZONE 6</b>					
<b>FREQUENCY NAME</b>	<b>ALPHA NAME</b>	<b>RECEIVE</b>	<b>TO NE</b>	<b>TRANSMIT</b>	<b>TO NE</b>
MERCY FLIGHT AMBULANCE	MERCY	155.2800	162.2	155.2800	162.2
MERCY FLIGHTS SECONDARY	MERCY 2	155.2050	CSQ	155.2050	162.2
AMR AMBULANCE RPTR	AMR	155.2650	DPL 131	153.8150	DPL 131
MED NET	MED NET	155.3400	CSQ	155.3400	CSQ
MED NET SECONDARY	MEDNET 2	155.4000	CSQ	155.4000	CSQ
EMS TAC 7	ETAC 7	155.2200	CSQ	155.2200	CSQ
EMS TAC 8	ETAC 8	155.3550	CSQ	155.3550	CSQ
EMS TAC 9	ETAC 9	155.3850	CSQ	155.3850	CSQ
EMS TAC 10	ETAC 10	155.2950	CSQ	155.2950	CSQ
EMS TAC 11	ETAC 11	150.7750	CSQ	150.7750	CSQ
EMS TAC 12	ETAC 12	150.7900	CSQ	150.7900	CSQ
VMED 29	VMED 29	155.3475	CSQ	155.3475	CSQ



# **R. DEA CONTROLLED SUBSTANCES POLICY**

## **DEA CONTROLLED SUBSTANCES USED BY EMS**

Mercy Flights currently uses these DEA controlled substances:

- Schedule II – Morphine, Fentanyl - EMT-I and Paramedic – DEA Form 222 required for purchasing
- Schedule III – Ketamine – Paramedic only
- Schedule IV – Lorazepam, Midazolam – Paramedic only

## **DEA REGISTRATION**

Any agency wanting to have their EMS providers use any DEA controlled substances must obtain a DEA registration in the name of the supervising physician/medical director providing these standing orders. The EMS agency and its licensed EMS providers must abide by the DEA rules & regulations - Title 21 CFR Controlled Substances Act Part 1300.

## **CONTROLLED SUBSTANCES SECURITY**

EMS agencies and their providers must provide adequate and appropriate physical and administrative measures to track all DEA controlled substance use including, but not limited to, ordering, purchasing, receipt, agency storage, distribution to vehicles, patient use, and medication destruction. All transitions from ordering to medication destruction should be witnessed. Controlled substance record keeping must allow for easily available, transparent and accurate tracking of all controlled substances from ordering through disposal.

Access to controlled substances should be restricted to controlled substances program administrators and those EMT-Is and Paramedics authorized to administer the medications.

## **DEA CONTROLLED SUBSTANCES DISPOSAL**

- All DEA controlled substances will be tracked through patient use or disposal.
- Any unopened DEA controlled substances (such as out-of-date or damaged) will be disposed of through a DEA authorized reverse distributor.
- Any opened DEA controlled substances (such as remaining in a single package after use for a patient) will be mixed with earth, coffee grounds, or kitty litter and disposed so that medication cannot be extracted. Controlled substances disposed in this manner will require witness and documentation by 2 licensed EMS providers.

## **DEA CONTROLLED SUBSTANCES LOSS**

The EMS supervising physician/medical director must be notified immediately, both verbally and in writing, of any lost or missing DEA controlled substances which cannot be accounted for.

Clear documentation will be made of the investigation into any DEA controlled substances which cannot be accounted for.

The DEA Field Office in Portland, Oregon must be notified within one business day of the discovery of any theft or loss of a DEA controlled substance and DEA Form 106 must be filed electronically.

## **DEA CONTROLLED SUBSTANCES RECORDKEEPING**

EMS agency records of DEA controlled substances will be kept in an easily retrievable written or electronic form for 2 years. The EMS supervising physician/medical director may request access to these records at any time.

## **S. EXPOSURE POLICY**

### **MENINGITIS EXPOSURE**

The EMS agency (chief or designee) will contact the Jackson County Health Department Communicable Disease Nurse (541-774-8045) who will then investigate the potential exposure and determine whether or not there was significant risk for the EMS Provider and what, if any, post-exposure treatment is indicated.

### **RABIES EXPOSURE**

The EMS agency (chief or designee) will contact the Jackson County Health Department Communicable Disease Nurse (541-774-8045) who will then investigate the potential exposure and determine whether or not there was significant risk for the EMS Provider and what, if any, post-exposure treatment is indicated.

### **TUBERCULOSIS EXPOSURE**

The EMS agency (chief or designee) will contact the Jackson County Health Department Communicable Disease Nurse (541-774-8045) who will then investigate the potential exposure and determine whether or not there was significant risk for the EMS Provider.

If there was exposure, the Jackson County Health Department Communicable Disease Nurse will then work with the EMS agency and the Occupational Health Clinic (which does not offer the case investigation services but does provide testing) to make sure that the EMS Providers received the appropriate testing or treatment.

If there was no exposure, the health department contact will then provide that information to the EMS agency and make the recommendation for no testing.

# T. A.R.M.S. ACTIVATION

## AMBULANCE RESOURCE MANAGEMENT SYSTEM (A.R.M.S.)

A.R.M.S. is a system to coordinate and provide ambulance coverage throughout the Jackson County when ambulance availability in one or more of the county's Ambulance Service Areas (ASAs) is severely limited, such as during a large MCI, multiple smaller MCIs, severe weather conditions or a marked increase in 911 responses. When A.R.M.S. is activated, the county will in effect become one large ASA and all ambulances in the county will be dispatched through the Mercy Flights Communications Center and can anticipate being dispatched anywhere in the county which may be outside their ASA assignment.

1. A.R.M.S. is activated internally at Mercy Flights Communications Center based on the call volume of the system, including any mutual aid requests. **Incident commanders and others on the scene of an MCI should make requests for needed resources through their agency's dispatch center, but cannot activate A.R.M.S. from the field.**
2. When A.R.M.S. is activated, all Jackson County state-licensed ambulances shall report to A.R.M.S. on Mercy Flights primary frequency for posting or call assignment.
3. A.R.M.S. shall:
  - a. Acquire and assign ambulance resources as needed to provide for county-wide coverage. An ambulance posting plan providing geographic coverage will be developed as determined by the affected area and ambulance availability.
  - b. Track and document ambulance resource locations in real-time and by situation status.
  - c. During an MCI, Mercy Flights Communications Center will maintain documentation of transport unit identification, destination, number of patients, and triage tag color information.
  - d. Transporting ground ambulances will contact Mercy Flights Communications Center for reassignment upon completion of each patient transport. Ambulances will be released by A.R.M.S. for return to the home agency following stand down of A.R.M.S..
4. Agency's dispatch will continue to handle incident communications with responding resources. Ambulances will be assigned by the Mercy Flights Communications Center. When 911 receives a request for ambulance resources, they will forward that request to Mercy Flights Communications Center for assignment of resources.
5. In an MCI, agency's dispatch will continue to dispatch all resources, other than ambulances assigned to the A.R.M.S., and provide agency move-ups and resources as required by the IC. Dispatch will maintain unit time logs for incidents; however, patient information will be tracked by the A.R.M.S. as above.

## U. DIVERSION

When an Emergency Department (ED) is reaching capacity, defined as 25% of ED rooms filled with boarding patients (waiting or expected to wait 2 hours or more for admission or transfer), all ED beds full, at least 2 patients waiting for an open room, and in the judgment of the on-site ED Medical Director or his/her designee and on-site ED nurse manager or his/her designee believe that the arrival of further ambulances may deteriorate care for other patients, the hospital may declare a 2-hour ED ambulance diversion.

1. The diverting hospital will have notified the other Jackson County hospitals (AACH, PMMC, ARPMC) of the request for diversion.
2. The diverting hospital will have notified Mercy Flights Communications Center of the 2-hour ambulance diversion.
3. Ambulance diversion will take effect 30 minutes after the diversion is declared.
4. Ambulance diversion will not apply to patients meeting trauma entry, STEMI activation criteria, who are age 17 years or less, or who are competent and fully informed who specifically request transport to the hospital on diversion and understand the risks of delayed care.
5. At the end of 1½ hours of ambulance diversion, Mercy Flights Dispatch will notify EMS agencies if the ambulance diversion period will be extended.

If both Asante Rogue Regional Medical Center (ARRMC) and Providence Medford Medical Center (PMMC) declare "ED diversion" during the same time, then EMS will not do any diversion for either of these 2 hospitals.

## V. SPANISH PHRASES

English	Spanish
I am a Paramedic (firefighter; nurse; doctor).	Soy paramédico (bombero, enfermera, médico).
Is there someone here that speaks English?	¿Hay alguien aquí que habla Inglés?
What is your name?	¿Cómo te llamas?
I don't understand.	No entiendo.
Can you speak more slowly please?	¿Puede hablar más despacio por favor?
Wake up sir/madam?	¿Despierten?
Sit up.	Siéntate por favor.
Listen.	Escuchame.
How are you?	¿Cómo estás?
Do you have neck or back pain?	¿Tiene dolor de cuello o espalda?
Were you unconscious?	¿Estuviste inconsciente?
Move your fingers and toes.	Mueva sus dedos y dedos de los pies.
What day is today?	¿Qué día es hoy?
Where is this?	¿Dónde es esto?
Where are you?	¿Dónde estás?
What is your telephone number? ...address?	¿Cuál es tu número de teléfono? ¿... dirección?
When were you born?	¿Cuándo naciste?
Sit here please.	Siéntate aquí por favor.
Does the pain increase when you breathe?	¿El dolor aumenta cuando usted respira?
Breathe deeply through your mouth. ...breathe slowly.	Respire profundamente por la boca. ... Respire despacio.
What medicines do you take?	¿Qué medicamentos toma?
Have you taken any drugs?	¿Ha tomado alguna droga?
Have you been drinking?	¿Ha estado tomando?
Do you have any chest pain? ...heart problems? ...diabetes? ...asthma?	¿Tienes cualquier dolor en el pecho? ¿... problemas de corazón? ¿... diabetes? ¿... asma?

English	Spanish
Are you pregnant?	¿Estás embarazada?
Have you had this pain before? How long ago?	¿Ha tenido este dolor antes? ¿Cuánto tiempo hace?
Are you sick to your stomach?	¿Estás enfermo del estómago?
You will be ok.	Usted va a estar bien.
It's not serious.	No es serio
It is serious.	Es serio
<b>TREATMENT</b>	
Please don't move.	Por favor, no te muevas.
What's the matter?	¿Qué pasa?
Do you want to go to the hospital?	¿Quieres ir al hospital?
We're going to take you to the hospital.	Vamos a llevarlo al hospital.
We are going to give you oxygen.	Vamos a darle oxígeno.
We are going to apply a C-collar.	Vamos a aplicar un collarin.
We are going to give you an IV.	Vamos a darle un intravenoso.
<b>Miscellaneous</b>	
Hello / Good bye	Hola / Adiós
Yes / No	Sí / No
Chest/Abdomen	El pecho / El abdomen
Neck / Back	El cuello / La espalda
Cancer / Stroke	Cáncer / Ataque cerebral
Hand / Foot	La mano / El pie
Head / Mouth	La cabeza / La boca
Heart / Lungs	El Corazón / Los pulmones
Arm / Leg	El Brazo / La pierna
Drugs	Droga
Excuse me.	Disculpame
Thank you.	Gracias

## W. PEDIATRIC VITAL SIGNS

Broselow Tape Color Weight Approximate Age	Normal Respiratory Rate (per minute)	Normal Heart Rate (per minute)	Minimum Systolic Blood Pressure (mmHg)
Gray 3-5 kg (7-11 lbs) 0-2 months	30-60	100-160	60
Pink 6-7 kg (12-15 lbs) 4 months	30-60	100-160	70
Red 8-9 kg (16-20 lbs) 8 months	30-60	100-160	70
Purple 10-11 kg (21-24 lbs) 1 year	24-40	90-150	70
Yellow 12-14 kg (25-31 lbs) 2 years	24-40	90-150	70
White 15-18 kg (32-40 lbs) 4 years	22-34	80-140	75
Blue 19-23 kg (41-51 lbs) 5-6 years	18-30	70-120	80
Orange 24-29 kg (52-64 lbs) 7-8 years	18-30	70-120	80
Green 30-36 kg (65-79 lbs) 9-10 years	12-16	60-100	90

Reference: Broselow Tape, Pediatric Surge Pocket Guide LA County

# **PATIENT CARE PROTOCOLS**



## **PATIENT CARE PROTOCOLS**

Abdominal Pain	Eye Injury
Abdominal Trauma	Fractures & Dislocations
Adrenal Insufficiency	Head Trauma
Altered Level of Consciousness	Heat Illness
Amputation	Hospice
Anaphylaxis	Hyperglycemia
Barotrauma – Decompression Sickness and Arterial Gas Embolism	Hyperkalemia
	Hypoglycemia
Burns	Hypothermia
Cardiac Chest Pain & STEMI	Infectious Disease – COVID-19
Cardiac Dysrhythmias	Inhalation Injuries
Ventricular Fibrillation/Pulseless VT	Initiation and Termination of Resuscitation, Transport, and POLST
Asystole/Pulseless Electrical Activity	
Cardiac Arrest with ROSC	Insect Stings and Animal / Spider Bites
Bradycardia	Nausea and Vomiting
Pediatric Bradycardia	Nerve Agent/Organophosphate Poisoning
Tachycardia – Narrow Complex	Pain Management
Tachycardia – Wide Complex	Poisons & Overdoses
Pediatric Tachycardia	Respiratory Distress/Airway Assessment
Chest Trauma	Asthma
Childbirth	CHF / Pulmonary Edema
Care of the Newborn	COPD Exacerbation
Newborn Assessment and Resuscitation	Responder Rehabilitation – Treat in Place
Uncomplicated Delivery	Seizures
Post- Partum Hemorrhage	Sepsis
Breech Delivery	Shock
Pre-eclampsia/Eclampsia	Snake Bites
Croup	Soft Tissue Injury
Drowning	Spine Trauma
Dystonic Reaction	Stroke
Encephalopathy and Psychiatric Disorders	Trauma Activation
Epistaxis	Vaginal Bleeding
Exercise Associated Hyponatremia	Ventricular Assist Device (VAD)

# ABDOMINAL PAIN

## SUBJECTIVE

Pain can be gradual or rapid in onset, sharp, dull, colicky or constant with or without radiation. It may change with time or position. Guarding may be present. Nausea, vomiting, diarrhea, constipation, bloody emesis, bloody stools, urinary problems, abnormal menstrual cycle (late, spotting), fever, and dyspnea can occur. Past medical history, trauma, abnormal ingestions, medications, past surgeries, last menstrual cycle.

## OBJECTIVE

Diaphoresis, dyspnea, pallor, jaundice, hypotension, orthostatic BP changes, tachycardia. Normal, hypoactive, hyperactive or absent bowel sounds. Abdominal inspection can show distention, rigidity, bruising or a pulsatile mass. Emesis: type and amount, if visualized.

## ASSESSMENT

Causes of pain may include peptic ulcers, appendicitis, diverticulitis, kidney stones, pelvic inflammatory disease, ectopic pregnancy, pancreatitis, cholecystitis, pyelonephritis, ovarian cyst, hepatitis, cancer, abdominal aortic aneurysm, peritonitis or bowel obstruction. Abdominal pain may be of cardiac origin. Radiation to arms or shoulders is concerning for serious cause.

**Pregnant patients 20-36 weeks with abdominal pain should be transported to RRMC obstetrics.** Pregnant patients < 20 weeks or > 36 weeks may be transported to their preferred hospital or nearest receiving facility.

## TREATMENT

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|-------------|--|
| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Position of comfort</li><li>• Oxygen</li><li>• Nothing to eat or drink</li></ul> |
| <b>EMT:</b> |  |

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|--------------|---|
| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• One or two IVs or IO with crystalloid</li><li>• In suspected abdominal aortic aneurysm do not increase systolic BP above 90mmHg</li></ul> |
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| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Cardiac monitor</li><li>• Morphine or fentanyl</li></ul> |
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| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Ketamine (pain dose)</li></ul> |
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# ABDOMINAL TRAUMA

## SUBJECTIVE

History of mechanism of injury: blunt or penetrating. Onset of symptoms from time of event. Abdominal pain, difficulty breathing, vomiting up blood. History of abdominal surgery.

**Blunt:** speed of motor vehicle crash, steering wheel damage; passenger restraints; type of weapon if used; type of fall or blast

**Penetrating:** mechanism; type of weapon; distance from firing; caliber

## OBJECTIVE

Examination may be normal. Patient may appear with pale and diaphoretic skin, conscious or unconscious. May have guarding and rigidity. Note injuries associated with traumatic event. Visualize bruising, distention, entrance and exit wounds to the abdomen. Evaluate vital signs frequently.

**Remember, cyanosis and hypotension are late signs of shock.**

## ASSESSMENT

Diagnosis of abdominal trauma is made on the basis of the traumatic event history, palpation and visual examination.

## TREATMENT

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| <b>EMR:</b> | • Oxygen  |
| <b>EMT:</b> | • Keep patient warm   |
|             | • Cover any open wound with dressing and moisten with crystalloid |

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| <b>AEMT:</b> | • One or two IVs or IO with crystalloid |
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| <b>EMT-I:</b> | • Fentanyl or morphine |
|               | • Cardiac monitor      |

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| <b>Paramedic:</b> | • Ketamine |
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# ADRENAL INSUFFICIENCY

## SUBJECTIVE

History of Addison's disease, congenital adrenal hyperplasia, or chronic steroid use.  
Recent change in medications, acute illness, trauma, or other stress.

## OBJECTIVE

Hypotension, hypoglycemia, cardiac dysrhythmias, generalized weakness, irritability, confusion

## CONSIDERATIONS

The adrenal glands produce natural catecholamines and steroids that regulate glucose, blood pressure, and electrolyte and fluid balance, and they increase their output in response to stress. In adrenal insufficiency, the body is unable to mount a proper response to stress, and will need to have steroids and sometimes pressors administered.

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**EMR:**                      • Oxygen

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**EMT:**                      • Check blood glucose

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**AEMT:**                    • One or two IVs or IO with crystalloid  
                                  • Glucose IV or IO if hypoglycemic

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**EMT-I:**                    • Cardiac monitor

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**Paramedic:**              • May administer patient's own corticosteroid – usually hydrocortisone IV or IM  
                                  • Methylprednisolone if patient's steroid unavailable  
                                  • Epinephrine or norepinephrine

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# ALTERED LEVEL OF CONSCIOUSNESS

## SUBJECTIVE

Onset, frequency, stressful or anxiety provoking factors, position of patient, seizure activity, vertigo, nausea, chest or abdominal pain, diaphoresis, recent illness, dietary changes, pregnancy, headache, confusion, trauma. Prior medical or psychiatric problems, such as diabetes, epilepsy, previous syncope, CVA. New or changed medications.

## OBJECTIVE

Patient may be unconscious, altered, or have regained normal level of consciousness. Vital signs may be normal; assess for orthostatic blood pressure and pulse changes. Check for cardiac dysrhythmias, pulsating abdominal mass, signs of trauma, injury, ingestion or injection. Check for medical alert tag. Evidence at scene of pill bottles, syringes or odor within the house. If multiple patients, consider poisoning.

## ASSESSMENT

Differential is broad and includes overdose, hypoglycemia, stroke, sepsis, head injury, seizure, and syncope (causes include cardiac dysrhythmia, ruptured abdominal aortic aneurysm, GI bleed, and vasovagal reaction).

For sudden-onset coma, consider hypoglycemia, overdose, seizure, and stroke.

## TREATMENT

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| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Naloxone for sudden-onset coma or if respiratory depression from narcotics is suspected</li><li>• High flow oxygen</li></ul> |
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| <b>EMT:</b> | <ul style="list-style-type: none"><li>• Check blood glucose</li><li>• Supraglottic airway</li><li>• 12-lead ECG</li></ul> |
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| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• One or two IVs or IO with crystalloid</li><li>• Glucose IV or IO if hypoglycemia</li></ul> |
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| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Cardiac monitor</li></ul> |
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| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Advanced airway</li></ul> |
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# AMPUTATION

## SUBJECTIVE

Location and mechanism of injury, medications, past medical history, other injuries, time injury occurred, bleeding disorders.

## OBJECTIVE

Type of amputation partial or complete. Circulatory function with partial amputations.

## ASSESSMENT

Quantity of blood loss, active bleeding, presence of shock. Evaluate for other injuries. Amputation may not be life threatening but may be psychologically traumatic for patient or family.

## TREATMENT

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| <b>EMR:<br/>EMT:</b> | <ul style="list-style-type: none"><li>• Control bleeding</li><li>• Oxygen</li><li>• Cover wound with sterile dry dressing</li><li>• Splint partial amputations in position of function</li><li>• Wrap severed portion in dry gauze, place in sealed plastic bag, place bag on ice</li></ul> |
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| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• One or two large bore IVs or IO with crystalloid</li><li>• Nitrous oxide</li></ul> |
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| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Morphine or fentanyl</li></ul> |
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| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Midazolam</li><li>• Ketamine</li></ul> |
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# **ANAPHYLAXIS**

## **SUBJECTIVE**

Past history of allergic reactions. Method of exposure: oral, inhaled, dermal, percutaneous. Itching, throat tightening, shortness of breath, nausea, diarrhea, abdominal cramps, syncope.

## **OBJECTIVE**

Level of consciousness, wheezing, respiratory distress, stridor, hypotension. Flushing, hives, edema, vomiting, diarrhea.

## **ASSESSMENT**

Anaphylaxis or systemic allergic reactions range from mild skin rash to shock. Anaphylactic reactions involve symptoms and at least one sign: diffuse skin reaction (flushing, itching or hives), shock, bronchospasm or angioedema (swelling) about the face, mouth and eyes. Mild systemic reaction may be managed with diphenhydramine alone. Local reactions confined to one extremity are not systemic or anaphylaxis.

## **TREATMENT**

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| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Oxygen</li><li>• Remove allergen if possible</li><li>• Epinephrine auto-injector (if trained)</li></ul> |
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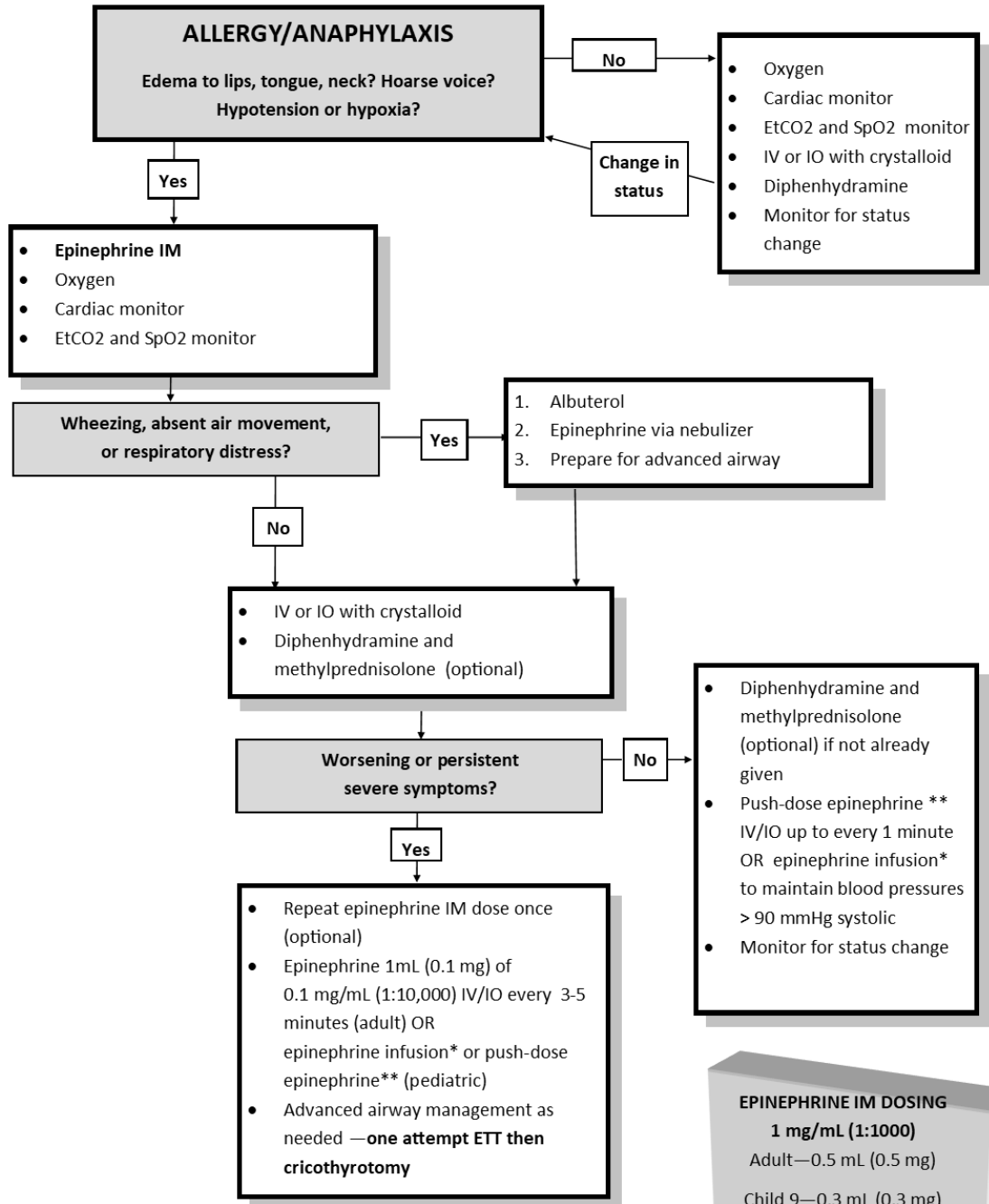
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|-------------|--|
| <b>EMT:</b> | <ul style="list-style-type: none"><li>• Epinephrine IM</li><li>• Supraglottic Airway</li><li>• Diphenhydramine (oral) – ONLY IF NO ORAL/AIRWAY EDEMA</li></ul> |
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| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with crystalloid</li><li>• Epinephrine IV or IO</li><li>• Albuterol</li></ul> |
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| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Epinephrine via nebulizer</li><li>• Cardiac monitor</li><li>• Diphenhydramine (IM/IV/IO)</li></ul> |
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|-------------------|---|
| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Advanced airway</li><li>• Epinephrine push dose or IV or IO infusion</li><li>• Methylprednisolone</li></ul> |
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**(CONTINUED)**



\* **Infusion:** Mix 1 mg (1 mL) of epinephrine 1mg/mL (1:1000) in 250mL D10 to make 4 mcg/mL = 1mcg/15 drops using 60 drops/mL microdrip tubing. Use 5 mcg/min (75 drops per minute) under 1 year, 10 mcg/min (150 drops per minute) over 1 year.

\*\* **Push-dose epinephrine:** Mix 0.1 mg (1 mL) of epinephrine 0.1 mg/mL (1:10,000) in 9mL saline (10mL flush with 1 mL wasted). Administer 0.5 mL (5 mcg) if less than 1 year old or 1 mL (10 mcg) if greater than 1 year old up to every 1 minute.

**EPINEPHRINE IM DOSING**  
**1 mg/mL (1:1000)**

- Adult—0.5 mL (0.5 mg)
- Child 9—0.3 mL (0.3 mg)
- Child 7—0.25 mL (0.25 mg)
- Child 5—0.2 mL (0.2 mg)
- Child 3—0.15 mL (0.15 mg)
- Child 1—0.1 mL (0.1 mg)



# **BAROTRAUMA DECOMPRESSION SICKNESS AND ARTERIAL GAS EMBOLISM**

## **SUBJECTIVE**

Scuba diving accidents are not common. Remember to ask whether patient may have taken any type of breath from a scuba device while under water. Patients will complain of chest pain, dyspnea, dizziness, limb paresthesia or paralysis, weakness, itching, blotching rash, visual disturbance or loss, fatigue, joint soreness, abdominal pain or coughing spasms.

## **OBJECTIVE**

Patient may present with hypothermia, pulmonary edema, rash, crepitus, altered level of consciousness, coma, unequal pupils, wide pulse pressure, dysarthria, seizures, paralysis, decreased or absent breath sounds, apnea or cardiac arrest.

## **ASSESSMENT**

It is essential to attempt to obtain a diving history or profile, including: time at which signs and symptoms occurred; type of breathing apparatus used; depth, number and duration of dives; aircraft travel following a dive; rate of ascent; previous decompression illness, use of medications or alcohol. Transportation to recompression chamber without delay is the optimum treatment; do not delay in field.

## **TREATMENT**

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| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Supine if unconscious</li><li>• Left lateral Trendelenburg if conscious</li><li>• High flow oxygen</li></ul> |
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|-------------|---|
| <b>EMT:</b> | <ul style="list-style-type: none"><li>• Supraglottic airway</li></ul> |
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|--------------|---|
| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with crystalloid</li></ul> |
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| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Cardiac monitor</li></ul> |
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|-------------------|---|
| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Advanced airway</li><li>• Chest decompression</li></ul> |
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# BURNS

## SUBJECTIVE

Cause of burn: explosion, fire, radiation, inhalation, electrocution, lightning, chemical.  
Shortness of breath, airway compromise, loss of consciousness. Past medical history.

## OBJECTIVE

Extent of body surface area (BSA) involved (Rule of Nines on reverse side) and depth (superficial, partial or full thickness). Assess for associated injury from falls or explosion. Hypotension is usually from an injury other than the burn.

## CONSIDERATIONS

**Toxin exposure:** Carbon monoxide and cyanide toxicity are risks in closed spaces. Consider if patient is altered or hypotensive and apply high-flow oxygen.

### **Inhalation injury:**

- Support with oxygen and prepare for intubation if condition progresses:
  - Singed nasal hairs
  - Soot around nose or mouth
  - Facial burns
  - Carbonaceous sputum
  - Mild shortness of breath
  - Wheezing
  - Cough
- Immediate intubation:
  - Hoarse voice
  - Stridor
  - Severe respiratory distress
  - Blistering of oral mucosa
  - Difficulty swallowing

First aid treatment for hydrogen fluoride (HF) or hydrofluoric acid burns or exposure (not eyes) at an industrial site may include topical 0.13% benzalkonium chloride solution (Benzarid™) – ice cold if needed for pain relief prior to EMS arrival. This is for pain control only and should be replaced with calcium gluconate upon EMS arrival.

**(CONTINUED)**

## **TREATMENT**

### ***PROTECT YOURSELF AND OTHERS FIRST***

---

- EMR:**
- Cool thermal burns with water for 3-5 minutes
  - Remove smoldering clothing, any burning material, and restrictive rings, bracelets, belts or straps
  - Large burns (> 20% BSA) cover with clean, dry dressing
  - Small burns (< 20% BSA) cover with cool wet dressing
  - Avoid heat loss
  - Chemical burns - flush area with large amounts of water to dilute and remove chemical
  - Oxygen – high-flow if altered mental status
- 

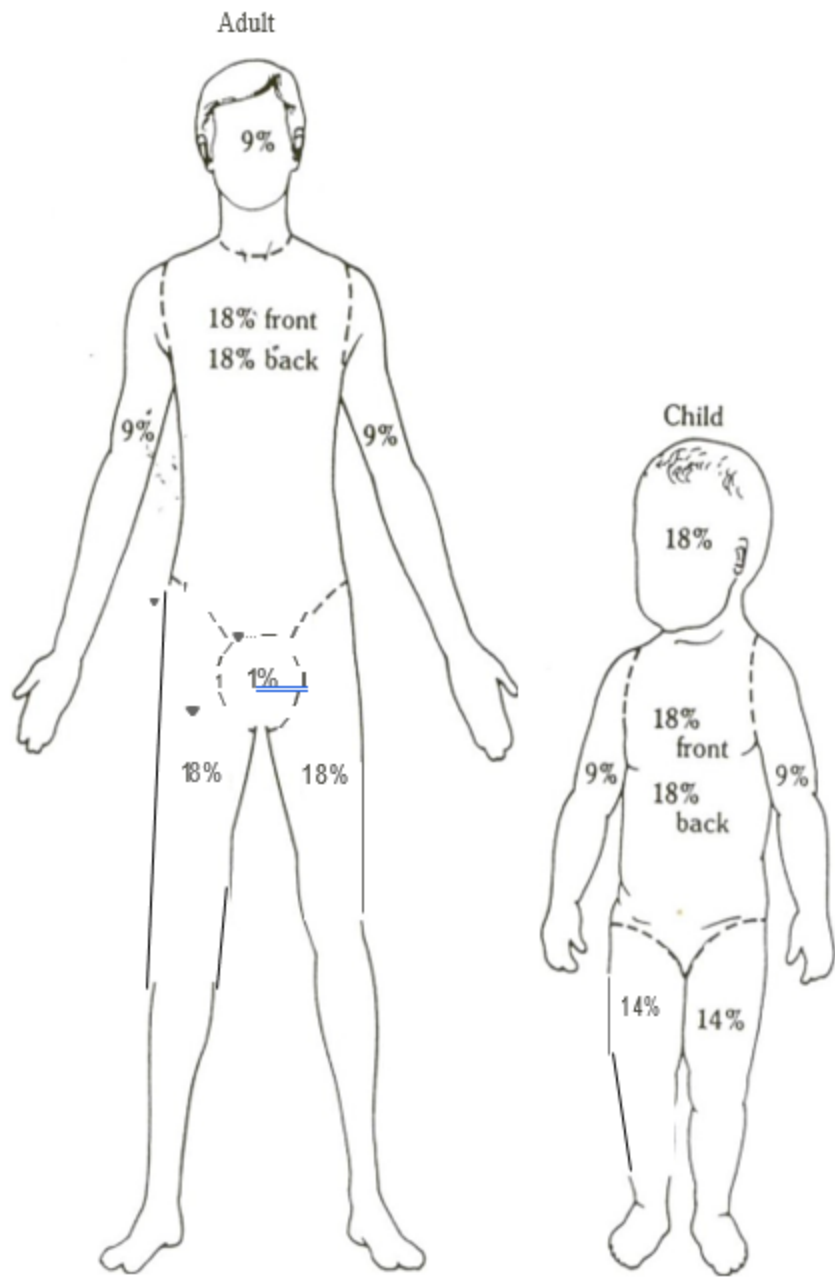
- EMT:**
- Supraglottic airway
- 

- AEMT:**
- One or two large bore IVs or IO with crystalloid
    - Bolus for hypotension or HR > 125 only
    - Initial fluid rate:
      - Age < 6: 125 mL/hr
      - Age 6-13: 250 mL/hr
      - Age 14+: 500mL/hr
- 

- EMT-I:**
- Cardiac monitor
  - Morphine or fentanyl
- 

- Paramedic:**
- Anxiolysis with lorazepam or midazolam
  - Ketamine for pain
  - Sedation with ketamine or midazolam for severe burns
  - Advanced airway
  - Calcium gluconate topically or via nebulizer for hydrogen fluoride or hydrofluoric acid burns
- 

**(CONTINUED)**



**Palm = 1% BSA**

# **CARDIAC CHEST PAIN**

## **SUBJECTIVE**

Symptoms suggestive of myocardial ischemia or infarction, lasting minutes to hours, not usually seconds or days:

- Chest or epigastric pain or discomfort
- Discomfort may originate, be limited to, or may radiate to neck, jaw, shoulder, inner arm or elbow
- May be associated with diaphoresis, nausea, vomiting, SOB, weakness, lightheadedness or palpitations.
- May be brought on by exertion, stress or occur spontaneously.
- Relieved by rest or nitroglycerin.
- May have a history of bypass surgery, angioplasty, angina, heart attack or myocardial infarction.
- Most specific findings for cardiac chest pain: exertional, radiating to right or bilateral arms, vomiting, or diaphoresis

Atypical presentations are common and may include no discomfort.

## **OBJECTIVE**

Examination may be normal. Patient may appear ashen or sweaty. Patient may be hypotensive, bradycardic or have evidence of pulmonary edema (rales). Cardiac rhythm is monitored to detect the occurrence of ventricular or atrial dysrhythmias.

## **ASSESSMENT**

Diagnosis of cardiac chest pain or heart equivalent discomfort is made on the basis of the patient's history. Other emergent causes of chest discomfort include chest wall trauma, aortic dissection, pneumothorax, pulmonary embolism, and strangulated esophageal/gastric hernia. Other common causes include gastroesophageal reflux, gastritis, peptic ulcer disease, pneumonia, pericarditis, pleurisy, pancreatitis, costochondritis, gall bladder disease and anxiety.

**(CONTINUED)**

## **TREATMENT**

---

- EMR:**
- 12 lead ECG, if available, before nitroglycerin administration
  - Aspirin – ensure that the patient has taken at least 324mg within the last 12 hours – give even if taking other anticoagulant or “blood thinner” medications
  - Oxygen only to maintain SpO<sub>2</sub> = 94% or above
- 

- EMT:**
- May assist with self-administration of patient’s own nitroglycerin
- 

- AEMT:**
- Nitroglycerin
  - IV (20 or 18 gauge in AC preferred) with saline lock unless crystalloid or medications indicated
  - Crystalloid for SBP < 100 mmHg or if giving nitroglycerin to inferior STEMI
- 

- EMT-I:**
- Cardiac monitor
  - Morphine or fentanyl
- 

- Paramedic:**
- Repeat 12 lead ECG every 5-15 minutes if symptoms persist and prior ECG does NOT show STEMI
  - STEMI protocol - next page
  - Epinephrine or norepinephrine for hypotension refractory to crystalloid
-

# ST ELEVATION MI (STEMI)

## SUBJECTIVE

Symptoms suggestive of myocardial ischemia or infarction of  $\leq 12$  hours duration OR ventricular fibrillation or ventricular tachycardia converted to perfusing rhythm with stable vital signs AND

## OBJECTIVE

12-lead ECG without LBBB or paced rhythm and meeting one of these 2 criteria:

- ST elevation, beginning at the J point:
  - $\geq 1$  mm ST elevation in
    - 2 contiguous lateral leads (I, aVL, V<sub>4</sub>, V<sub>5</sub>, V<sub>6</sub>) OR
    - 2 contiguous inferior leads (II, III, aVF)
  - $\geq 2$  mm ST elevation in two contiguous chest leads (V<sub>1</sub>, V<sub>2</sub>, V<sub>3</sub>)
- **OR** ECG findings of pure posterior STEMI, which must include ALL of the following:
  - $\geq 0.5$  mm ST depression in two contiguous leads V<sub>1</sub>, V<sub>2</sub>, V<sub>3</sub>, V<sub>4</sub> AND
  - Automatic ECG interpretation indicating “acute infarction”, “acute ST Elevation infarction” or “STEMI” (based on ST elevation or depression) AND
  - $\geq 0.5$  mm ST elevation in two contiguous leads V<sub>7</sub>, V<sub>8</sub>, V<sub>9</sub>
- **OR** Automatic ECG interpretation indicating “acute infarction”, “acute ST Elevation infarction” or “STEMI” **based on ST elevation**
  - OLMC before STEMI activation on automatic ECG interpretations of STEMI if HR  $> 140$  and narrow-complex

If patient had ventricular fibrillation or ventricular tachycardia converted to perfusing rhythm with stable vital signs, then **ECG must be obtained after at least 5 minutes of the converted rhythm.**

## ASSESSMENT

Acute myocardial infarction with ST elevation is usually best managed with rapid transport to a hospital offering emergent cardiac catheterization services for diagnosis and treatment.

## TREATMENT

- 
- Paramedic:**
- Minimize on-scene time and transport the patient to RRMC, advising patients that RRMC is the current local STEMI treatment facility
  - Notify the receiving hospital of “STEMI Activation” as soon as possible and give estimated time of arrival, patient name and birthdate (541-789-7367)
  - Report criteria for “STEMI Activation”: auto-reading or ST elevation
  - Confirm STEMI Activation with a “read back”.
  - A copy of any pre-hospital 12-lead ECG obtained will be labeled with the patient’s name and date of birth, attached to the labeled EMS 12 lead ECG Report Form, and left with the patient at the receiving hospital.
- 

(CONTINUED)

- 
- Paramedic:**
- 2<sup>nd</sup> IV (20 or 18 gauge preferred) with saline lock in same arm if possible, avoiding right wrist
  - Note the specific time of symptom onset and the duration of symptoms.
  - Report time of “first EMS patient contact”
  - Patient to receive hospital registration from ED before going to cath lab
  - Patient should be transported to the ED unless the cardiologist is waiting in the ambulance bay to escort patient and crew to the cath lab
-



# CARDIAC DYSRHYTHMIAS

## SUBJECTIVE

Syncope, loss of consciousness, palpitations, chest pain, dizziness. History of heart disease, current medications. Bystander treatment prior to EMS arrival.

## OBJECTIVE

Vital signs, level of consciousness, pulmonary rates, peripheral perfusion.

## ASSESSMENT

Treatment protocol based on patient's condition and specific rhythm.

## TREATMENT

---

<b>EMR:</b>	<ul style="list-style-type: none"><li>• High Performance CPR</li><li>• Oxygen</li><li>• Automatic External Defibrillator (AED) as soon as available</li></ul>
<b>EMT:</b>	<ul style="list-style-type: none"><li>• Supraglottic airway device</li></ul>
<b>AEMT:</b>	<ul style="list-style-type: none"><li>• IV or IO with crystalloid (IV preferred)</li></ul>
<b>EMT-I:</b>	<ul style="list-style-type: none"><li>• Cardiac monitor/Defibrillator</li><li>• Treatment per protocol:<ul style="list-style-type: none"><li>• V. fib/Pulseless V. tach (VF/VT)</li><li>• Asystole/Pulseless Electrical Activity (PEA)</li><li>• ROSC Activation</li><li>• Bradycardia - Symptomatic</li><li>• Pediatric Bradycardia</li><li>• Tachycardia - Narrow complex</li><li>• Tachycardia - Wide complex</li><li>• Pediatric Tachycardia</li></ul></li></ul>
<b>Paramedic:</b>	<ul style="list-style-type: none"><li>• Advanced airway</li></ul>

---

# VENTRICULAR FIBRILLATION / PULSELESS VENTRICULAR TACHYCARDIA (VF/VT)

## SUBJECTIVE

Loss of consciousness

## OBJECTIVE

Unconsciousness, unresponsive, pulseless and apneic, gasping or ineffective respirations. AED shows “shockable rhythm”. Cardiac monitor shows ventricular fibrillation or ventricular tachycardia.

## TREATMENT

- 
- EMR:**
- High Performance CPR
  - Automatic External Defibrillator (AED) as soon as available
    - If available use pediatric pads or attenuator if age < 8 years

- 
- EMT:**
- Supraglottic airway

- 
- AEMT:**
- IV or IO with crystalloid (IV preferred)

- 
- EMT-I:**
- Initial defibrillation with single shock:
    - Medtronic PhysioControl LIFEPAK 12/15 at 200J
    - Zoll E-series or X-series at 120J
    - Child < 8 years at 2J/kg (or Handtevy dose)
  - Epinephrine – repeat about every 4 minutes
- Pediatric epinephrine dose – 1:10,000 (Five finger rule)

Age	1	3	5	7	9
Weight (kg)	10	15	20	25	30
Epinephrine	1mL	1.5mL	2mL	2.5mL	3mL

- Subsequent defibrillation with single shock after cycle of CPR;
  - Medtronic PhysioControl LIFEPAK 12/15 at 300, then at 360J
  - Zoll E-series or X-series at 150J then at 200J
  - Child <8 years at 4J/kg or Handtevy dose – not to exceed adult dose
- Amiodarone or lidocaine
- If persistent ventricular arrhythmia after 3 shocks, shock at max energy with alternate pad placement

- 
- Paramedic:**
- Advanced airway
  - Magnesium sulfate – if torsades des pointes or refractory to 3 shocks
-

# **ASYSTOLE / PULSELESS ELECTRICAL ACTIVITY (PEA)**

## **SUBJECTIVE**

Loss of consciousness.

## **OBJECTIVE**

Unconsciousness, unresponsive, pulseless and apneic, gasping or ineffective respirations. AED shows “non-shockable rhythm”.

Cardiac monitor shows asystole in 2 leads or pulseless electrical activity (PEA).

Pulseless Electrical Activity (PEA) means cardiac ECG activity that would be anticipated to produce a pulse, such as a sinus rhythm or wide complex rhythm at a rate greater than 40 beats per minute.

## **ASSESSMENT**

Asystole/Pulseless Electrical Activity (PEA).

## **TREATMENT**

- 
- |             |  |
|-------------|--|
| <b>EMR:</b> | <ul style="list-style-type: none"><li>• High Performance CPR</li><li>• Automatic External Defibrillator (AED) as soon as available</li></ul> |
|-------------|--|
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|-------------|---|
| <b>EMT:</b> | <ul style="list-style-type: none"><li>• Supraglottic airway</li></ul> |
|-------------|---|
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|--------------|--|
| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with crystalloid (IV preferred)</li></ul> |
|--------------|--|
- 

**(CONTINUED)**

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**EMT-I:**

- Epinephrine – repeat every 4 minutes  
Pediatric epinephrine dose – 1:10,000 (Five-finger rule)

Age	1	3	5	7	9
Weight (kg)	10	15	20	25	30
Epinephrine	1mL	1.5mL	2mL	2.5mL	3mL

- Evaluate and manage treatable causes within scope:

Hs	Ts
Hypovolemia ( <b>IV fluids</b> )	Tension pneumothorax
Hypoxia ( <b>ventilation</b> )	Tamponade
Hydrogen ion – acidosis ( <b>ventilation</b> )	Toxins - tricyclic antidepressants, digitalis, beta-blockers, calcium channel blockers, opiates ( <b>naloxone</b> )
Hyperkalemia	Thromboembolism – pulmonary embolism or acute MI
Hypokalemia	
Hypothermia	
Hypoglycemia ( <b>glucose</b> )	

---

**Paramedic**

- Advanced airway
- Evaluate and manage treatable causes:

Hs	Ts
Hypovolemia (IV fluids)	Tension pneumothorax ( <b>needle decompression</b> )
Hypoxia (ventilation)	Tamponade
Hydrogen ion – acidosis (ventilation)	Toxins - tricyclic antidepressants ( <b>sodium bicarb</b> ), digitalis, beta-blockers, calcium channel blockers ( <b>calcium gluconate</b> ), opiates
Hyperkalemia ( <b>calcium gluconate if slow and wide PEA</b> )	Thromboembolism – pulmonary embolism or acute MI
Hypokalemia	
Hypothermia	
Hypoglycemia (glucose)	

# CARDIAC ARREST WITH ROSC

## SUBJECTIVE

Patients who have had a non-traumatic cardiac arrest (ventricular fibrillation, ventricular tachycardia or PEA/asystole) and have had return of spontaneous circulation (ROSC) with a perfusing rhythm.

## OBJECTIVE

Patients have a perfusing rhythm. Assess vital signs, end-tidal CO<sub>2</sub>.

## CONSIDERATIONS

All patients who have suffered a non-traumatic cardiac arrest and develop a perfusing rhythm (ROSC) should have their hemodynamics optimized. **Oxygenation, ventilation, and perfusion should all be assessed and optimized before transport is initiated.**

If available, mechanical CPR device should be placed prior to transport.

Adult, non-pregnant patients and some pediatric patients who have suffered a non-traumatic cardiac arrest and develop a perfusing rhythm may benefit from evaluation for STEMI or for Targeted Temperature Management (TTM) in the hospital.

## TREATMENT

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### EMR:

- Transport rapidly to PMMC or RRMC based on patient choice or nearest hospital
- Radio call of “ROSC Activation” and report:
  - \_\_\_\_\_ : \_\_\_\_\_ Time of cardiac arrest
  - \_\_\_\_\_ : \_\_\_\_\_ Time CPR started
  - \_\_\_\_\_ Initial rhythm of cardiac arrest
  - \_\_\_\_\_ : \_\_\_\_\_ Time of ROSC
  - \_\_\_\_\_ ROSC rhythm
  - \_\_\_\_\_ Vital signs (BP, P, R, GCS) and airway status
- Confirm “ROSC Activation” radio call with “read back”
- After arrival in ED report:
  - \_\_\_\_\_ : \_\_\_\_\_ Time of neuromuscular blocker (if given)
  - \_\_\_\_\_ : \_\_\_\_\_ GCS before neuromuscular blocker given
  - \_\_\_\_\_ # of doses of epinephrine given

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(CONTINUED)

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<b>EMT:</b>	<ul style="list-style-type: none"><li>• Supraglottic airway</li><li>• 12-Lead ECG</li><li>• Continuous end tidal CO<sub>2</sub> capnography with a goal of 35-45mmHg</li><li>• Oxygenation with goal of SpO<sub>2</sub> 94-98%</li></ul>
<b>AEMT:</b>	<ul style="list-style-type: none"><li>• IV or IO with crystalloid (maximum 2 L for adults or 20mL/kg for pediatrics) to maintain systolic BP greater than 90mmHg</li></ul>
<b>EMT-I:</b>	<ul style="list-style-type: none"><li>• Amiodarone or lidocaine if initial rhythm was ventricular fibrillation or tachycardia</li></ul>
<b>Paramedic:</b>	<ul style="list-style-type: none"><li>• Advanced airway</li><li>• NG or OG placement</li><li>• Epinephrine push-dose or infusion to maintain systolic BP greater than 90mmHg</li><li>• Norepinephrine infusion may be considered instead for non-bradycardic patient or added for persistent hypotension after fluids and epinephrine</li></ul>

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# BRADYCARDIA – SYMPTOMATIC

## SUBJECTIVE

- Decreased level of consciousness
- Cardiac chest pain
- Dyspnea (shortness of breath)

## OBJECTIVE

- Bradycardia (pulse < 50)
- Hypotension
- Diaphoresis
- Syncope

## CONSIDERATIONS

For critically-ill patients (post-cardiac arrest, suspected sepsis or toxins, altered mental status, SBP < 90 systolic), epinephrine should be administered as first-line treatment prior to atropine or pacing.

## TREATMENT

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|-------------|---|
| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Oxygen</li></ul>  |
| <b>EMT:</b> | <ul style="list-style-type: none"><li>• 12 lead ECG – if available; don't delay other treatment</li></ul> |
- 

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|--------------|---|
| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with crystalloid</li></ul> |
|--------------|---|
- 

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|---------------|--|
| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Cardiac monitor</li><li>• Atropine</li></ul> |
|---------------|--|
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|-------------------|--|
| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Epinephrine push dose or infusion</li><li>• Transcutaneous pacing</li><li>• Consider antidote for specific drug toxicity: Calcium for calcium channel-blocker overdose, sodium bicarbonate for tricyclic antidepressant overdose</li></ul> |
|-------------------|--|
-

# PEDIATRIC BRADYCARDIA

## SUBJECTIVE

- Age < puberty (about 12-14 years)
- Altered level of consciousness
- Dizziness or lightheadedness
- Syncope
- Fatigue

## OBJECTIVE

- Bradycardia (pulse < 60) with poor perfusion
- Altered level of consciousness
- Hypotension
- Diaphoresis
- Collapse

## ASSESSMENT

For critically-ill patients (post-cardiac arrest, suspected sepsis or toxins, altered mental status, or hypotension/signs of shock), CPR and epinephrine should be administered as first-line treatment prior to atropine or pacing.

## TREATMENT

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|-------------|--|
| <b>EMR:</b> | • Oxygen   |
| <b>EMT:</b> | • CPR if pulse < 60 bpm and hemodynamically unstable |
|             | • 12 lead ECG  |
- 

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|--------------|-----------------------------|
| <b>AEMT:</b> | • IV or IO with crystalloid |
|--------------|-----------------------------|
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|---------------|--|
| <b>EMT-I:</b> | • Cardiac monitor                                      |
|               | • Epinephrine IV/IO push                               |
|               | • Atropine if increased vagal tone or primary AV block |
- 

- |                   |  |
|-------------------|--|
| <b>Paramedic:</b> | • Transcutaneous pacing with sedation  |
|                   | • Epinephrine IV or IO infusion or ETT if IV access unavailable  |
|                   | • Consider antidote for specific drug toxicity: Calcium for calcium channel-blocker overdose, sodium bicarbonate for tricyclic antidepressant overdose |
-



# TACHYCARDIA – NARROW COMPLEX

## SUBJECTIVE

- Palpitations or rapid heart rate
- Decreased level of consciousness
- Cardiac chest pain
- Dyspnea (shortness of breath)

## OBJECTIVE

- Tachycardia – usually rate  $\geq 130$  beats/minute
- Narrow complex (QRS  $< 0.12$  seconds)
- Hypotension
- Diaphoresis
- Syncope

## ASSESSMENT

Narrow complex tachycardia – can be PSVT, atrial flutter, atrial fibrillation

## TREATMENT

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- |             |   |
|-------------|---|
| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Oxygen</li></ul>              |
| <b>EMT:</b> | <ul style="list-style-type: none"><li>• Position of comfort</li></ul> |
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|--------------|---|
| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with crystalloid</li></ul> |
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|---------------|--|
| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Cardiac monitor</li><li>• Vagal maneuvers, if patient stable</li></ul> |
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|-------------------|--|
| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Adenosine</li><li>• Diltiazem – 1<sup>st</sup> if atrial fibrillation or atrial flutter with rapid ventricular response</li><li>• Amiodarone if Wolff-Parkinson-White</li><li>• Synchronized cardioversion if unstable</li></ul> |
|-------------------|--|
-

# TACHYCARDIA – WIDE COMPLEX

## SUBJECTIVE

- Palpitations or rapid heart rate
- Decreased level of consciousness
- Cardiac chest pain
- Dyspnea (shortness of breath)

## OBJECTIVE

- Tachycardia – usually rate  $\geq$  150 beats/minute
- Wide complex (QRS  $\geq$  0.12 seconds)
- Hypotension
- Diaphoresis
- Syncope

## ASSESSMENT

Wide complex tachycardia

## TREATMENT

- 
- |             |   |
|-------------|---|
| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Oxygen</li><li>• Position of comfort</li><li>• 12 ECG if patient stable</li></ul> |
| <b>EMT:</b> |   |
|             |   |

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- |              |   |
|--------------|---|
| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with crystalloid</li></ul> |
|--------------|---|

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- |               |   |
|---------------|---|
| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Cardiac monitor</li><li>• Amiodarone or lidocaine</li></ul> |
|---------------|---|

- 
- |                   |   |
|-------------------|---|
| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Adenosine before amiodarone/lidocaine if stable with regular &amp; monomorphic rhythm</li><li>• Synchronized cardioversion if unstable</li><li>• Magnesium for Torsades des Pointes</li></ul> |
|-------------------|---|
-

# PEDIATRIC TACHYCARDIA

## SUBJECTIVE

- Age < puberty (about 12-14 years)
- Palpitations or rapid heart rate
- Dizziness or lightheadedness
- Chest discomfort
- Dyspnea (shortness of breath)
- Poor feeding
- Fatigue

## OBJECTIVE

- Tachycardia
  - Infants, usually > 220 bpm
  - Children, usually >180 bpm
- Cyanosis
- Decreased level of consciousness
- Hypotension
- Diaphoresis
- Syncope

## CONSIDERATIONS

At high rates, it may be challenging to distinguish sinus tachycardia (sepsis, toxins, or other underlying illness) from SVT. Carefully assess for other signs and symptoms.

## TREATMENT

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<b>EMR:</b>	<ul style="list-style-type: none"><li>• Oxygen</li></ul>
<b>EMT:</b>	<ul style="list-style-type: none"><li>• Position of comfort</li><li>• 12 lead ECG</li></ul>

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<b>AEMT:</b>	<ul style="list-style-type: none"><li>• IV or IO with crystalloid</li></ul>
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<b>EMT-I:</b>	<ul style="list-style-type: none"><li>• Cardiac monitor</li><li>• Vagal maneuvers, if patient is stable with narrow complex tachycardia (rectal stimulation with a thermometer, ice water on face, or blowing through a straw – depending on age)</li></ul>
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<b>Paramedic:</b>	<ul style="list-style-type: none"><li>• Adenosine if narrow complex (QRS &lt; 0.09 sec) or if wide complex (QRS ≥ 0.09 sec) and regular and monomorphic</li><li>• Amiodarone for wide-complex if irregular or refractory to adenosine</li><li>• Synchronized cardioversion if unstable</li></ul>
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# CHEST TRAUMA

## SUBJECTIVE

History and mechanism of injury: blunt or penetrating. Onset of symptoms from time of event. Chest pain, difficulty breathing, coughing up blood. History of chest surgery. Last oral intake.

**Blunt:** Speed of motor vehicle crash; steering wheel damage; passenger restraints; type of weapon if used; type of fall or blast.

**Penetrating:** Mechanism; type of weapon; distance from firing; caliber.

## OBJECTIVE

Patient may appear cyanotic, pale, with cool and clammy skin. Respiratory distress, paradoxical chest movement, subcutaneous air, decreased or absent breath sounds, obvious open or closed chest injuries. Distended neck veins, tracheal shift or hemoptysis. Tachycardia, narrow pulse pressures or hypotension.

## ASSESSMENT

Diagnosis of chest trauma will be based on patient history, mechanism of injury and physical findings. Do not overlook other potential injuries; head, spine, abdomen or extremities.

## TREATMENT

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- |             |   |
|-------------|---|
| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Oxygen</li><li>• Cover open chest wounds with occlusive dressing</li><li>• Spinal motion restriction for blunt trauma</li></ul> |
|-------------|---|
- 

- |             |   |
|-------------|---|
| <b>EMT:</b> | <ul style="list-style-type: none"><li>• Supraglottic airway</li></ul> |
|-------------|---|
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|--------------|--|
| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• One or two IV or IO with crystalloid</li></ul> |
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|---------------|--|
| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Fentanyl or morphine</li><li>• Cardiac monitor</li></ul> |
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|-------------------|--|
| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Chest decompression</li><li>• Ketamine</li><li>• Advanced airway</li></ul> |
|-------------------|--|
-

# CHILDBIRTH – CARE OF THE NEWBORN

## SUBJECTIVE

Presentation at birth, time of delivery, gestational age, precipitous or home delivery, complications with pregnancy, due date, multiple births, past medical history, medications, drug or alcohol usage.

## OBJECTIVE

Respiratory rate and effort, grunting, use of accessory muscles, meconium, skin color, heart rate, muscle tone, multiple births.

## ASSESSMENT

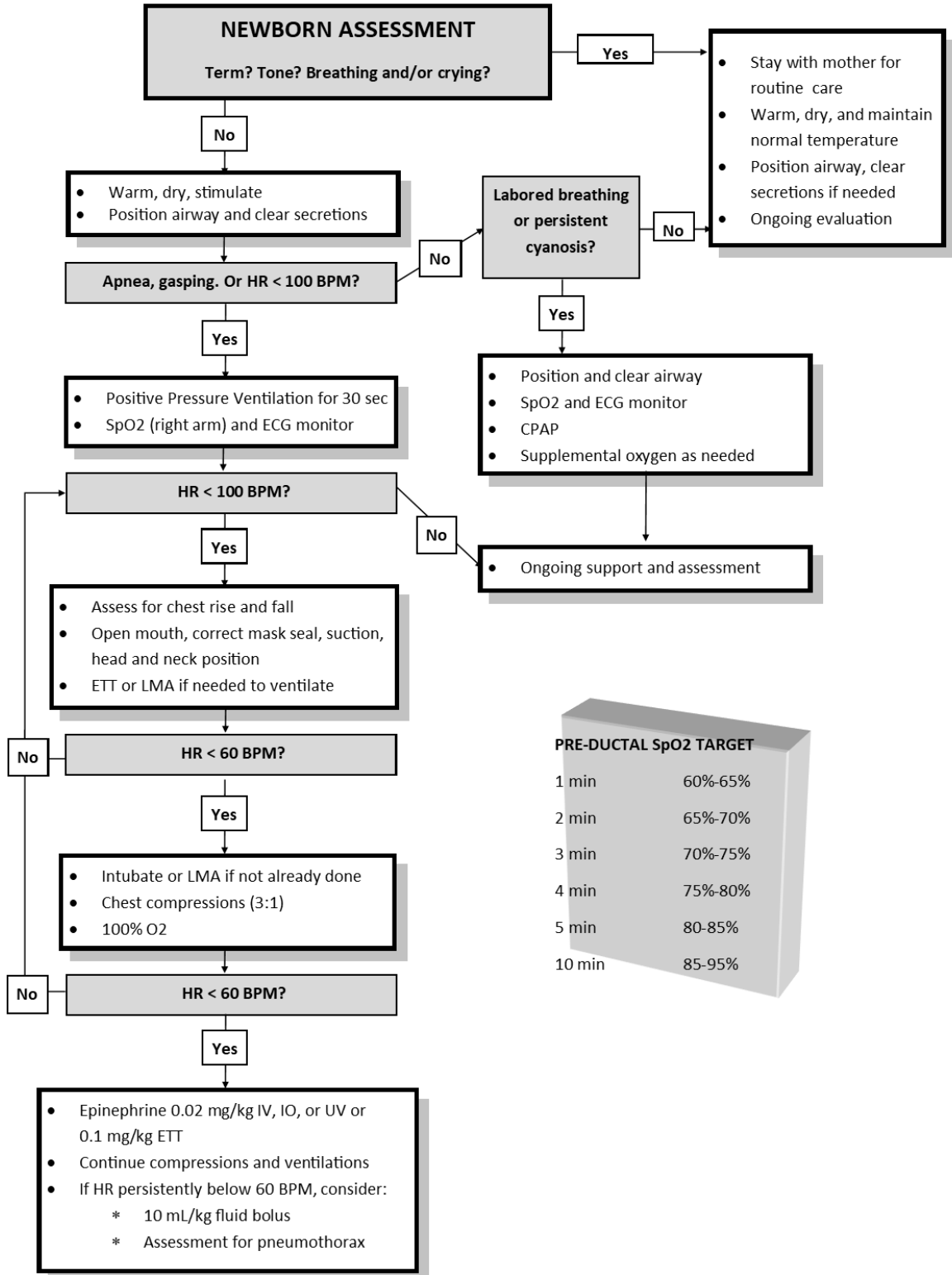
Most newborns will quickly respond to stimulation through gently drying and placement upon mother's chest or abdomen and encouragement to nurse.

## TREATMENT

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- |                   |  |
|-------------------|--|
| <b>EMR:</b>       | • Remove wet blankets or towels and dry infant   |
| <b>EMT:</b>       | • Cover infant, including head, with dry blanket or towel to maintain body temperature |
| <b>AEMT:</b>      | • Assessment and management per protocol (next page)                                   |
| <b>EMT-I:</b>     | • Assess one- and five-minute APGAR  |
| <b>PARAMEDIC:</b> |  |
- 

<b><u>APGAR SCORING</u></b>			
<b>ITEM</b>	<b>0</b>	<b>1</b>	<b>2</b>
Appearance	cyanotic	pink with blue extremities	all pink
Pulse	absent	<100/min	>100/min
Grimace	none	grimace	sneeze or cough
Activity	limp	some flexion	active motion
Respirations	none	slow or irregular	good cry

(CONTINUED)



**PRE-DUCTAL SpO2 TARGET**

1 min	60%-65%
2 min	65%-70%
3 min	70%-75%
4 min	75%-80%
5 min	80-85%
10 min	85-95%

# CHILDBIRTH – UNCOMPLICATED DELIVERY

Gravida, parity, due date, recent vaginal bleeding, problems with this or prior pregnancies, known multiple births, drug or ETOH abuse, past medical history. Contractions – onset, frequency, ruptured membranes, urge to push, pain location, type. Ask mother what her BP has been.

## OBJECTIVE

Vital signs, fetal heart tones (LLQ, RLQ, over bladder), frequency of contractions. Respecting privacy, inspect perineum for crowning or bulging, vaginal fluid, bleeding, meconium, abnormal presentation.

## CONSIDERATIONS

Childbirth is a natural event and usually is uncomplicated. If you suspect a complicated delivery, refer to the appropriate protocol and request additional resources. If you suspect an uncomplicated delivery and imminent birth is not present, transport mother on left side. If impending birth, follow below protocol.

## TREATMENT

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**EMR:**

**EMT:**

**AEMT:**

**EMT-I:**

**PARAMEDIC:**

- Oxygen
- Position of comfort
- OB pack
- Assist with delivery of head applying gentle pressure and continue to support head
- Feel around neck for nuchal cord, if present, gently slip around head
- Clear airway (suction mouth & nose with bulb syringe) only if obvious obstruction
- Support head, assist delivery of anterior shoulder and then the rest of the body
- Place baby skin to skin with mother, dry and keep warm until cord is clamped – no need to keep baby at placental level
- Clamp cord using 2 clamps spaced 6-8 inches from baby's body and cut cord between clamps – delay until 1-2 minutes after delivery
- Inspect perineum for tears. Apply direct pressure with gauze pad to any bleeding. Do not pack inside of vagina
- Let placenta deliver normally and take to hospital
- After placenta delivers, massage uterus by rubbing abdomen firmly
- **Pregnancy or delivery less than 36 weeks requires transport to RRMC obstetrics.**

# CHILDBIRTH – POST PARTUM HEMORRHAGE

## SUBJECTIVE

Gravida, parity, delivery time and date, quantity of vaginal bleeding, prior problems with pregnancy, drug or ethanol use, past medical history, medications.

## OBJECTIVE

Hypotension, tachycardia, estimated blood loss at scene, active bleeding, tears in perineum, delivery of intact placenta.

## CONSIDERATIONS

Immediate (first 24 hours) post-partum hemorrhage is usually due to poor uterine muscle tone, cervical, or perineal tears. Late post-partum hemorrhage (7-10 days) is usually from presence of retained placental parts. If immediately post-partum, the first priority is delivery of the placenta.

## TREATMENT

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| <b>EMR:<br/>EMT:</b> | <ul style="list-style-type: none"><li>• High flow oxygen</li><li>• External uterine massage</li><li>• Allow infant to nurse to stimulate uterine contractions or have patient stimulate her own nipples</li><li>• Apply direct pressure to active external perineal bleeding</li></ul> |
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| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• One or two large bore IVs or IO with crystalloid</li></ul> |
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| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Cardiac monitor</li></ul> |
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| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Tranexamic acid</li></ul> |
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# CHILDBIRTH – BREECH DELIVERY

## SUBJECTIVE

Known breech position, gravida, parity, history of breech delivery, due date, complications during pregnancy, drug or alcohol use, past medical history.

## OBJECTIVE

Presenting part, frequency of contractions, meconium.

## ASSESSMENT

Transport without delay to closest hospital, be prepared to assist in delivery.

## TREATMENT

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**EMR:  
EMT:**

- Place mother on high flow oxygen
- Place mother supine or in Trendelenburg position
- If birth is imminent, allow mother to push, do not pull baby
- Support delivered baby on your hand and arm
- If head does not deliver, place gloved hand into the vagina and form a V around the baby's head and mouth to create an air passage. Maintain position until birth
- Consider Mauriceau maneuver to help deliver head

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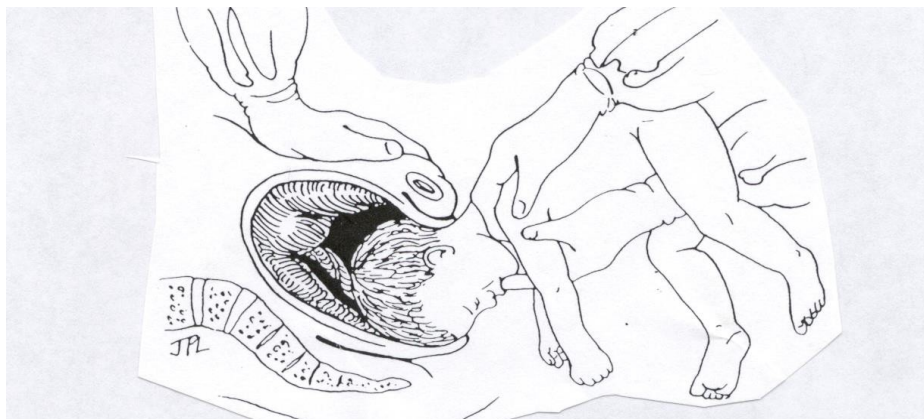
**AEMT:**

- IV or IO with crystalloid

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**EMT-I:  
Paramedic:**

- Cardiac monitor
- 



# CHILDBIRTH – PRE-ECLAMPSIA / ECLAMPSIA

## SUBJECTIVE

Headache, decreased urinary output, weight gain, increased edema, visual disturbances, nausea or vomiting, abdominal pain, currently may be on bed rest, seizures.

## OBJECTIVE

Hypertension (BP > 140/90), edema, hyperreflexia, seizures, coma, occurring after 20 weeks (4-5 months) gestation and up to 8 weeks postpartum.

## ASSESSMENT

Pre-eclampsia is a pregnancy related condition occurring after 20 weeks of gestation, typically involving hypertension (BP > 140/90), protein in the urine (proteinuria) and edema. During pregnancy, blood pressure should be less than when not pregnant. Pre-eclampsia/eclampsia may occur after delivery of the child up to 8 weeks postpartum.

Pre-eclampsia is more common if it was present during a prior pregnancy, during a woman's first pregnancy, and with multiple gestations (twins, triplets, etc.).

When seizures occur the condition is called eclampsia. Suspect eclampsia in third trimester pregnant patients who are seizing. These patients will initially need magnesium sulfate to control their seizures. Midazolam or lorazepam are only used to control seizures if magnesium sulfate has not been effective. Magnesium sulfate may also be administered to patient with severe pre-eclampsia with OLMC.

## TREATMENT

*The definitive treatment for pre-eclampsia or eclampsia is delivery.*

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| <b>EMR:<br/>EMT</b> | <ul style="list-style-type: none"><li>• High flow oxygen</li><li>• Turn mother onto left side</li><li>• Keep environmental stimulation at a minimum</li></ul> |
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| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with crystalloid</li></ul> |
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|---------------|---|
| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Cardiac monitor</li></ul> |
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| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Magnesium</li><li>• Midazolam (or lorazepam if midazolam contraindicated) – after Magnesium sulfate has been administered</li><li>• Advanced airway</li></ul> |
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# CROUP

## SUBJECTIVE

“Barky” or “seal-like” cough with breathing difficulty mostly during inspiration and worse when excited or agitated in a child, most commonly of age 6 months – 6 years. May have a low grade fever and cold symptoms. Symptoms typically are worse at night.

## OBJECTIVE

- Inspiratory stridor heard loudest in the neck.
- Child is able to handle oral secretions.
- May have a low grade fever.
- Stridor usually lessens when child is calm.

## CONSIDERATIONS

- Croup (laryngotracheobronchitis) is a viral respiratory illness with swelling in the larynx which results in the typical “barky” cough and inspiratory stridor (noisy breathing). Asthma and bronchospasm typically causes expiratory wheezing.
- Treatment is supportive, unless child’s SpO<sub>2</sub> is less than 90% or significant inspiratory stridor is present at rest.
- Inhaled epinephrine may be administered for significant inspiratory stridor present at rest.
- Advanced airway placement may trigger marked laryngospasm and should be done only as a last resort.
- Inspiratory stridor may also be caused by:
  - Epiglottitis, which is a bacterial illness usually with an ill-appearing patient, significant fever, drooling, or
  - Inhaled foreign body, which usually has a sudden onset without cold symptoms or a fever.

## TREATMENT

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| <b>EMR:</b>  | • Position of comfort and least anxiety      |
| <b>EMT:</b>  | • Oxygen to bring SpO <sub>2</sub> above 92% |
| <b>AEMT:</b> |  |
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| <b>EMT-I:</b> | • Epinephrine via nebulizer (for inspiratory stridor at rest) |
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| <b>Paramedic:</b> | • Advanced airway |
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# **DROWNING**

## **SUBJECTIVE**

Length of exposure, fresh or salt water, temperature, dyspnea, cough, chest pain, headache, nausea, vomiting, neck pain, bystander treatment.

## **OBJECTIVE**

Level of consciousness, rales, respiratory rate, cyanosis, pallor, internal temperature, hypotension.

## **ASSESSMENT**

World Health Organization (WHO) definition:

Drowning is the process of experiencing respiratory impairment from submersion/immersion in liquid.

Assess for other injuries: shallow water dives and scuba diving.

If BVM is used to assist ventilations, PEEP valve should be attached if available.

## **TREATMENT**

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| <b>EMR:</b> | <ul style="list-style-type: none"><li>• CPR as needed</li><li>• Suction airway</li><li>• Assist ventilations as needed using PEEP valve (up to 15 mmHg)</li><li>• Spinal motion restriction if indicated</li><li>• Oxygen</li><li>• Remove wet clothing and warm patient</li></ul> |
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| <b>EMT:</b> | <ul style="list-style-type: none"><li>• Supraglottic airway</li></ul> |
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| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with crystalloid</li></ul> |
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| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Cardiac monitor</li><li>• Orogastic tube</li></ul> |
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| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Advanced airway</li><li>• Nasogastric tube</li></ul> |
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# **DYSTONIC REACTION**

## **SUBJECTIVE**

Involuntary, unpleasant motor movements of the trunk, limbs or face following the administration of antipsychotic or anti-nausea medications, commonly haloperidol (Haldol), promethazine (Phenergan), droperidol (Inapsine), prochlorperazine (Compazine) or metoclopramide (Reglan).

## **OBJECTIVE**

Patient is awake and conscious, with extrapyramidal symptoms, usually distraught or anxious. Extrapyramidal symptoms often consist of small spasmodic movements or tics of the arms, legs, face or neck muscles with lip smacking, grimacing, tongue protrusion, eye movements or neck twisting.

## **ASSESSMENT**

Dystonic reactions are distressing to the patient, but rarely life threatening. Patients may have had similar symptoms previously. Acute dystonic reactions may be mistaken for anaphylaxis or seizures. Patients with seizures, which may look somewhat similar, almost always have a loss or alteration of consciousness. Dystonic reactions may last for hours to days, whereas seizures usually last minutes.

## **TREATMENT**

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| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Position of comfort</li><li>• Oxygen</li></ul> |
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| <b>EMT:</b> | <ul style="list-style-type: none"><li>• Diphenhydramine (oral)</li></ul> |
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| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with crystalloid</li></ul> |
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| <b>EMT-I:<br/>Paramedic:</b> | <ul style="list-style-type: none"><li>• Diphenhydramine (IV/IM/IO)</li><li>• Lorazepam</li></ul> |
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# ENCEPHALOPATHY AND PSYCHIATRIC DISORDERS

## SUBJECTIVE

History of recent crisis, emotional trauma, bizarre or abrupt changes in behavior. Recent illness or medication changes in the elderly. Alcohol or drug intoxication, toxic exposure. Recent head trauma. Past history of psychiatric disorders, medical problems, medications and medication compliance. Inquire specifically regarding depression and thoughts of self-harm or suicide.

## OBJECTIVE

Level of consciousness and orientation. Signs of sepsis, trauma, injury, ingestion or injection. Note odor on breath. Pill bottles or syringes at scene. Look for medical alert tags.

## ASSESSMENT

Diagnosis may be difficult and should be determined by history, patient assessment and observations noted at the scene of event.

## TREATMENT

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| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Attempt to establish rapport</li><li>• Do not leave patient alone</li><li>• Remove dangerous objects</li><li>• Naloxone if opioid overdose is suspected</li><li>• Oxygen</li><li>• Restrain, if necessary</li></ul> |
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| <b>EMT:</b> | <ul style="list-style-type: none"><li>• Check blood sugar</li></ul> |
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| <b>AEMT:<br/>EMT-I</b> | <ul style="list-style-type: none"><li>• IV or IO with crystalloid or saline lock</li><li>• Glucose if hypoglycemic</li></ul> |
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| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Lorazepam or midazolam</li><li>• Droperidol</li><li>• Ketamine</li></ul> |
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### **Suggested medications by patient condition:**

- Restless and anxious: Lorazepam 0.5-1 mg IV or midazolam 1 mg IV
  - Elderly with confusion: Droperidol 1.25 mg IV/IM
  - Agitated but redirectable; alcohol or psychiatric illness suspected: Droperidol 5 mg + Midazolam 2-5 mg IV/IO (or 5-10 mg IM/IN)
  - Hyperthermic or sympathomimetics suspected: Midazolam 5-10mg IV/IO/IM/IN
  - Danger to self or crew or agitated trauma: Ketamine 4mg/kg IM or 2 mg/kg IV, followed by midazolam 10 mg IV/IM/IO/IN if needed
-

# EPISTAXIS (NOSEBLEED)

## SUBJECTIVE

Amount of blood loss, trauma, recent upper respiratory tract infection, intranasal drug use, current medications (Aspirin, Warfarin-Coumadin, Clopidogrel-Plavix, Dabigatran-Pradaxa), self-treatment, history of nosebleeds, nausea.

## OBJECTIVE

Check for bloody or clear fluid from ears to indicate skull injury. Evaluate for airway compromise, hypotension, hypertension and trauma.

## ASSESSMENT

Most nosebleeds occur on the anterior septum from one side only and will stop spontaneously or with direct pressure if applied appropriately. Patients may be very anxious, particularly if the bleeding is persistent. The risk of significant blood loss is generally small. Bleeding from the posterior nose is often much more serious, but also very unusual. Medical intervention is usually required for posterior bleeds.

## TREATMENT

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| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Calm patient</li><li>• Have patient blow nose to expel clots and apply direct pressure: pinch soft part of nose, distal nasal septum, for 10 minutes or until bleeding stops</li></ul> |
| <b>EMT:</b> |  |

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| <b>AEMT:</b>  | <ul style="list-style-type: none"><li>• IV or IO with crystalloid</li></ul> |
| <b>EMT-I:</b> |   |

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| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Oxymetazoline (Afrin)</li></ul> |
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# EXERCISE ASSOCIATED HYPONATREMIA (EAH)

## SUBJECTIVE

Participation in a long-distance endurance event, such as a triathlon, marathon or ultramarathon “ultra”. Usually takes several hours of prolonged exertion to develop. Patients have often been drinking large amounts of liquid and can be taking salt tablets.

## OBJECTIVE

- Altered level of consciousness: disorientation, delirium, confusion, seizure, coma
- Normothermic.
- No hypotension or tachycardia.
- No hypoglycemia
- Weight gain (or no weight loss) during the event

## ASSESSMENT

Exercise Associated Hyponatremia (EAH) is an acute electrolyte abnormality which occurs in generally healthy people who participate in long distance endurance events and is due to excess water intake.

Definitive diagnosis is made by measurement of serum sodium  $[Na^+]$  which is done at the hospital.

Evaluate for and treat other medical conditions first.

## TREATMENT

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| <b>EMR:</b> | • Oxygen                                      |
| <b>EMT:</b> | • Evaluate and treat other medical conditions |

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| <b>AEMT:</b>      | • Saline lock – avoid crystalloid IV or IO  |
| <b>EMT-I:</b>     | • Record pre-race weight and current weight, if available   |
| <b>Paramedic:</b> | • If $[Na^+]$ is measured onsite by event medical staff, then online medical control (OLMC) and report $[Na^+]$ value |
|                   | • Transport to the hospital   |
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# EYE INJURY

## SUBJECTIVE

Mechanism of injury: chemical exposure, foreign body, penetrating injury; changes in vision or loss of vision; use of eye protection or corrective lenses; associated injuries.

## OBJECTIVE

Pupil irregularity; foreign body on or in the eye; redness; associated injuries of eyelid, eyebrow, or adjacent face; visual acuity

## ASSESSMENT

Eye injuries are generally more severe if associated with change in vision or pain with eye movement. All eye injuries treated by EMS need medical evaluation.

## TREATMENT

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| <b>EMR:<br/>EMT:<br/>AEMT:</b> | <ul style="list-style-type: none"><li>• Assess for and treat life-threatening injuries first</li><li>• Check and record visual acuity in each eye tested separately <b>BEFORE AND AFTER ANY TREATMENT</b> by reading text, counting fingers, or distinguishing shapes</li><li>• Remove any contact lens in the injured eye, if possible</li><li>• Avoid rubbing the injured eye</li><li>• Penetrating eye injury:<ul style="list-style-type: none"><li>• Protect the eye from further injury and minimize movement of the other eye</li><li>• Stabilize any impaled object</li><li>• Do not irrigate the eye</li></ul></li><li>• Suspected foreign body:<ul style="list-style-type: none"><li>• Irrigate the eye with clean water or crystalloid – minimum 1 L</li></ul></li></ul> |
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| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Fentanyl or morphine</li></ul> |
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| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Ketamine</li><li>• Midazolam</li></ul> |
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# FRACTURES & DISLOCATIONS

## SUBJECTIVE

History of trauma and mechanism of injury. Localized pain, swelling, deformity or angulation, loss of sensation or motion.

## OBJECTIVE

Tenderness, swelling, deformity, angulation, discoloration, crepitus, loss of motion or guarding. Open wound or exposed bones. Arterial compromise demonstrated by cool extremity, loss of pulses or loss of sensation.

## ASSESSMENT

Diagnosis of a suspected fracture or dislocation is based on the patient's history, mechanism of injury and physical findings. Other causes may be a strain or sprain. Evaluate for other trauma.

## TREATMENT

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<b>EMR:</b>	
<b>EMT:</b>	<ul style="list-style-type: none"><li>• Oxygen</li><li>• Dressing to open wounds</li><li>• Immobilize, split, elevate, apply ice</li></ul>

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<b>AEMT:</b>	<ul style="list-style-type: none"><li>• IV or IO with crystalloid</li></ul>
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<b>EMT-I:</b>	<ul style="list-style-type: none"><li>• Cardiac monitor</li><li>• Fentanyl or morphine</li></ul>
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<b>Paramedic:</b>	<ul style="list-style-type: none"><li>• Ketamine</li><li>• Midazolam</li><li>• Lorazepam</li></ul>
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# HEAD TRAUMA

## SUBJECTIVE

History of trauma and the mechanism of injury. Changes in consciousness.

Protective devices worn, such as safety belts or helmets. Headache, nausea, vomiting, visual changes, numbness, tingling or paralysis. Medical history.

## OBJECTIVE

Level of consciousness. Clear or bloody discharge from ears or nose.

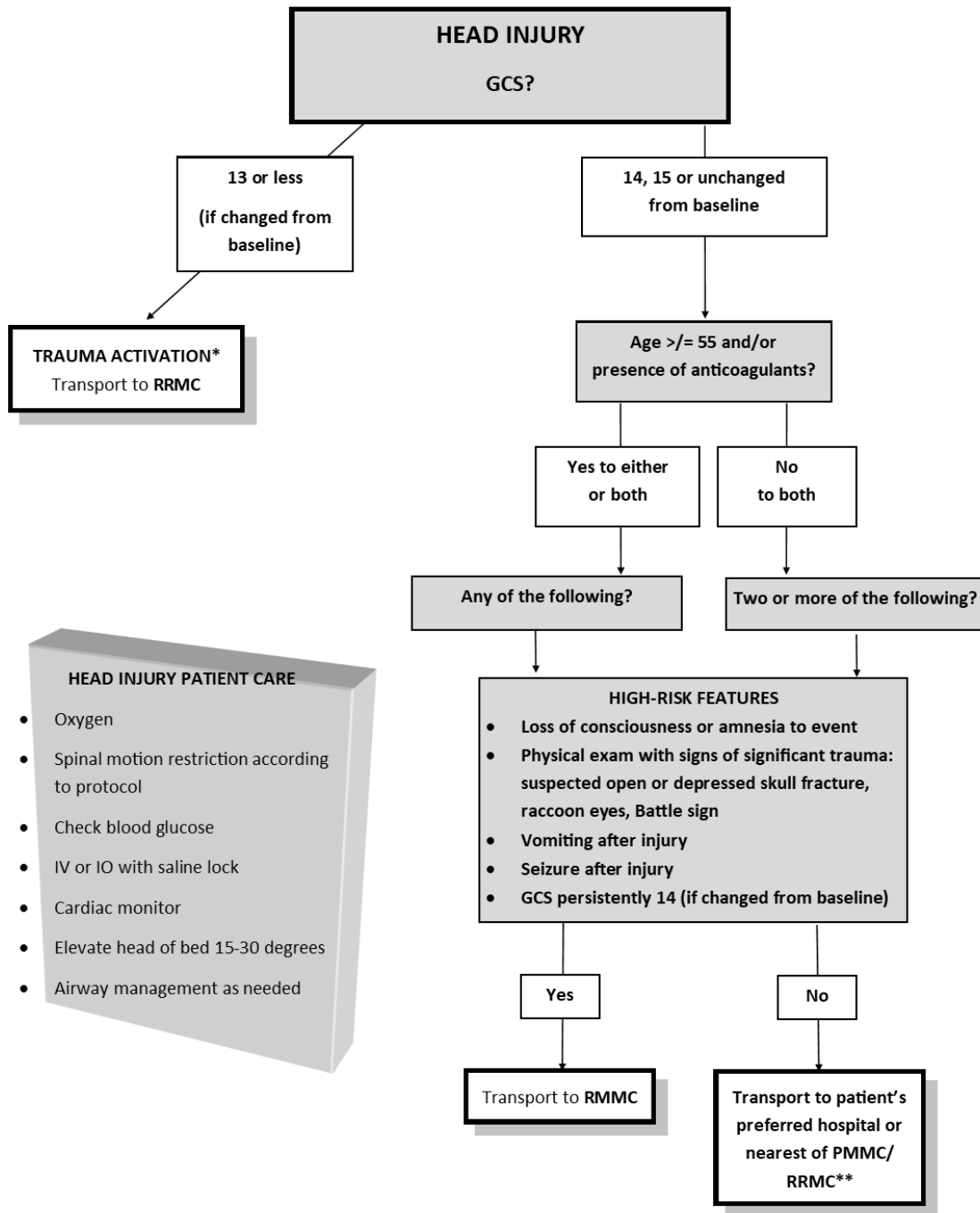
Cushing's triad: bradycardia, hypertension and abnormal respirations. Pupil size and reactivity to light. Skull or facial lacerations or fractures. Assess for further injuries. Patient taking anticoagulants:

- Warfarin (Coumadin, Jantoven)
- Clopidogrel (Plavix)
- Apixaban (Eliquis)
- Rivaroxaban (Xarelto)
- Dabigatran (Pradaxa)
- Enoxaparin (Lovenox)
- Prasugrel (Effient)
- Ticagrelor (Brilinta)
- Edoxaban (Savaysa)
- Betrixaban (Bevyxxa)
- Dalteparin (Fragmin)
- Tinzaparin (Innohep)
- Heparin
- Fondaparinux (Arixtra)
- Dipyridamole

## ASSESSMENT

Head trauma may produce lacerations, fractures or brain injury. Alterations in the level of consciousness may be due to other medical conditions. **Patients who do not meet trauma system entry criteria but have history of or signs of head injury should be transported according to the algorithm below.**

(CONTINUED)



\*No trauma activation for patients with a valid POLST form with section B marked "Comfort Measures Only"

\*\* Patients with head injury may be transported to AACH ONLY if they are at baseline, are not anticoagulated, and have no high-risk features

# HEAT ILLNESS

## SUBJECTIVE

Hot environment, exercise, rate of onset, underlying medical conditions, current medications. Headache, nausea, cramps, dizziness, generalized weakness.

## OBJECTIVE

Core temperature normal or elevated. Skin normal, cool and wet, or hot and dry. Blood pressure normal or low. Altered level of consciousness or seizures.

## ASSESSMENT

Heat illness may range from heat cramps, treated with removal from heat, to heat exhaustion, treated with hydration, to heat stroke where the body's ability to maintain normal temperature fails. Heat stroke is diagnosed on the basis of hot environment, body temperature greater than 40°C (104°F), dry skin, and neurological abnormalities including an altered mental status. Patients with heat stroke need to have active cooling measures begun immediately, including ice packs to groin, axillae, and neck; application of wet sheets and water to patient; fan on high; cool IV fluids.

## TREATMENT

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| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Remove patient from heat</li><li>• Oxygen</li><li>• Active cooling if heat stroke</li></ul> |
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| <b>EMT:</b> | <ul style="list-style-type: none"><li>• Check blood glucose</li></ul> |
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| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with crystalloid</li></ul> |
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| <b>EMT-I:<br/>Paramedic:</b> | <ul style="list-style-type: none"><li>• Cardiac monitor</li><li>• Midazolam or lorazepam for seizures</li></ul> |
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# **HOSPICE**

## **SUBJECTIVE**

Patient is enrolled in a local hospice program to provide end of life comfort care.

## **CONSIDERATIONS**

Patient likely will have POLST Form specifying DNR in Section A and Comfort Measures Only in Section B, BUT THIS IS NOT REQUIRED FOR HOSPICE and current POLST should be followed if patient is unable to make current wishes known.

Any patient, already enrolled in a hospice program, should have already contacted the on-call hospice nurse before EMS providers arrive or are called.

## **TREATMENT**

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| <b>EMR:</b>       | • Provide patient and family comfort  |
| <b>EMT:</b>       | • Use protocols to treat pain, respiratory distress, nausea, anxiety, or confusion, using IM or IN administration when possible                                   |
| <b>AEMT:</b>      | • Contact the on-call hospice nurse to discuss further care, which may or may not include transport of the patient to the hospital for further evaluation or care |
| <b>EMT-I:</b>     | • OLMC if the on-call hospice nurse is not reachable in a timely fashion  |
| <b>Paramedic:</b> | • The patient may elect to leave hospice program at any time  |
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<b>Hospice Program</b>	<b>24 Hour Contact Phone Number</b>
<b>Asante Hospice</b>	<b>541-789-5005</b>
<b>Providence Hospice</b>	<b>541-732-6500</b>
<b>Signature Hospice</b>	<b>541-664-7400</b>

# HYPERGLYCEMIA

## SUBJECTIVE

Altered level of consciousness, rapid or slow onset, confusion, weakness, dizziness, abdominal pain, vomiting, frequent urination, recent weight loss, or presence or absence of hunger and thirst. Often with a history of diabetes, which may be treated with insulin or oral hypoglycemic medication.

Patients may have run out of their diabetes medication, especially insulin.

Patients may have an acute underlying medical illness, such as infection, MI, or viral syndrome.

Some patients may first be discovered to have diabetes on an initial presentation of hyperglycemia.

## OBJECTIVE

- **Level of consciousness:** confusion, disoriented, combative, comatose, or unresponsive.
- **Skin:** pale, moist or warm, dry and pink, or signs of dehydration.
- **Breathing:** normal, rapid and deep (Kussmaul respirations), or fruity odor (due to ketones).
- **Pulse:** normal or elevated.
- **Blood pressure:** hypotensive or normal.
- **Blood glucose:** usually more than 300mg/dl.
- May have medical alert tag.

## ASSESSMENT

Patients with hyperglycemia (blood sugar more than 300-400, often have 600-800) often have been sick for one to several days with vomiting and may have rapid, deep breathing (Kussmaul respirations), warm, dry, pink skin and are usually dehydrated.

The initial problem is usually severe dehydration, so the initial treatment is with crystalloid, not insulin.

## TREATMENT

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<b>EMR:</b>	<ul style="list-style-type: none"><li>• Oxygen</li></ul>
<b>EMT:</b>	<ul style="list-style-type: none"><li>• Check blood glucose</li></ul>
<b>AEMT:</b>	<ul style="list-style-type: none"><li>• IV or IO fluid bolus with crystalloid (20mL/kg pediatric with hypotension/tachycardia or adult; 10mL/kg pediatric without hypotension)</li></ul>
<b>EMT-I: Paramedic:</b>	<ul style="list-style-type: none"><li>• Cardiac monitor</li></ul>

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# HYPERKALEMIA

## SUBJECTIVE

- **Increase in blood potassium:** GI bleeding, rhabdomyolysis, large burns, history of dark urine
- **Decreased potassium excretion:** History of renal failure or kidney disease, missed dialysis, decreased urine output, dehydration, diabetes with severe hyperglycemia
- **Medication-related:** spironolactone or digoxin
- Hyperkalemia itself is often asymptomatic, so symptoms will often reflect underlying cause and may be vague and nonspecific

## OBJECTIVE

- **Exam findings:** Nonspecific and may include generalized weakness, confusion, disorientation, syncope, seizure, coma, tachycardia, bradycardia, vomiting
- **ECG findings** (*generally progress in this order, blood levels are approximate*):
  - K<sup>+</sup> 5.5-6.5: Peaked T-waves
  - K<sup>+</sup> 6.5-7.0: Prolonged PR developing into flattened or absent P waves
  - K<sup>+</sup> 7.0-9.0: Conduction abnormalities including widening QRS, second- and third-degree AV blocks, unstable bradycardia, bizarre QRS morphology
  - K<sup>+</sup> 9.0+: Sine wave appearance, other arrest rhythms

## ASSESSMENT

Field diagnosis and treatment of hyperkalemia requires high suspicion from history **AND** ECG findings. Actively widening QRS should prompt rapid treatment. Definitive diagnosis requires lab work to confirm high potassium levels.

**Be prepared to manage cardiac arrest.**

## TREATMENT

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<b>EMR:</b>	• Oxygen
<b>EMT:</b>	• 12-lead ECG

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<b>AEMT:</b>	• Large-bore IV or IO with crystalloid
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<b>EMT-I:</b>	• Cardiac monitor
<b>Paramedic:</b>	• Calcium gluconate
	• Albuterol
	• Sodium bicarbonate

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# HYPOGLYCEMIA

## SUBJECTIVE

Altered level of consciousness, weakness, sweating, shakiness, seizure. Usually occurs with a history of diabetes treated with insulin, sometimes treated with oral medications - glyburide (Diabeta, Micronase), Glipizide (Glucotrol), Tolbutamide (Orinase), Metformin (Glucophage), Chlorpropamide (Diabinase). May also occur in newborns, those with inadequate nutrition, or over- or prolonged exertion. Ask about recent illness, last meal, last insulin administration, oral hypoglycemic medications.

## OBJECTIVE

- **Level of consciousness:** confusion, disoriented, combative, comatose, or unresponsive.
- **Skin:** may be pale, cool, and clammy.
- **Breathing:** normal.
- **Pulse:** normal or elevated.
- **Blood pressure:** hypotensive or normal. Medical alert tag indicating diabetes or insulin.
- **Blood glucose:** Symptomatic hypoglycemia, blood sugar less than:
  - 80mg/dL in an Adult.
  - 60mg/dL in a Child (1 year to puberty).
  - 40mg/dL (Birth to 1 year).

## ASSESSMENT

Patients with hypoglycemia have usually been sick for a short period of time, minutes to hours. They may be confused or unconscious and their skin is usually cool and clammy. The immediate treatment is with glucose which should provide a significant improvement within minutes.

## TREATMENT

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<b>EMR:</b>	<ul style="list-style-type: none"><li>• Oxygen</li><li>• Oral glucose if no airway risk</li></ul>
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<b>EMT:</b>	<ul style="list-style-type: none"><li>• Check blood glucose</li></ul>
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<b>AEMT:</b>	<ul style="list-style-type: none"><li>• IV or IO with crystalloid</li><li>• Glucose IV or IO</li></ul>
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<b>EMT-I: Paramedic:</b>	<ul style="list-style-type: none"><li>• Cardiac monitor</li></ul>
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# HYPOTHERMIA

## SUBJECTIVE

Body heat loss to environmentally cool or wet conditions. Underlying medical illnesses.  
Current medications. Alcohol consumption.

## OBJECTIVE

MILD	MODERATE	SEVERE
(34-35°C, 93.2-95°F)	(30 - 34°C, 86 - 93.2°F)	(< 30°C, < 86°F)
Shivering	Shivering lessens	Stupor
Lethargy	Confusion	Coma
Staggering gait	Loss of balance	Dysrhythmias
		Cardiac arrest

## CONSIDERATIONS

- Oral or tympanic temperature measurement may be used in place of core temperature measurement for awake patients.
- Patient in cardiac arrest or comatose with tympanic temperatures < 32°C or <90°F should have a rectal temperature assessed.
- The very young, the very old, and those with chronic medical or debilitating conditions are at increased risk of hypothermia.
- Core temperatures 30°C (86°F) and above usually have good prognosis of survival after recovery.
- **No patient is dead until warm and dead.**

## TREATMENT

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|-------------|---|
| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Eliminate environmental heat loss (remove wet clothes)</li><li>• Avoid rough movement and excess activity</li><li>• Oxygen, warmed if possible at 42°C to 46°C (108°F to 115°F)</li><li>• Heat to heat, neck, chest, groin, armpits if awake or core temperature is ≥ 30°C (86°F)</li><li>• Rapid transport to RRMC for active internal rewarming if severely hypothermic</li></ul> |
|-------------|---|

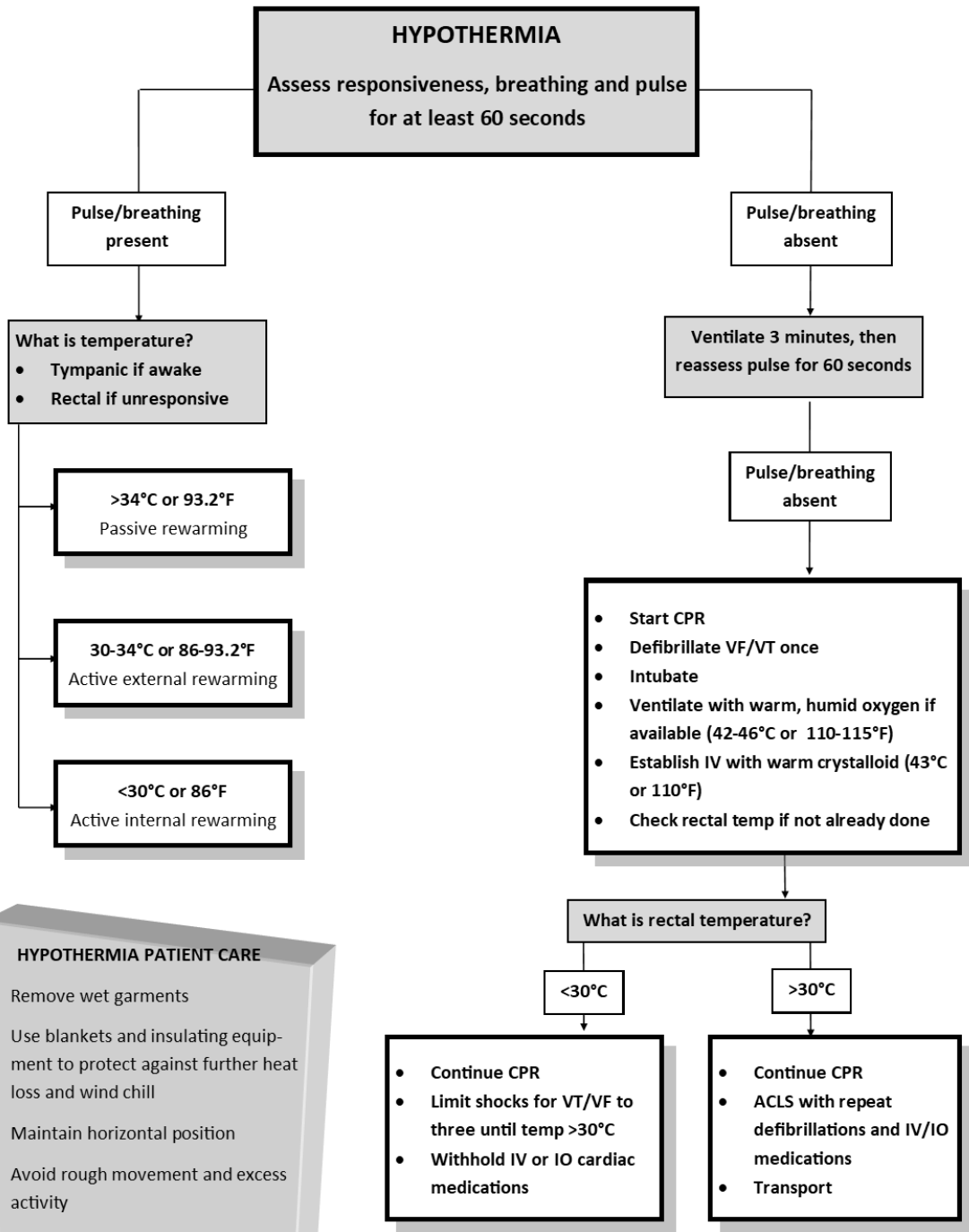
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|-------------|--|
| <b>EMT:</b> | <ul style="list-style-type: none"><li>• Check blood sugar</li><li>• Oral dextrose if airway is protected</li><li>• Supraglottic Airway</li></ul> |
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|--------------|---|
| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with crystalloid, warmed if possible to 43°C (109°F)</li></ul> |
|--------------|---|

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|---------------|---|
| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Cardiac monitor</li></ul> |
|---------------|---|

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- |                   |   |
|-------------------|---|
| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Advanced airway</li></ul> |
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(CONTINUED)



**HYPOTHERMIA PATIENT CARE**

- Remove wet garments
- Use blankets and insulating equipment to protect against further heat loss and wind chill
- Maintain horizontal position
- Avoid rough movement and excess activity
- Monitor temperature
- Cardiac monitor

# INFECTIOUS DISEASE – COVID-19

## PURPOSE

To recognize COVID-19 patients early and minimize risk to providers and receiving hospital staff.

## ASSESSMENT

This protocol applies to any of the following:

- Any patient with fever or flu-like illness;
- Recent exposure to another person with COVID-19;
- Call location is a long-term care facility known to have COVID-19 patients.

## TREATMENT

### ***PROTECT YOURSELF FIRST***

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|-------------------|---|
| <b>EMR:</b>       | <ul style="list-style-type: none"><li>• Minimize exposure of EMS providers or others to the patient's body fluids or to the patient contact. Maintain at least 6-foot distance from patient until complete PPE is donned.</li><li>• Patients with non-life-threatening conditions should be directly assessed by a single provider when possible</li><li>• Use appropriate personal protective equipment (N-95 mask, gown, gloves, and eye protection)</li><li>• Patient and family members should be masked unless under two years of age, in severe respiratory distress, or unable to remove the mask on their own if needed</li><li>• Avoid aerosolizing procedures when possible or use with HEPA filter</li><li>• Maximize airflow in ambulance – open windows/vents and turn on fans</li><li>• Driver should remove all PPE except mask before entering driver compartment for patient transport</li><li>• Include patient's COVID status in pre-hospital radio report</li><li>• Decontaminate EMS personnel, equipment, and ambulance</li><li>• Report potential exposures to supervisor as per agency policy</li></ul> |
| <b>EMT:</b>       |   |
| <b>AEMT:</b>      |   |
| <b>EMT-I:</b>     |   |
| <b>Paramedic:</b> |   |
-

# INHALATION INJURIES

## SUBJECTIVE

### ENVIRONMENT

- Poorly ventilated spaces, fire (CO, cyanide), explosion, exhaust, furnaces, gases present (CO<sub>2</sub>, methane, propane, natural gas, hydrogen sulfide), barbecues, charcoal fires. Length of exposure. Type of exposure: steam, dry heat, gases, fire victim.

### SYMPTOMS

- Dyspnea, headache, sore throat, sore mouth, cough, nausea, vomiting, poor coordination

## OBJECTIVE

Sooty or blistered airway, singed facial hairs, stridor, hoarseness, cough, shortness of breath, labored breathing, changes in mentation, coma.

## ASSESSMENT

Inhalation is the most rapid route of toxins into body. Onset of symptoms can take up to 12-36 hours. Patients may rapidly deteriorate; airway management may need to be aggressive. Multiple patients with similar symptoms suggests toxic inhalation.

Contact Poison Center for management of specific toxins: 1-800-222-1222

## TREATMENT

### *PROTECT YOURSELF AND OTHERS FIRST*

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<b>EMR:</b>	<ul style="list-style-type: none"><li>• High flow oxygen</li><li>• Remove patient from toxic environment</li></ul>
<b>EMT:</b>	<ul style="list-style-type: none"><li>• Supraglottic airway</li></ul>
<b>AEMT:</b>	<ul style="list-style-type: none"><li>• IV or IO with crystalloid</li></ul>
<b>EMT-I:</b>	<ul style="list-style-type: none"><li>• Cardiac monitor</li></ul>
<b>Paramedic:</b>	<ul style="list-style-type: none"><li>• Advanced airway</li></ul>

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# INITIATION AND TERMINATION OF RESUSCITATION, TRANSPORT and POLST

## BACKGROUND

Most patients who do not have ROSC (Return of Spontaneous Circulation) in the field with EMS treatment are unlikely to be resuscitated in the hospital after transport. Most trauma patients with cardiac arrest have poor prognosis unless they have ongoing cardiac activity and arrive at the hospital within 15 minutes of the arrest.

There are some situations in which ongoing CPR during transport may improve the chance of survival at the hospital for a patient with cardiac arrest including: pulseless ventricular tachycardia or PEA with a narrow complex rhythm; patients with normal-range end-tidal CO<sub>2</sub> during resuscitation; victims of penetrating trauma close to the hospital; electrocution, hypothermia, or local anesthetic systemic toxicity (LAST); pediatric patients with initial rhythm other than asystole; or pregnant women beyond 20 weeks.

Ongoing CPR during transport (including gurney and ambulance travel) is difficult and may not be very effective, in addition to posing risk to the EMS providers. Transport of patients in cardiac arrest and post-arrest should be done with a mechanical CPR device in place when available.

## GUIDELINES FOR INITIATION OF RESUSCITATION:

1. All patients who are unresponsive, apneic, and pulseless or who have impending cardiac arrest or respiratory failure will receive full resuscitation efforts within the first responder or EMT's abilities and knowledge, unless:
  - Patient has a valid POLST form or wallet card with corresponding name and date of birth and be signed and dated by a physician, nurse practitioner, physician assistant, or naturopathic physician, including verbal orders by any of those authorized practitioners documented in writing by an RN.
  - Obvious death with rigor mortis in a warm environment, decomposition or dependent livedo (venous pooling)
  - Scene is not safe for EMS providers
  - Patient with capacity clearly states to EMS provider that s/he does not want resuscitation prior to arrest, and this conversation is witnessed by a second provider
2. Resuscitation should be withheld in **traumatic arrest** for any of the above or:
  - Injury incompatible with life, such as decapitation, hemicorpectomy, massive crush injury or massive head trauma
  - Initial rhythm asystole and no signs of life (pupil response, agonal breaths, residual movements)
3. If resuscitation would otherwise be indicated, but there is confusion or discrepancy about the POLST form from the patient, family, or caretakers, CPR should be initiated while contacting OLMC. **When in doubt, begin resuscitation.**

(CONTINUED)

## **GUIDELINES FOR TERMINATION OF RESUSCITATION and TRANSPORT:**

### **For medical cardiac arrest:**

1. EMS resuscitation may be terminated **without OLMC**:
  - a. Adult patients (excluding women > 20 weeks pregnant) with persistent asystole or slow (<40 BPM), wide PEA after 20 minutes of EMS resuscitation measures.
  - b. Pediatric patients with initial rhythm asystole and no rhythm changes after 20 minutes of EMS resuscitation measures.
  - c. Patients in cardiac arrest when EMS resuscitation measures have been initiated and a valid POLST or written DNR is later found, as long as family is in agreement.
2. Consider transport after 20 minutes of on-scene resuscitation for:
  - a. Patients with persistent EtCO<sub>2</sub> readings 25-50
  - b. Hypothermic patients, electrocution injuries, or patients suspected to have local anesthetic systemic toxicity (LAST)
  - c. Women > 20 weeks pregnant with transport times greater than 5 minutes
3. Consider immediate transport for women > 20 weeks pregnant with transport times less than 5 minutes
4. **Contact OLMC** for termination of resuscitation for:
  - a. Adult patients with recurrent or persistent ventricular fibrillation, ventricular tachycardia, fast (> 40 BPM) PEA, or changing rhythm in whom sustained ROSC has not been achieved after 40 minutes of EMS resuscitation measures
  - b. Pediatric patients with initial rhythm other than asystole in whom sustained ROSC has not been achieved after 40 minutes of EMS resuscitation measures
  - c. Hypothermic patients or electrocution injuries if crew feels ongoing resuscitation and transport are not indicated
  - d. Patients in cardiac arrest when EMS resuscitation measures have been initiated and a valid POLST or written DNR is later found, if family or caregivers wish for resuscitation to continue

### **For traumatic cardiac arrest:**

1. EMS resuscitation may be terminated **without OLMC**:
  - a. Trauma arrest with initial rhythm asystole and no signs of life (pupil response, agonal breaths, residual movements)
  - b. After treating reversible causes per Traumatic Cardiac Arrest protocol
2. **Contact OLMC** for termination of resuscitation for:
  - a. Hypothermic patients or electrocution injuries if crew feels ongoing resuscitation and transport are not indicated

(CONTINUED)



## **GUIDELINES FOR MANAGEMENT AFTER DEATH:**

1. If patient is pronounced dead, notify the medical examiner through law enforcement.
2. Explain to the survivors the next steps likely to occur
3. Do not move the patient or remove medical treatment devices such as IVs or airway devices, although you may consider eliminating connection devices such as IV tubing, electrode wires, or airway tubing extending beyond the lips that cannot be adequately covered with a sheet
4. Arrange for support of family or friends, such as calling a chaplain or clergy before leaving the scene.
5. Allow family or friends to appropriately view or visit the patient if desired

## **POLST INFORMATION AND RESOURCES:**

POLST, or Portable Orders for Life-Sustaining Treatment, is a legal order for treatment for patients who cannot speak for themselves. **A patient's expressed wishes on scene always take precedence over a POLST.** Family members may alter a POLST, but should only do so in accordance with the patient's wishes. Any advance directive or DNR other than a POLST should serve as a discussion point with patient and family about goals of care, with OLMC as needed for orders.

EMS providers are required by law to request and honor a POLST form, and are protected by law for doing so. All patients should be treated with respect and attention to comfort, dignity, and hygiene.

If the POLST form is unavailable, the POLST Registry at OHSU (1-888-476-5787 for EMS use only) may be called with as much patient identifying information as possible (name, POLST Registry #, birthdate, address, last 4 digits of social security number) and the POLST instructions for Section A & B can be provided verbally and the POLST form can be faxed.

EMS personnel will follow the instructions checked in Section A or B. Section A instructs whether or not to attempt resuscitation for a patient who is both pulseless and apneic. Section B refers to EMS treatment (comfort measures only, limited additional interventions, or full treatment) in the case of a patient who has a pulse, is breathing or both

If there is any confusion or discrepancy about the POLST form or from the patient, family or caretakers, begin care or resuscitation measures and contact OLMC.



# POLST FORM

HIPAA PERMITS DISCLOSURE TO HEALTH CARE PROFESSIONALS & ELECTRONIC REGISTRY AS NECESSARY FOR TREATMENT			
Oregon POLST™			
Portable Orders for Life-Sustaining Treatment*			
Follow these medical orders until orders change. Any section not completed implies full treatment for that section.			
Patient Last Name:		Suffix:	Patient First Name: Patient Middle Name:
Preferred Name:		Date of Birth: (mm/dd/yyyy) ____/____/____	Gender: <input type="checkbox"/> M <input type="checkbox"/> F <input type="checkbox"/> X MRN (optional)
Address: (street / city / state zip):			
<b>A</b> <small>Check One</small>	<b>CARDIOPULMONARY RESUSCITATION (CPR):</b> <i>Unresponsive, pulseless, &amp; not breathing.</i>		
	<input type="checkbox"/> <b>Attempt Resuscitation/CPR</b> <input type="checkbox"/> <b>Do Not Attempt Resuscitation/DNR</b> If patient not in cardiopulmonary arrest, follow orders in B.		
<b>B</b> <small>Check One</small>	<b>MEDICAL INTERVENTIONS:</b> <i>If patient has pulse and is breathing.</i>		
	<input type="checkbox"/> <b>Comfort Measures Only.</b> Provide treatments to relieve pain and suffering through the use of any medication by any route, positioning, wound care and other measures. Use oxygen, suction and manual treatment of airway obstruction as needed for comfort. <b>Patient prefers no transfer to hospital for life-sustaining treatments. Transfer if comfort needs cannot be met in current location.</b> <b>Treatment Plan: Provide treatments for comfort through symptom management.</b>		
	<input type="checkbox"/> <b>Limited Treatment.</b> In addition to care described in Comfort Measures Only, use medical treatment, antibiotics, IV fluids and cardiac monitor as indicated. No intubation, advanced airway interventions, or mechanical ventilation. May consider less invasive airway support (e.g. CPAP, BiPAP). <b>Transfer to hospital if indicated. Generally avoid the intensive care unit.</b> <b>Treatment Plan: Provide basic medical treatments.</b>		
	<input type="checkbox"/> <b>Full Treatment.</b> In addition to care described in Comfort Measures Only and Limited Treatment, use intubation, advanced airway interventions, and mechanical ventilation as indicated. <b>Transfer to hospital and/or intensive care unit if indicated.</b> <b>Treatment Plan: All treatments including breathing machine.</b>		
<b>Additional Orders:</b> _____			
<b>C</b> <small>Check All That Apply</small>	<b>DOCUMENTATION OF WHO WAS PRESENT FOR DISCUSSION</b> <i>See reverse side for add'l info.</i>		
	<input type="checkbox"/> Patient <input type="checkbox"/> Surrogate for patient with developmental disabilities or significant mental health condition (Note: Special requirements for completion - see reverse side) <input type="checkbox"/> Parent of minor <input type="checkbox"/> Relative or friend (without written appointment) <input type="checkbox"/> Person appointed on advance directive <input type="checkbox"/> Court-appointed guardian Discussed with (list all names and relationship): _____		
<b>D</b>	<b>PATIENT OR SURROGATE SIGNATURE</b>		
	Signature: <u>recommended</u>	Name (print):	Relationship (write "self" if patient):
This form will be sent to the POLST Registry unless the patient wishes to opt out, if so check opt out box <input type="checkbox"/>			
<b>E</b> <small>Must Print Name, Sign &amp; Date</small>	<b>ATTESTATION OF MD / DO / NP / PA / ND (REQUIRED)</b>		
	By signing below, I attest that these medical orders are, to the best of my knowledge, consistent with the patient's <b>current</b> medical condition and preferences.		
	Print Signing MD / DO / NP / PA / ND Name: <u>required</u>	Signer Phone Number:	Signer License Number: (optional)
MD / DO / NP / PA / ND Signature: <u>required</u>	Date: <u>required</u>	<b>"Signed"</b> means a physical signature, electronic signature or verbal order documented per standard medical practice. Refer to OAR 333-270-0030	
<b>SEND FORM WITH PATIENT WHENEVER TRANSFERRED OR DISCHARGED</b> <b>SUBMIT COPY OF BOTH SIDES OF FORM TO REGISTRY IF PATIENT DID NOT OPT OUT IN SECTION D</b>			

\*Also known as Physician Orders for Life-Sustaining Treatment

**HIPAA PERMITS DISCLOSURE TO HEALTH CARE PROFESSIONALS & ELECTRONIC REGISTRY AS NECESSARY FOR TREATMENT**

**Information Regarding POLST**

**PATIENT'S NAME:** \_\_\_\_\_

The POLST form is:

- **Always voluntary and cannot be required**
- **A medical order for people with a serious illness or frailty**
- An expression of wishes for emergency treatment in one's current state of health (if something happened today)
- A form that can be changed at any time, with a health care professional, to reflect new treatment wishes
- **NOT an advance directive**, which is ALSO recommended (an advance directive is the appropriate legal document to appoint a surrogate/health care decision maker)

**Contact Information (Optional)**

Emergency Contact:	Relationship:	Phone Number:
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**Health Care Professional Information**

Preparer Name:	Preparer Title:	Phone Number:	Date Prepared:
PA's Supervising Physician:		Phone Number:	
Primary Care Professional:			

**Directions for Health Care Professionals**

**Completing Oregon POLST™**

- Discussion and attestation should be accompanied by a note in the medical record.
- Any section not completed implies full treatment for that section.
- An order of CPR in Section A is incompatible with an order for Comfort Measures Only in Section B (will not be accepted in Registry).
- Photocopies, faxes, and electronically signed forms are legal and valid.
- Verbal / phone orders from MD/DO/NP/PA/ND in accordance with facility/community policy can be submitted to the Registry.
- For information on determining the legal decision maker(s) for incapacitated patients, refer to ORS 127.505 - 127.660.
- A person with developmental disabilities or significant mental health condition requires additional consideration before completing the POLST form; refer to *Guidance for Health Care Professionals* at [www.oregonpolst.org](http://www.oregonpolst.org).

**Oregon POLST Registry Information**

<p><b>Health Care Professionals:</b></p> <p>(1) Send a copy of <u>both</u> sides of this POLST form to the Oregon POLST Registry unless the patient opts out.</p> <p>(2) The following must be completed:</p> <ul style="list-style-type: none"> <li>• Patient's full name</li> <li>• Date of birth</li> <li>• MD / DO / NP / PA / ND signature</li> <li>• Date signed</li> </ul>	<p><b>Registry Contact Information:</b></p> <p>Toll Free: 1-877-367-7657                  Fax or eFAX: 503-418-2161  <a href="http://www.orpolstregistry.org">www.orpolstregistry.org</a>  <a href="mailto:polstreg@ohsu.edu">polstreg@ohsu.edu</a></p> <p>Oregon POLST Registry                  3181 SW Sam Jackson Park Rd.                  Mail Code: BTE 234                  Portland, OR 97239</p>	<p><b>Patients:</b></p> <p>If address is listed on front page, mailed confirmation packets from Registry may take four weeks for delivery.</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p><b>MAY PUT REGISTRY ID STICKER HERE:</b></p> </div>
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**Updating POLST: A POLST Form only needs to be revised if patient treatment preferences have changed.**

This POLST should be reviewed periodically, including when:

- The patient is transferred from one care setting or care level to another (including upon admission or at discharge), or
- There is a substantial change in the patient's health status.

If patient wishes haven't changed, the POLST Form does not need to be revised, updated, rewritten or resent to the Registry.

**Voiding POLST: A copy of the voided POLST must be sent to the Registry unless patient has opted-out.**

- A person with capacity, or the valid surrogate of a person without capacity, can void the form and request alternative treatment.
- For paper forms, draw line through sections A through E and write "VOID" in large letters if POLST is replaced or becomes invalid.
- If included in an electronic medical record, follow your systems ePOLST voiding procedures.
- Regardless of paper or ePOLST form, send a copy of the voided form to the POLST Registry (required unless patient has opted out).

For permission to use the copyrighted form contact the OHSU Center for Ethics in Health Care at [polst@ohsu.edu](mailto:polst@ohsu.edu) or (503) 494-3965. Information on the Oregon POLST Program is available online at [www.oregonpolst.org](http://www.oregonpolst.org) or at [polst@ohsu.edu](mailto:polst@ohsu.edu).

**SEND FORM WITH PATIENT WHENEVER TRANSFERRED OR DISCHARGED, SUBMIT COPY TO REGISTRY**

\*Also known as Physician Orders for Life-Sustaining Treatment

# **INSECT STINGS AND ANIMAL / SPIDER BITES**

## **SUBJECTIVE**

Localized pain, burning sensation and itching at the site. Anxiety, restlessness, weakness, dizziness, headache or syncope. Numbness in affected limb or body part, joint pain or muscle cramps. Chest tightening, shortness of breath, abdominal pain, nausea or chills. Animal or insect identification. Allergies. Multiple bites or stings.

## **OBJECTIVE**

Stings or puncture marks on skin. Redness, swelling, discoloration or blistering at site. Anaphylaxis.

### **BLACK WIDOW SPIDER BITE**

- Progressive muscle spasm of back, abdomen and large muscle groups, vomiting, seizures, paralysis, hypertension, headache, tingling and burning sensation

### **BROWN RECLUSE OR HOBO SPIDER BITE**

- Reddened area with underlying blister formation and surrounding area of necrosis. Over several days area turns dark and becomes ulcerated

### **TICK BITES**

- Lyme Disease may present with distinctive bull's eye rash surrounding the bite developing over a month and accompanied by flu like symptoms

### **ANIMAL BITES**

- Contusions or superficial abrasions to severe crush injuries, deep puncture wounds and tissue loss may develop.

## **ASSESSMENT**

Insect stings, spider bites, scorpion stings, and marine life stings are typical sources of injected poisons or toxins. Gather information from the patient, bystanders at the scene and determine whatever you can about the insect, spider or other possible source of the poisoning.

**(CONTINUED)**

## TREATMENT

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- EMR:**
- Scene Safety
  - Oxygen
  - Wound Care
  - Remove constricting items of clothing or jewelry
  - **INSECT STINGS:** Gently remove stinger
  - **TICK:** Do not remove; refer to hospital
  - **ANIMAL BITES:** If patient not transported, contact law enforcement
- 

- EMT:**
- Supraglottic airway
- 

- AEMT:**
- IV or IO with crystalloid
- 

- EMT-I:**
- Morphine or fentanyl
  - Cardiac monitor
- 

- Paramedic:**
- Ketamine (pain dose)
  - Advanced airway
-

# NAUSEA AND VOMITING

## SUBJECTIVE

### NAUSEA

- Unpleasant sensation and feeling the urge to vomit

### RETCHING

- Spasmodic esophagus and stomach contractions against a closed glottis, often resulting in emesis

### EMESIS (VOMITING)

- Forceful abdominal contractions emptying the stomach through the mouth

## OBJECTIVE

Patient may appear with pale and diaphoretic skin.

Emesis may contain partly digested food particles, be yellow from bile, black from partly digested blood or red from active upper gastrointestinal bleeding.

## ASSESSMENT

Nausea and vomiting are unpleasant sensations and actions with many possible causes.

## TREATMENT

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| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Position of comfort</li><li>• Oxygen</li></ul> |
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| <b>EMT:</b> | <ul style="list-style-type: none"><li>• Diphenhydramine (Oral)</li></ul> |
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|--------------|---|
| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with crystalloid</li></ul> |
|--------------|---|
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|---------------|--|
| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Ondansetron</li><li>• Diphenhydramine (IV/IM/IO)</li></ul> |
|---------------|--|
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- |                   |  |
|-------------------|--|
| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Droperidol</li></ul> |
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# NERVE AGENT / ORGANOPHOSPHATE POISONING

## SUBJECTIVE

History of organophosphate poisoning or exposure to nerve agent and: Diarrhea, Urination, Miosis (constricted pupils), Bradycardia, Bronchospasm, Emesis, Lacrimation (tearing), Salivation, Secretion and Sweating. (DUMB-BELS).

## OBJECTIVE

### EXAMINATION MAY SHOW

- **Mild Symptoms**: Fatigue, headache, nausea, vomiting, diarrhea, wheezing, and rhinorrhea
- **Moderate Symptoms**: Mild symptoms PLUS; systemic weakness, fasciculations, unable to walk.
- **Severe Symptoms**: Mild and Moderate Symptoms PLUS; flaccid paralysis, syncope, comatose.

*Remember the chemical that caused the poisoning may still be contaminating the patient; perform proper decon and protect yourself as a responder.*

## ASSESSMENT

Diagnosis of organophosphate poisoning or exposure to nerve agent is made on the basis of the patient's symptoms and known exposure. If multiple patients present at one setting but a known exposure is not confirmed, you should take precautions and treat the patients.

## TREATMENT

Mark 1 autoinjectors available in the Chempack supply. Contact Mercy Flights or Josephine County AMR supervisor to access.

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EMT:

**Any known or suspected Nerve Agent/Organophosphate Poisoning**

- Protect yourself and other providers
- Oxygen, monitor and vital signs
- Transport as soon as possible

**Mild Symptoms Without Respiratory Distress**

- Mark 1 kit autoinjector should **not** be used

**Mild Symptoms WITH Respiratory Distress**

- Administer ONE Mark-1 kit
  - 1 kit = atropine and 1 pralidoxime autoinjector
- Repeat as needed every 5 – 10 minutes – maximum 3 Mark-1 kits

**Moderate Symptoms**

- Administer 1-2 Mark-1 kits
- Repeat as needed every 5 – 10 minutes – maximum 3 Mark-1 kits

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(CONTINUED)

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**EMT:**

**Severe Symptoms**

- Administer up to 3 Mark-1 kits
  - Secure airway and assist ventilations
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**AEMT:**

- IV or IO with crystalloid
- 

**EMT-I:**

- Atropine
- 

**Paramedic:**

- Advanced airway
-

# **PAIN MANAGEMENT**

## **SUBJECTIVE**

Patient complaint of pain as a part of an acute illness or injury. Patient's pain may be rated as uncomfortable to intolerable.

## **OBJECTIVE**

Patient in pain may appear pale, diaphoretic, anxious, restless or irritable. Patient may be tachypneic or tachycardiac. Exam may or may not reveal a source of the pain. Patient's exam may be normal.

## **CONSIDERATIONS**

Patient management should be initiated to control pain to a tolerable level. Take patient's assessment of his or her own pain at face value. If you do not feel opioids are appropriate (for example, exacerbation of chronic pain), please offer another alternative such as ketorolac or ketamine.

Patients have different opioid receptor patterns, and what works for one may be ineffective for another. If your patient with severe pain is not getting relief from appropriate doses of fentanyl, consider a dose of morphine, and vice versa; or consider adding ketamine.

Benzodiazepines such as midazolam and lorazepam may help your patient relax, but they are not pain medications and should not be used for treatment of pain.

## **TREATMENT**

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| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Position of comfort</li><li>• Oxygen</li><li>• Cold or heat pack as appropriate</li></ul> |
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| <b>EMT:</b> | <ul style="list-style-type: none"><li>• Acetaminophen</li></ul> |
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| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with crystalloid</li></ul> |
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| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Morphine or fentanyl</li><li>• Ketorolac</li></ul> |
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| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Ketamine</li></ul> |
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# POISONS & OVERDOSES

## SUBJECTIVE

**Route of exposure** - Ingestion, inhalation, injection or surface absorption

**Description of exposure** - Type of poison, quantity, time of exposure or ingestion

**Reason for exposure** - Accidental, abuse, neglect, assault or suicidal gesture

**Past medical history** - Medication, diseases, psychiatric history, drug abuse

**Actions taken by bystanders** - Induced vomiting, antidotes given

## OBJECTIVE

**CNS** - Altered level of consciousness, headache, seizures, hallucinations, coma

**Pupils** - Constricted (narcotics, organophosphates) or dilated (anticholinergics, stimulants, carbon monoxide)

**Respiratory** - Abnormal breathing, tachypnea or shallow respirations

**Cardiovascular** - Tachydysrhythmias (methamphetamine, cocaine, ASA) or bradydysrhythmias (digitalis, beta blockers, calcium channel blockers, organophosphates); hypotension or hypertension

**Skin** - Cyanosis, pallor, diaphoretic, evidence of needle tracks

**Gastrointestinal** - Burns or stains around patient mouth, odor on breath, gag reflex, nausea & vomiting, abdominal pain or tenderness

## CONSIDERATIONS

**One Pill Kills** – These common medications may kill a pediatric patient with only one dose, and should prompt consideration for activated charcoal in adults:

- Calcium channel blockers: Diltiazem, amlodipine, verapamil, nicardipine
- Tricyclic antidepressants: Amitriptyline, nortriptyline, imipramine, doxepin
- Beta blockers: Metoprolol, carvedilol, propranolol, sotalol
- Sulfonylureas: Glipizide, glyburide, glimepiride
- Amphetamines: Dextroamphetamine, amphetamine, methylphenidate (Dexedrine, Adderall, Ritalin, Concerta, Focalin)
- Opioids
- Theophylline
- Chloroquine, hydroxychloroquine, quinidine, quinine

**Bring all medicine containers.** If suspected hazardous material, leave container but obtain correct spelling and UN or NFPA704 number.

Oregon Poison Center 800-222-1222

(CONTINUED)

## **TREATMENT**

### ***PROTECT YOURSELF AND OTHERS FIRST***

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- EMR:**
- Naloxone (Narcan) if opioid overdose suspected
  - Oxygen
  - Oral glucose
- 

- EMT:**
- Check blood glucose
  - Supraglottic airway
  - Mark-1 autoinjector for organophosphate nerve gases (HazMat only)
  - Activated charcoal in conscious and awake patients only after approval by on-line medical control
- 

- AEMT:**
- IV or IO with crystalloid
  - Glucose if hypoglycemic
- 

- EMT-I:**
- Cardiac monitor
  - Atropine for organophosphate poisoning
- 

- Paramedic:**
- Advanced airway
  - Sodium bicarbonate for symptomatic tricyclic anti-depressant poisoning
  - Calcium gluconate for calcium channel blocker or magnesium poisoning
-

# RESPIRATORY DISTRESS

## SUBJECTIVE

Onset and duration of dyspnea, pain (quality, region, severity, provocation), hemoptysis, cough (sputum, color), fever, myalgias, nausea, recent travel or other exposures to COVID-19 patients, time of onset of symptoms, change with position, fatigue, history of injury to area, previous history of similar episodes, exposure to toxic substances, overdose, history of recent surgeries, leg swelling. Prior heart or lung problems and medications.

## OBJECTIVE

Rales, rhonchi, wheezing, stridor, hives, cyanosis, tachycardia, tachypnea, tripod sitting, pursed lip breathing, level of consciousness, temperature, diaphoresis, trauma, subcutaneous emphysema, bruising, paradoxical movement, jugular venous distention, tracheal position, retractions.

## ASSESSMENT

COVID-19 should be suspected in all cases of respiratory distress. However, patients may still require treatment for asthma, COPD, or CHF. Many things may lead to respiratory distress: CHF, COPD, asthma, trauma, pulmonary embolism, respiratory infections, croup, epiglottitis, anaphylaxis, foreign bodies, poisonings, inhalation injuries, vaping-associated lung injury, anemia, and neurological problems.

## TREATMENT

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| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Position of comfort</li><li>• Oxygen supplementation</li><li>• Initial airway management with BVM and PEEP valve*</li><li>• Surgical mask on patient</li></ul> |
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| <b>EMT:</b> | <ul style="list-style-type: none"><li>• Refer to CHF, COPD or Asthma protocols as needed</li><li>• EtCO<sub>2</sub> monitoring</li><li>• CPAP (HEPA filter recommended)*</li><li>• Supraglottic airway*</li></ul> |
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| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with saline lock/TKO – do not bolus unless systolic BP &lt; 100 or HR &gt; 110, and then only 250cc at a time to correct abnormalities</li></ul> |
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| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Cardiac monitor</li></ul> |
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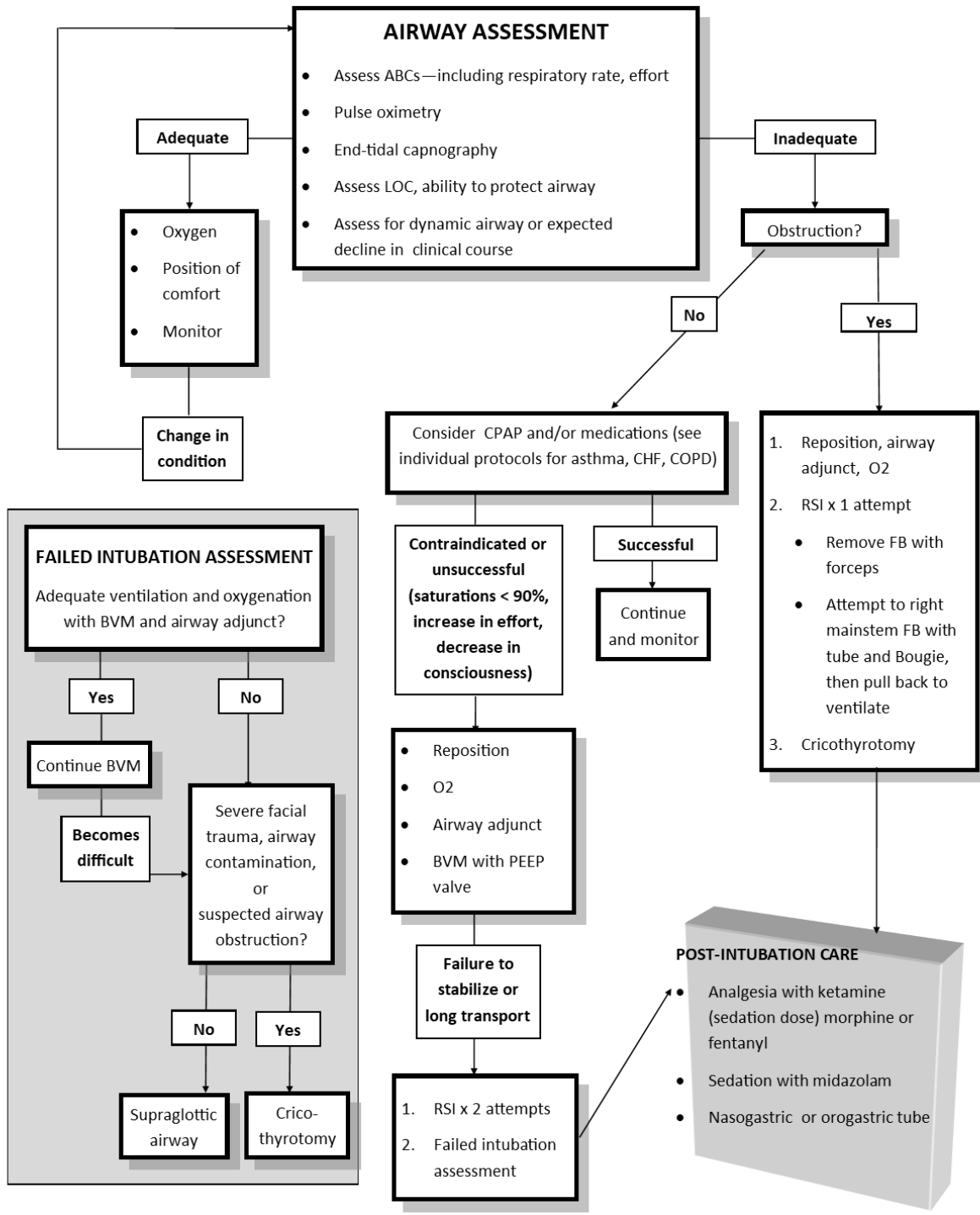
**Paramedic:**

- Advanced airway\*
- Morphine 2-4mg IV or fentanyl 10-25 mcg IV for respiratory distress/air hunger
- Midazolam 2mg IV if no improvement with morphine
- Ketamine 2 mg/kg IV and RSI if patient too agitated to keep mask in place

---

\* Aerosolizing procedure





# RESPIRATORY DISTRESS – ASTHMA

## SUBJECTIVE

Known exposure to allergens, symptoms of respiratory infection, increased emotional stress, environmental changes, time of onset of symptoms, history of asthma, tightness in chest, cough. Past medical history, recent hospitalizations, medications, frequency of respiratory medication use.

## OBJECTIVE

Wheezing, decreased or absent breath sounds, prolonged expiratory phase, tachycardia, tachypnea, use of accessory muscles, retraction, cyanosis, decreased level of consciousness, diaphoresis, tripod position, one to three word sentences, increased EtCO<sub>2</sub>, decreased SpO<sub>2</sub>.

## ASSESSMENT

Due to the narrowing airway passages, inflammation and increased mucus production, coughing, chest tightness and wheezing usually develop. The patient's level of respiratory distress will dictate how aggressive your treatment should be. Collect and transport patient inhalers when possible. Also consider CHF, COPD, pneumonia, and cardiac problems.

## TREATMENT

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**EMR:**

- Position of comfort
- High flow oxygen

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**EMT:**

- Albuterol (patient's own inhaler preferred, up to 8 puffs)
- Ipratropium (Atrovent)\*
- CPAP (HEPA filter recommended)\*
- EtCO<sub>2</sub> monitoring
- Supraglottic Airway\*

---

**AEMT:**

- IV or IO with saline lock/TKO – do not bolus unless systolic BP < 100 or HR > 110, and then only 250cc at a time to correct

---

**EMT-I:**

- Cardiac monitor
- Epinephrine via nebulizer\* or IM for severe asthma unresponsive to albuterol, ipratropium, methylprednisolone (if available) and CPAP

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**Paramedic:**

- Advanced airway
- Methylprednisolone
- Magnesium
- Epinephrine IV or IO for severe asthma unresponsive to albuterol, ipratropium, methylprednisolone (if available) and CPAP

---

\* Aerosolizing procedure

# RESPIRATORY DISTRESS – CHF / PULMONARY EDEMA

## SUBJECTIVE

Duration of symptoms, dyspnea on exertion or at rest, fatigue, orthopnea, paroxysmal nocturnal dyspnea, ankle swelling, chest pain or pressure, cough, sputum color, recent weight gain, past medical history, medications and recent hospitalizations.

## OBJECTIVE

Rales, rhonchi, wheezing, tachypnea, tachycardia, cyanosis, inability to speak full sentences, need to sit upright, hypertension (early) or hypotension (late), dysrhythmias, jugular vein distention, peripheral edema.

## ASSESSMENT

Left-sided failure leads to pulmonary edema, increased preload and afterload. This has a short onset (2-24 hours). Patients are afebrile, have bilateral abnormal breath sounds and clear or pink sputum, cardiac history and may currently be on cardiac medications: Digoxin (Lanoxin), Furosemide (Lasix), HCTZ, Metoprolol (Lopressor), Atenolol (Tenormin), Nitro patches or ACE inhibitors.

## TREATMENT

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|-------------|--|
| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Position of comfort</li><li>• Oxygen</li></ul> |
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| <b>EMT:</b> | <ul style="list-style-type: none"><li>• CPAP (HEPA filter recommended)*</li><li>• Supraglottic airway*</li></ul> |
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| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with saline lock/TKO</li><li>• Nitroglycerin</li></ul> |
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| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Cardiac monitor</li></ul> |
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| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Endotracheal intubation*</li><li>• Epinephrine or norepinephrine for cardiogenic shock</li></ul> |
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\* Aerosolizing procedure

# RESPIRATORY DISTRESS – COPD EXACERBATION (CHRONIC OBSTRUCTIVE PULMONARY DISEASE)

## SUBJECTIVE

Duration and onset of symptoms, dyspnea on exertion, fatigue, chest pain or pressure, fever, cough, sputum, color, increased amount of sputum, smoking history, recent illness (especially upper respiratory infection), medications, past medical history, home oxygen, exposure to allergens or irritants.

## OBJECTIVE

Rhonchi, wheezing, decreased air movement, tachypnea, tachycardia, cyanosis, prolonged expiratory phase, pursed lip breathing, barrel chest, confusion, speaking one to three word sentences.

## ASSESSMENT

COPD is a chronic disease which people live with every day. During exacerbations patients develop respiratory distress which leads to hypoxia. Onset is often over a couple of days. These patients frequently are on home oxygen. Collect and transport all patient inhalers when possible.

## TREATMENT

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| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Position of comfort</li><li>• Oxygen</li></ul> |
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|-------------|--|
| <b>EMT:</b> | <ul style="list-style-type: none"><li>• Albuterol (patient's own inhaler preferred, up to 8 puffs)*</li><li>• Ipratropium (Atrovent)*</li><li>• CPAP (HEPA filter recommended)*</li><li>• Supraglottic airway*</li></ul> |
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|--------------|---|
| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with saline lock/TKO – do not bolus unless systolic BP &lt; 100 or HR &gt; 110, and then only 250cc at a time to correct</li></ul> |
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|---------------|---|
| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Cardiac monitor</li></ul> |
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|-------------------|---|
| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Advanced airway*</li><li>• Methylprednisolone</li></ul> |
|-------------------|---|
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\* Aerosolizing procedure

# RESPONDER REHABILITATION – TREAT IN PLACE

EMR, EMT, A-EMT, EMT-I, Paramedic

## INDICATIONS

- Emergency personnel identified to be at risk of heat illness, hypothermia, dehydration, fatigue, or other exposure-related illness in the course of emergency scene response or training exercises
- To be used for fire and EMS providers only

## SUBJECTIVE

Hot or cool environment, exercise, rate of temperature rise or drop, underlying medical conditions, current medications. Symptoms may include headache, nausea, cramps, dizziness, generalized weakness, confusion, numbness, thirst, profuse sweating, or shivering.

## OBJECTIVE

Assess temperature, skin temperature and moist or dry, drowsiness, lethargy, weakness or lack of coordination, alteration in behavior or mental status. Signs of dehydration including dry mucous membranes, poor skin turgor, sunken eyes. Check carboxyhemoglobin if available.

## ASSESSMENT

- Hypothermia – Temperature < 35°C or > 95°F. Patients with mild hypothermia (temperature 34-35°C, 93.2-95°F) may be treated in place according to this protocol. **Patients with moderate to severe hypothermia should be transported to the Emergency Department and treated per Hypothermia protocol.**
- Mild heat illness – Temperature 100-101°F, HR 100-120, normal blood pressure, normal neurologic exam, and no other significant focal findings, patient able to sweat – these patients may be treated in place according to this protocol.
- Moderate to severe heat illness – Temperature > 101°F, HR > 120, hypotension, drowsiness or lethargy, abnormal neurologic symptoms or exam, changes in behavior including anxiety and irritability. **These patients should be transported to the Emergency Department and treated per Heat Illness protocol.**
- IV fluids are not always necessary, but may be considered for responders with tachycardia, hypotension, hypo- or hyperthermia, significant sweating or fluid loss, or other signs of dehydration or shock.
- All patients should have a chart completed including a full assessment and plan. This should be submitted to the supervisor and supervising physician for review.
- Rehabilitation is discussed in detail in the Rogue Valley Fire Chiefs Association Model Operational Guideline 3.09

(CONTINUED)

## **TREATMENT**

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- EMR:**
- Remove patient from hot or cold environment
  - Add or remove clothing if damp or to maintain normal body temperature
  - Active cooling should be initiated for patients with temperature greater than 38.3°C (101°F)
  - Active warming should be initiated for patients with temperature less than 34°C (93.2°F)
  - Oral hydration with water/Gatorade/Powerade/fruit juice or other beverage with electrolytes. Can make a 0.1% salt solution by dissolving ¼ teaspoon of table salt in a quart of water.
  - Energy bars with a 40/30/30 balance of carbohydrates, protein and fat should be available, along with fresh fruit
- 

- EMT:**
- Check blood glucose
- 

- AEMT:**
- D10 as needed for hypoglycemia
  - IV with crystalloid – 500 mL bolus over 30-minute period, repeated once. If no improvement following this, patient should be transported to the Emergency Department
- 

- EMT-I:  
Paramedic:**
- Cardiac monitor for syncope, significant tachycardia or hypotension
- 

**Responders should remain in rehabilitation for a minimum of 20 minutes.**

**To return to response activities, responders should have:**

- HR 60-100
- Temp < 37.7°C (100°F)
- Systolic BP 100-160 mmHg
- Diastolic BP 60-100 mmHg
- SpO2 > 95% on room air
- COHb < 16% (if available)
- Normal mental status

**Consider transport for responders whose vital signs or mental status do not normalize with the above measures in 40-60 minutes, or sooner if condition is worsening despite treatment.**

# SEIZURES

## SUBJECTIVE

Known seizure disorder, onset, length, frequency, type, presence of aura. Head trauma, drug or alcohol use, diabetes, heart disease, CVA, pregnancy, fever, headache or stiff neck. Last use of anticonvulsant medications. Compliance with medications.

## OBJECTIVE

Head trauma or mouth injury. Level of consciousness. Incontinence of urine or stool. Observed seizure activity. Temperature. Rashes, petechiae or purpura.

## ASSESSMENT

With injury, infection or disease the electrical activity of the brain becomes irregular, which brings about sudden changes in sensation, behavior, or movement called seizures.

### **TONIC-CLONIC (GRAND MAL)**

- Generalized major motor seizure. Unresponsive to stimuli. Alternating tonic (contractions) or clonic (successive contractions and relaxations) movements of extremities

### **FOCAL MOTOR (SIMPLE PARTIAL)**

- Characterized by dysfunction of one area of the body including, tingling, stiffening or jerking

### **PSYCHOMOTOR (COMPLEX PARTIAL)**

- Characterized by abnormal behavior such as confusion, glassy stare, aimless movements, lip smacking or fidgeting with clothing

### **PETIT MAL**

- Seizure is brief, usually 1-10 seconds, with a temporary loss of concentration.

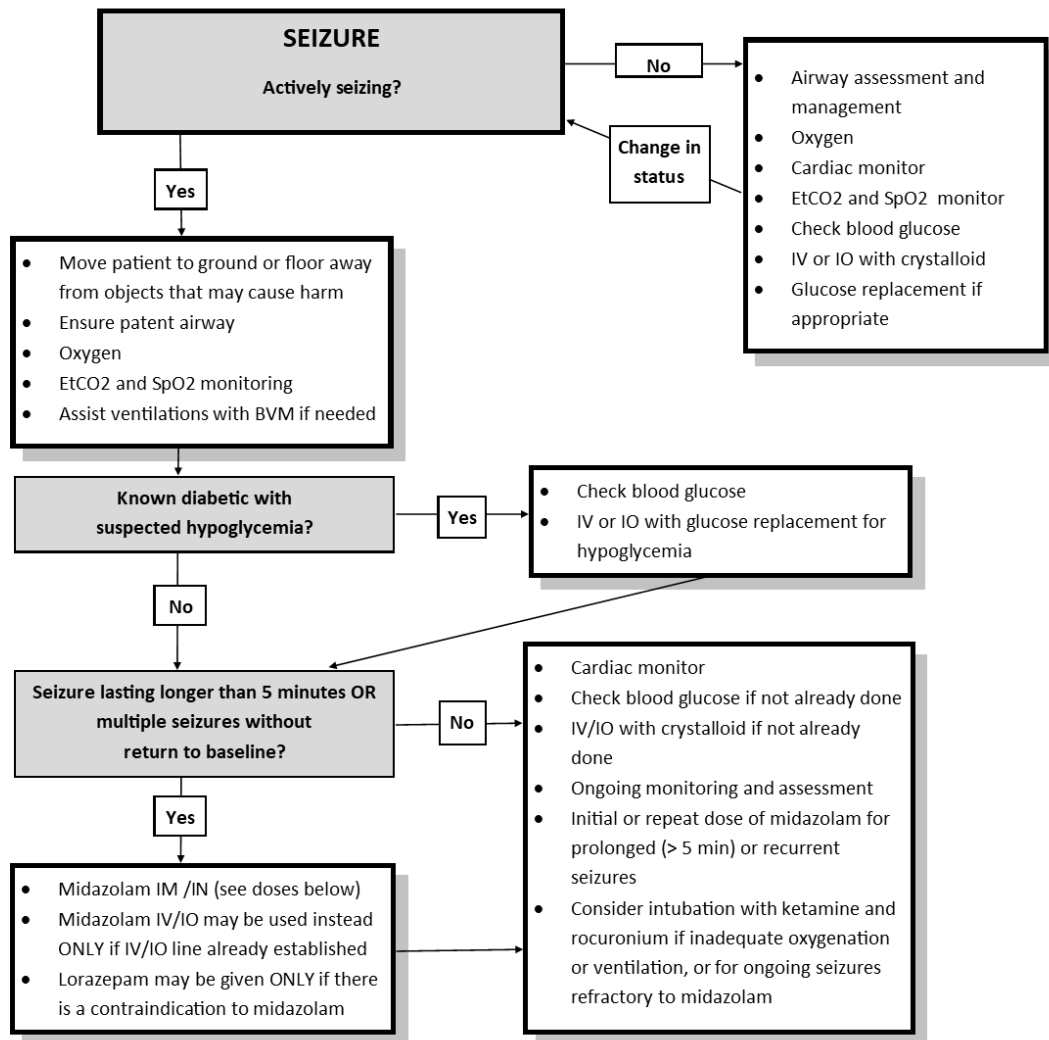
## TREATMENT

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<b>EMR:</b>	<ul style="list-style-type: none"><li>• Oxygen</li><li>• Assist ventilations</li></ul>
<b>EMT:</b>	<ul style="list-style-type: none"><li>• Check blood glucose</li><li>• Supraglottic airway</li></ul>
<b>AEMT:</b>	<ul style="list-style-type: none"><li>• IV or IO with crystalloid</li><li>• Glucose if hypoglycemic</li></ul>
<b>EMT-I:</b>	<ul style="list-style-type: none"><li>• Cardiac monitor</li></ul>
<b>Paramedic:</b>	<ul style="list-style-type: none"><li>• Midazolam or lorazepam (if midazolam contraindicated)</li><li>• Advanced airway</li></ul>

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(CONTINUED)



**MIDAZOLAM 5 mg/mL**  
**IM/IN DOSING**  
**0.2 mg/kg**  
Adult – 2 mL (10 mg)  
Child 9—1.2 mL (6 mg)  
Child 7—1 mL (5 mg)  
Child 5—0.8 mL (4 mg)  
Child 3—0.6 mL (3 mg)  
Child 1—0.4 mL (2 mg)

**MIDAZOLAM 5 mg/mL**  
**IV/IO DOSING**  
**0.1 mg/kg**  
Adult—1 mL (5 mg)  
Child 9—0.6 mL (3 mg)  
Child 7—0.5 mL (2.5 mg)  
Child 5—0.4 mL (2 mg)  
Child 3—0.3 mL (1.5 mg)  
Child 1—0.2 mL (1 mg)



# SEPSIS

## SUBJECTIVE

Presence and duration of fever; last known antipyretics given. Suspected source of infection. Immunocompromised state (poorly-controlled diabetes, chemotherapy, medications for rheumatoid arthritis, lupus). Presence of indwelling devices (urinary catheter or stent, PICC line, port, etc.).

## OBJECTIVE

**PATIENT MUST HAVE A SUSPECTED SOURCE OF INFECTION**

**AND**

**TWO OR MORE OF THE FOLLOWING PRESENT AND NEW TO PATIENT:**

- Temperature > 100.4 or < 96.8 degrees F
- GCS < 15 or change in mental status from baseline
- Respiratory rate >= 22 breaths per minute
- Heart rate >= 100 bpm
- Systolic blood pressure < 100mmHg OR MAP < 65
- Heart rate greater than systolic BP (shock index > 1)
- End-tidal CO<sub>2</sub> < 30

## ASSESSMENT

Early recognition of sepsis will speed time to critical interventions both pre-hospital and in the ED. These interventions are time-sensitive and directly affect patient outcomes.

## TREATMENT

- 
- EMR:**
- Oxygen if SpO<sub>2</sub> < 94%
  - Treat for shock

- 
- EMT:**
- Consider supraglottic airway
  - Check CBG

- 
- AEMT:**
- One or two large bore IVs or IO with crystalloid: 500mL bolus, reassess and repeat up to 2L if criteria above still met

- 
- EMT-I:**
- Cardiac monitor

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**(CONTINUED)**

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**Paramedic:**

- Consider advanced airway
- Push-dose epinephrine or norepinephrine after adequate fluid resuscitation
- Consider epinephrine/norepinephrine concurrently with fluid resuscitation for SBP < 80 systolic and signs of severe shock
- If patient is known to have adrenal insufficiency or congenital adrenal hyperplasia, may administer the patient's own corticosteroid – usual dose IM or IV of hydrocortisone

Adults	3-12 years	0-3 years
100mg	50mg	25mg

# **SHOCK**

## **SUBJECTIVE**

Trauma, infection, allergic reaction, toxic exposures, disease.

A feeling of impending doom or signs of fear, dizziness, weakness, feeling cold, thirst, shortness of breath, chest pain, vomiting or diarrhea, bloody stools or emesis, abdominal pain

Prior medical illnesses. Known history of adrenal insufficiency or congenital adrenal hyperplasia.

## **OBJECTIVE**

Confusion, restlessness, agitation. Pale, cool, clammy skin. Shallow or rapid breathing. Rapid or weak pulse, hypotension. Delayed capillary refill. Abdominal tenderness, rigidity, distention or mass. Obvious external trauma: amputations, deformities, bruising. End-tidal CO<sub>2</sub> < 30 may be an early sign of decompensation.

## **ASSESSMENT**

Shock is the failure of the cardiovascular system to provide sufficient oxygenated blood to vital tissues of the body.

### **HYPOVOLEMIC**

- Caused by loss of blood or other body fluids; dehydration.

### **CARDIOGENIC**

- Caused by the heart failing to pump blood adequately to vital body parts.

### **DISTRIBUTIVE**

- Neurogenic, anaphylactic, septic, psychogenic, metabolic - increase in vascular dilatation or permeability.

Pressors are not indicated for hypovolemic shock due to acute blood loss and may lead to increased mortality relative to resuscitation with blood and fluids. They are appropriate for suspected neurogenic shock.

**(CONTINUED)**

## **TREATMENT**

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- EMR:**
- Oxygen
  - Shock position
  - Prevent loss of body heat
- 

- EMT:**
- Supraglottic airway
- 

- AEMT:**
- One or two large bore IVs or IO with crystalloid
- 

- EMT-I:**
- Cardiac monitor
- 

- Paramedic:**
- Advanced airway
  - Push-dose epinephrine or norepinephrine after adequate fluid resuscitation (unless suspected hypovolemic shock from acute blood loss in trauma)
  - Consider epinephrine/norepinephrine concurrently with fluid resuscitation for SBP < 80 systolic and signs of severe shock (unless suspected hypovolemic shock from acute blood loss in trauma)
  - If patient is known to have adrenal insufficiency or congenital adrenal hyperplasia, may administer the patient's own corticosteroid – usual dose IM or IV of hydrocortisone

Adults	3-12 years	0-3 years
100mg	50mg	25mg

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# **SNAKE BITES**

## **SUBJECTIVE**

Localized pain at site of bite. Time of bite. Snake identification. Metallic or rubber taste in mouth and lips. Thirst. Blurry or dim vision. Weakness, dizziness or lightheadedness, numbness or tingling around face and head. Treatment rendered.

## **OBJECTIVE**

One or more fang marks with redness, swelling, ecchymosis or oozing from site, followed later by hemorrhagic blisters. Respiratory distress, tachycardia, hypotension, vomiting or diarrhea, bloody urine or gastrointestinal hemorrhage.

## **ASSESSMENT**

The seriousness of a snake bite is related to amount of venom injected, the location of the bite, the type of snake and pre-existing medical conditions. The vast majority of snake bites are non-fatal.

## **TREATMENT**

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### **PROTECT YOURSELF AND OTHERS FIRST**

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|----------------------|---|
| <b>EMR:<br/>EMT:</b> | <ul style="list-style-type: none"><li>• Ensure scene safety</li><li>• Calm and reassure patient</li><li>• Minimize victim's physical activity</li><li>• Oxygen</li><li>• Splint bitten extremity in dependent position, below level of heart</li><li>• Remove constricting clothing or jewelry</li><li>• Do not apply ice to the snake bite</li></ul> |
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| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with crystalloid</li></ul> |
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| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Morphine or fentanyl</li><li>• Cardiac monitor</li></ul> |
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- |                   |  |
|-------------------|--|
| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Ketamine (pain dose)</li></ul> |
|-------------------|--|
-

# SOFT TISSUE INJURY

## SUBJECTIVE

History of trauma and mechanism of injury.

## OBJECTIVE

Hemorrhage, laceration, abrasion, bruising, swelling, deformity. Neurovascular compromise.

## ASSESSMENT

Soft tissue injuries frequently are associated with bleeding that must be controlled. Significant soft tissue injury can occur without external bleeding, such as burns, contusions, crush injuries and dislocations. Treatment should be directed toward control of bleeding, reduction of risk of further injury, and patient comfort. Evaluate patient for other less obvious injuries

## TREATMENT

---

<b>EMR: EMT:</b>	<ul style="list-style-type: none"><li>• Direct pressure with fingertips targeted on bleeding vessel to control external bleeding<ul style="list-style-type: none"><li>• If bleeding not controlled with direct pressure within 3-5 minutes, apply a hemostatic dressing with direct pressure:<ol style="list-style-type: none"><li>1. If injury is on an extremity, is not controlled with a hemostatic dressing with direct pressure, and is life threatening, apply a tourniquet</li><li>2. If a junctional wound, is not controlled with a hemostatic dressing with direct pressure, and is life threatening, then pack wound with hemostatic dressing or with gauze</li></ol></li><li>• “Trauma Activation” if tourniquet or wound packing used</li><li>• Position of comfort, including splinting</li><li>• Prevent heat loss</li><li>• Cold packs for closed injuries if neurovascular intact</li><li>• Evaluate and treat for other injuries</li><li>• Oxygen</li></ul></li></ul>
<b>AEMT:</b>	<ul style="list-style-type: none"><li>• One or two large bore IVs or IO with crystalloid</li></ul>
<b>EMT-I:</b>	<ul style="list-style-type: none"><li>• Cardiac monitor</li><li>• Morphine or fentanyl</li></ul>
<b>Paramedic:</b>	<ul style="list-style-type: none"><li>• Ketamine (pain dose)</li></ul>

---

# SPINE TRAUMA

## SUBJECTIVE

Mechanism of injury (blunt vs. penetrating) and force used. High energy transfer: ejection, helmet damage, starred windshield, steering column bent, surface diving accident. Back, neck, bilateral arm or leg pain. Tingling, paresthesia, numbness or paralysis.

## OBJECTIVE

Diaphragmatic or impaired breathing. Head injury. Open injury, spinal deformity or tenderness. Hypotension. Loss of bladder or bowel control. Priapism. Paralysis or numbness.

## ASSESSMENT

The presence of spine trauma and the need to immobilize the patient can be indicated by mechanism of injury, the presence of other injuries or by specific signs or symptoms of spinal cord injury. Spinal motion restriction is not indicated for penetrating trauma and may make the injury worse. Spinal cord injury may mask signs and symptoms of other significant injuries.

## TREATMENT

- 
- |             |   |
|-------------|---|
| <b>EMR:</b> | <ul style="list-style-type: none"><li>• Oxygen</li><li>• Spinal motion restriction for blunt trauma</li><li>• Check motor and sensory exam frequently</li><li>• Evaluate and treat for other injuries</li><li>• Prevent loss of body heat</li></ul> |
|-------------|---|
- 

- |             |   |
|-------------|---|
| <b>EMT:</b> | <ul style="list-style-type: none"><li>• Supraglottic airway</li></ul> |
|-------------|---|
- 

- |              |   |
|--------------|---|
| <b>AEMT:</b> | <ul style="list-style-type: none"><li>• IV or IO with crystalloid</li></ul> |
|--------------|---|
- 

- |               |   |
|---------------|---|
| <b>EMT-I:</b> | <ul style="list-style-type: none"><li>• Cardiac monitor</li><li>• Atropine if bradycardic and hypotensive</li></ul> |
|---------------|---|
- 

- |                   |  |
|-------------------|--|
| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Norepinephrine or push-dose epinephrine after adequate fluid resuscitation</li><li>• Advanced airway</li></ul> |
|-------------------|--|
-

# **STROKE**

## **SUBJECTIVE**

Sudden onset of focal neurological deficit - commonly unilateral paralysis (extremity or facial weakness typically on one side of the body), aphasia (absent, abnormal, garbled or slurred speech), and/or gaze deviation. These are typical symptoms of anterior stroke (front of the brain).

Symptoms of posterior stroke (back of the brain) are more subtle and may include vertigo (dizziness with a sensation of spinning or movement), loss of coordination ("I feel like I'm drunk but I'm not"), partial or complete visual loss, diplopia (double vision) or other visual disturbance, and/or abnormal eye movements.

Symptoms of large stroke may also include seizure, sudden-onset coma or death.

Risk factors for stroke include prior stroke or TIA, atrial fibrillation/atrial flutter, hypertension, angina or heart attack, diabetes, hypercholesterolemia, obesity, smoking history, and illicit drug use (i.e. meth, cocaine, synthetic marijuana).

## **OBJECTIVE**

Patient assessment should include the evaluation of pupils, speech, language, motor responses and sensations. Limbs should be evaluated for equal strength and motion. Neurological exam findings may change with time. Monitor blood pressure, pulse, respirations, cardiac rhythm and blood sugar.

## **ASSESSMENT**

EMS assessment of stroke is made on the basis of patient history and physical exam.

Perform stroke assessment for any patient with new-onset weakness, dizziness, vision changes, altered mental status, or other focal neurologic symptoms.

"Stroke mimics" include trauma, hypoglycemia, seizure disorder, complicated migraine, psychiatric disorder and drug ingestion.

Patients presents with stroke-like signs or symptoms less than 24 hours' duration may be candidates for thrombolytic or interventional (thrombectomy) therapy.

Symptoms or recent history of headache, head trauma, new-onset seizure, vomiting, sudden-onset GCS 3 are suspicious for intracranial hemorrhage and are best treated at a center with neurosurgical capability.

Reduce scene time, transport, and report "Stroke Activation" when appropriate.

**(CONTINUED)**



## **CINCINNATI PRE-HOSPITAL STROKE SCALE (CPSS)**

### **FACIAL DROOP**

Abnormal if one side does not move as well as the other

### **ARM DRIFT**

Close both eyes and hold both arms straight out in front for about 10 seconds  
Abnormal if one arm does not move or one arm drifts down compared to the other

### **SPEECH**

Ask the patient to say "You can't teach an old dog new tricks"  
Abnormal if slurred or inappropriate words or mute

**CPSS is Positive if any one item is Abnormal**

## **CINCINNATI STROKE TRIAGE ASSESSMENT TOOL (C-STAT)**

### **GAZE PREFERENCE**

Deviation of the eyes away from the side of weakness

If present – 2  
points

### **ARM WEAKNESS**

Cannot hold up arms for more than 10 seconds

If present – 1 point

### **LEVEL OF CONSCIOUSNESS**

Does not know either age or the month AND fails to follow at least 1 or 2  
commands (such as "close your eyes" or "open and close your hand")

If present – 1 point

**C-STAT is Positive if total score is 2 or more ( $\geq 2$ )**

## **SCREEN FOR POSTERIOR STROKE**

### **FINGER-NOSE TEST**

Patient able/unable to smoothly move their finger between their own  
nose and the evaluator's finger/pen

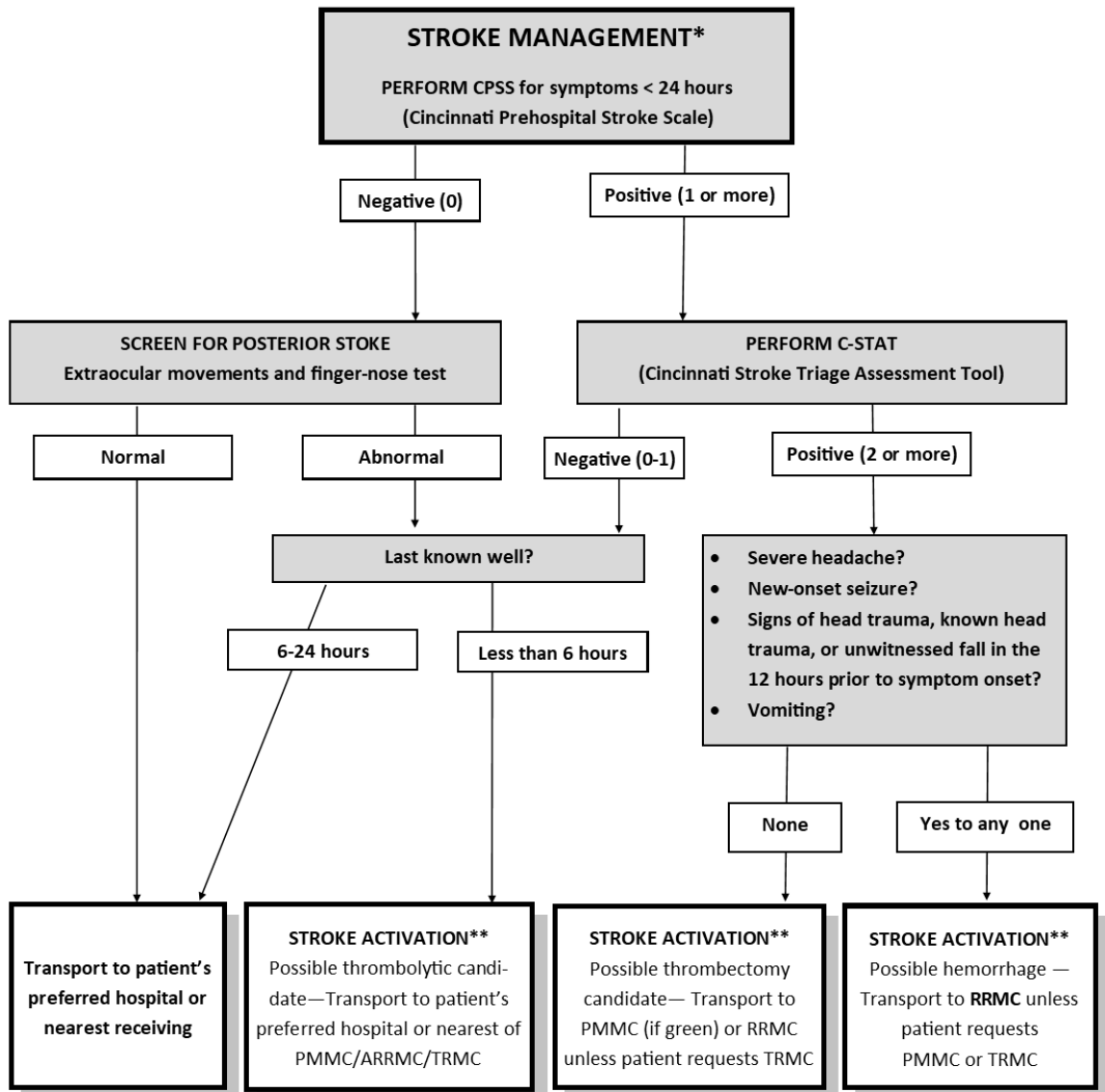
If unable –  
Screen is  
ABNORMAL

### **EYE MOVEMENTS**

Eyes do/do not track together in all quadrants when following  
evaluator's hand in an H-pattern

If eyes do not track  
together – Screen  
is ABNORMAL

**Screen is ABNORMAL if either test is ABNORMAL**



\* For patient with symptoms <24 hours

\*\*No stroke activation for patients with a valid POLST form with section B marked "Comfort Measures Only"

**STROKE CARE**

---

- Oxygen
- Check blood glucose
- IV or IO with saline lock
- Cardiac monitor
- 12-lead ECG
- Elevate head of bed 15-30 degrees
- Airway management as needed

# TRAUMA ACTIVATION

## SUBJECTIVE

History of mechanism of injury. Environmental conditions. Co-existing medical illnesses or conditions.

## OBJECTIVE

Some injuries may be obvious. Examine the patient fully to find the hidden injuries. Undress the patient appropriately.

## ASSESSMENT

Entry of a patient into the trauma system speeds care for those who need resuscitation or emergency surgical procedures during the first hour or two after trauma.

## TREATMENT

- 
- EMR:**
- Control hemorrhage – direct pressure, pressure points, tourniquet, or wound packing
  - High flow oxygen
  - Cover open neck or chest wounds with an occlusive dressing
  - Pelvic sling
  - Cover open wounds with a dressing
  - Maintain body heat
  - Spinal motion restriction
  - Notify trauma hospital with radio call of “Trauma Activation”
  - “Read back” confirmation of “Trauma Activation”
  - Notify trauma hospital of trauma entry criteria
  - Report patient’s age, gender, and vital signs to the trauma hospital
  - Apply trauma band and record number on the PCR

- 
- EMT:**
- Supraglottic airway

- 
- AEMT:**
- IV, ideally 18g or larger, or IO with crystalloid, maximum 2L
- 

(CONTINUED)

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**EMT-I:**                      • Cardiac monitor

---

**Paramedic:**                      • Advanced airway  
    • TXA (Tranexamic acid)  
    • Chest decompression

---

- Patients with an unstable airway go to the nearest hospital
- These patients go to Rogue Regional Medical Center (RRMC):
  - Pregnancy > 20 weeks (uterus at or above umbilicus)
  - Pediatrics age 17 or less
  - GCS < 15
  - Reported or witnessed loss of consciousness
- Prioritize interventions by what will result in death most rapidly:
  - M – Massive hemorrhage – tourniquet or pressure/wound packing
  - A – Airway – open airway and secure as needed
  - R – Respirations – ventilate, oxygenate, chest seal, needle decompression
  - C – Circulation – patient positioning, IV access, fluids, pelvic sling, TXA
  - H – Hypothermia prevention – ensure warm environment
- EMS Providers may consider scene and patient factors and use their judgement to activate trauma even if typical criteria are not met

**(CONTINUED)**

## **TRAUMA ACTIVATION AND TRANSFER TO RPMC IF ANY ONE IS PRESENT**

- GCS < 15
- Respiratory rate < 10 and > 29 breaths/min
- Respiratory distress or need for respiratory support
- Room air pulse oximetry < 90%
- **Blood pressure:**
  - Age 0-9 years: SBP < 70mmHg + (2 x age in years)
  - Age 10-64 years: SBP < 90 mmHg or HR > SBP
  - Age 65+ years: SBP < 110 mmHg or HR > SBP
- Penetrating injuries to head, neck, torso, or proximal extremities
- Skull deformity or suspected skull fracture
- Suspected spinal injury with new motor or sensory loss
- Chest wall instability, deformity, or suspected flail chest
- Suspected pelvic fracture
- Suspected fracture of two or more proximal long bones
- Crushed, degloved, mangled, or pulseless extremity
- Amputation proximal to wrist or ankle
- Active bleeding requiring a tourniquet or wound packing with continuous pressure

## **TRAUMA ACTIVATION AND TRANSFER TO PMMC, TRMC, OR RPMC BASED ON CLOSEST HOSPITAL / PATIENT PREFERENCE IF ANY ONE IS PRESENT (and none of the above):**

- High-risk auto crash
  - Partial or complete ejection
  - Significant intrusion (including roof)
    - > 12 inches occupant site OR
    - > 18 inches any site
  - Need for extrication for entrapped patient
  - Death in passenger compartment
  - Child (age 0-9 years) unrestrained or in unsecured child safety seat
  - Vehicle telemetry data consistent with severe injury
- Rider separated from transport vehicle with significant impact (motorcycle, ATV, horse, etc.)
- Pedestrian/skateboard/bicycle rider thrown, run over, or with significant impact
- Fall from height > 10 feet

## **SPECIAL PATIENT CONSIDERATIONS FOR TRAUMA ACTIVATION**

- Low-level falls in children 5 and under or adults 65 and older with significant head impact
- Anticoagulant use
- Suspicion of child abuse
- Special, high-resource healthcare needs
- Pregnancy > 20 weeks (transfer to RPMC)
- Burns in conjunction with trauma

# VAGINAL BLEEDING

## SUBJECTIVE

Cramping or pain, onset of bleeding, clots or tissue, last normal menstrual period, method of birth control, due date if pregnant, history of vaginal trauma, number of pads or tampons per hour, past medical history, medications, referred shoulder pain.

## OBJECTIVE

Estimated blood loss, hypotension, abdominal tenderness or guarding.

## ASSESSMENT

Vaginal bleeding can occur for a variety of reasons: pregnancy, trauma, hormonal imbalance and cancer. Patients may be miscarrying and unaware that they were pregnant. Tissue fragments or clots should be brought to the hospital. Emotional support may need to be provided to the patient and family.

In cases of assault, preserve evidence.

In the case of bleeding in late-term pregnancy, high-flow oxygen is essential to oxygenate fetus even if patient has normal saturations.

## TREATMENT

- 
- |             |                  |
|-------------|------------------|
| <b>EMR:</b> | • Oxygen         |
| <b>EMT:</b> | • Shock position |
- 

- |              |                             |
|--------------|-----------------------------|
| <b>AEMT:</b> | • IV or IO with crystalloid |
|--------------|-----------------------------|
- 

- |                   |                   |
|-------------------|-------------------|
| <b>EMT-I:</b>     | • Cardiac monitor |
| <b>Paramedic:</b> |                   |
- 

\*Patients with third trimester bleeding should be transported to RRMC obstetrics.

# **VENTRICULAR ASSIST DEVICE (VAD)**

## **SUBJECTIVE**

A Ventricular Assist Device (VAD) is used in patients with severe congestive heart failure to allow them to return home to their family and community. The VAD is dependent on an external power supply, either 110 volt AC or rechargeable batteries (to allow increased mobility). A patient needing a VAD may have enough intrinsic cardiac function to maintain life, but not enough to allow any significant activities above baseline. A patient with a VAD, along with his or her close family members or friends, will have received extensive training in the use and operation of the VAD.

## **OBJECTIVE**

The level of consciousness will be of prime importance in evaluating the patient's condition.

Patients with a VAD will likely not have a palpable pulse, blood pressure detectable by EMS personnel, or reliable pulse oximeter reading. The mean arterial pressure (MAP), if measurable, should be at least 50mmHg.

End tidal CO<sub>2</sub> measurements will be reliable with a normal value of 35-45mmHg and should be at least 20mmHg.

A hum from the implanted pump will usually be heard or palpated in the patient's central or left lower chest.

Most patients with a VAD will have received an Automatic Implantable Cardioverter Defibrillator (AICD), typically in the left upper chest.

## **ASSESSMENT**

Patient with a VAD. The two most common reasons for VAD pump failure are disconnection of the power and failure of the driveline.

**(CONTINUED)**

## **TREATMENT**

---

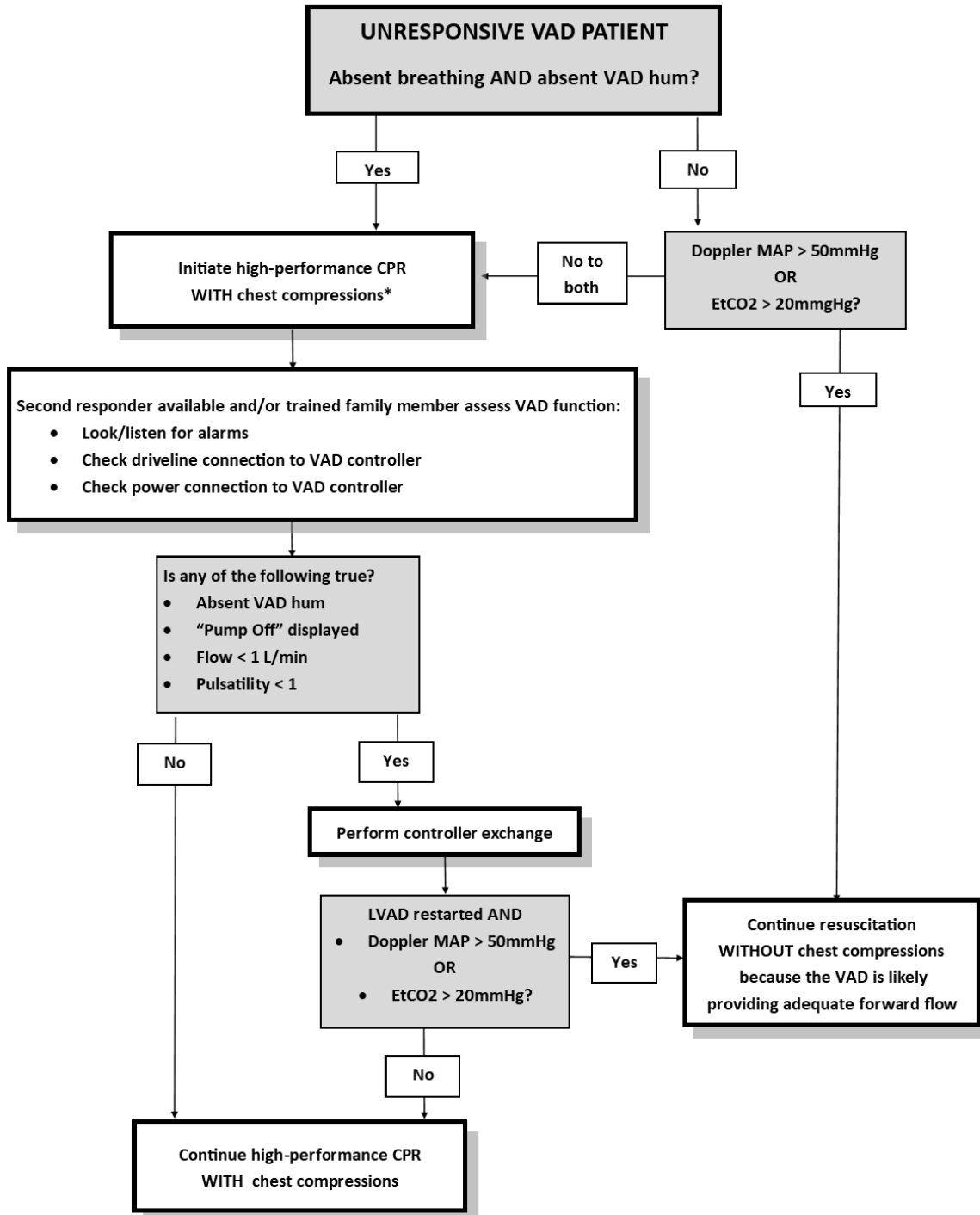
- EMR:**  
**EMT:**
- Oxygen
  - Ensure that the VAD controller is on and working
  - Exchange the controller
  - Defibrillation can be performed normally
  - Chest compressions and CPR may be performed per flowsheet
  - EtCO<sub>2</sub> Monitoring
  - Contact the patient's VAD Center, or
    - OHSU VAD Center at (503) 494-9000 (pager for VAD Coordinator), or
    - Stanford VAD Center (650) 723-4000
  - Package patient to avoid constriction on VAD or tension on cables
  - One patient companion knowledgeable about the VAD should be transported in the back of the ambulance along with the patient
  - Transport all VAD equipment (power supply, controllers, batteries, emergency backup bag, etc.) with the patient
  - Any patient with a VAD should be transported to PMMC or RMMC
- 

- AEMT:**
- Large bore IV or IO with crystalloid
- 

- EMT-I:**  
**Paramedic:**
- Cardiac monitor
  - Cardiac medications can be administered
  - 12 lead ECG
- 

**(CONTINUED)**





\*No resuscitation for patients with a valid POLST form with section B marked "Comfort Measures Only"

# **PRE-HOSPITAL MEDICATIONS**

## **PRE-HOSPITAL MEDICATIONS**

Acetaminophen (Optional)
Activated Charcoal
Adenosine
Albuterol
Amiodarone
Aspirin
Atropine
Calcium Gluconate
Crystalloid
Cyanokit
Diltiazem (Optional)
Diphenhydramine
Droperidol (Optional)
Epinephrine
Etomidate (Optional)
Fentanyl (Optional)
Glucose-Dextrose
Ipratropium Bromide (Atrovent)
Ketamine (Optional)
Ketorolac (Optional)
Lidocaine
Lorazepam (Optional)
Magnesium Sulfate (Optional)
Mark 1 Autoinjector
Methylprednisolone (Optional)
Midazolam (Optional)
Morphine (Optional)
Naloxone (Narcan)
Nitroglycerin
Nitrous Oxide (Optional)
Norepinephrine (Optional)
Ondansetron (ODT Optional)
Oxymetazoline (Afrin)
Rocuronium (Optional)
Sodium Bicarbonate
TXA (Tranexamic Acid) (Optional)



# ACETAMINOPHEN (OPTIONAL)

## TRADE NAME

Tylenol, APAP, Panadol, Paracetamol

## ACTION

Antipyretic, analgesic

## INDICATIONS

- Acute or chronic pain
- Fever greater than 39°C (102.2°F)

## CONTRAINDICATIONS

- ☠ Known sensitivity to acetaminophen
- ☠ Hyperthermia from environmental causes
- ☠ Acetaminophen use in the past four hours

## SIDE EFFECTS & PRECAUTIONS

- Significant overdose may cause liver failure
- Do not give if patient has had appropriate dosage within two hours

## ROUTE & DOSAGE

---

**EMT:**  
**A-EMT:**  
**EMT-I:**

- **Patients > 12:** 650mg oral

---

**Paramedic:**

- **Patients < 12:** 10-15mg/kg oral if conscious and awake; otherwise use rectal suppository if available

---

(CONTINUED)

### PEDIATRIC ACETAMINOPHEN DOSING

<b>AGE</b>	<b>WEIGHT (LB)</b>	<b>WEIGHT (KG)</b>	<b>DOSE (TSP)</b>
Under 2 years	<24 lbs	<11kg	15mg/kg
2 - 3 years	24 - 35 lbs	11 - 16kg	1 tsp = 5mL = 160mg
4 - 5 years	36 - 47 lbs	16 - 21kg	1½ tsp = 7.5mL = 240mg
6 - 8 years	48 - 59 lbs	22 - 27kg	2 tsp = 10mL = 320mg
9 - 10 years	60 - 71 lbs	27 - 32kg	2½ tsp = 12.5mL = 400mg
11 years	72 - 95 lbs	33 - 43kg	3 tsp = 15mL = 480mg

# ACTIVATED CHARCOAL

## TRADE NAME

Actidose

## ACTION

Absorbs some ingested toxic substances and inhibits gastrointestinal absorption by forming a barrier between remaining particulate material and gastrointestinal mucosa

## INDICATIONS

- Oral toxic ingestion, poisoning or overdose in conscious and awake patients within 2 hours of ingestion and only after approval by on-line medical control or Poison Center

## CONTRAINDICATIONS

- ☠ Known sensitivity to activated charcoal
- ☠ Unconscious patient or diminishing level of consciousness
- ☠ Ingestions of mineral acids or alkalis, petroleum products or cyanide

## SIDE EFFECTS & PRECAUTIONS

- In an altered or sedated patient, administration can result in aspiration or significant particulate obstruction of the airway.
- Do not administer activated charcoal in the presence of Ipecac.
- Less likely to be effective if given more than 1 hour after ingestion

## ROUTE & DOSAGE

---

<b>EMT:</b>		
<b>AEMT:</b>	<i>Adult:</i>	25-50 grams orally
<b>EMT-I:</b>	<i>Pediatric:</i>	0.5 gm/kg orally
<b>Paramedic:</b>		

---

(CONTINUED)

<b>ACTIVATED CHARCOAL PEDIATRIC DOSE (25 g/120 mL)</b>	
<b>AGE (ESTIMATED WEIGHT)</b>	<b>0.5 g/kg</b>
<b>1 year (10 kg)</b>	24 mL (5 g)
<b>3 year (15 kg)</b>	36 mL (7.5 g)
<b>5 year (20 kg)</b>	48 mL (10 g)
<b>7 year (25 kg)</b>	60 mL (12.5 g)
<b>9 year (30 kg)</b>	72 mL (15 g)



# ADENOSINE

## TRADE NAME

Adenocard

## ACTION

Slows conduction time through the A-V node and can interrupt the re-entry pathways through the A-V node and can restore normal sinus rhythm in patients with paroxysmal supraventricular tachycardia (PSVT). Half-life is less than 10 seconds

## INDICATIONS

- Supraventricular tachycardia
- Undifferentiated regular & monomorphic wide complex tachycardia

## CONTRAINDICATIONS

- ⊗ Known sensitivity to Adenosine
- ⊗ Known Wolff-Parkinson-White syndrome
- ⊗ Sick sinus syndrome or second or third degree heart block without functioning pacemaker

## SIDE EFFECTS & PRECAUTIONS

- Transient asystole may occur, as well as facial flushing, headache, shortness of breath, dizziness, nausea or chest pain. Dysrhythmias may develop including PVCs, PACs, sinus bradycardia, sinus tachycardia, A-V blocks and asystole
- Cut dose in half if patient taking Dipyridamole (Persantine) or Carbamazepine (Tegretol) or who have had a heart transplant
- If given to patients who have Wolff-Parkinson-White syndrome may cause paradoxical increase in ventricular rate

## ROUTE & DOSAGE

---

### Paramedic:

- **Adult:** 6mg rapid IV or IO push over 1- 2 seconds followed by 20mL saline rapid push at next most proximal port, preferably through a large bore antecubital site.
    - If no conversion, 12mg rapid IV or IO push over 1-2 seconds followed by 20mL saline rapid IV or IO push at next most proximal port in 1-2 minutes.
  - **Pediatric:** 0.1mg/kg rapid IV or IO push over 1- 2 seconds with 10mL saline rapid IV push at proximal IV or IO port. May repeat with 0.2mg/kg in 1-2 minutes.
- 

(CONTINUED)

<b>ADENOSINE PEDIATRIC DOSE (3 mg/mL)</b>		
<b>AGE (ESTIMATED WEIGHT)</b>	<b>0.1 mg/kg (Initial Dose)</b>	<b>0.2 mg/kg (Repeat Dose)</b>
<b>1 year (10 kg)</b>	0.3 mL (1 mg)	0.7 mL (2 mg)
<b>3 year (15 kg)</b>	0.5 mL (1.5 mg)	1 mL (3 mg)
<b>5 year (20 kg)</b>	0.7 mL (2 mg)	1.3 mL (4 mg)
<b>7 year (25 kg)</b>	0.85 mL (2.5 mg)	1.7 mL (5 mg)
<b>9 year (30 kg)</b>	1 mL (3 mg)	2 mL (6 mg)

# ALBUTEROL

## TRADE NAME

Proventil, Ventolin

## ACTION

Potent, relatively selective beta 2-adrenergic bronchodilator. Shifts potassium from blood into cells. Onset of action is 2-15 minutes, duration of action is 4-6 hours.

## INDICATIONS

- Bronchospasm due to suspected asthma, COPD, or anaphylaxis
- Hyperkalemia (suspected) with ECG changes

## CONTRAINDICATIONS

- ⚠ Known sensitivity to Albuterol

## SIDE EFFECTS & PRECAUTIONS

- Palpitations, anxiety, nausea and dizziness
- Stop treatment if frequent PVCs or tachyarrhythmias other than sinus tachycardia develop

## ROUTE & DOSAGE

---

**EMT (known  
asthmatic or COPD  
patient only):  
AEMT:**

**Bronchospasm:**  
2.5mg in 3mL saline via nebulizer with oxygen set at 6-10 L/min.  
May repeat twice.

---

**EMT-I:  
Paramedic:**

**Hyperkalemia (suspected) with ECG changes:**  
15mg over 30 minutes via nebulizer with oxygen set at 6-10 L/min

---



# AMIODARONE

## TRADE NAME

Cordarone, Pacerone

## ACTION

Antiarrhythmic agent

## INDICATIONS

- Ventricular fibrillation or pulseless ventricular tachycardia
- Ventricular tachycardia with a pulse in a stable patient
- Narrow-complex non-sinus tachycardia with known Wolff-Parkinson White (WPW)
- After conversion to a perfusing rhythm from ventricular tachycardia or fibrillation

## CONTRAINDICATIONS

- ⚠ Known sensitivity to amiodarone

## SIDE EFFECTS & PRECAUTIONS

- If severe signs or symptoms develop use immediate cardioversion
- May cause hypotension, bradycardia or conduction defects or may worsen congestive heart failure
- Rarely may precipitate cardiac dysrhythmias - torsades de pointes
- Maximum concentration of 1.8mg/ml for non-bolus administration

## ROUTE & DOSAGE

---

### **EMT-I & Paramedic:**

*Ventricular fibrillation/Pulseless ventricular tachycardia:*

- **Adult:** 300 mg IV/IO bolus, followed by saline flush
- **Pediatric:** 5 mg/kg IV/IO bolus, followed by a saline flush
- If no perfusing rhythm, administer an additional 150mg (adult) or 5 mg/kg (pediatric) IV/IO bolus in 3-5 minutes

*Adult post-conversion from ventricular fibrillation or tachycardia to a perfusing rhythm:*

- 150 mg in 100mL normal saline IV or IO over 10 minutes in addition to what may have been given previously up to a maximum total dose of 450 mg.

*Ventricular tachycardia with a pulse or*

*Narrow complex tachycardia with Wolff-Parkinson-White (WPW):*

- **Adult:** 150mg in 100mL normal saline IV or IO over 10 minutes. May repeat once in 10 minutes if no change in rhythm.
- **Pediatric:** 5 mg/kg IV in 100mL normal saline IV or IO over 20 minutes

**Total maximum dose of 450mg**

---

(CONTINUED)

<b>AMIODARONE PEDIATRIC DOSE (50 mg/mL)</b>	
<b>AGE (ESTIMATED WEIGHT)</b>	<b>5 mg/kg</b>
<b>1 year (10 kg)</b>	1 mL
<b>3 year (15 kg)</b>	1.5 mL
<b>5 year (20 kg)</b>	2 mL
<b>7 year (25 kg)</b>	2.5 mL
<b>9 year (30 kg)</b>	3 mL

# ASPIRIN (ASA, ACETYLSALICYLIC ACID)

## TRADE NAME

Ecotrin and others

## ACTION

Inhibits platelet aggregation

## INDICATIONS

- Cardiac chest pain

## CONTRAINDICATIONS

- ⊗ Known sensitivity or allergy to aspirin
- ⊗ Active or recent GI bleeding

## SIDE EFFECTS & PRECAUTIONS

- Do not administer if is unconscious or unable to protect airway

## ROUTE & DOSAGE

---

<b>EMR:</b>	
<b>EMT:</b>	Cardiac chest pain: 81 mg tablets (max of 4 tablets = total 324 mg)
<b>AEMT:</b>	chewed so patient's total dose within the prior 12 hours is 324 mg
<b>EMT-I:</b>	
<b>Paramedic:</b>	

---





# ATROPINE

## TRADE NAME

Atropine

## ACTION

Parasympatholytic agent with the following effects: increases heart rate, increases conduction through A-V node, reduces motility and tone of GI tract, reduces tone of the urinary bladder, dilates pupils, dilates bronchi

## INDICATIONS

- Symptomatic bradycardia
- Antidote for symptomatic organophosphate poisoning

## CONTRAINDICATIONS

- ⚠ Known sensitivity to atropine

## SIDE EFFECTS & PRECAUTIONS

- Less likely to be effective in second degree type 2 A-V block and third degree block with wide QRS complexes in the presence of an acute MI

## ROUTE & DOSAGE

---

**EMT-I & Paramedic:**

<b><i>Symptomatic bradycardia:</i></b>	
<b>ADULT</b>	<b>PEDIATRIC</b>
1 mg IV or IO push every 3-5 minutes. Maximum dose 3 mg.	0.02 mg/kg IV or IO every 3-5 minutes. Maximum dose 0.5 mg
<b><i>Organophosphate poisoning:</i></b>	
<b>ADULT</b>	<b>PEDIATRIC</b>
2 mg IV, IO, IM, ET Double dose every 10 minutes until symptoms controlled	0.04 mg/kg IV, IO, IM, ET Double dose every 10 minutes until symptoms controlled

---

(CONTINUED)

<b>ATROPINE PEDIATRIC DOSE (0.1 mg/mL)</b>		
<b>AGE (ESTIMATED WEIGHT)</b>	<b>0.02 mg/kg</b>	<b>0.04 mg/kg</b>
<b>1 year (10 kg)</b>	2 mL (0.2 mg)	4 mL (0.4 mg)
<b>3 year (15 kg)</b>	3 mL (0.3 mg)	6 mL (0.6 mg)
<b>5 year (20 kg)</b>	4 mL (0.4 mg)	8 mL (0.8 mg)
<b>7 year (25 kg)</b>	5 mL (0.5 mg)	10 mL (1 mg)
<b>9 year (30 kg)</b>	5 mL (0.5 mg)	12 mL (1.2 mg)

# CALCIUM GLUCONATE (10%)

## TRADE NAME

Calcium Gluconate 10%

## ACTION

Electrolyte essential for muscle contraction

## INDICATIONS

- Antidote for overdoses of calcium channel blockers or magnesium
- Suspected hyperkalemia with ECG changes
- Slow, wide PEA arrest
- Treatment for hydrogen fluoride or hydrofluoric acid exposure of skin or lungs

## CONTRAINDICATIONS

- ☠ Known sensitivity to Calcium Gluconate

## SIDE EFFECTS & PRECAUTIONS

- Will precipitate if infused in same line with sodium bicarbonate
- Use with caution in patients taking digoxin

## ROUTE & DOSAGE

---

Paramedic:

### **Calcium Channel Blocker or Magnesium Sulfate overdose:**

<b>ADULT</b>	<b>PEDIATRIC</b>
3g (30 mL) IV or IO in 100mL NS over 5-10 minutes	60 mg/kg IV or IO in 100mL NS over 5-10 minutes

### **Hyperkalemia (suspected) with ECG changes or slow, wide PEA arrest:**

- 1g (10mL) slow IV push
  - May repeat every 3-5 minutes if rhythm does not improve for a total of 3g (30mL)
- 

(CONTINUED)

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**Hydrogen fluoride or hydrofluoric acid exposure or burn:**

For skin burns or exposure - apply topically

- Mix 1 ampule of 10% calcium gluconate in 1 ounce (30cc) water-based, water-soluble personal lubricant (such K-Y jelly) and massage into burned area

Inhalation exposure or pulmonary burns – via nebulizer

- Administer 2.5% solution - mix 10% calcium gluconate with 3 volumes normal saline
- 

<b>CALCIUM GLUCONATE PEDIATRIC DOSE (100 mg/mL)</b>	
<b>AGE (ESTIMATED WEIGHT)</b>	<b>60 mg/kg</b>
<b>1 year (10 kg)</b>	6 mL (600 mg)
<b>3 year (15 kg)</b>	9 mL (900 mg)
<b>5 year (20 kg)</b>	12 mL (1200 mg)
<b>7 year (25 kg)</b>	15 mL (1500 mg)
<b>9 year (30 kg)</b>	18 mL (1800 mg)

# CRYSTALLOID

## TRADE NAME

Normal Saline, 0.9% Saline, NormoSol R, Lactated Ringer's, Isolyte

## ACTION

Sterile isotonic fluid for intravenous use

## INDICATIONS

- Intravascular volume expansion, fluid challenge, medication administration or catheter flush

## CONTRAINDICATIONS

None

## SIDE EFFECTS & PRECAUTIONS

- Administer with caution to patients with fluid overload such as pulmonary edema, brain injury, heart disease or kidney disease
- In pediatric patients use a pump, volutrol or syringe to avoid excessive administration

## ROUTE & DOSAGE

---

<b>AEMT:</b>		
<b>EMT-I:</b>	Catheter Flush:	2-5mL IV or IO
<b>Paramedic:</b>	Medication Flush:	10-20mL IV or IO
	Volume Expansion (repeat to desired effect):	
	<i>ADULT:</i>	500-1000mL IV or IO
	<i>PEDIATRIC:</i>	10-20mL/kg IV, IO or UV (in neonates)

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(CONTINUED)

## **CRYSTALLOID PEDIATRIC DOSAGE CHART**

<b>AGE (ESTIMATED WEIGHT)</b>	<b>10 mL/kg bolus</b>	<b>20 mL/kg bolus</b>	<b>Maintenance Infusion Rate</b>
<b>Neonate (5 kg)</b>	50 mL	100 mL	20 mL/hr
<b>1 year (10 kg)</b>	100 mL	200 mL	40 mL/hr
<b>3 year (15 kg)</b>	150 mL	300 mL	50 mL/hr
<b>5 year (20 kg)</b>	200 mL	400 mL	60 mL/hr
<b>7 year (25 kg)</b>	250 mL	500 mL	70 mL/hr
<b>9 year (30 kg)</b>	300 mL	600 mL	80 mL/hr

# CYANOKIT – HYDROXOCOBALAMIN

## TRADE NAME

Cyanokit

## ACTION

Hydroxocobalamin binds cyanide ion to create cyanocobalamin which is then excreted in the urine

## INDICATIONS

- Known or highly suspected significant cyanide ingestion or poisoning with cardiac arrest, coma or persistent hypotension

## CONTRAINDICATIONS

- ☠ Known significant allergy to Hydroxocobalamin or Cyanocobalamin

## SIDE EFFECTS & PRECAUTIONS

- Any other medications must be administered through a separate IV or IO
- Hydroxocobalamin causes the patient's skin and urine to turn red
- Hydroxocobalamin may raise the patient's blood pressure
- Allergic (anaphylaxis) may occur
- Notify the receiving hospital that the patient has been administered hydroxocobalamin

## ROUTE & DOSAGE

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### PROTECT YOURSELF AND OTHERS FIRST

---

**Paramedic:** Any patient receiving Cyanokit (hydroxocobalamin) needs two IV or IO lines – one for hydroxocobalamin and one for any other medications or fluids.

5 g diluted with 200mL normal saline administered at 70 mg/kg (maximum 5 g) IV or IO over 15 minutes. Contact online medical control (OLMC) before repeating the dose.

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(CONTINUED)

<b>CYANOKIT PEDIATRIC DOSE (25 mg/mL)</b>	
<b>AGE (ESTIMATED WEIGHT)</b>	<b>70 mg/kg</b>
<b>1 year (10 kg)</b>	28 mL (700 mg)
<b>3 year (15 kg)</b>	42 mL (1,050 mg)
<b>5 year (20 kg)</b>	56 mL (1,400 mg)
<b>7 year (25 kg)</b>	70 mL (1,750 mg)
<b>9 year (30 kg)</b>	84 mL (2,100 mg)



# DILTIAZEM (OPTIONAL)

## TRADE NAME

Cardizem

## ACTION

Calcium channel blocker which decreases intranodal AV conduction and decreases smooth muscle tone causing arterial dilatation.

## INDICATIONS

- Conversion of PSVT unresponsive to adenosine
- Slowing of atrial fibrillation/atrial flutter with rapid ventricular response

## CONTRAINDICATIONS

- ☠ Known sensitivity to diltiazem
- ☠ Narrow complex tachycardia with severe signs or symptoms – use cardioversion
- ☠ Wolff-Parkinson-White syndrome with narrow complex tachycardia
- ☠ Known history of congestive heart failure

## SIDE EFFECTS & PRECAUTIONS

- Likely to cause hypotension
- May precipitate cardiac dysrhythmias
- May worsen congestive heart failure
- Use caution if BP < 100 systolic and consider sepsis or other cause of atrial fibrillation

## ROUTE & DOSAGE

---

**Paramedic:**                      *ADULT:* 15 mg IV or IO slowly over 2 minutes. If ineffective in 10-15 minutes, may repeat at 20 mg.

---



# DIPHENHYDRAMINE

## TRADE NAME

Benadryl

## ACTION

Blocks histamine release. anticholinergic agent.

## INDICATIONS

- Mild to moderate anaphylactic or allergic reactions
- Dystonic reactions
- Motion sickness
- Nausea and vomiting - often effective if given with droperidol for nausea and vomiting refractory to ondansetron

## CONTRAINDICATIONS

- ☠ Known sensitivity to diphenhydramine

## SIDE EFFECTS & PRECAUTIONS

- Usually sedating but may occasionally cause hyper-excitability, most often in children
- Anticholinergic and antiparkinsonian effect

## ROUTE & DOSAGE

---

<b>EMT:</b>	<i>Patient &gt; 12:</i> 50 mg orally
<b>A-EMT:</b>	

---

<b>EMT-I:</b>	<i>Patient &gt; 12:</i> 25-50 mg IV, IM, IO, or orally
<b>Paramedic:</b>	<i>Patient &lt; 12:</i> 1-2 mg/kg IV, IM, IO, or orally

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(CONTINUED)

<b>DIPHENHYDRAMINE PEDIATRIC DOSE (50 mg/mL)</b>	
<b>AGE (ESTIMATED WEIGHT)</b>	<b>1-2 mg/kg</b>
<b>1 year (10 kg)</b>	0.2-0.4 mL ( <i>10-20 mg</i> )
<b>3 year (15 kg)</b>	0.3-0.6 mL ( <i>15-30 mg</i> )
<b>5 year (20 kg)</b>	0.4-0.8 mL ( <i>20-40 mg</i> )
<b>7 year (25 kg)</b>	0.5-1 mL ( <i>25-50 mg</i> )
<b>9 year (30 kg)</b>	0.5-1 mL ( <i>25-50 mg</i> )

# DROPERIDOL (OPTIONAL)

## TRADE NAME

Inapsine

## ACTION

Droperidol is a dopamine antagonist and first-generation antipsychotic with anti-emetic properties

## INDICATIONS

- Treatment of acute agitation
- Acute encephalopathy in the elderly
- Nausea and vomiting refractory to ondansetron (may administer with diphenhydramine)

## CONTRAINDICATIONS

- ⊗ Known sensitivity to droperidol or haloperidol
- ⊗ Observed or suspected seizure
- ⊗ Hyperthermic or suspected sympathomimetic overdose (use midazolam)
- ⊗ Age < 14

## SIDE EFFECTS & PRECAUTIONS

- Hypotension
- Acute dystonic reactions - best treated with diphenhydramine
- Must be administered with cardiac monitoring in place before or immediately after administration due to risk of arrhythmia (torsades des pointes)

## ROUTE & DOSAGE

---

<b>Paramedic:</b>	<b>Acute encephalopathy in the elderly:</b> 1.25 mg IV, IO, or IM
	<b>Nausea/vomiting:</b> 2.5 mg IV, IO or IM
	<b>Agitation:</b> 5 mg IV, IO, or IM

---

# EPINEPHRINE

## TRADE NAME

Adrenalin

## ACTION

Naturally occurring catecholamine with both alpha and beta adrenergic effects: increases heart rate, myocardial contractility, myocardial oxygen consumption, systemic vascular resistance and causes arterial vasoconstriction and bronchodilation.

## INDICATIONS

- Anaphylaxis
- Asthma
- Bradycardia (severe symptomatic)
- Croup
- Cardiac arrest: ventricular fibrillation, pulseless ventricular tachycardia, asystole, PEA
- Shock (post-arrest, cardiogenic, distributive, septic) not due to trauma

## CONTRAINDICATIONS

- ☠ Known sensitivity to epinephrine

## SIDE EFFECTS & PRECAUTIONS

- Commonly causes anxiety, tremor, palpitation
- Increases blood pressure
- May cause angina or myocardial infarction
- Use cautiously in patients over 50 years of age or with a history of coronary artery disease
- May be inactivated if mixed with alkaline solutions, such as bicarbonate
- Endotracheal administration should be performed only if no other viable IV or IO option is available

**\*\*\*FIND CORRECT DOSING BY INDICATION BELOW\*\*\***

**(CONTINUED)**

## ANAPHYLAXIS

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**EMR:**                   **Route:** Auto-Injector (IM)  
**Concentration:** Auto-Injector  
**Dose:** 0.3 mg if weight > 66 pounds  
          0.15 mg if weight 13-66 pounds  
**Frequency:** May repeat in 3-5 minutes

---

**EMT:**                   **Route:** IM  
**Concentration:** 1 mg/mL (1:1000)  
**Dose:** Adult – 0.3-0.5 mg (0.3-0.5 mL)  
          Pediatric – 0.01 mg/kg (0.01 mL/kg - see chart)  
**Frequency:** May repeat in 3-5 minutes

---

**AEMT:**               **Route:** IV/IO  
**Concentration:** 0.1 mg/mL (1:10,000)  
**Dose:** Adult – 0.1 mg (1 mL)  
          Pediatric – 0.01 mg/kg (0.1 mL/kg - see chart)  
**Frequency:** May repeat in 3-5 minutes

---

**EMT-I:**               **Route:** Nebulized  
**Concentration:** 1 mg/mL (1:1000)  
**Dose:** 1 mg (1 mL) in 2 mL saline  
**Frequency:** May repeat every 5 minutes up to three doses

---

**Paramedic:**       **Push-dose epinephrine (see below)**

**OR**

**Route:** IV/IO infusion  
**Concentration:** 4 mcg/mL

- Mix 1 mg epinephrine (1 mL 1:1000 or 10 mL 1:10,000) in 250 mL D10
- 1 mcg = 15 drops using 60 drops/mL microdrip tubing

**Dose:** Adult – 4-10 mcg/min (60-150 drops/min)  
          Pediatric – 0.1-1 mcg/kg/min (see chart)

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(CONTINUED)





## BRADYCARDIA

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**Paramedic:**           **Push-dose epinephrine (see below)**

**OR**

**Route:** IV/IO infusion

**Concentration:** 4 mcg/mL

- Mix 1 mg epinephrine (1 mL 1:1000 or 10 mL 1:10,000) in 250 mL D10
- 1 mcg = 15 drops using 60 drops/mL microdrip tubing

**Dose:** Adult – 4-10 mcg/min (60-150 drops/min)

Pediatric – 0.1-1 mcg/kg/min (see chart)

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## CARDIAC ARREST

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**EMT-I:**               **Route:** IV/IO

**Concentration:** 0.1 mg/mL (1:10,000)

**Dose:** Adult – 1 mg (10 mL)

Pediatric – 0.01 mg/kg (see chart)

Neonatal – 0.02 mg/kg (see chart) – flush with 3 mL NS

**Frequency:** May repeat every 3-5 minutes

---

**Paramedic:**           **Route:** Endotracheal tube (adult and pediatric)

**Concentration:** 1 mg/mL (1:1000)

**Dose:** Adult – 2 mg (2 mL) – flush with 5 mL NS

Pediatric – 0.1 mg/kg (see chart) – flush with 5 mL NS

**Frequency:** May repeat every 3-5 minutes

**OR**

**Route:** UV (neonatal)

**Concentration:** 0.1 mg/mL (1:10,000)

**Dose:** 0.02 mg/kg (see chart)

**Frequency:** May repeat every 3-5 minutes

**OR**

**Route:** Endotracheal tube (neonatal)

**Concentration:** 0.1 mg/mL (1:10,000)

**Dose:** 0.1 mg/kg (see chart) – flush with 3 mL NS

**Frequency:** May repeat every 3-5 minutes

---

## CROUP

---

**EMT-I:** **Route:** Nebulized  
**Paramedic:** **Concentration:** 1 mg/mL (1:1000)  
**Dose:** 1 mg (1 mL) in 2 mL saline  
**Frequency:** May repeat every 5 minutes up to three doses

---

## PUSH-DOSE EPINEPHRINE – ANAPHYLAXIS, ASTHMA, BRADYCARDIA, SHOCK

---

**Paramedic:** **Route:** IV/IO  
**Concentration:** 10 mcg/mL

- Mix 0.1 mg (100 mcg) epinephrine (1 mL 1:10,000) with 9 mL normal saline and shake well **OR**
- Mix 1 mg (1000 mcg) epinephrine (1 mL 1:1000 or 10 mL 1:10,000) in 100 mL normal saline bag, shake well, and draw up 10 mL

**Dose:** Under 1 year: 5 mcg (0.5 mL)  
Over 1 year: 10 mcg (1 mL)  
**Frequency:** Up to every minute as needed

---

## SHOCK (NON-TRAUMATIC)

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**Paramedic:** **Push-dose epinephrine (see above)**

**OR**

**Route:** IV/IO infusion  
**Concentration:** 4 mcg/mL

- Mix 1 mg epinephrine (1 mL 1:1000 or 10 mL 1:10,000) in 250 mL D10
- 1 mcg = 15 drops using 60 drops/mL microdrip tubing

**Dose:** Adult – 4-10 mcg/min (60-150 drops/min)  
Pediatric – 0.1-1 mcg/kg/min (see chart)

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(CONTINUED)

<b>PEDIATRIC EPINEPHRINE DOSE CHART</b>			
<b>AGE (ESTIMATED WEIGHT)</b>	<b>CARDIAC ARREST Dose: 0.01 mg/kg IV/IO Concentration: 0.1 mg/mL (1:10,000)</b>	<b>ANAPHYLAXIS Dose: 0.01 mg/kg IM Concentration: 1 mg/mL (1:1000)</b>	<b>CARDIAC ARREST - ETT Dose: 0.1 mg/kg ETT Concentration: 1 mg/mL (1:1000)</b>
<b>1 year (10 kg)</b>	1 mL (0.1 mg)	0.1 mL (0.1 mg)	1 mL (1 mg)
<b>3 year (15 kg)</b>	1.5 mL (0.15 mg)	0.15 mL (0.15 mg)	1.5 mL (1.5 mg)
<b>5 year (20 kg)</b>	2 mL (0.2 mg)	0.2 mL (0.2 mg)	2 mL (2 mg)
<b>7 year (25 kg)</b>	2.5 mL (0.25 mg)	0.25 mL (0.25 mg)	2 mL (2 mg)
<b>9 year (30 kg)</b>	3 mL (0.3 mg)	0.3 mL (0.3 mg)	2 mL (2 mg)

<b>NEONATAL EPINEPHRINE DOSE CHART</b>		
<b>AGE (ESTIMATED WEIGHT)</b>	<b>CARDIAC ARREST - IV/IO/UV Dose: 0.02 mg/kg Concentration: 0.1 mg/mL (1:10,000)</b>	<b>CARDIAC ARREST - ETT Dose 0.1 mg/kg Concentration: 0.1 mg/mL (1:10,000)</b>
<b>2 kg (&lt; 34 weeks)</b>	0.4 mL (0.04 mg)	2 mL (0.2 mg)
<b>3 kg (34-38 weeks)</b>	0.6 mL (0.06 mg)	3 mL (0.3 mg)
<b>4 kg (39+ weeks)</b>	0.8 mL (0.08 mg)	4 mL (0.4 mg)

**PEDIATRIC INFUSION RATE DROPS PER MINUTE (60 drops/mL tubing)**

<b>Age (Weight)</b>	<b>0.1 mcg/kg/min</b>	<b>0.5 mcg/kg/min</b>	<b>1 mcg/kg/min</b>
<b>Neonate (5 kg)</b>	8	38	75
<b>1 year (10 kg)</b>	15	75	150
<b>3 years (15 kg)</b>	23	113	150
<b>5 years (20 kg)</b>	30	150	150
<b>7 years (25 kg)</b>	38	150	150
<b>9 years (30 kg)</b>	45	150	150



# ETOMIDATE (OPTIONAL)

## TRADE NAME

Amidate

## ACTION

A short acting sedative hypnotic agent

## INDICATIONS

- Sedation for rapid sequence intubation

## CONTRAINDICATIONS

- ☠ Known sensitivity to etomidate

## SIDE EFFECTS & PRECAUTIONS

- Administer in a large bore, free flowing IV or IO
- Respiratory depression, hypotension and cardiopulmonary arrest are more likely in the elderly, those with COPD, renal, heart or liver disease
- Use with caution in the presence of alcohol, barbiturates, narcotics or benzodiazepines
- Skeletal muscle jerking or movements occur commonly
- Duration is 4-10 minutes

## ROUTE & DOSAGE

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**Paramedic:** 0.3 mg/kg IV or IO push.  
Typical adult dose is 30 mg.  
0.15-0.2mg/kg IV or IO if elderly, debilitated or hypotensive

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(CONTINUED)

<b>ETOMIDATE PEDIATRIC DOSE (2 mg/mL)</b>	
<b>AGE (ESTIMATED WEIGHT)</b>	<b>0.3 mg/kg</b>
<b>1 year (10 kg)</b>	1.5 mL (3 mg)
<b>3 year (15 kg)</b>	2.25 mL (4.5 mg)
<b>5 year (20 kg)</b>	3 mL (6 mg)
<b>7 year (25 kg)</b>	3.75 mL (7.5 mg)
<b>9 year (30 kg)</b>	4.5 mL (9 mg)

# FENTANYL (OPTIONAL)

## TRADE NAME

Sublimaze

## ACTION

Potent opioid analgesic

## INDICATIONS

- Significant pain
- Respiratory distress (air hunger) in adults

## CONTRAINDICATIONS

- ☠ Known sensitivity to fentanyl

## SIDE EFFECTS & PRECAUTIONS

- Rapid injection can cause respiratory arrest or chest wall rigidity
- Central nervous system depressant, which can cause respiratory depression, peripheral vasodilation, decreased cardiac output and pupillary constriction
- If morphine given previously, wait at least 10 minutes before giving fentanyl
- If initial dose ineffective after 5 minutes, consider increasing dose by 50%
- Use caution if systolic BP < 90mmHg
- Use with caution (smaller or less frequent doses) in the elderly
- Naloxone (Narcan) will reverse the effects of fentanyl on respiration

## ROUTE & DOSAGE

---

### EMT-I:

### PAIN:

- 0.5-1 mcg/kg (maximum dose 100 mcg initial dose, 150 mcg repeat dose, 200 mcg if intubated) IV or IO over 30-60 seconds  
OR
- 1-2 mcg/kg IN/IM (IN preferred if volume allows)
- Repeat every 3-5 minutes as needed for severe pain.
- Maximum total dose the lesser of 4 mcg/kg or 500 mcg

---

### Paramedic:

### AIR HUNGER:

- **Adult only:** 10-25 mcg IV/IO
- 

(CONTINUED)

<b>FENTANYL PEDIATRIC DOSE CHART (50 mcg/mL)</b>			
<b>AGE (ESTIMATED WEIGHT)</b>	<b>0.5 mcg/kg</b>	<b>1 mcg/kg</b>	<b>2 mcg/kg (IN only)</b>
<b>Neonate (5 kg)</b>	0.05 mL (2.5 mcg)	0.1 mL (5 mcg)	0.2 mL (10 mcg)
<b>1 year (10 kg)</b>	0.1 mL (5 mcg)	0.2 mL (10 mcg)	0.4 mL (20 mcg)
<b>3 year (15 kg)</b>	0.15 mL (7.5 mcg)	0.3 mL (15 mcg)	0.6 mL (30 mcg)
<b>5 year (20 kg)</b>	0.2 mL (10 mcg)	0.4 mL (20 mcg)	0.8 mL (40 mcg)
<b>7 year (25 kg)</b>	0.25 mL (12.5 mcg)	0.5 mL (25 mcg)	1 mL (50 mcg)
<b>9 year (30 kg)</b>	0.3 mL (15 mcg)	0.6 mL (30 mcg)	1.2 mL (60 mcg)



# GLUCOSE – DEXTROSE

## TRADE NAME

D10, Glucose

## ACTION

Dextrose is d-glucose, a six carbon sugar, the body's basic energy source

## INDICATIONS

Symptomatic hypoglycemia, blood sugar less than:

<b>ADULT</b>	<b>CHILD (1 year to Puberty)</b>	<b>INFANT (Birth to 1 year)</b>
80mg/dL	60mg/dL	40mg/dL

## CONTRAINDICATIONS

None

## SIDE EFFECTS & PRECAUTIONS

- Avoid hyperglycemia if patient has had a CVA or stroke
- Administer glucose through a free flowing IV as glucose is an irritant and infiltration can cause tissue damage
- D10 may be given orally instead of glucose
- D10 (10% glucose) has 5g glucose per 50mL

## ROUTE & DOSAGE

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<b>EMR:</b>	<b>ADULT:</b>	15-25 g glucose orally if patient can protect airway
<b>EMT:</b>	<b>PEDIATRIC:</b>	0.5 g/kg glucose orally if patient can protect airway

---

<b>AEMT:</b>	<b>ADULT:</b>	D10 Dose – 1 mL/kg (0.1 g/kg) IV or IO
<b>EMT-I:</b>	<b>PEDIATRIC:</b>	D10 Dose – 2.5 mL/kg (0.25 g/kg) IV or IO

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<b>Paramedic:</b>	<b>Neonate:</b>	D10 Dose – 2.5 mL/kg (0.25 g/kg) UV
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- **Maximum single dose of 25g glucose (= 250mL D10)**
- **Typical adult dose of D10 is 70-100mL (7-10g glucose)**
- **Recheck CBG before administering additional glucose**
- **May repeat every 3-5 minutes as needed for persistent hypoglycemia**

(CONTINUED)

## **DEXTROSE 10% PEDIATRIC DOSAGE CHART**

<b>AGE (ESTIMATED WEIGHT)</b>	<b>2.5 mL/kg</b>
<b>Neonate (5 kg)</b>	12.5 mL
<b>1 year (10 kg)</b>	25 mL
<b>3 year (15 kg)</b>	37.5 mL
<b>5 year (20 kg)</b>	50 mL
<b>7 year (25 kg)</b>	62.5 mL
<b>9 year (30 kg)</b>	75 mL

# IPRATROPIUM BROMIDE

## TRADE NAME

Atrovent

## ACTION

Atrovent is an anticholinergic (parasympatholytic) bronchodilator

## INDICATIONS

- COPD bronchospasm or asthma

## CONTRAINDICATIONS

- ⚠ Known sensitivity to Ipratropium Bromide or Atropine

## SIDE EFFECTS & PRECAUTIONS

- Use with caution in patients with narrow angle glaucoma, prostate hypertrophy or bladder neck obstruction

## ROUTE & DOSAGE

---

<b>EMT:</b>	2.5 mL (0.5 mg) via nebulizer
<b>AEMT:</b>	Usually mixed with albuterol ( <b>EMT</b> must mix with albuterol)
<b>EMT-I:</b>	May repeat once in 10–15 minutes
<b>Paramedic:</b>	

---

# **KETAMINE (OPTIONAL)**

## **TRADE NAME**

Ketalar

## **ACTION**

Rapid-acting dissociative anesthetic agent and analgesic with minimal depression on respiration or blood pressure. May cause some hypertension and tachycardia. IV onset in 2-5 minutes; effects last 15-20 minutes.

## **INDICATIONS**

### **SEDATION DOSE:**

- Severe agitation unlikely to respond to alternate sedatives
- Sedation for rapid sequence intubation (RSI)
- Sedation in the high-acuity or burn or trauma patient with severe pain AND requiring prolonged extrication or transport
- Sedation in severely agitated trauma or respiratory patient
- Post-intubation management

### **PAIN DOSE:**

- Severe pain from trauma or burns as an adjunct to opioids OR alone if hypotensive
- Severe atraumatic pain in a patient using chronic opioids
- Severe pain in opioid-allergic patient
- Severe pain unresponsive to opioids

## **CONTRAINDICATIONS**

- ☠ Known sensitivity to ketamine
- ☠ Stroke or acute myocardial infarction in process
- ☠ Tachyarrhythmia (other than sinus tachycardia) during current encounter
- ☠ Severe hypertension (>180 systolic) or hyperthermia (>104F or 40C)
- ☠ Infants less than 3 months of age

*If unable to assess vital signs reliably due to extreme agitation, it is permissible to administer a single dose and then assess.*

## **SIDE EFFECTS & PRECAUTIONS**

- May cause laryngospasm, which may often be controlled with BVM ventilation and time
- May require advanced airway management
- May cause hypersalivation, which can usually be controlled with suction
- Patient may exhibit “emergence reaction” as medication wears off manifested as “nightmares” and “frightening dreams”; can usually be controlled with calming, and may require benzodiazepine administration
- May cause nausea and vomiting; consider premedication with ondansetron
- Use with great caution in elderly patients

**(CONTINUED)**

## **ROUTE & DOSAGE**

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**Paramedic:**                    **Sedation for RSI, acute agitation, post-intubation management, and trauma indications:**

- 2 mg/kg IV/IO (maximum 300 mg) over 1 minute  
OR
- 4 mg/kg IM (maximum 500 mg)
- Repeat 1 mg/kg IV or 2 mg/kg IM every 10-15 minutes as needed to maintain sedation

**Pain management:**

- **Adult:**  
10-15 mg IV/IO over 1 minute (approximately 0.15 mg/kg)  
OR  
0.5 mg/kg IM
- **Pediatric:**  
0.15 mg/kg IV/IO (maximum 10 mg) over 1 minute  
OR  
0.5 mg/kg IM (maximum 20 mg)
- Repeat every 5-10 minutes as needed

---

**(CONTINUED)**

**KNOW YOUR CONCENTRATION OF KETAMINE.** Use the Ketamine Dilution Chart to make a 5mg/mL solution for IV dosing for pain. Agencies carrying 100mg/mL vials may also wish to dilute to 50 mg/mL for pediatric IM/IN dosing for pain.

KETAMINE PEDIATRIC DOSE (5 mg/mL solution)					
AGE (ESTIMATED WEIGHT)	~0.15 mg/kg	0.5 mg/kg (IM/IN for pain only)	1 mg/kg	2 mg/kg	4 mg/kg (IM only)
1 year (10 kg)	0.3 mL (1.5 mg)	*	2 mL (10 mg)	4 mL (20 mg)	*
3 year (15 kg)	0.4 mL (2 mg)	*	3 mL (15 mg)	6 mL (30 mg)	*
5 year (20 kg)	0.6 mL (3 mg)	*	4 mL (20 mg)	8 mL (40 mg)	*
7 year (25 kg)	0.7 mL (3.5 mg)	*	5 mL (25 mg)	10 mL (50 mg)	*
9 year (30 kg)	0.9 mL (4.5 mg)	*	6 mL (30 mg)	12 mL (60 mg)	*

KETAMINE PEDIATRIC DOSE (50 mg/mL vial)					
AGE (ESTIMATED WEIGHT)	~0.15 mg/kg	0.5 mg/kg (IM/IN for pain only)	1 mg/kg	2 mg/kg	4 mg/kg (IM only)
1 year (10 kg)	*	0.1 mL (5 mg)	0.2 mL (10 mg)	0.4 mL (20 mg)	0.8 mL (40 mg)
3 year (15 kg)	*	0.15 mL (7.5 mg)	0.3 mL (15 mg)	0.6 mL (30 mg)	1.2 mL (60 mg)**
5 year (20 kg)	*	0.2 mL (10 mg)	0.4 mL (20 mg)	0.8 mL (40 mg)	1.6 mL (80 mg)**
7 year (25 kg)	*	0.25 mL (12.5 mg)	0.5 mL (25 mg)	1 mL (50 mg)	2 mL (100 mg)**
9 year (30 kg)	*	0.3 mL (15 mg)	0.6 mL (30 mg)	1.2 mL (60 mg)**	2.4 mL (120 mg)**

KETAMINE PEDIATRIC DOSE (100 mg/mL vial)					
AGE (ESTIMATED WEIGHT)	~0.15 mg/kg	0.5 mg/kg (IM/IN for pain only)	1 mg/kg	2 mg/kg	4 mg/kg (IM only)
1 year (10 kg)	*	*	0.1 mL (10 mg)	0.2 mL (20 mg)	0.4 mL (40 mg)
3 year (15 kg)	*	*	0.15 mL (15 mg)	0.3 mL (30 mg)	0.6 mL (60 mg)
5 year (20 kg)	*	0.1 mL (10 mg)	0.2 mL (20 mg)	0.4 mL (40 mg)	0.8 mL (80 mg)
7 year (25 kg)	*	0.12 mL (12 mg)	0.25 mL (25 mg)	0.5 mL (50 mg)	1 mL (100 mg)
9 year (30 kg)	*	0.15 mL (15 mg)	0.3 mL (30 mg)	0.6 mL (60 mg)	1.2 mL (120 mg)**

KETAMINE DILUTION CHART			
INITIAL CONCENTRATION	TARGET CONCENTRATION	KETAMINE	SALINE
50 mg/mL	5 mg/mL	1 mL (50 mg)	9 mL flush
100 mg/mL	5 mg/mL	0.5 mL (50 mg)	9.5 mL flush
100 mg/mL	50 mg/mL	5 mL (500 mg)	5 mL flush

\* Not recommended with this concentration. Dilute or use higher concentration as appropriate.

\*\* Maximum volume for IM injection is 0.5-2 mL per site depending on age and injection site.

# KETOROLAC (OPTIONAL)

## TRADE NAME

Toradol

## ACTION

Non-steroidal anti-inflammatory with analgesic, anti-inflammatory, and anti-pyretic effects. Onset 30 minutes, peak effect 2 hours.

## INDICATIONS

- Moderate to severe non-traumatic headache, back, flank, or musculoskeletal pain

## CONTRAINDICATIONS

- ☠ Known sensitivity to ketorolac, aspirin, or other NSAIDs
- ☠ Age > 65 or < 16
- ☠ Pregnancy or active labor
- ☠ Known clotting disorder
- ☠ Active bleeding or ulcer
- ☠ Suspected intracranial hemorrhage
- ☠ Known history of renal failure or kidney transplant

## SIDE EFFECTS & PRECAUTIONS

- Nausea or vomiting
- Gastrointestinal bleeding, ulceration, and perforation
- Increased risk of acute MI or stroke
- Risk of renal and hepatic compromise

## ROUTE & DOSAGE

---

<b>EMT-I:</b>	<b>ADULT:</b>	15mg IV or 30mg IM
<b>Paramedic:</b>		

---





# LIDOCAINE

## TRADE NAME

Xylocaine

## ACTION

Local anesthetic  
Class I anti-arrhythmic

## INDICATIONS

- Ventricular fibrillation
- Ventricular tachycardia with or without a pulse
- IO infusion in conscious patients

## CONTRAINDICATIONS

- ☠ Known sensitivity to lidocaine

## SIDE EFFECTS & PRECAUTIONS

- Toxicity can produce altered mental status, myocardial depression, and seizures

## ROUTE & DOSAGE

---

### **AEMT:**

### **IO infusion in conscious patients:**

- Cardiac lidocaine 2% 0.5 mg/kg (maximum 40 mg) IO over 2 minutes
- May repeat 0.25 mg/kg (maximum 20mg) every 2- 10 minutes as needed to total maximum dose of 3 mg/kg

---

### **EMT-I:**

### **Paramedic:**

### **Ventricular fibrillation or wide-complex tachycardia:**

- 1-1.5mg/kg IV or IO
- OR**
- 2-3 mg/kg ETT flushed with 5 mL normal saline
- May repeat at 0.75 mg/kg IV/IO every 5-10 minutes

**Total maximum dose of 3mg/kg**

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(CONTINUED)

<b>LIDOCAINE PEDIATRIC DOSE (20 mg/mL)</b>		
<b>AGE (ESTIMATED WEIGHT)</b>	<b>1 mg/kg</b>	<b>2 mg/kg (ETT only)</b>
<b>1 year (10 kg)</b>	0.5 mL (10 mg)	1 mL (20 mg)
<b>3 year (15 kg)</b>	0.75 mL (15 mg)	1.5 mL (30 mg)
<b>5 year (20 kg)</b>	1 mL (20 mg)	2 mL (40 mg)
<b>7 year (25 kg)</b>	1.25 mL (25 mg)	2.5 mL (50 mg)
<b>9 year (30 kg)</b>	1.5 mL (30 mg)	3 mL (60 mg)

# LORAZEPAM (OPTIONAL)

## TRADE NAME

Ativan

## ACTION

Benzodiazepine with anticonvulsant, skeletal muscle relaxant, anxiolytic, amnesic and sedative effects

## INDICATIONS

- Severe anxiety
- Muscle spasms causing severe pain not responding to positioning or pain management
- Dystonic reaction
- Status seizures, eclampsia, focal seizures that cause severe discomfort or airway compromise IF midazolam (preferred agent) contraindicated

## CONTRAINDICATIONS

- ☠ Known sensitivity to lorazepam
- ☠ **May not be given within 10 minutes of fentanyl, morphine, or midazolam**

## SIDE EFFECTS & PRECAUTIONS

- Respiratory depression. Hypotension. Sedation. Paradoxical excitement or agitation may occur. Use with caution in the presence of other sedating agents:
  - **Alcohol, barbiturates, benzodiazepines or opiates.**
- May cause fetal damage, only used during pregnancy in serious or life-threatening conditions (status seizures, eclampsia) when safer drugs are not available or are ineffective
- May be out of refrigeration for 30-90 days (per manufacturer) – date and time container
- Use caution in elderly

## ROUTE & DOSAGE

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### Paramedic:

### Anxiolysis or dystonic reaction:

- Adult: 0.5-1 mg IV/IO/IN/IM/buccal
- No repeat dose (contact OLMC for higher or repeat doses)

### Status seizures (if midazolam contraindicated):

- Adult and children > 20 kg: 2 mg IV/IO/IN/IM/buccal
- Children < 20 kg: 0.1 mg/kg
- May repeat once if seizures persist after 5 minutes

---

(CONTINUED)

<b>LORAZEPAM PEDIATRIC DOSE (2 mg/mL)</b>	
<b>AGE (ESTIMATED WEIGHT)</b>	<b>0.1 mg/kg</b>
<b>1 year (10 kg)</b>	0.5 mL (1 mg)
<b>3 year (15 kg)</b>	0.75 mL (1.5 mg)
<b>5 year (20 kg)</b>	1 mL (2 mg)
<b>7 year (25 kg)</b>	1 mL (2 mg)
<b>9 year (30 kg)</b>	1 mL (2 mg)

# MAGNESIUM SULFATE (OPTIONAL)

## TRADE NAME

Magnesium Sulfate

## ACTION

Antiarrhythmic, anticonvulsant, bronchial smooth muscle relaxant, central nervous system depressant.

## INDICATIONS

- Torsades de Pointes; refractory ventricular fibrillation or tachycardia
- Eclampsia
- Pre-eclampsia after on-line medical control
- Asthma

## CONTRAINDICATIONS

None

## SIDE EFFECTS & PRECAUTIONS

- Toxicity may produce decreased level of consciousness, decreased reflexes, hypotension or respiratory depression
- Rapid administration may result in flushing, sweating, mild bradycardia or hypotension
- Maximum concentration of 20%

## ROUTE & DOSAGE

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<b>Paramedic:</b>	<b>Torsades des Pointes or refractory V. fib/pulseless V. tach:</b> Use 20% solution: 2g (4mL) 50% magnesium sulfate + 6mL normal saline <ul style="list-style-type: none"><li>• <b>Adult:</b> 2g (10mL) 20% solution IV or IO push</li><li>• <b>Pediatric:</b> 50 mg/kg of 20% solution IV or IO push (see chart)</li></ul>
	<b>Asthma:</b> <ul style="list-style-type: none"><li>• <b>Adult:</b> 2g (4 mL 50% magnesium sulfate) in 100 mL NS IV or IO over 15 minutes</li><li>• <b>Pediatric:</b> 50 mg/kg of 20% solution IV or IO push (see chart)</li></ul>
	<b>Eclampsia:</b> 6g (12mL 50% Magnesium Sulfate) in 100mL NS IV or IO over 15 minutes

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(CONTINUED)

MAGNESIUM PEDIATRIC DOSE	
AGE (ESTIMATED WEIGHT)	TORSADES DES POINTES 50 mg/kg (20% solution) *
1 year (10 kg)	2.5 mL (500 mg)
3 year (15 kg)	3.75 mL (750 mg)
5 year (20 kg)	5 mL (1 g)
7 year (25 kg)	6.25 mL (1.25 g)
9 year (30 kg)	7.5 mL (1.5 g)

\*For 20% solution, mix 2g (4mL) 50% Magnesium Sulfate + 6mL normal saline = 2g/10mL

# MARK 1 AUTOINJECTOR (ATROPINE & PRALIDOXIME CHLORIDE)

## TRADE NAME

Mark-1 Kit

## ACTION

### **ATROPINE**

Parasympatholytic agent with the following effects: increases heart rate, increases conduction through A-V node, reduces motility and tone of GI tract, reduces tone of the urinary bladder, dilates pupils, dilates bronchi.

### **PRALIDOXIME (2-PAM) CHLORIDE**

Reactivates cellular acetylcholinesterase molecules preventing organophosphate cholinesterase poisoning if given soon enough (before "aging" occurs).

## INDICATIONS

- Antidote for organophosphate nerve gas exposure or poisoning

## CONTRAINDICATIONS

- ⚠ Known sensitivity to Atropine or Pralidoxime

## SIDE EFFECTS & PRECAUTIONS

- Chempacks contain Mark 1 autoinjector supply in the event of a large poisoning
- Contact Mercy Flights or Josephine County AMR supervisor to access
- Organophosphate nerve gases - VX, GF, GD (Soman), GB (Sarin), GA (Tabun) - are very rapidly toxic and lethal. Protect yourself and others from exposure

## HOW SUPPLIED

Atropine 2mg/0.7mL autoinjectors and pralidoxime 600mg/2mL autoinjectors

## ROUTE & DOSAGE

---

<b>EMT:</b>	1-3 atropine autoinjectors IM into the lateral thigh or upper outer
<b>AEMT:</b>	buttocks followed by the same number of pralidoxime autoinjectors IM
<b>EMT-I:</b>	in a similar location.

<b>Paramedic:</b>	Provide immediate advanced life support care.
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# METHYLPREDNISOLONE (OPTIONAL)

## TRADE NAME

Solu-Medrol

## ACTION

Synthetic anti-inflammatory steroid that suppresses acute and chronic inflammation

## INDICATIONS

- Asthma
- COPD exacerbation
- Patients with anaphylaxis who have been treated with epinephrine
- Severe illness or trauma in a patient known to have steroid-dependent adrenal insufficiency if patient's own rescue medication is unavailable

## CONTRAINDICATIONS

- ☠ Known sensitivity to methylprednisolone

## SIDE EFFECTS & PRECAUTIONS

- May cause headache, hypertension, sodium and water retention, hypokalemia, and alkalosis
- In diabetic patients, methylprednisolone may decrease patient's response to insulin or oral hypoglycemic agents, resulting in hyperglycemia

## ROUTE & DOSAGE

---

**Paramedic:** Thoroughly mix powder with liquid. Administer as slow push.

**Anaphylaxis, Asthma, COPD:**

- **Adult:** 125 mg IV/IO
- **Pediatric:** 1 mg/kg IV/IO

**Adrenal Insufficiency:**

- **Adult:** 125 mg IV/IO
- **Pediatric:** 2 mg/kg IV/IO

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(CONTINUED)

METHYLPREDNISOLONE		PEDIATRIC DOSE CHART (125 mg/2 mL)	
AGE (ESTIMATED WEIGHT)	1 mg/kg	2 mg/kg	
1 year (10 kg)	0.16 mL (10 mg)	0.32 mL (20 mg)	
3 year (15 kg)	0.24 mL (15 mg)	0.48 mL (30 mg)	
5 year (20 kg)	0.32 mL (20 mg)	0.64 mL (40 mg)	
7 year (25 kg)	0.4 mL (25 mg)	0.8 mL (50 mg)	
9 year (30 kg)	0.48 mL (30 mg)	0.96 mL (60 mg)	

# MIDAZOLAM (OPTIONAL)

## TRADE NAME

Versed

## ACTION

A short acting benzodiazepine, causing central nervous system depression, respiratory depression, skeletal muscle relaxation and amnesia.

## INDICATIONS

- Seizures
- Anxiety related to painful conditions or procedures
- Sedation for painful procedures (such as transcutaneous pacing or cardioversion) or acutely agitated patients
- Post-intubation management
- Respiratory distress (air hunger) in adults refractory to morphine or fentanyl

## CONTRAINDICATIONS

- ☠ Known sensitivity to midazolam

## SIDE EFFECTS & PRECAUTIONS

- Administer intravenously in a large bore, free flowing IV
- Respiratory depression, hypotension or sedation are common, particularly in the elderly, in those with chronic disease or in the presence of other sedating agents: alcohol, barbiturates, benzodiazepines or opioids. Use lower doses for these patients.
- Paradoxical excitement or agitation may occur
- Patients must have cardiac monitor, pulse oximeter, and end-tidal CO2 in place

## ROUTE & DOSAGE

---

### **Paramedic:**

### **ADULT:**

- Muscle spasm or anxiety with painful condition: 1-2 mg IV/IO over 30-60 seconds or 5 mg IN
- Sedation for painful procedure: 2-5mg IV/IO, may repeat every 5 minutes to a maximum total dose of 20mg
- Acute agitation: 2-10 mg IV/IO/IM/IN
- Seizure: 10mg IM/IN preferred, or 5 mg IV/IO if line already established at time of seizure
- Air hunger: 2 mg IV/IO

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(CONTINUED)

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**Paramedic: PEDIATRIC SEIZURES (STATUS EPILPETICUS) or SEDATION:**

- 0.2mg/kg IM, IN or buccal (maximum single dose 5mg) OR
- 0.1mg/kg IV or IO over 30-60 seconds for (maximum single dose 5mg) if line already established at time of seizure
- May repeat once for ongoing seizures or sedation for prolonged transport times

**For adults and pediatrics, dose may be repeated once for:**

- Ongoing seizures 5 minutes after first dose
  - Ongoing need for sedation with prolonged transport
- 

MIDAZOLAM PEDIATRIC DOSE 5 mg/mL		
AGE (ESTIMATED WEIGHT)	0.1 mg/kg IV/IO	0.2 mg/kg buccal/IM/IN
1 year (10 kg)	0.2 mL (1 mg)	0.4 mL
3 year (15 kg)	0.3 mL (1.5 mg)	0.6 mL
5 year (20 kg)	0.4 mL	0.8 mL
7 year (25 kg)	0.5 mL	1 mL
9 year (30 kg)	0.5 mL	1 mL

# MORPHINE (OPTIONAL)

## TRADE NAME

Morphine

## ACTION

Opioid analgesic and vasodilator

## INDICATIONS

- Significant pain
- Respiratory distress (air hunger) in adults only

## CONTRAINDICATIONS

- ☠ Known sensitivity to morphine

## SIDE EFFECTS & PRECAUTIONS

- Central nervous system depressant, which can cause respiratory depression, peripheral vasodilation, decreased cardiac output or pupillary constriction
- May cause hypotension or nausea, especially if given rapidly; always administer slowly with dilution
- Use caution if systolic BP < 90mmHg
- Use with caution (smaller or less frequent doses) in the elderly
- Naloxone (Narcan) will reverse the effects of morphine on respiration
- If initial dose ineffective after 10 minutes, consider increasing dose by 50%

## ROUTE & DOSAGE

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### **EMT-I:**

### **PAIN:**

- 0.05-0.1 mg/kg (maximum dose 10 mg initial dose, 15 mg repeat dose, 20 mg if intubated) IV or IO over 30-60 seconds  
OR
  - 0.1-0.2 mg/kg IM
  - Repeat every 10 minutes as needed for severe pain.
  - Maximum total dose 25 mg
- 

### **Paramedic:**

### **AIR HUNGER:**

- Adult only: 2-4 mg IV/IO
- 

(CONTINUED)

<b>MORPHINE PEDIATRIC DOSE CHART (10 mg/mL vial)</b>		
<b>AGE (ESTIMATED WEIGHT)</b>	<b>0.1 mg/kg</b>	<b>0.2 mg/kg (IM only)</b>
<b>Neonate (5 kg)</b>	0.05 mL (0.5 mg)	0.15 mL (1.5 mg)
<b>1 year (10 kg)</b>	0.1 mL (1 mg)	0.2 mL (2 mg)
<b>3 year (15 kg)</b>	0.15 mL (1.5 mg)	0.3 mL (3 mg)
<b>5 year (20 kg)</b>	0.2 mL (2 mg)	0.4 mL (4 mg)
<b>7 year (25 kg)</b>	0.25 mL (2.5 mg)	0.5 mL (5 mg)
<b>9 year (30 kg)</b>	0.3 mL (3 mg)	0.6 mL (6 mg)

# NALOXONE

## TRADE NAME

Narcan

## ACTION

Opioid antagonist

## INDICATIONS

- Suspected or known narcotic-induced respiratory depression due to: morphine, heroin, fentanyl, hydromorphone (Dilaudid), oxycodone (Percodan, Percocet), oxymorphone (Opana), meperidine (Demerol), methadone (Dolophine), hydrocodone (Vicodin, Norco, Lortab), codeine, tramadol (Ultram), diphenoxylate (Lomotil), loperamide (Imodium), dropoxyphene (Darvon), dentazocine (Talwin), nalbuphine (Nubain)
- Sudden-onset coma

## CONTRAINDICATIONS

- ☠ Known sensitivity to naloxone

## SIDE EFFECTS & PRECAUTIONS

- Initial airway management includes bag-mask-ventilation (BVM), high flow oxygen supplementation and minimal hyperventilation
- The opioid-dependent patient may experience frank withdrawal after administration; be prepared to restrain these patients as they may become angry or violent
- The goal is to keep the patient out of respiratory depression but not fully conscious
- Rapid administration may cause nausea
- Repeated and large doses may be needed for some of the currently-circulating street formulas of opioids
- Use high end of dose range for cardiac arrest with suspected opioid overdose

## ROUTE & DOSAGE

---

<b>EMT:</b>	<b>ADULT:</b>	1-4 mg intranasal (IN) <b>OR</b>
<b>EMR:</b>		0.4-2 mg AutoInjector
		Repeat every 1-3 minutes

---

<b>AEMT:</b>	<b>ADULT:</b>	0.4- 2 mg IV, IO, IN or IM
<b>EMT-I:</b>		
<b>Paramedic:</b>	<b>PEDIATRIC:</b>	0.1 mg/kg (max 2 mg/dose) IV, IO, IN or IM
		Repeat every 1-3 minutes

---

(CONTINUED)

NALOXONE PEDIATRIC DOSE (1 mg/mL)	
AGE (ESTIMATED WEIGHT)	0.1 mg/kg
1 year (10 kg)	1 mL (1 mg)
3 year (15 kg)	1.5 mL (1.5 mg)
5 year (20 kg)	2 mL (2 mg)
7 year (25 kg)	2 mL (2 mg)
9 year (30 kg)	2 mL (2 mg)



# **NITROGLYCERIN**

## **TRADE NAME**

Sublingual: Nitrostat, Nitrolingual Spray  
IV: Tridil, NITRO-BID IV (by physician order only for aeromedical or inter-hospital transport – must be provided by the sending hospital for inter-hospital ground transport)

## **ACTION**

Smooth muscle relaxant of both arteries and veins

## **INDICATIONS**

- Chest pain of cardiac origin
- CHF or Pulmonary edema
- Unstable angina during aeromedical or inter-hospital transport by physician order only

## **CONTRAINDICATIONS**

- ☠ Known sensitivity to Nitroglycerin
- ☠ Erectile Dysfunction (ED) medication use: sildenafil (Viagra), sildenafil (Levitra) or avanafil (Stendra) use within the preceding 24 hours or tadalafil (Cialis) use within the preceding 48 hours – applies to both men and women
- ☠ Pulmonary Hypertension medication use: riociguat (Adempas)

## **SIDE EFFECTS & PRECAUTIONS**

- May cause hypotension or reflex tachycardia; IV access desirable
- Nitroglycerin loses its potency with time
- Do not shake nitroglycerin spray prior to administration
- Warn patients of throbbing headache, flushing, dizziness and burning under the tongue
- Be prepared to manage hypotension with positioning and IV fluid bolus up to 2L

## **ROUTE & DOSAGE**

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**EMT:**

### **CARDIAC CHEST PAIN:**

- May assist in self administration of patient's own nitroglycerin for chest pain as long as systolic blood pressure is > 90mmHg
- 

**(CONTINUED)**

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**AEMT:**  
**EMT-I:**  
**Paramedic:**

**CARDIAC CHEST PAIN:**

- 0.4 mg SL if systolic blood pressure > 90mmHg
- May repeat twice at 3-5 minute intervals as long as systolic blood pressure is > 90mmHg

**CHF / PULMONARY EDEMA:**

- 0.4 mg SL
  - May repeat up to 4 times at 3-5 minute intervals as long as systolic blood pressure is > 90mmHg
-

# **NITROUS OXIDE (OPTIONAL)**

## **TRADE NAME**

Nitrox

## **ACTION**

Inhaled analgesic

## **INDICATIONS**

- Acute traumatic pain
- Contact burns without risk of smoke inhalation

## **CONTRAINDICATIONS**

- ☠ Known sensitivity to nitrous oxide
- ☠ Inability of patient to self-administer
- ☠ Prengancy in patient, medic, or close bystanders
- ☠ Head injury
- ☠ Airway burn or respiratory distress

## **SIDE EFFECTS & PRECAUTIONS**

- Causes respiratory depressions and drowsiness
- Use with caution in patients with chest trauma or lung disease
- Patients must self-administer by holding the mask over mouth and nose – EMS PROVIDER MAY NOT HOLD THE MASK FOR THE PATIENT

## **ROUTE & DOSAGE**

---

**AEMT:** Patient self-administered by inhalation  
**EMT-I:**  
**Paramedic:**

---



# **NOREPINEPHRINE (OPTIONAL)**

## **TRADE NAME**

Levophed

## **ACTION**

Naturally occurring catecholamine with primarily alpha-adrenergic effects

## **INDICATIONS**

- Hypotension due to shock

## **CONTRAINDICATIONS**

- ⊗ Known sensitivity to norepinephrine
- ⊗ Patients taking MAO (monoamine oxidase) inhibitor antidepressants
- ⊗ Absence of large free-flowing intravascular access
- ⊗ Suspected shock from acute blood loss in trauma

## **SIDE EFFECTS & PRECAUTIONS**

- Vasoconstriction and myocardial workload increase as dose increases, which may result in cardiac dysrhythmia, angina or headache
- Inactivated in alkaline solutions such as sodium bicarbonate
- May cause extreme peripheral vasoconstriction, particularly if peripheral vascular disease is present or IV access is small
- Causes tissue necrosis if IV infiltrates
- Should be administered via an infusion pump or another rate control device through a large upper arm vein or an IO
- Patient must be constantly attended by a paramedic
- Blood pressure must be taken about every 2 minutes initially until stable and then at about 5 minutes
- Should be administered subsequent to or, for severe hypotension (SBP <80 mmHg), concurrently with volume replacement

**(CONTINUED)**

## ROUTE & DOSAGE

Preparation:

Add 4 mg norepinephrine to 250mL of D10 or NS = 16 mcg/mL – use microdrip tubing

**Paramedic:**            **ADULT:**        4 mcg/min (15 drops/min) IV or IO titrated upwards  
Every 3-5 minutes to a systolic BP of 90mmHg, then  
8 mcg/min (30 drops/min), then to a maximum dose of  
12 mcg/min (45 drops/min)

**PEDIATRIC:**    0.1 mcg/kg/min IV or IO titrated upwards every 3-5  
minutes to the lower age-normal systolic BP:  
70mmHg + (2 x Age in years)  
Maximum dose of 0.4 mcg/kg/min.

For weight greater than 36kg use adult dosing.

### PEDIATRIC NOREPINEPHRINE INFUSION TABLE (BROSELOW)

drops / minute using microdrip tubing (60 drops/mL)

Weight (kg) →	6.5	8.5	10.5	13	16.5	21	26.5	33
0.1mcg/kg/min	2	3	4	5	6	8	10	12
0.2mcg/kg/min	5	6	8	10	12	16	20	25
0.4mcg/kg/min	10	13	16	20	25	32	40	50

### PEDIATRIC NOREPINEPHRINE INFUSION TABLE (HANDTEVY)

drops / minute using microdrip tubing (60 drops/mL)

Age (Weight)	0.1 mcg/kg/min	0.2 mcg/kg/min	0.4 mcg/kg/min
Neonate (5 kg)	2	4	8
1 (10 kg)	4	8	15
3 (15 kg)	6	11	22
5 (20 kg)	8	15	30
7 (25 kg)	9	18	38
9 (30 kg)	11	23	45

# ONDANSETRON (ODT OPTIONAL)

## TRADE NAME

Zofran

## ACTION

Potent anti-emetic agent, a selective 5-HT<sub>3</sub> receptor antagonist

## INDICATIONS

- Nausea or vomiting
- Prophylactically to prevent nausea or vomiting

## CONTRAINDICATIONS

- ⚠ Known sensitivity to Ondansetron
- ⚠ Recent administration of Apomorphine (given subcutaneous for Parkinson's Disease) – Apomorphine is rarely used – may cause severe hypotension

## SIDE EFFECTS & PRECAUTIONS

- May cause minor headache, constipation or diarrhea
- If oral dose is given initially and is ineffective, a single dose of 4 mg IV may be given after IV is established

## ROUTE & DOSAGE

---

### EMT-I:

Paramedic:

### PARENTERAL:

- Adult: 4 mg slow IV, IO, or IM
- Pediatric: 0.1 mg/kg slow IV or IO
- May repeat initial dose once in 5 minutes

### ORAL:

- Age > 12: 8 mg oral dissolving tablet
  - Age 5-12: 4 mg oral dissolving tablet
  - Age 2-5: 2 mg oral dissolving tablet
  - May repeat once in 15 minutes
- 

(CONTINUED)

ONDANSETRON PEDIATRIC DOSE (2 mg/mL)	
AGE (ESTIMATED WEIGHT)	0.1 mg/kg
1 year (10 kg)	0.5 mL (1 mg)
3 year (15 kg)	0.75 mL (1.5 mg)
5 year (20 kg)	1 mL (2 mg)
7 year (25 kg)	1.25 mL (2.5 mg)
9 year (30 kg)	1.5 mL (3 mg)



# OXYMETAZOLINE

## TRADE NAME

Afrin

## ACTION

Potent sympathomimetic arterial constrictor

## INDICATIONS

- Epistaxis

## CONTRAINDICATIONS

- ☒ Known sensitivity to oxymetazoline
- ☒ Age < 6 years

## SIDE EFFECTS & PRECAUTIONS

- Tachycardia, myocardial ischemia or cardiac dysrhythmia

## ROUTE & DOSAGE

- 
- |                   |  |
|-------------------|--|
| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• Two sprays into the affected nostril(s)</li><li>• Repeat as needed</li></ul> |
|-------------------|--|
-



# ROCURONIUM (OPTIONAL)

## TRADE NAME

Zemuron

## ACTION

Non-depolarizing neuromuscular blocking agent (paralytic)

## INDICATIONS

- To provide paralysis (paralyzing dose) for rapid sequence intubation
- To maintain paralysis (maintenance dose) after intubation after adequate sedation is provided (**with OLMC only**)

## CONTRAINDICATIONS

- ⚠ Known sensitivity to rocuronium or other neuromuscular blocking agents

## SIDE EFFECTS & PRECAUTIONS

- Rocuronium causes paralysis, not analgesia or amnesia; **patients must receive adequate sedation** (see POST-INTUBATION MANAGEMENT)
- Patient will require airway management and ventilation

## ROUTE & DOSAGE

---

Paramedic:

**PARALYZING DOSE:**

1.2 mg/kg ideal body weight IV or IO

**MAINTENANCE DOSE (OLMC ONLY):**

Repeat dose 0.2 mg/kg ideal body weight every 10-20 minutes as needed

---

ROCURONIUM PEDIATRIC DOSE (10 mg/mL)		
AGE (ESTIMATED WEIGHT)	1.2 mg/kg	0.2 mg/kg (OLMC only)
1 year (10 kg)	1.2 mL (12 mg)	0.2 mL (2 mg)
3 year (15 kg)	1.8 mL (18 mg)	0.3 mL (3 mg)
5 year (20 kg)	2.4 mL (24 mg)	0.4 mL (4 mg)
7 year (25 kg)	3 mL (30 mg)	0.5 mL (5 mg)
9 year (30 kg)	3.6 mL (36 mg)	0.6 mL (6 mg)

(CONTINUED)

<b>ROCURONIUM ADULT DOSE (10 mg/mL)</b>		
<b>ESTIMATED IDEAL BODY WEIGHT</b>	<b>~ 1.2 mg/kg</b>	<b>~ 0.2 mg/kg (OLMC only)</b>
<b>46 kg (101 lbs)</b>	5.5 mL (55 mg)	0.9 mL (9 mg)
<b>50 kg (110 lbs)</b>	6 mL (60 mg)	1 mL (10 mg)
<b>54 kg (119 lbs)</b>	6.5 mL (65 mg)	1.1 mL (11 mg)
<b>58 kg (128 lbs)</b>	7 mL (70 mg)	1.2 mL (12 mg)
<b>63 kg (138 lbs)</b>	7.5 mL (75 mg)	1.3 mL (13 mg)
<b>67 kg (147 lbs)</b>	8 mL (80 mg)	1.3 mL (13 mg)
<b>71 kg (156 lbs)</b>	8.5 mL (85 mg)	1.4 mL (14 mg)
<b>75 kg (165 lbs)</b>	9 mL (90 mg)	1.5 mL (15 mg)
<b>79 kg (174 lbs)</b>	9.5 mL (95 mg)	1.6 mL (16 mg)
<b>83 kg (183 lbs)</b>	10 mL (100 mg)	1.7 mL (17 mg)
<b>88 kg (193 lbs)</b>	10.5 mL (105 mg)	1.8 mL (18 mg)
<b>92 kg (202 lbs)</b>	11 mL (110 mg)	1.8 mL (18 mg)
<b>96 kg (211 lbs)</b>	11.5 mL (115 mg)	1.9 mL (19 mg)
<b>100 kg (220 lbs)</b>	12 mL (120 mg)	2 mL (20 mg)
<b>104 kg (229 lbs)</b>	12.5 mL (125 mg)	2.1 mL (21 mg)

# SODIUM BICARBONATE (NaHCO<sub>3</sub>)

## TRADE NAME

Sodium Bicarbonate

## ACTION

Alkalinizing agent  
Raises blood pH

## INDICATIONS

- Tricyclic antidepressant overdose with hypotension, dysrhythmias, seizures or QRS > 0.10
- Suspected hyperkalemia

## CONTRAINDICATIONS

- ☠ Alkalosis

## SIDE EFFECTS & PRECAUTIONS

- May deactivate catecholamines
- Precipitates with calcium in IV tubing
- Decreases chance of brain viability in cardiac arrest

## ROUTE & DOSAGE

- 
- |                   |   |
|-------------------|---|
| <b>Paramedic:</b> | <ul style="list-style-type: none"><li>• 1 mEq/kg IV/IO</li><li>• For TCA overdose: Repeat 1 mEq/kg every 5 minutes until QRS &lt; 0.10</li><li>• For suspected hyperkalemia: Unless ECG changes resolve, repeat 1 mEq/kg after 5 minutes for a total of 2 doses</li></ul> |
|-------------------|---|
- 

(CONTINUED)

<b>SODIUM BICARBONATE PEDIATRIC DOSE (8.4%)</b>	
<b>AGE (ESTIMATED WEIGHT)</b>	<b>1 mEq/kg</b>
<b>1 year (10 kg)</b>	10 mL
<b>3 year (15 kg)</b>	15 mL
<b>5 year (20 kg)</b>	20 mL
<b>7 year (25 kg)</b>	25 mL
<b>9 year (30 kg)</b>	30 mL

# TXA (TRANEXAMIC ACID) (OPTIONAL)

## TRADE NAME

TXA

## ACTION

An antifibrinolytic drug which promotes hemostasis and reduces blood loss

## INDICATIONS

- Patients with injury consistent with ongoing non-compressible hemorrhage (such as penetrating thoracoabdominal trauma, suspected pelvic fracture or severe blunt abdominal trauma) with signs of shock, which may include:
  - Pulse > 120/minute and/or systolic BP < 90mmHg if over 5 years
  - Systolic BP < 90 if under 5 years
  - Absent radial pulses
  - End-tidal CO<sub>2</sub> < 30
- Active hemorrhage not amenable or responsive to compression, wound packing and/or tourniquet
- Postpartum hemorrhage

## CONTRAINDICATIONS

- ⚠ Known sensitivity to Tranexamic Acid (TXA)
- ⚠ Chronic anticoagulant therapy - warfarin (Coumadin, Jantoven), dabigatran (Pradaxa), apixaban (Xarelto), rivaroxaban (Eliquis)

## SIDE EFFECTS & PRECAUTIONS

- Control any external bleeding first – direct pressure, junctional wound packing, tourniquet
- Do not delay transport to administer TXA
- TXA must be administered within 3 hours of the traumatic event or bleeding onset, ideally within 1 hour
- All patients receiving TXA in the field for trauma indications will be made trauma activations
- TXA must be administered in NS without any other medication co-administered in the same IV/IO until infusion is complete

## ROUTE & DOSAGE

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<b>Paramedic:</b>	<ul style="list-style-type: none"><li>• Adult: 1g</li><li>• Pediatric: 15 mg/kg</li><li>• Administer in 100mL normal saline (NS) IV or IO over 10 minutes</li></ul>
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(CONTINUED)

TRANEXAMIC ACID PEDIATRIC DOSE (100 mg/mL)*	
AGE (ESTIMATED WEIGHT)	15 mg/kg
1 year (10 kg)	1.5 mL (150 mg)
3 year (15 kg)	2.25 mL (225 mg)
5 year (20 kg)	3 mL (300 mg)
7 year (25 kg)	3.75 mL (375 mg)
9 year (30 kg)	4.5 mL (450 mg)

\*Draw this amount out of the vial and mix in 100mL saline, then run over 10 minutes.





# PROCEDURES

## **PROCEDURES**

12 Lead ECG
Advanced Airway
Chest Decompression
CPAP
CPR High Performance (Adult and Pediatric)
CPR – Traumatic Cardiac Arrest
Cricothyrotomy – Needle
Cricothyrotomy – Surgical
Defibrillation
End-Tidal CO <sub>2</sub>
Endotracheal Intubation (Oral)
External Transcutaneous Pacing
Femur Traction Splint
I-Gel Supraglottic Airway
Infant T-Piece Resuscitator (Neo-Tee) (Optional)
Intramuscular Medication Administration
Intranasal Medication Administration
Intraosseous Infusion
Intravenous Administration
King LTS-D/LT-D Supraglottic Airway
Nasogastric/Orogastric Tube Placement
PEEP (Positive End-Expiratory Pressure)
Pelvic Sling
Post-Intubation Management
Rapid Sequence Intubation
Read-Back Policy
Restraint
Sedation
Spinal Motion Restriction
Synchronized Cardioversion
TASER Barb Removal
Tourniquet (Optional)
Tracheostomy Care
Transport Ventilator (Optional)
Umbilical Vein Catheterization
Vagal Maneuvers

# 12-LEAD ECG

EMR, EMT, AEMT, EMT-I, Paramedic

## INDICATIONS

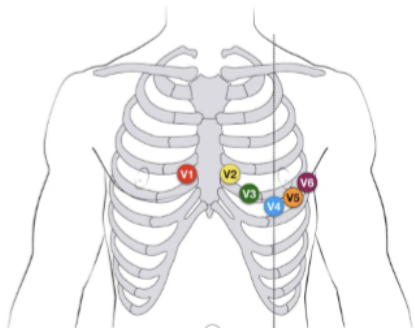
- Patients having cardiac chest discomfort
- Other symptoms such as palpitations, syncope, stroke, shortness of breath that in the EMS provider's judgment might represent myocardial ischemia or infarction
- Arrhythmia
- For patients with > 0.5mm ST depression in any two of V1-V4, obtain posterior leads (V7, V8, and V9) using cables V4, V5 and V6

## CONSIDERATIONS

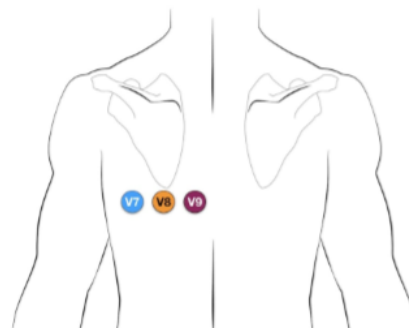
- 12-lead ECG best obtained with the patient not in a moving vehicle
- Do not delay treatment of life-threatening conditions to obtain a 12-lead ECG
- Obtain initial 12-lead ECG before nitroglycerin, antiarrhythmic administration, or synchronized cardioversion if possible

## PROCEDURE

1. Obtain 2 copies of any 12-lead ECG obtained in the field
2. Agencies may transmit 12-lead from the field electronically or via fax according to agency policy at the numbers below:  
AACH: 541-488-7434  
RRMC: 541-789-7111  
PMMC: 541-732-6437  
Agencies transmitting ECGs from the field should also fax any STEMI 12-leads to the cath lab at the numbers below:  
RRMC: 541-789-4735  
PMMC: 541-732-9045
3. One copy of each 12-lead ECG will be attached to an EMS 12-Lead ECG Report Form (unless already in 8.5x11-inch letter-size form), labeled with the patient's pre-printed ED registration label, and left at the receiving hospital
4. Attach a copy of each 12-lead ECG to your PCR
5. Send one copy of your completed PCR to the receiving hospital as soon as available



Standard 12-lead placement



Posterior lead placement

# ADVANCED AIRWAY

EMT, AEMT, EMT-I, Paramedic

## INDICATIONS

- A – Airway – Obstructed or at risk for obstruction (burn, anaphylaxis)
- B – Breathing – Inability of patient to adequately oxygenate or ventilate
- C – Circulation – Fatigue from shock state (rare indication in the field)
- D – Disability – Patient unable to protect airway due to mental status
- E – Expected Course – Anticipate airway complications may arise during transport
- F – Feral – Agitated patient requiring sedation (rare if using ketamine, but we always need to be prepared for intubation when sedating a patient)

## CONSIDERATIONS

- Initial airway management includes basic airway adjuncts, bag-valve-mask ventilation, and oxygen supplementation
- Avoid hyperventilation
- Endotracheal intubation without RSI may be performed only on a patient in cardiac arrest – **all intubations on patients not in cardiac arrest require full RSI with both sedative and paralytic**
- Supraglottic airway is not acceptable as an airway in patients with full or partial airway obstruction, vomiting, or contaminated airway – if unable to intubate and ventilate, use adjuncts, suction and BVM or perform cricothyrotomy

## PROCEDURE

1. Place advanced airway (see individual procedures for iGel, King-LT, endotracheal intubation, rapid-sequence intubation (RSI), needle cricothyrotomy, or surgical cricothyrotomy)
2. Pulse oximetry must be monitored with pulse ox level documented before, during, and after procedure
3. Continuous end-tidal capnography monitoring must be placed on all patients who have been treated with an advanced airway. Document in the PCR either the capnometry reading or the capnography strip:
  - a. Immediately following the airway placement
  - b. Immediately before and after transferring patient to or between gurneys
  - c. At the hospital before leaving the ambulance
  - d. In the hospital after transferring the patient to the hospital gurney or bed

# CHEST DECOMPRESSION (NEEDLE THORACENTESIS)

Paramedic

## INDICATIONS

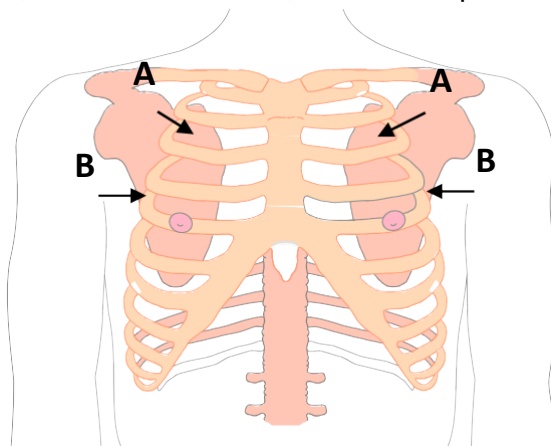
- Rapid decompression of tension pneumothorax, which may result from trauma, chest compressions or positive pressure ventilation
- Tension pneumothorax = diminished or absent breath sounds, worsening respiratory or hemodynamic condition, and mechanism
- Other signs may include hypotension, distended neck veins, asymmetrical breathing, hyperexpanded chest, tracheal shift and increased resistance to ventilation
- Bilateral chest decompression should be performed in trauma arrest if there is any suspicion for chest trauma

## CONSIDERATIONS

- Pneumothorax or lacerations of the lung or blood vessels may occur
- Chest decompression may need to be performed at more than one site or on the other side
- Chest decompression may be performed on the same side as an open chest wound if there are signs of worsening tension physiology unrelieved by attempting to release air from the occlusive dressing
- Relief of a tension pneumothorax should result in a rapid and significant improvement in the patient's condition
- Catheter size may be adjusted up or down for very large or very thin patients

## PROCEDURE

1. Prepare Equipment
  - a. High flow oxygen
  - b. 10-14 gauge catheter
    - c. 5cm for anterior axillary in adults or mid-clavicular in pediatrics
    - d. 8cm for mid-clavicular in adults
  - e. 10mL syringe
  - f. Disinfectant solution
  - g. Tape
2. With the patient supine and the chest exposed, clean the insertion site:  
Primary site – adult: 4<sup>th</sup> intercostal space in the anterior axillary line (B)  
Primary site – pediatric (and secondary site for adults): 2<sup>nd</sup> intercostal space in the mid-clavicular line (A)  
Insert the IV catheter attached to the syringe over the top of the rib, advance the catheter until air flow freely into the syringe, then remove the needle and syringe.  
Auscultate the chest, secure the catheter, monitor the patient and administer oxygen.



# **CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)**

**EMT, AEMT, EMT-I, Paramedic**

## **INDICATIONS**

- Respiratory distress in the conscious adult patient due to asthma, COPD, pulmonary edema, or CHF

## **PRECAUTIONS**

- Requires cooperative, spontaneously breathing, patient with normal ventilatory drive
- May increase oral secretions
- Increased intracranial pressure
- Positive pressure may exacerbate untreated pneumothorax

## **CONTRAINDICATIONS**

- Respiratory failure with a need for immediate intubation and or BVM ventilation
- Untreated pneumothorax
- Uncontrolled vomiting
- Significant upper airway abnormalities or trauma.
- Age < 12 years
- Unconscious or uncooperative patient
- Facial deformity preventing adequate mask seal over the mouth and nose
- Systolic blood pressure < 90mmHg
- Tracheostomy, unless plugged

## **PROCEDURE**

1. Have the patient in an upright position of comfort
2. Explain the procedure to the patient
3. Instruct patient to breath in through their nose slowly and exhale slowly out through their mouth
4. Apply the CPAP mask and initiate flow at 5cm H<sub>2</sub>O
5. Titrate up to 10cm H<sub>2</sub>O
6. Place the delivery mask over the mouth and nose and secure the mask with straps
7. Consider placement of a nasopharyngeal airway
8. Monitor patient's respiratory status, vital signs, oximetry, and capnography frequently
9. Continue CPAP until transfer to the hospital ED staff unless patient is unable to tolerate the CPAP or the patient's clinical condition worsens despite CPAP use

# **CPR – HIGH PERFORMANCE**

**EMR, EMT, AEMT, EMT-I, Paramedic**

## **INDICATIONS**

- Any patient with cardiac arrest (unresponsive with absent or abnormal respirations) without a POLST Do Not Resuscitate (DNR) order
- See Termination of Resuscitation protocol for instances in which resuscitative efforts should be withheld

## **PRECAUTIONS**

- Do not delay the initiation of chest compressions
- Pulse check should not take more than 10 seconds
- If definite pulse is not detected, then begin chest compressions

## **ELEMENTS of HIGH-PERFORMANCE CPR**

1. **Resuscitation on scene for 20 minutes or until stable ROSC is achieved in ADULT AND PEDIATRIC PATIENTS**
2. Continuous chest compressions at 110-120 /minute (use a timing device)
3. Compression depth
  - a. Adult: 2-2.4" (5-6cm)
  - b. Child: at least 1/3 the depth of the chest – about 2" (5cm)
  - c. Infant: at least 1/3 the depth of the chest – about 1½" (4cm)
4. Minimal (1-2 second) chest compression interruption during shock administration using "hover" technique
5. Ventilations – just to get chest rise:
  - a. Bag-Valve-Mask (BVM) ventilations with 100% O<sub>2</sub> every 10th compression
  - b. Advanced airway present – asynchronous ventilations every 6 seconds (use a timing device)
  - c. If only 1 rescuer is present, perform compressions to ventilations at a rate of 30:2
6. Passive oxygenation with 100% O<sub>2</sub> via nasal cannula if second oxygen source is available
7. Pulse check begins during chest compressions to assess quality of CPR and continues when chest compressions stop for rhythm analysis for maximum of 10 seconds
8. First epinephrine within 5 minutes of arrival

**(CONTINUED)**



## **AGE-BASED CONSIDERATIONS**

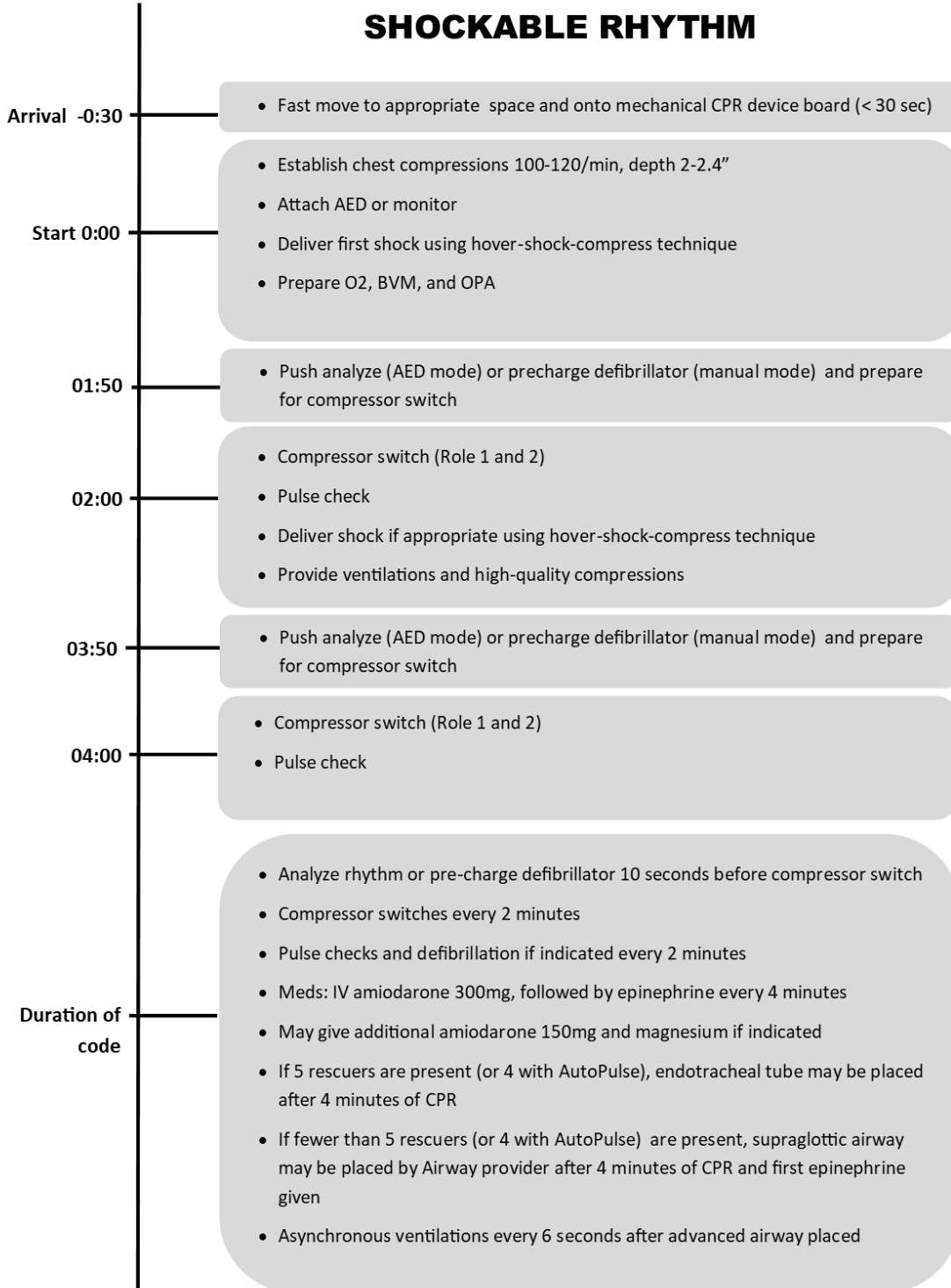
- Airway:
  - Over 3 years: Endotracheal intubation is preferred if adequate personnel are available for patients over 3 years
  - Under 3 years, i-Gel is preferred if available and used with OG tube, unless contraindicated due to airway contamination or obstructions
- Pulse:
  - Infants – Brachial
  - Children – Carotid
  - Adults – Carotid or femoral
- Preferred vascular access:
  - Over 10 years – IV, then humeral IO after 2 attempts
  - Under 10 years – IO

## **MECHANICAL CPR**

1. A mechanical CPR device board/transport device may be placed under the non-pregnant adult patient early in the resuscitation when attaching monitor pads if it can be done with minimal interruption (<10 sec) to compressions, but should not be activated except in one of the following situations:
  - a. A 2- or 3-person crew may activate a mechanical CPR device after four minutes of manual CPR, rhythm assessed, and first shock delivered IF additional responders are anticipated to take more than 10 additional minutes to arrive
  - b. If available, a mechanical CPR device should be placed for transport of any cardiac arrest patient, regardless of ROSC, and activated for patients who are pulseless during transport
2. Mechanical CPR may be maintained it as long as device position, pulses and EtCO<sub>2</sub> are adequate

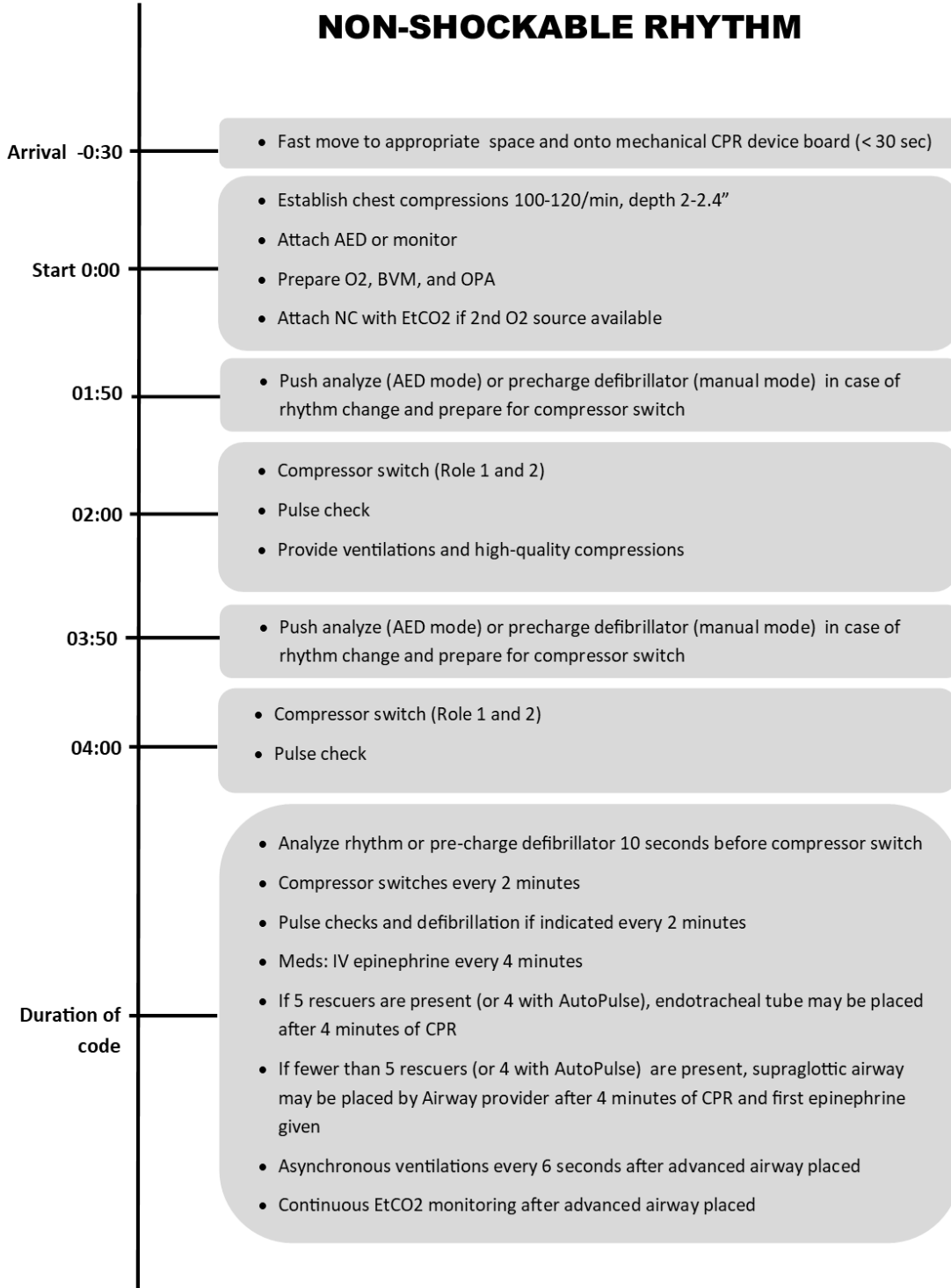
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## SHOCKABLE RHYTHM



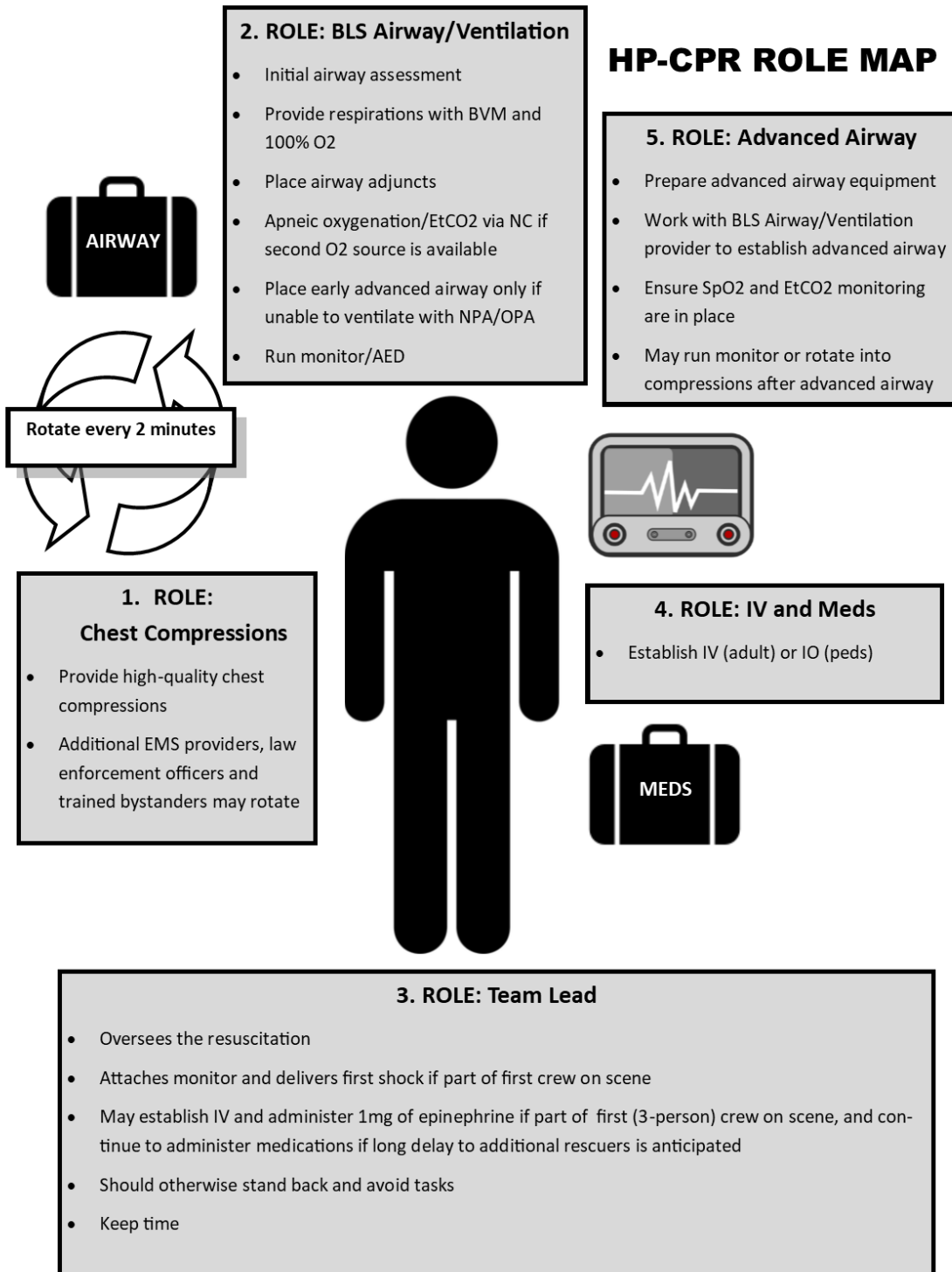
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## NON-SHOCKABLE RHYTHM



(CONTINUED)

# HP-CPR ROLE MAP



# CPR - TRAUMATIC CARDIAC ARREST

EMR, EMT, AEMT, EMT-I, Paramedic

## INDICATIONS

- Witnessed or recent arrest with organized cardiac activity or signs of life (see Initiation and Termination of Resuscitation and POLST protocol)

## CONSIDERATIONS

- Traumatic arrest occurs because of airway compromise, massive blood loss, tension pneumothorax, cardiac tamponade, or brain injury
- Management of potentially reversible conditions supersedes traditional ACLS
- **If less than 5 minutes from the hospital**, immediate transport is indicated for witnessed arrest in penetrating chest trauma or female patients with pregnancy past 24 weeks (uterus palpable above the umbilicus)
- There is generally no indication for epinephrine or pressors for traumatic arrest

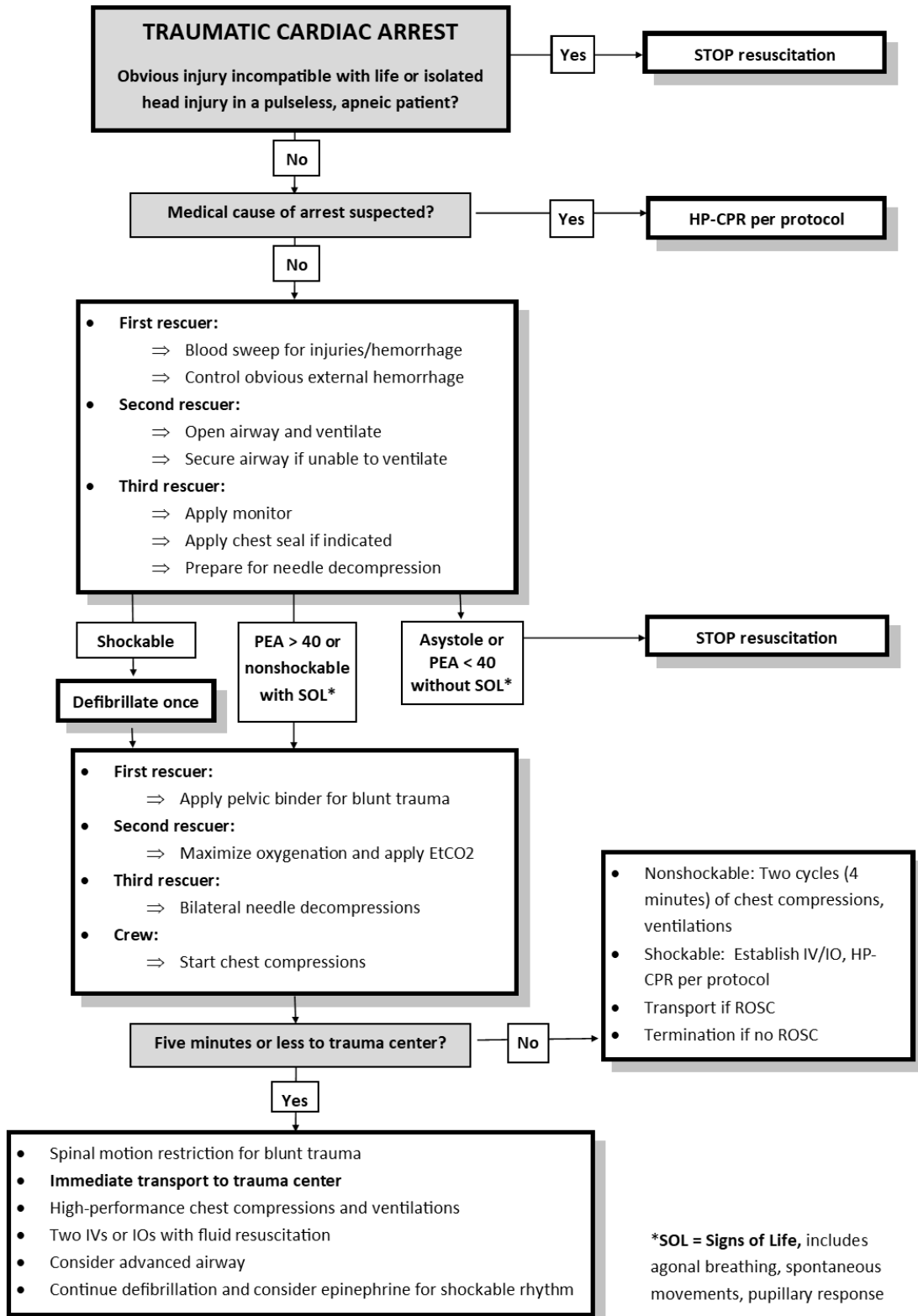
## PROCEDURE

### On scene:

1. Position patient so that resuscitation efforts can be initiated
2. Apply manual C-spine stabilization or C-Collar if situation allows and blunt trauma
3. Blood sweep for hemorrhage and control major external hemorrhage by application of direct pressure or tourniquet as indicated
4. Open airway and ventilate patient – place adjuncts or advanced airway as needed if unable to ventilate
5. Cover any open chest wounds with occlusive dressing
6. Apply cardiac monitor and treat displayed rhythm
  - a. Asystole/PEA < 40 and no signs of life: Terminate resuscitation
  - b. PEA > 40 or signs of life: Continue resuscitation as below
  - c. VFib/Vtach: Defibrillate once per protocol and continue resuscitation as below
7. Perform bilateral needle decompressions if trauma potentially involving neck/chest/abdomen
8. Place pelvic binder if blunt trauma potentially involving abdomen/pelvis
9. Start chest compressions at 100-120 per minute with minimal interruptions
10. Ventilations – just to get chest rise:
  - a. Bag-Valve-Mask (BVM) ventilations with 100% O<sub>2</sub> every 10th compression Advanced airway present – asynchronous ventilations every 6 seconds (use a timing device)
  - b. Place end-tidal CO<sub>2</sub> monitor and target 30
11. **If less than 5 minutes to trauma center**, load patient and initiate transport; if not, continue/terminate resuscitation per flowsheet

### During transport:

1. Strongly consider advanced airway if any airway or breathing concerns present
2. Two IVs or IOs with fluid resuscitation
3. Continue high-performance chest compressions with pulse checks
4. Continue defibrillation every 2 minutes if indicated for ventricular arrhythmia
5. Consider epinephrine after first two shocks for ventricular arrhythmia



# CRICOTHYROTOMY – NEEDLE

Paramedic

## INDICATIONS

- To establish an emergency airway when other methods have been unsuccessful
- Preferred emergency airway in patients < 9 years old

## PRECAUTIONS

- Punctures or lacerations of the blood vessels, vocal cords or esophagus may occur
- Subcutaneous emphysema
- Needle cricothyrotomy is a temporizing measure only; ventilation will be poor with a slight rise in oxygenation in the alveoli

## PROCEDURE

1. Prepare Equipment
  - a. High flow oxygen with bag-valve-mask
  - b. Suction
  - c. 50 PSI (greater than or equal to 15 liters/minute) oxygen supply
  - d. Attached to a 10mL syringe or 10mL flush:
    - ADULT: 10-14ga IV catheter
    - PEDIATRIC: Pediatric: 14-16ga IV catheter.
  - e. Meconium aspirator and 3.0 endotracheal tube adapter or nasal cannula to control oxygen flow OR 3.0 endotracheal tube adapter alone to attach to BVM
  - f. Disinfectant solution
  - g. Tape
  - h. Stethoscope
2. Procedure:
  - a. Place the patient supine with support under the shoulders and mild hyperextension of the neck
  - b. Palpate the neck over the trachea and locate the cricothyroid membrane just below the notch of the thyroid cartilage
  - c. Clean and prep the site over the membrane
  - d. With the IV catheter, puncture the membrane aiming caudally at a 45° angle
  - e. While entering, apply negative pressure to the syringe/flush
  - f. When air is met, remove the syringe and needle, advance the catheter to the hub
  - g. Connect the 3.0 adapter and meconium aspirator and ventilate the patient via meconium aspirator (one second inflation to four seconds exhalation) OR connect the 3.0 adapter and ventilate directly via BVM (one second inflation to four seconds exhalation)
  - h. Observe and auscultate the chest for bilateral breath sounds
  - i. Secure the device and continue to ventilate





# CRICOTHYROTOMY – SURGICAL

## Paramedic

### INDICATIONS

- The last-resort method to establish an airway when all other methods have been unsuccessful, including repeated bag-valve-mask ventilation with repositioning. Such conditions may include:
  - Presence of massive airway edema due to airway burns or angioedema, severe laryngospasm, airway obstruction from foreign body, facial or neck trauma severely distorting the anatomy

### PRECAUTIONS

- Punctures, laceration, or damage to the blood vessels, vocal cords, trachea or esophagus may occur, as may subcutaneous emphysema
- Surgical cricothyrotomy should only be used as a last resort on adults where all other alternate airway management is unsuccessful at maintaining adequate oxygenation (SpO<sub>2</sub> 85% or greater) and ventilation
- Needle cricothyrotomy for airway management is the method of last resort for children

### PROCEDURE

1. Prepare Equipment – requires 2 providers
  - a. Bag-valve-mask and oxygen
  - b. Suction
  - c. Disinfectant solution
  - d. Scalpel with #10 or #20 blade
  - e. Tracheal hook (optional)
  - f. Gum-elastic bougie
  - g. 6.0 endotracheal tube shortened by 50%
  - h. Tape
  - i. Stethoscope, EtCO<sub>2</sub> capnography & pulse oximeter
2. Procedure:
  - a. Position yourself with the head of the patient on your non-dominant side
  - b. Prep the anterior neck with disinfectant solution
  - c. Identify the cricothyroid membrane - just below the “Adam’s apple” and stabilize the trachea with the fingers of your non-dominant hand
  - d. Using the scalpel, puncture the skin and trachea transversely; alternately, if landmarks cannot be palpated due to patient habitus, you may incise gently in a head-toe direction until you reach the trachea, then puncture transversely
  - e. Slide the tracheal hook along the inferior (toe) side of the scalpel. Rotate the hook 90-degrees in the lower side of the incision to hold the distal trachea before removing the scalpel blade, and apply traction to lift the cricoid cartilage up and toward the patient’s feet; alternately, you may use the index finger of your non-dominant hand to hold the incision open for the bougie

(CONTINUED)

- f. Insert the bougie into the distal trachea until it stops at the carina before removing the tracheal hook. Thread the shortened endotracheal tube into the distal (lower) portion of the airway, rotating as needed, before removing the bougie. Inflate the cuff with 5-10mL of air.
- g. Confirm tube placement in the trachea with bilateral chest rise, auscultation of bilateral breath sounds, EtCO<sub>2</sub>, SpO<sub>2</sub>, and patient condition
- h. Secure tube and provide ventilation and oxygenation
- i. Monitor patient to insure ventilation and for evidence of subcutaneous air

# DEFIBRILLATION

EMT-I, Paramedic

## INDICATIONS

Pulseless patients with ventricular fibrillation or ventricular tachycardia

## CONSIDERATIONS

- Defibrillation, when indicated, should be performed as soon as possible after CPR has been started

## PROCEDURE

1. Begin high-performance CPR
2. Attach defibrillator pads
3. Set the defibrillator's energy level (Joules) according to the manufacturer's recommendations (see below)
4. Charge the defibrillator BEFORE stopping CPR
5. Check pulse with CPR
6. STOP CPR, feel for pulse, confirm rhythm remains shockable, and administer an unsynchronized shock using the hover-shock-compress technique
7. After the shock is delivered, do not stop CPR to check the rhythm EVEN if there is an apparent rhythm change until either:
  - Two minutes of CPR has been performed OR
  - The patient develops signs of life
8. If no change in rhythm from ventricular fibrillation or ventricular tachycardia, increase the energy level for the next shock according to the manufacturer's recommendations (see below)
9. If no change in rhythm after max energy has been reached, apply defibrillator pads in the alternate position and deliver next shock at max energy

### *Recommended defibrillator energy levels:*

Initial shock:

Defibrillator	Adult	Birth-puberty
Zoll X-series	120 joules	2 joules/kg
PhysioControl LIFEPAK 15	200 joules	

2nd shock:

Defibrillator	Adult	Birth-puberty
Zoll X-series	150 joules	4 joules/kg
PhysioControl LIFEPAK 15	300 joules	

Subsequent shocks:

Defibrillator	Adult	Birth-puberty
Zoll X-series	200 joules	Increase by 2 joules/kg up to adult dose
PhysioControl LIFEPAK 15	360 joules	

(CONTINUED)



# END-TIDAL CO<sub>2</sub>

EMT, AEMT, EMT-I, Paramedic

## INDICATIONS

- Any patient receiving an artificial airway (endotracheal tube or supraglottic airway)
- Monitoring of respiratory status in patients with trauma, sepsis, respiratory distress, altered level of consciousness, seizure, and other critical illness

## PRECAUTIONS

- Use the pediatric detector on patients weighing less than 15 kg
- After administering medications through an endotracheal tube, wait for 6 ventilation cycles before re-attaching detector
- CO<sub>2</sub> detector is to be used to confirm artificial airway placement in addition to direct airway visualization, observation of chest rise, skin color, auscultation of bilateral breath sounds, and pulse oximetry

## PROCEDURE

### **Manual Colorimetric Detector (any patient with an artificial airway – optional if carrying electronic detector):**

1. Attach the CO<sub>2</sub> detector between the bag-valve device and the end of the artificial airway
2. When ventilating properly and the artificial airway is in the proper location, the indicator area on the detector will change color at time of expiration depending on the manufacture, typically yellow (~5% CO<sub>2</sub>) during expiration and purple (0% CO<sub>2</sub>) during inspiration

### **Electronic Detector (any patient with an artificial airway or in respiratory distress):**

1. Attach the 15mm adapter between the bag-valve device and the artificial airway
2. Attach the small tubing to the electronic detector
3. To confirm proper placement, the capnometry reading during expiration should measure between 35mm and 45mmHg (5% CO<sub>2</sub>) during expiration in conjunction with the regular rise and fall of the CO<sub>2</sub> waveform
4. To monitor ongoing artificial ventilations with an artificial airway in place or with positive pressure ventilation, match the CO<sub>2</sub> waveform during expiration to what it was pre-intubation

# ENDOTRACHEAL INTUBATION

## Paramedic

### INDICATIONS

- To establish an emergency airway (see Advanced Airway)

### PRECAUTIONS

- Lacerations, dental injury, laryngospasm, right or left mainstem or esophageal intubation may result
- Rapid Sequence Intubation should be used for any patient not in cardiac arrest
- Video laryngoscopy is the preferred method for intubation unless there is equipment failure

### PROCEDURE

1. Prepare Equipment
  - a. Laryngoscope and blades
  - b. Endotracheal tube with stylet, average sizes are:
    - Adult male: 7.0 to 8.0
    - Adult female: 6.5 to 7.5
    - Pediatric:  $\text{Size} = (\text{age}/4) + 3.5$  for cuffed tube, depth = 3 times tube size
  - c. Suction
  - d. Gum-elastic bougie
  - e. Lubricant
  - f. Bite block
  - g. Syringe
  - h. Fluid bolus prepared
  - i. Back-up airway devices and adjuncts
  - j. Stethoscope, EtCO<sub>2</sub> capnography & pulse oximeter
  - k. Tube-securing device and tape
2. **Pre-oxygenate with high-flow oxygen through non-rebreather mask, CPAP, or BVM with passive oxygenation via nasal cannula simultaneously**
3. Procedure:
  - a. Position the patient in the sniffing position
  - b. Open the patient's airway, protecting the cervical spine if indicated
  - c. Use the bougie to facilitate intubation if using direct laryngoscopy:
    - i. Insert curved tip with tip pointing upward through vocal cords
    - ii. Gently advance into the trachea approximately 2-3 cm
    - iii. Feel the top of the bougie tapping tracheal rings to confirm placement
    - iv. Carefully advance the endotracheal tube over the bougie, taking care not to withdraw the bougie from the trachea
    - v. Remove the bougie when the tube is at the appropriate tip-lip distance
  - d. Inflate cuff
  - e. Verify tube placement with end-tidal CO<sub>2</sub>, chest rise, and auscultation
  - f. Secure tube

# EXTERNAL TRANSCUTANEOUS PACING

Paramedic

## INDICATIONS

- Symptomatic bradycardia refractory to medications or symptomatic heart block

## PRECAUTIONS

- This is a painful procedure.
- Use pain medication or sedation.
- Increase in alertness and palpated pulse may not be reliable indicators of mechanical capture

## CONTRAINDICATIONS

- Patients with penetrating or blunt trauma

## PROCEDURE

1. Prepare Equipment
  - a. High flow oxygen
  - b. Pacemaker, cable and pacing electrodes
  - c. Fentanyl, morphine, or midazolam
  - d. End-tidal capnography
2. Administer oxygen and monitor cardiac rhythm and EtCO<sub>2</sub>. A three or four lead cardiac monitor must be attached for pacing
3. Medicate patient
4. Apply pacer pads to the left anterior chest and left posterior chest (preferred), or right anterior chest and left lateral chest
5. Adjust cardiac monitor gain to sense intrinsic QRS complexes
6. Set mA at 0, attach pacer pads to monitor cable
7. Set pace rate at 80 bpm
8. Increase current by 10-20 mA to obtain electrical capture. Decrease at 5-10 mA as needed
9. Ensure mechanical capture by palpating pulse, observing pulse oximeter pleth waves matching paced rate, monitoring EtCO<sub>2</sub>, and monitoring blood pressure
10. If unable to obtain mechanical capture, discontinue pacemaker

# **FEMUR TRACTION SPLINT**

**EMR, EMT, AEMT, EMT-I, Paramedic**

## **INDICATIONS**

- To provide hemorrhage control with femur stabilization for mid-shaft femur fracture

## **PRECAUTIONS**

- Do not use a traction splint in the presence of hip, pelvic or lower leg fractures
- Do not delay transport of a multi-system trauma patient to apply traction splint
- Discontinue traction or splint use if pain increases

## **PROCEDURE**

1. Expose extremity
2. Assess for mid-shaft fracture or deformity
3. Check distal pulse, motor and sensation of the affected extremity
4. Prepare and place the traction splint according to manufacturer's recommendations
5. Check distal pulse, motor and sensation of the affected extremity



# I-GEL SUPRAGLOTTIC AIRWAY

EMT, AEMT, EMT-I, Paramedic

## INDICATIONS:

- Advanced airway management when resources do not permit endotracheal intubation, or when endotracheal intubation has been unsuccessful after two attempts AND there is no obstruction or airway contamination
- Initial advanced airway for pediatric patients 3 and under unless contraindication present

## CONTRAINDICATIONS:

- Intact gag reflex
- Known esophageal disease
- Known or suspected ingestion of caustic substance
- Known or suspected foreign body
- Gross airway contamination with blood, vomit, or other substance
- Tracheostomy (unless plugged)

Correct sizing of supraglottic airways is critical for correct function. Supraglottic airways are safe and effective for pediatric patients, provided the correct tube size is selected.

I-Gel Size	Patient Type	Patient Weight (kg)
1	Neonate	2-5
1.5	Infant	5-12
2	Small pediatric	10-25
2.5	Large pediatric	25-35
3	Small adult	30-60
4	Medium adult	50-90
5	Large adult	90+

## PROCEDURE:

1. Prepare Equipment
  - a. Select appropriate tube based on patient size/weight
  - b. Open packaging and separate the iGel from the inner tray
  - c. Open the packet of lubricant and place a small bolus on the inner side of the tray
  - d. Grasp the I-gel along the integral bite block and lubricate the back, sides and front of the cuff with a thin layer of lubricant
  - e. For all sizes except 1, apply a small amount of lubricant to the orogastric tube port and advance a 12-Fr orogastric tube through the cuff of the iGel, then withdraw until the tip is flush with the cuff

(CONTINUED)

2. **Pre-oxygenate with high-flow oxygen through non-rebreather mask, CPAP, or BVM with passive oxygenation via nasal cannula simultaneously**
3. Grasp the lubricated I-Gel firmly along the bite block. The patient should be in the “sniffing morning air position” with head extended and neck flexed, unless there is suspected spine trauma.
4. Position the device so that the I-gel O2 cuff outlet is facing towards the chin of the patient. Introduce the leading soft tip into the mouth towards the hard palate.
5. Glide the device downwards and backwards along the hard palate with a continuous but gentle push until definitive resistance is felt.
6. Once insertion has been completed, the tip of the opening should be located in the upper esophageal opening, with the cuff located against the laryngeal framework. The incisors should be resting on the bite block.
7. Confirm tube placement by auscultation, chest rise and ETCO2.
8. EMT-I and Paramedic: Advance orogastric tube to pre-measured depth
9. Secure the device with elastic, tape, or commercial tube holder, exerting gentle upward (toward the head) and downward (into the mouth) pressure to keep the iGel properly seated

# **INFANT T-PIECE RESUSCITATOR (NEO-TEE) (OPTIONAL)**

**EMT, AEMT, EMT-I, Paramedic**

## **INDICATIONS**

- Patients less than 10 kg (approximately 1 year) requiring assisted ventilation or CPAP

## **CONTRAINDICATIONS**

- Weight > 10 kg (approximately 1 year)
- Use with ETT rather than mask for patients with facial/airway trauma or abnormalities, uncontrolled vomiting, airway contamination or obstruction

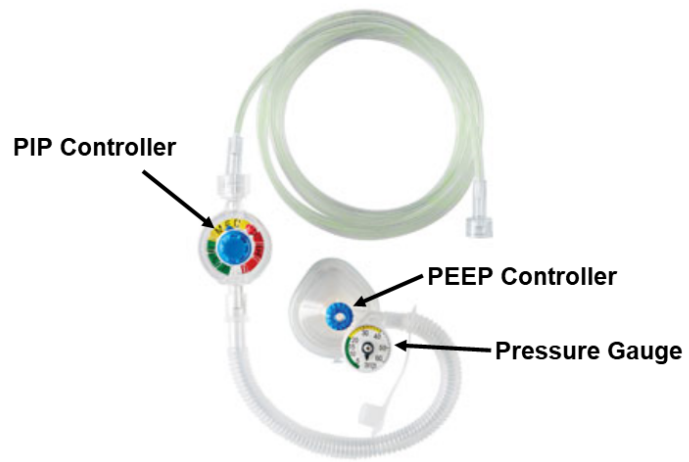
## **CONSIDERATIONS**

- Spontaneously breathing infant: Provides oxygen and CPAP
- Infant requiring assisted ventilations: May be used either with a mask or attached to a supraglottic airway or endotracheal tube
- Ventilation must be done carefully, avoiding prolonged inspiratory time and allowing adequate time for full exhalation between breaths
  - ½ second inspiration, 1 second expiration for neonates
  - 1 second inspiration, 2 seconds expiration for older infants
- Positive pressure may exacerbate untreated pneumothorax

## **PROCEDURE**

1. Attach the tubing to the oxygen tank and turn the flow meter to 10
2. Place the cap on ventilation port or occlude against your hand
3. Adjust PEEP to 5 using PEEP valve controller (increase flow meter up to 15 if needed to achieve goal PEEP)
4. Adjust PIP using PIP controller to goal 20-25: Start by setting to the high end of MED (yellow) and adjust as needed - test by occluding the hole in the PEEP valve as if giving a breath
5. Remove the cap and attach the ventilation port to the mask, supraglottic airway, or endotracheal tube
6. Occlude the hole in the PEEP controller with your finger to ventilate
7. Ensure adequate ventilation with auscultation, chest rise, SpO2 monitoring and waveform capnography (if advanced airway in place)
8. Adjust controllers for goal PIP 20-25 and PEEP 5
9. Monitor patient's respiratory status, vital signs, oximetry, and capnography frequently
10. FOR CPAP ONLY: In a spontaneously breathing patient, apply face mask as an oxygen delivery device without delivering ventilations – your PEEP is your CPAP

**(CONTINUED)**



# INTRAMUSCULAR MEDICATION ADMINISTRATION

EMT, AEMT, EMT-I, Paramedic

## INDICATIONS

- Preferred route of administration for initial epinephrine dose for anaphylaxis, initial midazolam dose for status epilepticus, and initial ketamine dose for severe agitation
- Administration of other medication when IV access cannot be obtained

## CONSIDERATIONS

- Proper administration will reduce the risk of intravascular injection or nerve damage
- Medication volume over the chart limits will require more than one injection
- Anterolateral thigh and ventrogluteal sites are preferred

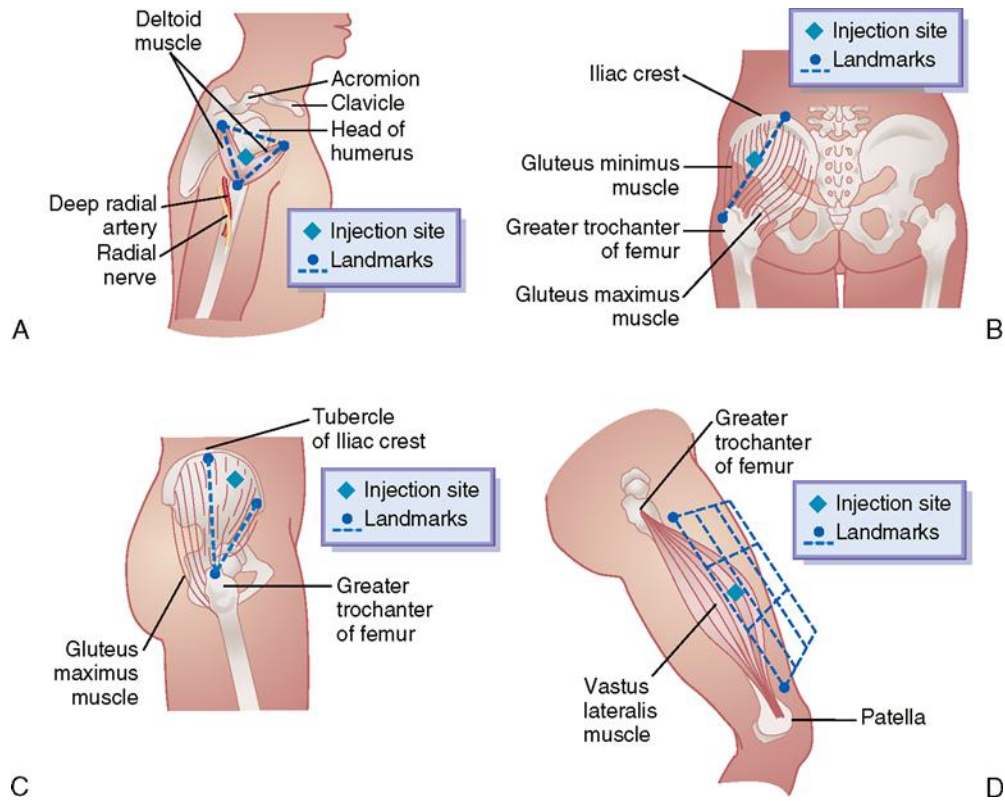
## PROCEDURE

1. Prepare the appropriate syringe and needle:

Site	Infant (< 6 months)	Toddler (6 months-3 years)	Child (3-12 years)	Adult (13 and older)
<b>Anterolateral thigh</b> <i>Vastus lateralis and rectus femoris</i>	Needle size: 5/8" Volume: 0.5 mL	Needle size: 1" Volume: 1 mL	Needle size: 1-1 $\frac{1}{4}$ " Volume: 2 mL	Needle size: 1-3" Volume: 5 mL
<b>Ventrogluteal</b>	Needle size: 5/8" Volume 0.5 mL	Needle size: 1" Volume: 1 mL	Needle size: 1-1 $\frac{1}{4}$ " Volume: 2 mL	Needle size: 1-3" Volume: 3 mL
<b>Deltoid</b>	Not recommended	Needle size: 1" Volume: 0.5 mL	Needle size: 1" Volume: 1 mL	Needle size: 1-3" Volume: 2 mL
<b>Dorsogluteal</b>	Not recommended	Not recommended	Needle size: 1" Volume: 2 mL	Needle size: 1-3" Volume: 5 mL

2. Prepare the appropriate medication, including a read-back
3. Find the appropriate site based on landmarks (see below)
4. Administer the medication using the Z-track technique
5. Apply pressure to the injection site and follow with a dressing

(CONTINUED)



- A – Deltoid
- B – Dorsogluteal
- C – Ventrogluteal
- D – Anterolateral thigh

# **INTRANASAL MEDICATION ADMINISTRATION**

**AEMT, EMT-I, Paramedic**

## **INDICATIONS**

- Administration of nasally absorbed medications to reduce the risk of inadvertent needle stick injuries and to reduce patient need for parenteral injections

## **PRECAUTIONS**

- Intranasal medication may not be effective and parenteral medical administration may be required

## **CONTRAINDICATIONS**

- IV or IO access already established
- Allergy to the medication to be administered
- Nasal passages filled with blood or secretions

## **PROCEDURE**

1. Draw the appropriate medication (fentanyl, midazolam, lorazepam, or naloxone) into the Mucosal Atomizer Device (MAD) – **maximum volume 1mL per naris**; 0.5mL preferred.
2. Intranasal administration usually requires a higher concentration of medication and a larger dose than parenteral (injection) administration
3. Squirt  $\frac{1}{2}$  the dose into each nostril

# INTRAOSSUEOUS INFUSION

AEMT, EMT-I, Paramedic

## INDICATIONS

- When vascular access is necessary, but otherwise unattainable in a patient

## PRECAUTIONS

- Only one attempt per bone
- IO placement requires transport of the patient to the hospital
- IO infusion in a conscious patient may be painful – use lidocaine IO during initial infusion

## CONTRAINDICATIONS (use alternate site)

- Infected tissue at the insertion site
- Fracture of the bone proximal to the insertion site
- Excessive tissue at the insertion site – must see 5mm of needle exposed
- Previous significant orthopedic procedure or prosthesis at the insertion site

## PROCEDURE

1. Prime extension tubing with cardiac lidocaine 2% if patient is conscious, saline if not
2. Locate appropriate insertion site and prepare using aseptic technique

### **PROXIMAL HUMERUS (> 10 years only)**

CONTRAINDICATION = shoulder replacement

### **DISTAL FEMUR**

**Patients 10 and older** – 2 finger widths above the top edge patella in the midline

**Patients < 10** – 1 cm above and medial to top of patella

**PROXIMAL TIBIA** – flat portion of the anteromedial tibia distal to tibial tubercle

CONTRAINDICATION = knee replacement

**DISTAL TIBIA** – 3 cm proximal to the medial malleolus

3. Prepare the IO driver and appropriate needle set
  - a. Needle size guidelines may be modified by clinical judgment
  - b. For all needle sizes, before insertion into the bone, at least 5mm of needle (to the 1<sup>st</sup> black mark) must be exposed when the needle tip touches bone through the skin

45 mm (yellow)	Proximal humerus; adult distal femur; tibial sites in larger adults
25 mm (blue)	Tibial sites in most children and smaller adults; pediatric distal femur
15 mm (pink)	Tibial sites in neonates and small infants

(CONTINUED)



4. Stabilize site and insert appropriate needle set using the IO driver until sudden decrease in resistance is felt or needle flange reaches the skin
5. Remove IO driver from needle set while stabilizing catheter hub
6. Remove stylet from needle set and discard in a sharps container
7. Connect primed extension tubing
8. Attach a 3-way stop cock to the extension tubing for all pediatric patients
9. In conscious patients:
  - a. Cardiac lidocaine 2% 0.5mg/kg (maximum 40mg) IO over 2 minutes
  - b. May repeat 0.25mg/kg (maximum 20mg) every 2-10 minutes as needed to total maximum dose of 3mg/kg
  - c. After administering lidocaine, wait 1 minute before saline flush
10. Rapid flush IO with normal saline (yellow 10cc; blue 5cc; pink 2cc). May need to repeat rapid flush once if free flow does not occur
11. Confirm placement with free flow of IO infusion without extravasation
  - a. Note any of the following confirmation signs of intraosseous placement:
    - i. Needle 90° to skin and firmly seated in the bone
    - ii. Aspiration of blood or bone marrow with syringe
    - iii. Spontaneous flow of blood or marrow into the IO hub
12. Syringe bolus or utilize 300mmHg pressure bag or infusion pump for infusions
13. Secure tubing to patient, dress site, apply wristband if available
14. Monitor IO site and patient condition for signs of extravasation

# **INTRAVENOUS ADMINISTRATION**

**AEMT, EMT-I, Paramedic**

## **INDICATIONS**

- To access venous circulation

## **PRECAUTIONS**

- Do not attempt at areas of injury or infection
- Splinting devices may be needed to limit motion
- Monitor the IV site for signs of infiltration
- Do not attempt external jugular catheterization unless the vein is visualized

## **PROCEDURE**

1. Prepare Equipment
  - a. Disinfectant solution
  - b. Tourniquet
  - c. Crystalloid solution and infusion set or IV lock
  - d. Intravenous catheter
  - e. Sterile dressing
  - f. Syringe
2. Extremity Vein
  - a. Disinfect the largest, most appropriate site
  - b. Apply the tourniquet
  - c. Insert catheter at an angle until blood returns
  - d. Advance the catheter into the vein while removing the needle
  - e. Attach and irrigate with crystalloid or IV lock
  - f. Secure catheter and monitor for infiltration
3. External Jugular Vein
  - a. Position patient with head turned to side opposite vein
  - b. Disinfect site
  - c. Apply finger pressure above clavicle to occlude vein
  - d. Insert catheter caudally at an angle until blood returns
  - e. Confirm intravascular location, attach infusion set and secure catheter

# KING LTS–D / LT–D SUPRAGLOTTIC AIRWAY

EMT, AEMT, EMT-I, Paramedic

## INDICATIONS

- Advanced airway management when resources do not permit endotracheal intubation, or when endotracheal intubation has been unsuccessful after two attempts AND there is no obstruction or airway contamination

## PRECAUTIONS

- Do not use in patients with an intact gag reflex, with esophageal disease, who have ingested caustic substances, who have a known or suspected foreign body obstruction of the larynx or trachea, who have a grossly contaminated airway or who have a tracheostomy
- Use in children or infants only if the airway cannot be adequately managed with other adjuncts, such as iGel, oropharyngeal or nasopharyngeal airway, or BVM ventilations

## SEVEN (7) SIZES AVAILABLE (3 ADULT & 4 PEDIATRIC)

Airway Size	Connector Color	Patient Size	Cuff Balloon volume (ml)
Large Adult # 5	Purple	> 6 feet (> 180cm)	80-90
Medium Adult # 4	Red	5-6 feet (155-180cm)	70-80
Small Adult # 3	Yellow	4-5 feet (122-155cm)	50-60
Pediatric # 2.5	Orange	42-52 inches (105-130cm) or 25-35kg	40-45
Pediatric # 2	Green	36-46 inches (90-115cm) or 12-25kg	35
Pediatric # 1	White	5-12kg	20
Pediatric # 0	Transparent	<5kg	10

(CONTINUED)

## **PROCEDURE**

1. Prepare Equipment
  - a. High flow oxygen
  - b. Bag-valve-mask
  - c. King LTS-D Airway size 3, 4, 5 or LT-D size 2, 2.5, 3, 4, 5 with supplied syringe
  - d. Suction.
  - e. Lubricant (only lubricate posterior side of airway, opposite side from “blue line”)
2. **Pre-oxygenate with high-flow oxygen through non-rebreather mask, CPAP or BVM with passive oxygenation via nasal cannula simultaneously**
3. Remove dentures, loose or broken teeth to prevent puncture of balloon
4. Place patient’s head in a “sniffing” position by lifting the tongue and lower jaw upward with one hand.
  - a. For suspected cervical-spine injuries, patient’s head may remain in a neutral position.
  - b. Insert tube so that the blue orientation line is touching the corner of the mouth
  - c. Introduce tip into mouth and advance behind base of tongue
  - d. As tube tip passes under tongue, rotate tube back to midline (blue orientation line faces chin)
  - e. Without exerting excessive force, advance tube until base of connector is aligned with teeth or gums.
5. Using the syringe provided, inflate the cuff balloon of the King airway with the appropriate volume per the table above
6. Attach BVM to the King airway and while gently bagging the patient to assess ventilation, simultaneously withdraw the King airway until ventilation is easy and free flowing (large tidal volume with minimal airway pressure)
7. Confirm ventilations by ETCO<sub>2</sub>, chest rise, and auscultation
8. Notify the receiving hospital that a King-LT has been placed

# NASOGASTRIC / OROGASTRIC TUBE PLACEMENT

EMT-I, Paramedic – Orogastric

Paramedic – Nasogastric

## INDICATIONS

- Any pediatric patient who has received assisted ventilation
- Any intubated patient receiving air transport
- Any patient receiving a King LTS-D airway or iGel
- To prevent or alleviate abdominal distension in an intubated patient

## CONTRAINDICATIONS

- Nasogastric intubation in a patient with obvious skull fracture or severe facial injuries
- Any gastric intubation in a patient with ingestion of caustic substances or known esophageal varices

## PROCEDURE

1. Prepare Equipment

a. Gastric Tubes:

Adult	Pediatric	Less than 1 year
16-18 Fr	10-14 Fr	5-8 Fr

b. Lubricant

c. Large syringe

d. Afrin (oxymetazoline) for nasogastric intubation – optional

2. Orogastric

a. Measure tube from tip of nose to xiphoid process

b. Insert tube into mouth and advance into stomach

3. Orogastric with a King LTS-D Supraglottic Airway or iGel

a. Insert the lubricated orogastric tube down the King LTS-D or iGel gastric access lumen

4. Nasogastric – Paramedic

a. Measure tube length from earlobe to tip of nose and then to xiphoid process

b. Select the most open nostril for placement and spray nostril with Afrin (oxymetazoline)

c. Insert the lubricated tube directing it posteriorly and slide it along the nasal pharynx into the esophagus and into the stomach

5. For all orogastric or nasogastric tubes:

a. Confirm location by instilling air and listening to the epigastrium

b. Secure tube

c. Connect to suction at 80 - 120mmHg

# **PEEP VALVE (POSITIVE END-EXPIRATORY PRESSURE)**

**EMR, EMT, AEMT, EMT-I, Paramedic**

## **INDICATIONS**

- Most patients receiving assisted ventilations via bag-valve-mask
- May be increased to improve **OXYGENATION**

## **CONTRAINDICATIONS**

- Tension pneumothorax
- Condition that requires hyperventilation (severe DKA or aspirin overdose)

## **CONSIDERATIONS**

- PEEP is especially important in conditions where lung surfactant has been disturbed, such as neonatal resuscitation (immature surfactant), drowning, pulmonary edema, and pneumonia
- Patients must always be ventilated slowly (6-10 breaths per minute) when using a PEEP valve to prevent over-expanding the lungs
- For asthma patients with an advanced airway, a small amount of PEEP may be helpful; however, ventilations must be slow, and the patient may need manual squeezing of the chest on exhalation to help release trapped air. If unable to ventilate with those measures, remove the PEEP valve.

## **PROCEDURE**

1. Remove the plastic diverter from the end of the BVM and attach the PEEP valve
2. Turn the red dial at the end of the PEEP valve to the appropriate setting (the number at the base of the dial)
  - a. Start at 3 mmHg and increase to max 5 mmHg for asthma or COPD, severe shock, or moderate to severe brain injury
  - b. Start at 5 mmHg and increase to max 15 mmHg for pneumonia or other suspected lung infection, pulmonary edema (heart failure), drowning, neonatal resuscitation, or other undifferentiated respiratory distress
3. Reassess oxygenation via SpO<sub>2</sub>, skin signs, and mentation frequently, and increase PEEP in increments of 5 mmHg every 3-5 minutes as needed to improve oxygenation

# PELVIC SLING

EMR, EMT, AEMT, EMT-I, Paramedic

## INDICATIONS

- Stabilization of suspected unstable pelvis fractures (tenderness on palpation of pelvis or unexplained hemodynamic instability with significant mechanism)

## PRECAUTIONS

- Once applied, the pelvic sling is to be removed only under the supervision of a physician

## PROCEDURE

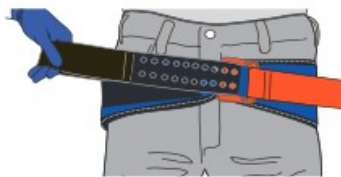
1. Remove patient's clothes which will be covered by the pelvic sling
2. After visual examination, the pelvic sling is wrapped around the patient's pelvis. **The pelvic sling should be centered over the greater trochanters (see below).**
3. The pelvic sling is then tightened and securely fastened anteriorly over the pubic symphysis to reduce motion and internal hemorrhage of the unstable pelvis fracture during transport to the hospital
4. Provide further immobilization by placing the patient supine and strapping the patient's knees together and the ankles together
5. Specific directions and training will depend on the type of pelvic sling used by the agency.

### SAM Sling® Application:

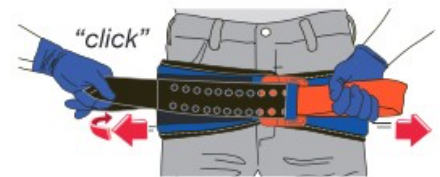
#### 3-STEP APPLICATION



**01** Remove objects from patient's pocket or pelvic area. Place SAM® Sling II black side up, beneath patient at level of trochanters (hips).



**02** Place **BLACK STRAP** through buckle and pull completely through.



**03** Hold **ORANGE STRAP** and pull **BLACK STRAP** in opposite direction until you hear and feel the buckle "click". Maintain tension and immediately press **BLACK STRAP** onto surface of SAM® Pelvic Sling II to secure. (You may hear a second click as the sling secures.)

(CONTINUED)

## Arrow T-POD® Application:



1. Place the pad around the patient's hips with the top edge at the iliac crests and the middle centered over the greater trochanters. Trim or fold the edges to leave three inches of space on either side of midline.



2. Attach the pulley system on to the pad, lining the orange circles up with the edges of the pad. Pull the tab on the pulley system until snug.



3. Wrap the string attached to the pull tab around the plastic hooks and secure using hook-and-loop closure to the side. Write the time of application.



# POST INTUBATION MANAGEMENT (PIM)

## INDICATIONS

Intubated patient requiring pain management and sedation

## CONSIDERATIONS

- Inadequate PIM leads to increased pain and oxygen demand.
- Post-intubation management should consist of a pain medication and a sedative.
  - Ketamine **OR**
  - Fentanyl/morphine PLUS midazolam
- Assess pain and sedation **early and often**.
- **Analgesia and sedation must be administered after use of rocuronium even if there are no signs of discomfort.**

## PROCEDURE

1. Confirm successful placement of an advanced airway.
2. Initiate and continue to monitor ETCO<sub>2</sub>, SpO<sub>2</sub>, ET Cuff, BP
3. Establish and maintain patent intravenous/intraosseous access.
4. Assess and document responsiveness before and after each medication administration, with any changes in patient condition, and/or every 15 minutes.

<b>SBP &gt; 150 or at risk for hypertension:</b> Examples: stroke, stimulant overdose	<b>SBP &lt; 100 or at risk for hypotension:</b> Examples: trauma, sepsis, shock, asthma
<b>Fentanyl:</b> 0.5-1 mcg/kg (max single dose 200mcg) IV or IO every 2-5 minutes. <b>Or</b> <b>Morphine:</b> 0.05-0.1 mg/kg (max single dose 10mg) IV or IO every 10 minutes.  <b>PLUS</b>  <b>Midazolam:</b> 0.05 mg/kg (max single dose 5 mg) IV or IO every 5 minutes.	<b>Ketamine:</b> 2 mg/kg IV or IO push, then 1 mg/kg every 5-15 minutes (skip 2 mg/kg loading dose if already used for RSI)  <b>Appropriate resuscitation with fluid, blood, and/or epi/norepi should be initiated based on patient condition. It is acceptable to start norepinephrine to offset the hemodynamic effects of sedation.</b>

# RAPID SEQUENCE INTUBATION

## Paramedic

### INDICATIONS

- Endotracheal intubation for patients not in cardiac arrest

### PRECAUTIONS

- Must have an alternate method of airway management available
- Paralysis does not stop the brain's seizure activity
- This is a two-person procedure

### PROCEDURE

1. Preparation
  - a. IV, cardiac monitor and SpO<sub>2</sub> monitor
  - b. Suction
  - c. Laryngoscope, ET tubes (2 sizes), stylet
  - d. Medications drawn up and labeled
  - e. Alternate airways – BVM with adjuncts, aupraglottic airway, cricothyrotomy
  - f. Fluid bolus available
2. Preoxygenation
  - a. High flow oxygen with non-rebreather mask, CPAP, or bag-valve-mask to maximize SpO<sub>2</sub> – 3 minutes or 8 full breaths
  - b. Avoid hyperventilation
  - c. Nasal cannula at 15 Lpm as soon as mask is removed to start intubation
  - d. Elevate patient's head before RSI if feasible
3. Sedation & Paralysis – BOTH MUST BE ADMINISTERED BEFORE AIRWAY MANIPULATION

**SEDATION:**  
Etomidate 0.3mg/kg IV or IO push (0.15 mg/kg if elderly, debilitated or hypotensive)  
or  
Ketamine 2mg/kg IV or IO push

**PARALYSIS:**  
Rocuronium 1.2 mg/kg
4. Protection and Positioning
  - a. Patient's head in sniffing position
  - b. BVM ventilation only if SpO<sub>2</sub> < 90%
5. Placement and Proof
  - a. Insert endotracheal tube
  - b. Inflate balloon and secure tube
  - c. Auscultation and chest rise
  - d. End tidal CO<sub>2</sub> continuous capnography
6. Post-Intubation Management per protocol

# **READ-BACK POLICY**

**EMR, EMT, AEMT, EMT-I, Paramedic**

## **INDICATIONS**

- To reduce the risk of error anytime a medication is administered or procedure is undertaken

## **PRECAUTIONS**

- Read-backs are one tool used to reduce the risk of error
- If the treating EMS provider is of a higher level than the partner, then the partner is expected to repeat the information and not necessarily verify its content or meaning
- A similar process is recommended for other critical communication which occurs, such as with dispatch or online medical control (OLMC)

## **PROCEDURE**

1. Treating EMS provider states medication to be administered, dose and route or procedure to be performed and indication for either
2. Partner “reads back” or restates the same information
  - a. For medications, the partner will verify the drug name and concentration listed on the container
  - b. If the partner is of the same or a higher EMS level, then he/she will verify the correctness of the information
3. If there is any discrepancy in the information from either the treating EMS provider or the partner, a time out will be taken to correct the discrepancy. The read-back procedure will be repeated to make sure that the discrepancy has been corrected
4. Medication administered, or procedure performed will be documented in the PCR

# **RESTRAINT**

**EMR, EMT, AEMT, EMT-I, Paramedic**

## **INDICATIONS**

- To restrain an agitated patient to facilitate proper medical care and transport when measures such as verbal redirection and medications offered or given to reduce anxiety and agitation have been unsuccessful
- Physical restraint is only to be used to transport patients who do not have capacity to make medical decisions and who represent an immediate danger to self or others OR in the case of a police hold in which the patient requires ambulance transport for medical treatment or evaluation

## **PRECAUTIONS**

- Positional asphyxia can occur when a patient's body positioning causes an inability to breathe or an airway obstruction. This is especially true in the prone position; **PATIENTS MAY NOT BE TRANSPORTED PRONE**. This may cause apnea, especially in the drugged, physically exerted patient.
- Restraints that are too tight may cause permanent vascular or nerve damage
- Handcuffs or flexcuffs applied by law enforcement personnel prior to EMS arrival may be left on providing EMS personnel have the keys, but should be replaced with softer restraints if possible
- Only law enforcement officers or the Jackson County Mental Health director may place a patient on a transport hold in the field

## **PROCEDURE**

1. Sufficient manpower should be present to control patient without injuring the medical personnel
2. Consider medications for anxiety or agitation (see Encephalopathy/Psychiatric Disorders protocol)
3. Restrain the patient on the stretcher in either a supine or lateral recumbent position to keep airway open and accessible
4. All four extremities must be restrained to prevent the patient from compromising airway or breathing by self-repositioning
5. Immobilize patient supine with cervical spine precautions if indicated for possible cervical injury
6. Document circulatory status of physically restrained extremities every 5 minutes at minimum
7. Monitor vital signs every 5 minutes at minimum
8. Release the patient from restraint as soon as danger has been mitigated

# **SEDATION**

**Paramedic, RN**

## **INDICATIONS**

- To provide analgesia, anxiolysis and amnesia for painful conditions or procedures:
  - Painful or prolonged extrication
  - Severe burns
  - Amputation
  - Synchronized cardioversion or transcutaneous pacing
  - Post-intubation (see POST-INTUBATION MANAGEMENT)
  - Acute agitation (see ENCEPHALOPATHY AND PSYCHIATRIC DISORDERS)
- Any administration of ketamine greater than 0.5 mg/kg must follow this procedure
- Any administration of an opioid (fentanyl, morphine) and benzodiazepine (midazolam, lorazepam) within 10 minutes of one another must follow this procedure

## **CONSIDERATIONS**

- Opioids, benzodiazepines, and ketamine may cause respiratory compromise
- Lower doses should be used in the elderly
- End-tidal CO<sub>2</sub> is first and best indicator of respiratory depression
- PREFERRED FOR TRAUMA: Ketamine
- PREFERRED FOR CARDIOVERSION/PACING: Fentanyl, followed by midazolam if sedation required
- For acute agitation or seizures, monitoring equipment should be attached and IV access obtained as soon as possible after medication is administered

## **PROCEDURE**

1. Prepare equipment
  - a. Cardiac monitor, SpO<sub>2</sub>, and EtCO<sub>2</sub>
  - b. BVM and airway adjuncts
  - c. Suction
  - d. Oxygen
  - e. IV or IO with crystalloid hanging
  - f. Intubation equipment and medication plan
  - g. Appropriate sedative
2. Administer medications
  - a. Use read-back procedure
  - b. Administer slowly, monitoring patient condition, EtCO<sub>2</sub>, and other vital signs
3. Monitoring
  - a. Vital signs including BP, HR, RR, SpO<sub>2</sub>, and EtCO<sub>2</sub> at least every 5 minutes, and two minutes after every medication intervention
  - b. Monitor and document GCS
  - c. Early airway intervention for rising or absent EtCO<sub>2</sub>

# **SPINAL MOTION RESTRICTION**

**EMR, EMT, AEMT, EMT-I, Paramedic**

## **INDICATIONS**

Blunt traumatic injury with any of:

1. Altered level of consciousness
2. Midline neck or back pain or tenderness
3. New numbness or weakness
4. New spine deformity
5. Distracting circumstances or injury that impairs the patient from participating in a reliable exam – including but not limited to suspected fracture, large soft tissue wounds, burns, emotional distress, intoxication, language or communication barrier, baseline cognitive impairment
6. Pediatric patient with any of the above OR high-risk motor vehicle collision, high-risk diving injury, or substantial torso injury

## **CONSIDERATIONS**

- Spinal motion restriction is not indicated for penetrating spinal trauma and may worsen outcomes
- Unstable blunt spinal column injuries can progress to severe neurological injuries in the presence of excessive movement of the injured spine; the goal of spinal motion restriction is to minimize unwanted movement of the potentially injured spine
- Cervical collars may cause pain or airway impingement
- Backboards may cause discomfort, decrease local tissue perfusion, or restrict respirations
- Whenever spinal motion restriction is indicated, it should be applied to the entire spine
- Patient transfers are highest risk for unwanted movement

## **PROCEDURE**

1. Cervical collar is considered a critical component of spinal motion restriction and should be applied whenever possible; if there are extenuating patient circumstances, head blocks, towel rolls, or other devices may be used.
2. The remainder of the spine should be stabilized by keeping head, neck and torso in alignment. Backboard, scoop stretcher, flat stretcher, vacuum mattress, or ambulance gurney are all acceptable.
3. Once patient is transferred onto the ambulance gurney, transfer devices may be removed if there are adequate personnel to ensure full spine alignment is maintained during removal. This should generally be considered for transports greater than 20 minutes or severe discomfort only. Consider that this will impair your ability to easily and safely transfer to the hospital gurney.
4. If the patient's head needs to be raised, a backboard, scoop, or vacuum mattress must be raised at the head while keeping the spine in alignment. A seated position is not acceptable unless there is a condition such as marked spinal kyphosis or rigidity.
5. Check motor and sensory exam frequently.

# SYNCHRONIZED CARIOVERSION

EMR, EMT, AEMT, EMT-I, Paramedic

## INDICATIONS

- Tachyarrhythmia (rate > 150) in a patient with hypotension, altered mental status, respiratory distress, or other signs of shock

## CONTRAINDICATIONS

- Stable patient without normal mentation

## PRECAUTIONS

- Although synchronized cardioversion is an extremely safe procedure, the medications given for pain management and sedation may cause further changes in hemodynamics
- Fentanyl is generally the most hemodynamically-neutral agent, but midazolam may also be considered
- Defibrillation without setting the monitor up for synchronization may precipitate ventricular fibrillation

## PROCEDURE

1. Prepare equipment
  - a. Cardiac monitor
  - b. IV/IO with crystalloid
  - c. BVM, airway adjuncts, intubation equipment and RSI medication plan
  - d. Oxygen
  - e. Suction
  - f. SpO2 and EtCO2
  - g. Appropriate analgesic and sedative
2. Administer analgesic (fentanyl preferred), with midazolam if needed (see Sedation Protocol)
3. Set cardiac monitor to “sync”
4. Adult synchronized cardioversion:

<b>Atrial flutter, supraventricular tachycardia or wide complex tachycardia</b>	
Physio Control	Zoll
100J / 200J / 300J / 360J	70-75J / 120J / 150J / 200J

<b>Atrial fibrillation</b>	
Physio Control	Zoll
200J / 300J / 360J	120J / 150J / 200J

(CONTINUED)

5. Pediatric synchronized cardioversion:

<b>AGE (ESTIMATED WEIGHT)</b>	<b>First shock: 1 J/kg</b>	<b>Subsequent shocks: 2 J/kg</b>
<b>1 year (10 kg)</b>	10 J	20 J
<b>3 year (15 kg)</b>	15 J	30 J
<b>5 year (20 kg)</b>	20 J	40 J
<b>7 year (25 kg)</b>	25 J	50 J
<b>9 year (30 kg)</b>	30 J	60 J



# **TASER BARB REMOVAL**

**EMR, EMT, A-EMT, EMT-I, Paramedic**

## **INDICATIONS**

TASER barbs should be removed at the request of law enforcement if both:

- a. The patient has been adequately subdued so as not to pose a danger to EMS personnel
- b. The barbs are not embedded in the eye, neck, or groin

## **CONTRAINDICATIONS**

- TASER barbs that are embedded in the eye, neck or groin
- Law enforcement seeking a medical clearance in the field

## **PRECAUTIONS**

- Patients should be in police custody and monitored by law enforcement for the safety of the medical personnel
- One TASER shot deploys two barbs; make sure that both are removed
- Treat all barbs as bio-hazard and place in a sharps container
- Additional trauma may have occurred before, during, or after a patient was hit by the TASER
- EMS TASER barb removal does NOT eliminated the need for patient evaluation in the Emergency Department

## **PROCEDURE**

1. Perform patient assessment
2. Monitor vitals and LOC. Ensure that vitals are appropriate for the situation.
3. Expose the area where the TASER barb has implanted in the skin
4. Cut wires from barb, if still attached
5. Place thumb and forefinger apart to stretch the skin tightly over the barb parallel to the portion of the shaft implanted in the patient's skin
6. Holding tension, grasp the barb the is protruding out of the skin with pliers and pull straight out in one quick motion
7. Assess the skin where the barb was removed, providing hemostasis and dressing if needed
8. Evaluate and treat the patient for other injuries or conditions as needed
9. Transport the patient to the Emergency Department for further evaluation

# **TOURNIQUET**

**EMR, EMT, AEMT, EMT-I, Paramedic, RN**

## **INDICATIONS**

- Life threatening bleeding from an extremity wound that is not controllable by direct pressure
- Life threatening bleeding from a complete or nearly complete amputation proximal to the hand or foot

## **PRECAUTIONS**

- Only firm, wide band commercial tourniquets will be used
- Document the time of tourniquet application and the application site
- Notify the receiving hospital as soon as possible that a tourniquet has been applied

## **CONTRAINDICATIONS**

- Non-extremity bleeding site
- Proximal long bone fracture
- Placement distal to the elbow or knee unless proximal site is unavailable

## **PROCEDURE**

1. Remove patient's clothing to expose the extremity and bleeding site
2. Place tourniquet on a long bone site two inches proximal to the injury (or two inches proximal to elbow or knee if injury is distal to the joint). Do not cover the tourniquet with patient's clothing. Windlass or tightener can be taped to keep tourniquet tightened.
3. Apply the tourniquet tight enough to occlude arterial blood flow. If bleeding cannot be controlled apply a second tourniquet proximal to the first.
4. Pain management is required. Consider ketamine for hypotensive patients.
5. Record time of tourniquet application by placing tape with "T and time of placement" on patient's forehead.
6. Monitor for continued hemostasis or the return of significant bleeding.
7. Paramedic or higher may convert a tourniquet to a pressure dressing if **ALL** of the following are true:
  - a. It is suspected that bleeding can be controlled with pressure dressing
  - b. Tourniquet was placed less than 60 minutes ago
  - c. Transport distance is greater than 15 minutes.
  - d. The injury is NOT a partial or complete amputation

### **To convert a tourniquet to a pressure dressing:**

1. Apply pressure dressing to wound.
2. Loosen tourniquet windlass or tightener. **Do not fully remove tourniquet.** Leave tourniquet on extremity.
3. Monitor for return of bleeding through pressure dressing. If bleeding continues, re-tighten tourniquet.

# TRACHEOSTOMY CARE

Paramedic

## INDICATIONS

- Occluded, dislodged, or incorrectly placed tracheostomy (replaced into false passage)

## CONSIDERATIONS

- Tracheostomies must be open and unobstructed in order for a patient to breathe
- Family members usually have extra supplies at the house
- When placing a whole tracheostomy tube into the stoma you may inadvertently insert into the soft tissue and create a false passage
- Patients may require orotracheal intubation in order to secure airway

## PROCEDURE

1. Prepare Equipment
  - a. Bag-valve-mask
  - b. Oxygen
  - c. Tracheal suction catheter
  - d. Brand new tracheostomy tube
  - e. Endotracheal tube
2. Assess patient's breathing
3. Apneic patient
  - a. Attach bag-valve-mask to tracheostomy tube and attempt to ventilate; continue this way if adequate
  - b. If inadequate, attempt to suction tracheostomy with sterile technique
  - c. Re-ventilate
  - d. If no improvement, remove inner cannula and suction tracheostomy tube
  - e. Re-ventilate
  - f. If no improvement, remove the whole tracheostomy tube
  - g. Cover stoma and attempt to ventilate with bag-valve-mask over mouth
  - h. If this works, place a brand new tracheostomy tube, if available, and attempt to ventilate. If this works, continue
  - i. If this does not work, intubate orally. Cover stoma and continue to ventilate
4. Breathing but ventilating poorly
  - a. Suction tracheostomy tube with sterile technique
  - b. If no improvement, remove inner cannula
  - c. Reassess
  - d. If no improvement, remove the whole tracheostomy tube and insert a brand new tracheostomy tube. If no tracheostomy tube is available, cut an ET tube to same length as patient's tracheostomy tube and pass through stoma
  - e. Reassess
  - f. Ventilate or oxygenate as needed

# **TRANSPORT VENTILATOR (OPTIONAL)**

Paramedic

## **INDICATIONS**

- Any patient requiring short-term ventilatory support while being monitored by a Paramedic/RN trained in the use of the ventilator

## **PRECAUTIONS**

- Do not leave patients unattended
- Transport ventilators are for resuscitation management and should not be used as an unattended automatic ventilator
- Recognize changes in atmospheric pressure and altitude as it effects tidal volume
- Trauma patients with a possible pneumothorax

## **CONTRAINDICATIONS**

- Patients requiring greater than 50cmH<sub>2</sub>O
- Auto Vent 3000 – Patients under 20kg
- ReVel – Patients under 5kg

## **PROCEDURE**

1. Intubate patient and confirm placement
2. Continue with manual ventilations
3. Prepare equipment
  - High flow oxygen
  - Prepare ventilator
4. Set Breaths per minute (BPM)
  - 12 for an adult; 20 for a child
5. Set inspiratory time (if equipped)
6. Set tidal volume (6-8 mL/kg)
7. Connect to patient
8. Assess patient, Chest rise and fall, Lung sounds, Oximetry (O<sub>2</sub> saturation), End Tidal CO<sub>2</sub> capnometry, peak pressure (ReVel)
9. Change in the patient's lung compliance may result in ventilatory changes. In such an event, reassess and make the appropriate clinical adjustments

# UMBILICAL VEIN CATHETERIZATION

Paramedic

## INDICATIONS

- Preferred site of vascular access during neonatal resuscitation

## PRECAUTIONS

- Sterile procedure
- Cannulate the umbilical vein, not the umbilical arteries
- Do not insert the cannula more than 6cm

## PROCEDURE

1. Prepare Equipment
  - a. 5 Fr umbilical catheter or 2" 16ga IV catheter without needle
  - b. Three-way stopcock
  - c. Syringe
  - d. Scalpel
  - e. Disinfectant solution
  - f. Crystalloid
  - g. Sterile gauze pad
  - h. Tape
  - i. Umbilical tape or ligature
  - j. Sterile drape
2. Attach crystalloid filled syringe and three-way stopcock to umbilical catheter and flush
3. Sterile prep and drape the cord area
4. Apply mild ligature pressure to umbilical cord near skin to prevent bleeding
5. Cut the cord approximately 2cm from the skin, leaving a clean, smooth end
6. Insert catheter in the large, thin-walled, single vessel for 2cm then check for blood return
  - a. If no blood return, keep advancing in 1cm increments until blood return or catheter has been inserted 6cm
  - b. Do not use catheter if no blood return
7. If blood return, secure catheter with tape, cover with gauze pad
8. Frequently flush with 1-2mL crystalloid

# VAGAL MANEUVERS

EMR, EMT, AEMT, EMT-I, Paramedic

## INDICATIONS

- Narrow complex tachycardias in stable patients
- EMR, EMT, and AEMT may perform maneuvers if rhythm is confirmed by EMT-I or Paramedic

## CONTRAINDICATIONS

- An unstable patient, patient refusal, altered mental status, or any cardiac dysrhythmia except for a narrow complex tachycardia

## PROCEDURE

1. Modified Valsalva
  - a. Ask the patient, in a semi-recumbent position (head of bed approximately 60 degrees), to blow into the end of a syringe hard enough to move the plunger for 15 seconds
  - b. While instructing the patient to relax, immediately reposition the patient supine and raise the patient's legs for them to a 45-degree angle; hold this position for 15 seconds before returning to semi-recumbent position
2. Increased intra-abdominal pressure
  - a. Ask the patient to cough
  - b. Ask the patient to close his or her mouth and bear down – “like having a bowel movement”, “like having a baby”, “like blowing up a balloon” or “tighten up your stomach muscles and push”
3. Vagal stimulation
  - a. Ask the patient to swallow water
  - b. Ask the patient to splash ice water on his or her face

**JACKSON COUNTY MASS  
CASUALTY INCIDENT  
(MCI) PROTOCOL**

# JACKSON COUNTY MASS CASUALTY INCIDENT (MCI) PROTOCOL LIST

Introduction
Plan Priorities
Overview of MCI Plan
Incident Command System (ICS)
Initial First Unit in MCI On-Scene Radio Report
Incident Commander – Duty Checklist
Medical Branch Director – Duty Checklist
Staging Area Manager – Duty Checklist
Triage Group Supervisor – Duty Checklist
Care Flight Triage
Quick Colored Ribbon Triage Tags
Ink Marker
Treatment Group Supervisor – Duty Checklist
Transportation Group Supervisor – Duty Checklist
Medical Communications Coordinator – Duty Checklist
Transportation Log (front)
Transportation Log (back)
Landing Zone (LZ) Manager – Duty Checklist
Conclusion of an MCI
MCI Post-Incident Analysis Report



# MCI INTRODUCTION

This section of the Standing Orders has been prepared to provide a management plan for a coordinated response to a single or multi-agency Mass Casualty Incident (MCI). An MCI involves five (5) or more patients transported for treatment. This plan is meant to give guidance to the Incident Commander (IC), Medical Branch Director, Triage, Treatment and Transport Group Supervisors, and the Staging Area Manager. The duties for specific positions that are outlined in this plan have been made into checklists to be used on scene as a reference during an MCI.

Under these standing orders, the MCI scene shall be managed using the National Incident Management System (NIMS) form of the Incident Command System (ICS). Command Staff and General Staff positions are filled as needed, dictated by the complexity of the incident, and the "span of control" rule of supervising 3-7 people. The positions outlined within this plan are activated when the IC (or designee) assigns a person to a position and delegates duties to that individual.

The IC is responsible for all duties on the incident until he or she delegates such duties to others. Therefore, when an MCI occurs the IC may initially be responsible for multiple functions.

During incident demobilization when tasks have been completed, personnel may no longer be needed. Therefore, resource re-assignment within the incident or resource demobilization may occur.

If the incident is multi-jurisdictional or if the incident has multi-disciplinary aspects, consider a unified command structure following the NIMS-ICS model.

## PLAN PRIORITIES

1. Safety of response personnel, patients, bystanders, and others.
2. Effective patient triage and resource management to maximize care for the patient group as a whole.
3. Effective care of patients within the conditions and relative limitations of resources available. This may include improvised and austere care measures.
4. Rapid and clinically appropriate distribution of patients to available receiving hospitals and, as needed, temporary receiving facilities.
5. Effective after-action review to institutionalize lessons learned and update practices as needed.

# OVERVIEW OF MCI PLAN

## ESTABLISH COMMAND

- The first arriving unit will establish command by the most qualified person on the unit acting as the Incident Commander (IC).
- Identification vests are to be worn to identify people to their Incident Command System (ICS) positions.

## DECLARE A MASS CASUALTY INCIDENT (MCI)

1. MCI Definition: Five or more patients anticipated to be transported for treatment.
2. The first unit on-scene shall declare over the radio to their agency dispatch center that an MCI is in progress so that other personnel and agencies (including hospital(s) and dispatch center(s)) will be notified.
  - a. Describe the type of incident and provide brief size-up
  - b. Establish command and name the incident
  - c. Communicate estimated patient count
  - d. Name command by location
  - e. *("Central – E16 is on scene, we have an explosion and hazmat release at the Phillips plant, I have an estimated 15 patients, and I am declaring this an MCI. E16 will be Phillips command.")*
3. Report critical hazards of the scene and designate best access and a staging area
  - a. *("All units from Phillips Command, be advised there is a chemical cloud moving to the South of the plant. All units approach from the North and stage at the corner of Main and Commercial streets.")*
4. Request needed additional resources
5. Identify tactical radio channel(s) for on-scene coordination as necessary
6. Declaring an MCI automatically means that the following will occur:
  - a. All EMS personnel, responding and on scene, will operate under this MCI plan, including use of triage markings (black, red, yellow and green categories) and Care Flight triage.
  - b. Agency dispatch for unit declaring MCI will contact potential receiving hospital(s) and notify each of:
    - 1) The type of incident
    - 2) Estimated patient numbers
    - 3) Any special considerations (contamination, unusual injury types, need for translators, etc.)
  - c. When notified of a multi-casualty incident, each hospital will assign personnel to monitor the radio.
  - d. Ambulances responding to the MCI may be directed to report to a designated staging location to be assigned by the Incident Management Team. If a staging area is not identified, responding ambulances will "self-stage" a short distance from the designated scene, in their normal direction of travel (Level 1 staging), and seek radio confirmation on the designated frequency from the Incident Management Team of their assignment before entering the scene.
  - e. Non-licensed transportation modes such as mass transit may be used to transport

patients. Whenever practical, such transportation should include qualified EMS personnel, 2-way radio communications, and basic medical supplies, e.g. a medical pack.

## **ESTABLISH INCIDENT FACILITIES**

1. Under most circumstances, there will only be one IC per incident, stationed at the Incident Command Post which must be recognizable and located safely away from any hazard zone. If Unified Command is used, it will direct the Medical Branch using standard ICS practices.
2. A Staging Area or areas may be established to best facilitate the incident traffic flow and be organized by type i.e., transport ambulances, fire engines, other resources. If multiple staging areas are necessary, they should be identified by geographic location, e.g. "North Staging" or "First Street Staging".
3. Triage and treatment areas and/or casualty collection points may be established by the Medical Branch or Incident Management Team based on the nature of the incident.
4. Patient movement from one area to another, e.g. a triage area to a treatment area, is managed by the sending area.

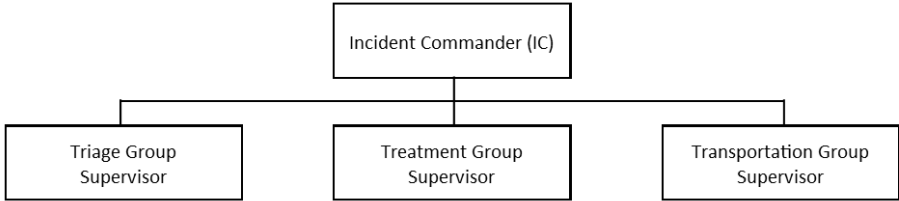
## **MANAGE TRANSPORTING AMBULANCES ASSIGNED TO THE MCI**

1. Arriving medical units will report to the Staging Area on the staging frequency unless assigned differently by the Incident Management Team.
2. Transporting ambulances will be assigned patients and destination hospital by the Transportation Group Supervisor.
3. Each transporting ambulance crew should remain together and not get involved in the Treatment Area during their patient loading unless directed otherwise.
4. Transporting ambulances will notify their agency dispatch or Mercy Flights A.R.M.S. (if activated) when they are on the MCI scene, en route to the hospital, when arriving at the hospital, and when available for reassignment.
5. EMS-hospital radio traffic will be restricted during MCI incidents. The preferred radio frequency will be MEDNET Primary. The Transportation Group Supervisor will direct transporting units to specific locations after discussing available resources with the Medical Branch Director or IC.
6. Transporting units will notify agency dispatch (if A.R.M.S. is activated transporting units will notify Mercy Flights Dispatch) as they leave the scene with the MCI name, unit ID, destination, and patient age, gender and triage color  
*("Mercy Flights Dispatch – Mercy 21 from Main Street MCI en route to ACH with 1 Red female teenager and 1 Green male about 50 years old.")*
7. Transporting units will then notify the destination hospital while en route via MEDNET and the report to the hospital will consist of essential information, primarily the following items:
  - a. The transporting unit ID
  - b. The number of patients, their ages, genders and their respective triage codes
  - c. ETA to destination.  
*("RRMC – M2 is inbound to your facility from Brentwood MCI with 2 patients. Red. First patient triage "Red" female child age about 4 years and second patient "Red" 42-year-old male. We have an ETA of 15 minutes.")*
8. Transporting units will notify agency dispatch or Mercy Flights-A.R.M.S. (if activated) when they arrive at their destination with their unit ID and location.  
*("Mercy Flights Dispatch – M1 is out at RRMC.")*
9. Ambulances transporting non-MCI patients will report to the hospital with short and concise reports on MEDNET Primary.

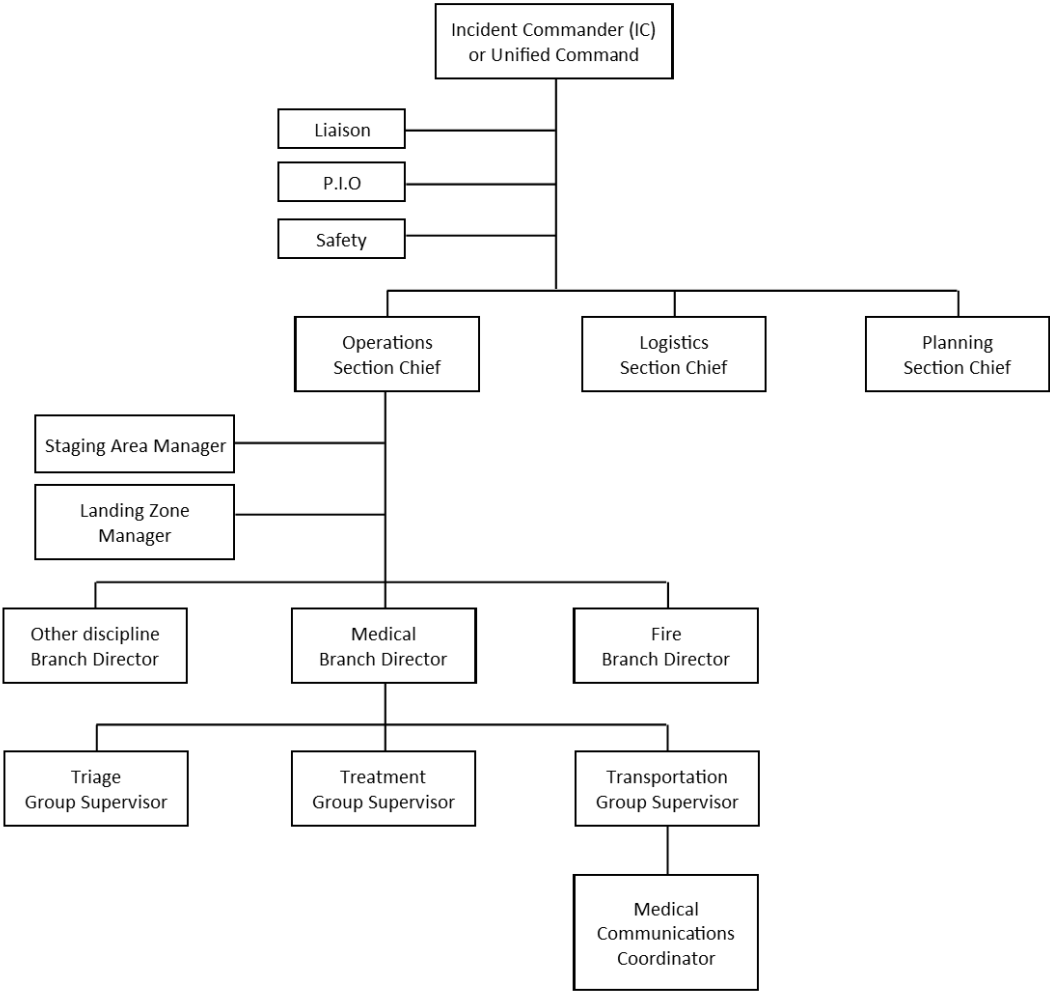


# INCIDENT COMMAND SYSTEM (ICS)

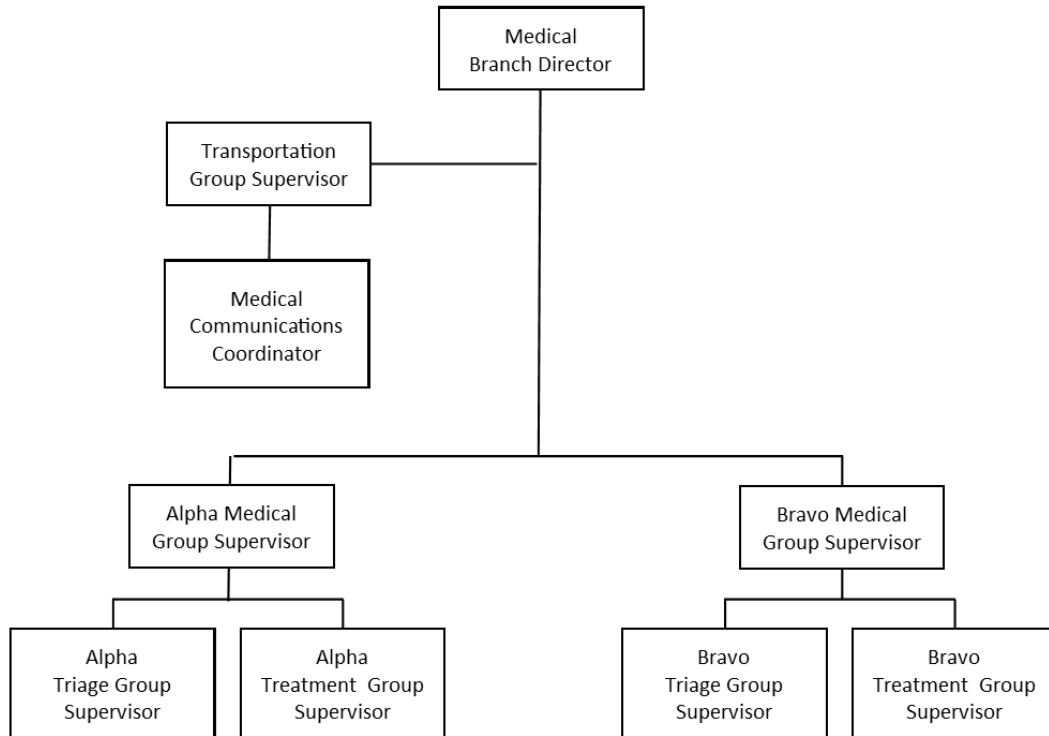
SIMPLE MCI EVENT



COMPLEX MCI EVENT



MEDICAL BRANCH WITH MULTIPLE TRIAGE/TREATMENT AREAS





# INCIDENT COMMANDER – DUTY CHECKLIST

The Incident Commander may fill multiple roles until additional personnel arrive.

- Wear “COMMAND” vest
- Radio Call Sign: “incident name COMMAND”
- Determine the location of incident facilities considering potential threats:
  - Locate Command Post – Consider close proximity but safe distance
  - Establish Staging Area – To avoid congestion in the immediate area
  - Establish Rehab – Sufficiently distant from the incident that responders can rest
  - Establish Helicopter LZ/helispot – Accessible and not disruptive to other operations
  - Establish Morgue Facility – Secure and out of sight
  - Establish tactical radio channel(s)
- Provide information briefing and assign ICS positions as needed:
  - Medical Branch Director
  - Triage Group Supervisor
  - Treatment Group Supervisor
  - Transportation Group Supervisor
- The Incident Commander has the following responsibilities until delegated:
  - Determine the incident priorities and incident action plan (IAP)
  - If needed, plan for the next operational period or assign a Planning Chief
  - Provide for the safety of the responders
  - Assign a Safety Officer as necessary
  - A safety officer must be assigned if the MCI is considered a Hazardous Materials incident
  - Provide coordination between assisting agencies or assign a Liaison Officer
  - Provide information to the public or assign a Public Information Officer (PIO)
  - Direct branch directors to complete the incident action plan (IAP) or assign an Operations Chief
  - Order resources or assign a Logistics Chief
  - Manage staging area or assign a Staging Manager
  - Be responsive to additional incident needs.

# MEDICAL BRANCH DIRECTOR – DUTY CHECKLIST

- Wear “MEDICAL” vest
- Radio Call Sign is “*incident name* MEDICAL”
- This position is activated to manage medical operations
- This position reports directly to the Incident Commander or Operations Section Chief if one is assigned
- This position is responsible for Triage, Treatment, and Transportation Group Supervisors
- Responsibilities of the Medical Branch Director:
  - Oversee medical operations of the IAP and coordinate with other appropriate ICS positions
  - Ensure all assigned Group Supervisors get the support they need to fulfill their responsibilities
  - Reassign resources within the Medical Branch to facilitate evolving operational needs
  - Report triage count with updates as needed to dispatch and to Incident Command
  - Anticipate additional resource needs; request resources as needed
  - Coordinate the setup of on-site and off-site treatment areas
  - Coordinate regarding the need for air medical transport and landing zone(s) (LZ/helispot), and assign LZ Manager or unit to set up landing zone(s)
  - Maintain log of activities

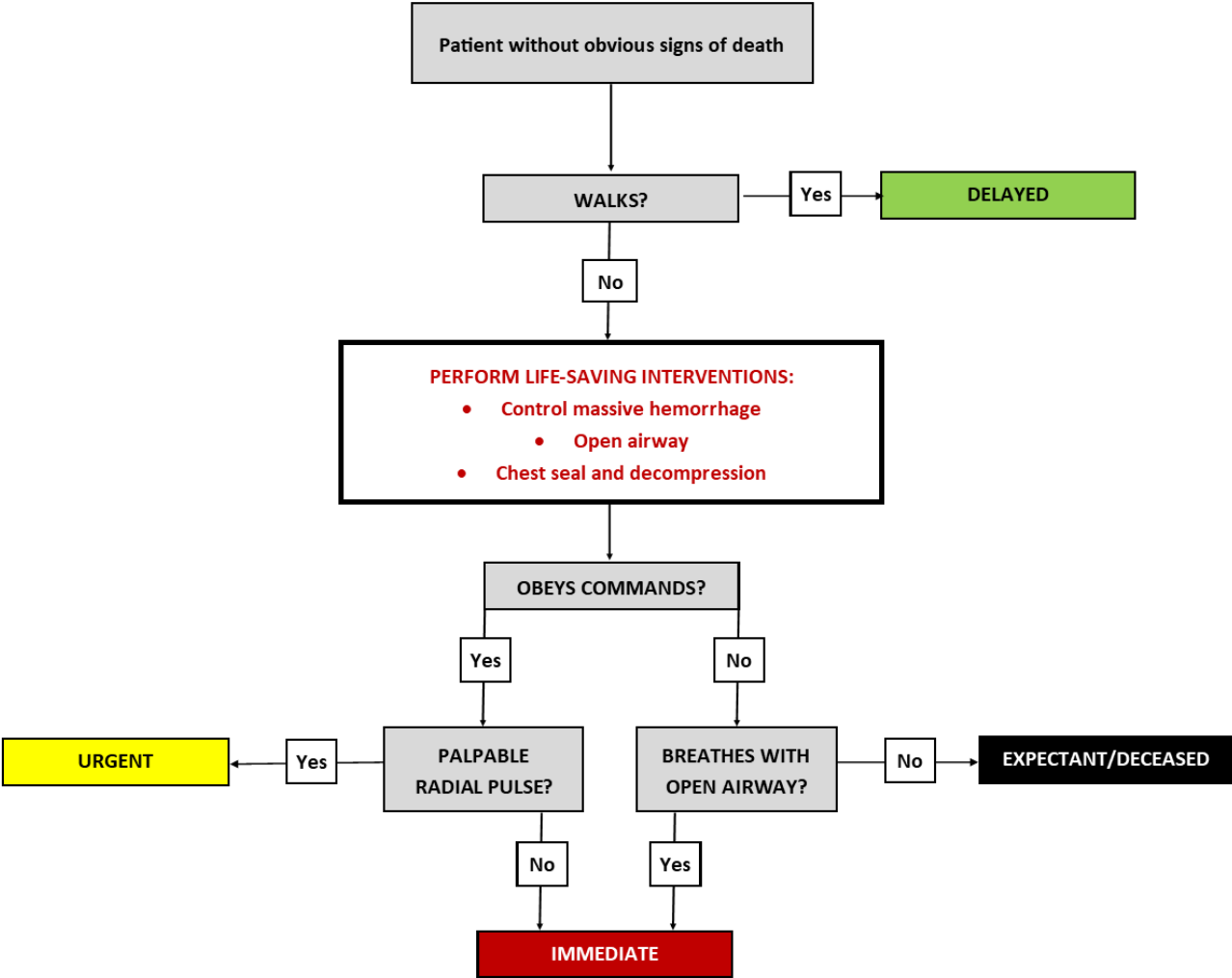
# STAGING AREA MANAGER – DUTY CHECKLIST

- Wear “STAGING” vest
- Radio Call Sign is “*incident name* STAGING”
- If additional staging areas are established for other resources, identify yourself as “*incident name medical* STAGING” or coordinate medical staging with the overall Staging Area Manager
- This position is activated to manage the resources for the entire incident that are assigned to the staging area
- Although communications may be directly between Transportation Group Supervisor and this position, the Staging Area Manager reports directly to Incident Commander, or the Operations Section Chief if one is assigned
- This position is responsible for any Assistant Staging Area Manager
- Responsibilities of Staging Area Manager:
  - Track all available resources in the staging area
  - Assign resources that are in the staging area to the proper location within the incident and provide information regarding their contact person and assignment
  - Facilitate traffic flow in conjunction with the Transportation Group Supervisor
  - Brief ambulance personnel on incident details, radio frequencies and traffic flow
  - Request and assign additional staging personnel as needed
  - Sort all resources; transporting ambulances may need to be marshaled into separate portion of the staging area, to facilitate ease of utilization and quick rotation

# TRIAGE GROUP SUPERVISOR – DUTY CHECKLIST

- Wear “TRIAGE” vest
- Radio Call Sign is “*incident name* TRIAGE”
- This position is activated to manage the counting and sorting of patients prior to treatment
- This position reports directly to the Incident Commander, or Operations Section Chief or Medical Branch Director (*the lowest of the above positions that is activated*)
- This position is responsible for any assigned personnel
- Responsibilities of Triage Group Supervisor:
  - Determine proper level of responder PPE as patients may be involved in hazardous materials or near fire
  - Ensure all patients that enter the treatment area have been properly decontaminated
  - Sort victims according to the R.A.M.P. criteria (*may use appropriate colored ribbon system during initial triage*)
  - Mark patient triage level either by marking skin with ink marker or attaching appropriate colored ribbon – left forearm preferred
  - Inform Medical Branch Director of the initial triage count (*make sure that the sum of the red, yellow, green and black patients is the same as the total patient count*)
  - Direct patient movement to treatment area based on triage criteria and other on scene conditions
  - Keep Supervisor informed of current triage count
  - Direct the scene search for additional patients to ensure no one is left behind

# CARE FLIGHT TRIAGE



## QUICK COLORED RIBBON TRIAGE TAGS

1. Triage ribbons are acceptable for triage of patients.
2. Ribbon should be at least 1" in width.
3. Agencies should carry green, yellow, red and black ribbon.
4. It is preferred that the black ribbon be black and white striped for visibility against different backgrounds.
5. Those conducting triage should tear off a small piece of the applied ribbon and place in their pocket to help track the number and color of total patients triaged.
6. The ribbon should be attached to a very visible body part that will be easily identified by other rescuers.



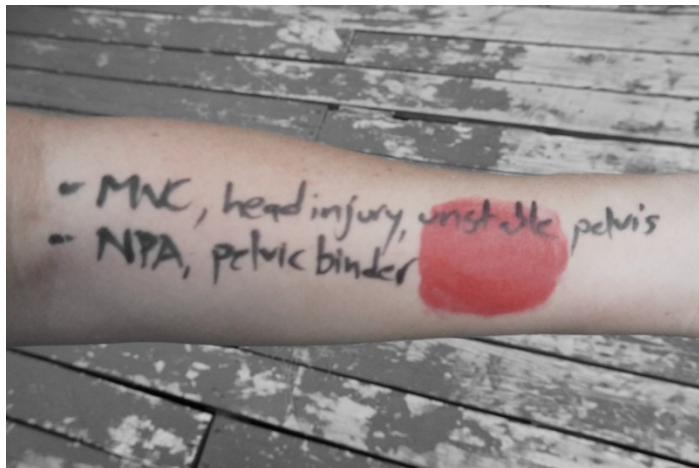
## INK MARKER

1. Colored or black ink marker is acceptable for triage of patients
2. Either make a clearly visible red, yellow, green, or black mark on the patient's skin OR write the word for the patient's triage category "Expectant," (black) "Immediate," (red), "Urgent" (yellow) or "Delayed" (green) in black or other visible marker (agencies should carry a metallic or other marker that will be visible on dark-skinned patients)
3. Inner left forearm is preferred unless injured; in that case, use another clearly visible area of open skin
4. Cross arms and legs of Expectant (black) patients to avoid re-triage
5. Those conducting triage should keep track of the number of patients in each category either by hash marks on a piece of paper or their own hand or forearm



# TREATMENT GROUP SUPERVISOR – DUTY CHECKLIST

- Wear “TREATMENT” vest
- Radio Call Sign is “*incident name* TREATMENT”
- This position is activated to manage the treatment area(s) and any incident response personnel assigned there
- This position reports to the Incident Commander, or Operations Section Chief or Medical Branch Director (*the lowest of the above positions that is activated*)
- This position is responsible for any assigned personnel
- Responsibilities of Treatment Group Supervisor:
  - Establish area for red, yellow, and green treatment
  - Coordinate and oversee patient treatment according to red, yellow, or green prioritization
  - Request additional resources
  - Assist and brief staff as needed
  - Coordinate the movement of patients out of treatment area with the Transportation Group Supervisor
  - Oversee documentation with ink marker on patient’s forearm or chest seal of Mechanism, Injuries identified, and Treatments performed



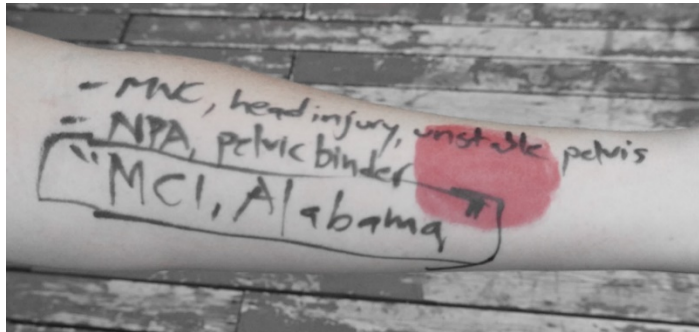


# TRANSPORTATION GROUP SUPERVISOR – DUTY CHECKLIST

- Wear “TRANSPORTATION” vest
- Radio Call Sign is “*incident name* TRANSPORTATION”
- This position is activated to manage the transportation plan which includes traffic flow and assigning patients to receiving facilities
- This position reports directly to the Incident Commander, or Operations Section Chief or Medical Branch Director (*the lowest of the above positions that is activated*)
- This position is responsible for any single resource, strike team or task force that is assigned to them
- Responsibilities of Transportation Group Supervisor:
  - Assign and brief staff as needed
  - Assign and supervise Medical Communications Coordinator
  - Obtain hospital capabilities by communicating directly with hospitals over MedNet1 or if direct communication is not possible, through agency dispatch
  - Establish patient loading zone(s)
  - Consider one-way on-scene traffic patterns to facilitate traffic flow from the staging, to patient loading, to LZ/helispot or for departing the scene
  - Coordinate with Staging Manager to bring transport units to the loading area or communicate directly with arriving transport units if no Staging Manager assigned
  - Coordinate the transport of patients out of treatment area with the Treatment Group Supervisor
  - Arrange non-medical transport for green patients, as necessary
  - Perform all duties of the Medical Communications Coordinator, if one is not assigned

# MEDICAL COMMUNICATIONS COORDINATOR – DUTY CHECKLIST

- This position is activated to assist in tracking of patients being transported from a large MCI
- This position reports directly to the Transportation Group Supervisor
- This position is responsible for any assigned personnel
- Responsibilities of Medical Communications Coordinator:
  - Maintain log of patients transported from the scene that includes name and DOB if available or assigned alias (see below); destination, triage color, estimated age, suspected gender
  - Assign an alias to any patient who cannot provide their name and DOB and write it on the patient's forearm or other prominent place, as well as on a bag containing any patient belongings, if applicable
  - Direct transportation of specific patients to specific receiving facilities
  - Send completed log to receiving facilities





## JACKSON COUNTY EMS TRANSPORTATION LOG PAGE 2

Alias/Name and DOB	Number	Time	Hospital			R	Y	G	AGE	SEX	INJURIES
MCI, Florida			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	
MCI, Georgia			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	
MCI, Hawaii			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	
MCI, Idaho			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	
MCI, Illinois			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	
MCI, Iowa			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	
MCI, Kansas			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	
MCI, Kentucky			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	
MCI, Louisiana			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	
MCI, Maine			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	
MCI, Maryland			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	
MCI, Massachusetts			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	
MCI, Michigan			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	
MCI, Minnesota			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	
MCI, Mississippi			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	
MCI, Missouri			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	
MCI, Montana			<input type="checkbox"/> RPMC <input type="checkbox"/> PMMC	<input type="checkbox"/> ACH <input type="checkbox"/> TRMC		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		M / F	

# **LANDING ZONE (LZ) MANAGER – DUTY CHECKLIST**

(Must be familiar with helicopter operations)

- Establish air-to-ground radio contact
- Landing area as close to flat as possible
- Minimum of 100 x 100 foot area free of obstructions
- Check carefully for overhead wires and other objects.
- Secure any loose or movable objects
- Wet down the area to control dust and debris
- Consider noise interference and rotor wash
- Establish landing zone far enough from the scene so these will not be a problem
- Notify Medical Branch Director and Transportation Group Supervisor of landing zone location
- Maintain security and crowd control of the landing zone
- Coordinate with Transportation Group Supervisor to move patients to the helicopter

# **CONCLUSION OF AN MCI**

## **DEMOBILIZING AN MCI**

1. Before releasing resources that have completed their task, any ICS position responsible for resources should consider re-assigning them to the Staging Area for possible re-assignment to active incident areas.
2. Consider leaving at least one ambulance on scene until all emergency operations have ceased as additional patients may be discovered or workers may be injured.
3. The Incident Management Team shall notify all receiving hospitals, alternate care sites and assisting agencies when the transportation of last patient is complete.
4. An on scene briefing of at least the medical branch should be done to determine what it will take to put resources back in service, sort out supplies and determine what will need to be replaced.
5. All requests for information, photos or videos about the event shall be directed to the Public Information Officer or Incident Commander.
6. Any personnel on scene can request critical incident stress debriefing. This may be time sensitive and should be handled by a professional.

## **POST INCIDENT**

1. The Incident Commander (or designee) will perform a final patient audit and send a completed report to each transporting agency which list the patients transported by their ambulances.
2. All agencies must complete pre-hospital patient care report forms on all patients transported by their agency.

The Incident Commander (or designee) should schedule an After Action Review of the incident within 3-5 days. Include all appropriate agencies that were involved: fire, EMS, law enforcement, dispatch, air ambulance(s), hospital(s) and others.

# MCI POST-INCIDENT ANALYSIS REPORT

Date of Incident: \_\_\_\_\_ Incident # (CAD): \_\_\_\_\_

Location: \_\_\_\_\_ Time: \_\_\_\_\_

Agencies Involved: \_\_\_\_\_

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## Patient Count:

Green:	Yellow:	Red:	Black:	Total:
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## ICS Positions Filled

Incident Commander	
Medical Branch Director	
Triage Group Supervisor	
Treatment Group Supervisor	
Transportation Group Supervisor	
Other:	
Other:	
Other:	

## Details: