

PREHOSPITAL TREATMENT PROTOCOLS

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Maine Emergency Medical Services

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AUTHORIZATION FOR PROTOCOLS

These protocols are issued by the Medical Directions and Practice Board and govern the practice of EMS licensees by the authority of 32 MRSA § 86.2-A. All Maine emergency physicians and the regional EMS programs were invited to participate in the review and adoption of these protocols through their MEMS Regional Councils.

The Regional Medical Directors agree that when treatments are adopted in their regions, they will be consistent with these protocols.

These protocols will be continually reviewed. New or revised protocols will be issued in adhesive-backed pages that can be easily placed over the protocol being replaced or on one of the blank pages provided at the end of the protocol book. All changes will also be listed on the Protocol Errata form located on the Maine EMS website.

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DEFINITIONS

“**ACLS**” means advanced cardiac life support.

“**Advanced Airway**” means the skills of endotracheal intubation and use of other airway modalities such as Blind Insertion Airway Devices performed only by those who have completed practical training in each of these skills.

“**AHA**” means the American Heart Association

“**ALS (Advanced Life Support)**” means the ability to provide advanced level of medical care, which in the prehospital realm means EMT-Critical Care or EMT-Paramedic. The ALS skills may include the following: IV access, advanced airway, cardiac monitoring, and/or oral or parenteral medications.

“**ALS (Advanced Life Support) If Available**” means that the patient shall receive the highest appropriate ALS intervention as soon as possible. The decision in this realm as to which interventions may be appropriate rests with the critical care technician or paramedic, if available. If any skills other than basic life support are deemed necessary or initially implemented, an ALS response should be sought, with simultaneous dispatch if possible. The use of a medical priority dispatching program, approved by the state medical director, is encouraged. When this cannot happen, the crew in attendance should bring ALS care and the patient together in the fastest of three ways: (1) ALS back-up at the scene; (2) ALS back-up met en route; or (3) ALS by hospital staff in the emergency department if prehospital rendezvous is not possible.

The BLS providers on the scene may modify the ALS response as appropriate.

“**ARC**” means the American Red Cross.

“**Automatic Ventilation**” Automatic ventilators (time-cycled, pressure controlled), approved by Maine EMS, may be used to assist ventilations when a BIAD or ETT is in place by the intermediate, critical care, or paramedic provider during transport from a scene response to the hospital. These devices may also be used to deliver facemask ventilations. During inter-facility transport, use of these devices is limited to critical care capable transport systems.

“**AVPU**” means Alert, responsive to Verbal stimuli, responsive to Painful stimuli, or Unresponsive.

“**BP**” in these protocols refers to the *systolic* blood pressure.

“Central Lines” means any IV catheter device, which gains access to a patient’s central circulation. EMS providers, within their scope of practice, may monitor an indwelling central line (such as a Port-a-cath) which has been accessed or established prior to EMS transport and may monitor the medications being administered through these lines.

“Critical Care Technician/Paramedic Back-up” means using an advanced life support resource when a presenting patient needs more than basic life support. As noted above, in the prehospital setting this usually indicates a critical care technician or paramedic response. An ALS back-up agreement should be written between EMS provider services routinely offering and accepting ALS back-up support. This would establish medical/operational/liability expectations of both services. These protocols cannot mandate any service to routinely offer or receive back-up. However, any decision in this regard, particularly to refuse to offer or accept ALS back-up, should be grounded in reasonable medical, operational, or financial considerations and should be reviewed by the individual service’s legal counsel.

“Emergency Department” means a hospital that provides an organized Emergency Service or Department that is available twenty-four (24) hours a day, seven (7) days a week and has the capability to provide On-Line Medical Control, to evaluate, treat, stabilize, and to refer to an appropriate outside resource all persons who present themselves for treatment.

“EMS Provider” means any person or service licensed by Maine EMS to provide emergency medical services.

“Fluid Challenge” indicates maximum fluid administration achievable without pumps or other special equipment in the field setting. Specifically, running a large bore IV wide-open until 300-500 ml of fluid has been administered, and repeating this process until a desirable blood pressure, based on the patient’s underlying condition, is achieved. A true IO bolus, at the appropriate dose with a syringe/3-way stop-cock assembly, is acceptable. Pediatric boluses are 20 ml/kg, and may be repeated one time if patient remains hypotensive.

“Greater/Less than” In these protocols “>” means “greater than,” and “<” means “less than.” Example: “BP <100” means “BP less than 100.”

“ILS” (Intermediate Life Support) means the ability to provide EMT-Intermediate level care.

“IO” in these protocols, means intraosseous access. IO may be used by the EMT-Intermediate, Critical Care, or Paramedic in any patient if an IV is not established within two attempts or 90 seconds and that patient has one of the following:

- a) Altered mental status (GCS less than or equal to 8)
- b) Respiratory failure (SaO₂ less than or equal to 90% after appropriate oxygen therapy, respiratory rate less than 10 or greater than 40 breaths per minute) with alteration of mental status.

- c) Profound hypovolemia or hemodynamic instability with alteration of mental status or other evidence of shock
- d) Cardiac arrest (medical or traumatic)

With discussion with OLMC, may consider IO placement for the following conditions:

- a) Profound hypovolemia (Systolic BP less than 90 mm Hg) without alterations in mental status or other evidence of shock
- b) Burn patients with bilateral upper extremity burns

*IO is contraindicated in the following conditions:

- a) Fracture of the tibia or femur in lower extremity placement or fracture of the humerus in upper extremity placement
- b) Infection at insertion site
- c) IO within the prior 24 hours
- d) Knee replacement (identified by midline vertical scar over the patella)
- e) Tumor near site
- f) Inability to locate landmarks
- g) Excessive tissue at insertion site
- h) IO access is not intended for prophylactic use.

Approved Sites (one per bone):

- a) Anterior/medial tibia
- b) Lateral humerus
- c) Medial malleolus/distal tibia

Critical Care/Paramedic: If infusion of medications or fluids causes significant pain, consider the following:

- 1) Adult: Consider lidocaine 2% (preservation free) 40 mg bolus followed by 10 ml Normal Saline flush. If pain continues, contact OLMC for OPTION of additional 20 mg bolus.
- 2) Pediatric: Consider lidocaine 2% (preservation free) 0.5 mg/kg (MAX 40 mg) slow push followed by 10 ml Normal Saline flush. If pain continues, contact OLMC for OPTION of additional 0.25 mg/kg (MAX 20 mg) slow push.

“IV” means any balanced electrolyte solutions may be used, such as Lactated Ringers and Normal Saline. Normal Saline is the fluid of choice for patients with history of renal failure, not Lactated Ringers. Recommended catheter size for rapid fluid resuscitation in adults is 14-18 gauge. If rapid fluid resuscitation is not required, smaller catheter sizes and heparin/saline locks may be used. Heparin used for this procedure is not considered a medication.

“MDPB” means Maine EMS Medical Directions and Practice Board, which consists of the six Regional Medical Directors, a Physician representing the Maine Chapter of the American College of Emergency Physicians, and the State EMS Medical Director.

“NR” means a non-rebreather oxygen mask.

“O₂” means oxygen therapy as appropriate for patient.

“On Line Medical Control” (“OLMC”) refers to the on-line physician/physician assistant/nurse practitioner who is licensed by the State of Maine and authorized by a hospital to direct emergency medical services persons consistent with the protocols developed by the MDPB.

“Other Appropriate Destination” means a facility that has been approved by the Board of EMS to receive via ambulance patients who are in need of emergency care.

“Pediatric Patient” in these protocols, means prepubertal (without pubic, axillary, or facial hair).

“PPV” means positive pressure ventilation device such as (in order of preference): two-person bag-valve-mask technique with oxygen, one-person bag-valve-mask technique with oxygen, mouth-to-mask ventilation with oxygen, and mouth-to-mask ventilation without oxygen.

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FOREWORD

These protocols were developed for the following reasons:

1. To provide the EMS provider with a quick field reference, and
2. To develop written standards of care which are consistent throughout the state of Maine.

Users of these protocols are assumed to have knowledge of more detailed and basic patient management principles found in EMS textbooks and literature appropriate to the EMS provider's level of training and licensure.

EMS providers are encouraged to contact OLMC in any situation in which advice is needed, not only in situations as directed by these written protocols.

To use these protocols as they were intended, it is necessary to know the philosophy, treatment principles, and definitions, which guided the physicians and other EMS providers who drafted these protocols:

- 1. Delays in treatment should very RARELY delay transport!** This is especially true for trauma patients, patients with chest pain and patients with suspected stroke. IV's should be started en route except in those situations where treatment at the scene is in the patient's best interest, such as shock, with prolonged extrication, or a cardiac patient when full ACLS care is available. Delays in transport should be discussed with OLMC.
- 2. Inability to establish voice contact with OLMC.** There are rare situations where the patient is unstable and delay in treatment threatens the patient's life or limb. If, after good-faith attempts, the advanced EMT cannot contact OLMC, then the advanced EMT is authorized to use any appropriate treatment protocols as if they were standing orders. In such cases treatments must still be consistent with the advanced EMT's training and licensure. Continue attempts to contact OLMC and document these attempts on the patient run record.
- 3. Transports and transfers.** During transports and transfers, ambulance crews will follow these MEMS protocols, including use of only those medications and procedures for which they are trained and authorized by protocol.
- 4. Hospital destination choice.** If a patient needs care which the ambulance crew, in consultation with OLMC, believes cannot be provided at the most accessible hospital, the patient will be transported to the nearest facility capable of providing that care upon the patient's arrival. If, with OLMC consultation, a patient is believed to be too unstable to survive such a diversion, then the patient will be transported to the most accessible hospital with an emergency department. Diversion is also non-binding, and if a patient insists or if the crew deems that bypass is not in the patient's best interest, then going to a

hospital “on diversion” is appropriate. If OLMC contact is not possible, the ambulance crew is authorized to make this determination. OLMC cannot legally refuse these patients.

5. **Regional destination.** Each region has the authority to develop protocols, which designate the appropriate destination for patients transported from the scene. Any such protocol should be patient-centric and created exclusively to offer patients emergent care only available at selected regional sites. Examples of such protocols include the Maine EMS Trauma System.
6. **Treatments/drugs should be given in the order specified:** However, the MDPB recognizes that often treatments are delivered simultaneously and more than one protocol may be used. OLMC may request treatments/drugs out of sequence for medical reasons.
7. **MEMS patient/run record** will be legible and thoroughly completed for each call or for each patient when more than one patient is involved in a call. This document is our legacy of patient care and holds information valuable to hospital providers. Services are encouraged to leave a completed copy of the patient/run report at the hospital before they leave. In rare circumstances, when it is not possible to complete this record before leaving the hospital, the services may provide the hospital with a Maine EMS approved, one page, patient care summary. **THIS DOCUMENT DOES NOT REPLACE THE COMPLETED RUN REPORT.** Services must complete this report and make the report available to the hospital as soon as possible.
8. **Quality Assurance.** All EMS providers and services must be in compliance with the Regional and State Quality Improvement Program to the satisfaction of the Regional Medical Director.
9. **Assuming and Reassessing care already provided: EMS providers who will be assuming the responsibility for patient care will also be responsible for assessing the care provided before their arrival, and for all subsequent care after they arrive** up to and including their level of training and licensure. **If an EMS provider has not been trained in a particular treatment listed at his level, or if that treatment is not within the EMS provider’s scope of practice, the provider may not perform the treatment.**
10. **If there is a paramedic on scene that is willing to:**
 - a. Accompany the EMT-I on the call, and
 - b. Accept responsibility for the EMT-I’s actions,Then the paramedic may direct the EMT-I to administer medications that are within the EMT-I’s scope of practice. This may be accomplished without contacting OLMC as long as the medication administration would not require OLMC for the paramedic. If the paramedic is unwilling to accept the above responsibilities, then the EMT-I’s **must contact OLMC before administering any medications.**
11. **Defibrillations: Intermediate EMTs** are expected to follow these protocols within the limitations of the monitor/defibrillator available to them.

- 12. Carbon monoxide monitors:** Carbon Monoxide monitors may be used for informational purposes only. Any alterations of treatment based on pulse carboximetry readings must be approved by OLMC.
- 13. Medical Control permission:** If a treatment is listed as requiring Medical Control permission at one level and is listed again without requiring OLMC permission at a higher level, the higher-level EMT need not seek OLMC permission.
- 14. Deviation from protocols:** These protocols represent a consensus of the MDPB. In unusual situations, OLMC may deviate from these protocols if done in the patient's best interest. The deviation in care ordered must be within the scope of practice, training and skill of the EMS provider. The reasons for deviating from these protocols must be documented in the patient's chart. Under such circumstances, if the ALS provider agrees, the ALS provider will verify and will comply with OLMC orders, will fully document the deviation on the patient run record, and will not consider the care rendered to be an emergency medical treatment to be routinely repeated.
- 15. Arrival of officially dispatched EMS personnel:** Once EMS personnel have arrived on the scene, they may interact with other medical personnel on the scene who are not a part of the organized EMS system responses in the following manner:
- a. Maine EMS licensees not affiliated with one of the responding service may only provide care within their scope of practice with the approval of the ambulance crew member in charge of the call.
 - b. The patient's own physician, physician assistant, or nurse practitioner may direct care as long as they remain with the patient (in their absence, direction of care is subject only to these protocols and OLMC). You may assist this person within the scope of your practice and these protocols. Only a physician or independent nurse practitioner may give orders outside of the MEMS protocols (refer to #14 above). Questions in this regard should be resolved by OLMC. You may show this person Protocol page "Black 1" ("Non-EMS System Medical Interveners") to assist with your explanation.
 - c. Other unsolicited medical interveners must be Maine licensed physicians, nurses, nurse practitioners or physician assistants whose assistance you request. Protocol page "Black 1" describes this, and should be shown to such interveners.
 - d. **Other health care providers in the home:** Other health care providers in the home attending the patient (e.g. R.N., L.P.N., C.N.A., Nurse Midwife, etc.) are bystanders who may be a valuable source of information. Any aid or treatment they wish to give must be authorized by OLMC. Any dispute over treatment/transport should be settled by OLMC.
- 16. Home health care devices and appliance:** Many patients will have devices and appliances (drains, ports, LVAD, etc.) with which they are routinely discharged home. Patients (or their licensed care providers or previously instructed family members), are expected to maintain them on their own. These devices have some risks associated with

them, but are generally considered safe in the home environment. As such, EMS providers are not restricted in the care or transfer of these patients based solely on the presence of these devices or appliances. If an issue arises and unfamiliarity with, or any questions concerning these devices that cannot be immediately resolved by the patient or caregivers, it should be referred to OLMC.

- 17. Left Ventricular Assist Device (LVAD):** A surgically implanted pump to assist left ventricular function. An LVAD can be a bridge to a heart transplant (although used for chronic care as well). Inform OLMC as soon as possible when interacting with a patient with a LVAD, as diversion to a hospital with a higher level of care may be suggested. Direct contact with the cardiac service responsible for this patient is also suggested at the earliest possible moment. No cardiac arrhythmia should be treated if the LVAD is functioning, as judged by an audible sound or pulse, without medical control approval for any treatment. Be sure to bring the patient's batteries (including the 24 hour battery), the large battery charger and all other accessories. Local EMS services may receive specialized training and protocol exemptions to extend help to these patients by working with regional EMS medical directors and MEMS.
- 18. Graduates with a current certification from a Maine EMS approved wilderness EMT course** may apply the principles of care taught in that course with the approval of the service medical director and when patient arrival at a definitive care setting will be more than 2 hours.
- 19. Repeated Treatment: Unless otherwise indicated,** any treatment included in these protocols may be repeated after reassessment **and** with OLMC permission.
- 20. External Pacing** (where indicated in these protocols) should be performed if a pacer is available. Pacers are not required equipment.
- 21. Oxygen supplementation** will be by nasal cannula or non-rebreather mask as appropriate.
- 22. Patient Sign-Offs** – There exist three origins for patient sign offs: 1) a patient refuses transport and the provider agrees transport is not warranted, 2) the patient refuses transport but the provider does not feel this is safe, and 3) the patient requests transport but the provider refuses (this final example is called an EMS System initiated sign off). Patient initiated sign offs should only be considered in patients with decision making capacity and resources available to care for themselves and when non-transport is considered safe. These sign offs do not require discussion with On Line Medical Control. In situations which the patient requests sign off but the EMS provider deems inappropriate, please refer to OLMC. **EMS System initiated patient sign offs (i.e.: when the patient requests transfer but the EMS provider refuses) are tremendously risky interactions and are not permissible. These sign offs must be approved by OLMC and the service is expected to review all of these events through the**

service's quality assurance mechanism. Patient medical records must be completed for all of these interactions.

- 23. Maine EMS Special Circumstance Protocols:** Maine EMS protocols are intended to address the vast majority of medical emergencies encountered by an EMS provider. While intended to be comprehensive, certain patients exist with rare medical conditions that require highly specialized emergent care. In such situations, Maine EMS has created the "Special Circumstance Protocols". These are prearranged medical protocols specialized to individual patients, suggested by the patient's medical provider and ratified by the EMS service medical director. Patients will present with a "Maine EMS Special Circumstance Protocol Form" that outlines the patient's individual protocol and is signed by both the patient's physician and the EMS service medical director. These special circumstance protocols should be made known to local EMS services and providers. In cases of question or uncertainty regarding the nature of the protocol, please refer to OLMC.
- 24.** During transport, patients should be secured to the stretcher utilizing both lateral and shoulder straps.

TASER PROBES

The use of a TASER does not automatically necessitate an EMS response or involvement. In assessing such patients, be cognizant of the potential for underlying metabolic dysfunction. TASER probes may be removed from the subject by the deploying officer. Probes that are imbedded in a sensitive area (e.g. face, neck, breast, and genital area) may need to be removed by medical personnel. In these cases, the subject should be transported to the hospital for examination and removal of the probes by medical personnel at the hospital. Other adverse affects, if any, (e.g. respiratory difficulty, seizures, etc.) should be treated as appropriate by the applicable protocol(s).

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MAINE EMS STATEMENT ON “RESCUE” OR “ALTERNATE” AIRWAY DEVICES

Maine EMS recognizes 2 major classes of Blind Insertion Airway Devices (BIAD’s). The first class, periglottic devices, includes the LMA® and Cobra PLA®. The second class, transglottic or potentially transglottic devices, includes the Combitube® and King LT®.

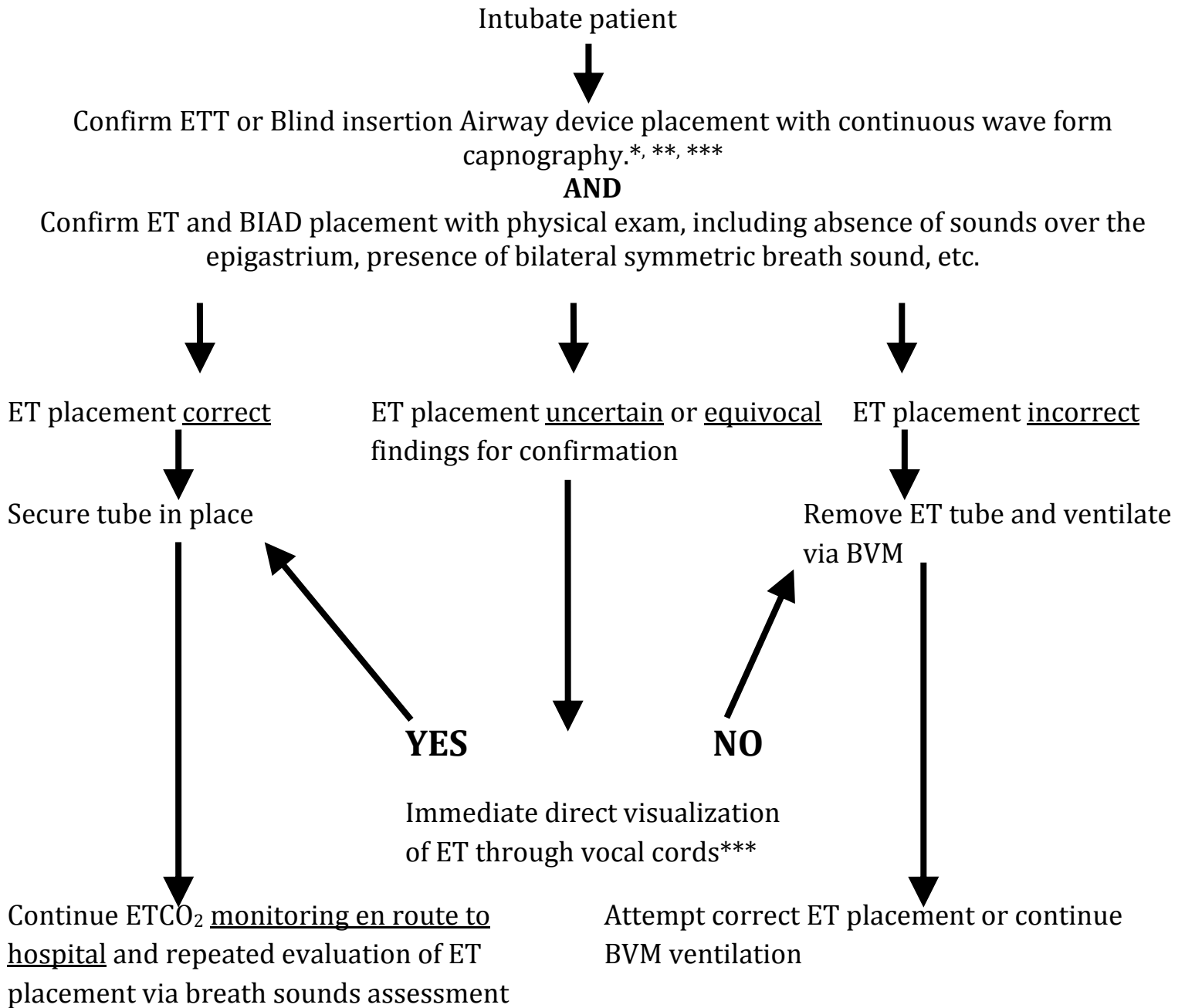
Any FDA approved devices from these classes are approved for use. It is recommended that agencies select only one device to minimize purchase costs and initial and ongoing education.

If an agency selects a transglottic/potentially transglottic device, continuous capnography, must be used to confirm and monitor placement. A C-spine collar should be considered to help protect placement of all endotracheal intubations, periglottic, and transglottic airway devices.

There are periglottic devices on the market that can be used to facilitate endotracheal intubation (e.g. ILMA®, IMA®). If these devices are placed without an attempt at endotracheal intubation, they may be treated as any other periglottic device. If they are used to assist in placing an endotracheal tube, that tube must be treated and confirmed as any other endotracheal intubation.

It is recommended to have *NO MORE THAN* one device per class (periglottic and transglottic), and if a service elects to have multiple options per class, then training and maintenance in proficiency for all devices available is required.

CONFIRMATION AND MONITORING OF ENDOTRACHEAL INTUBATION PATIENTS

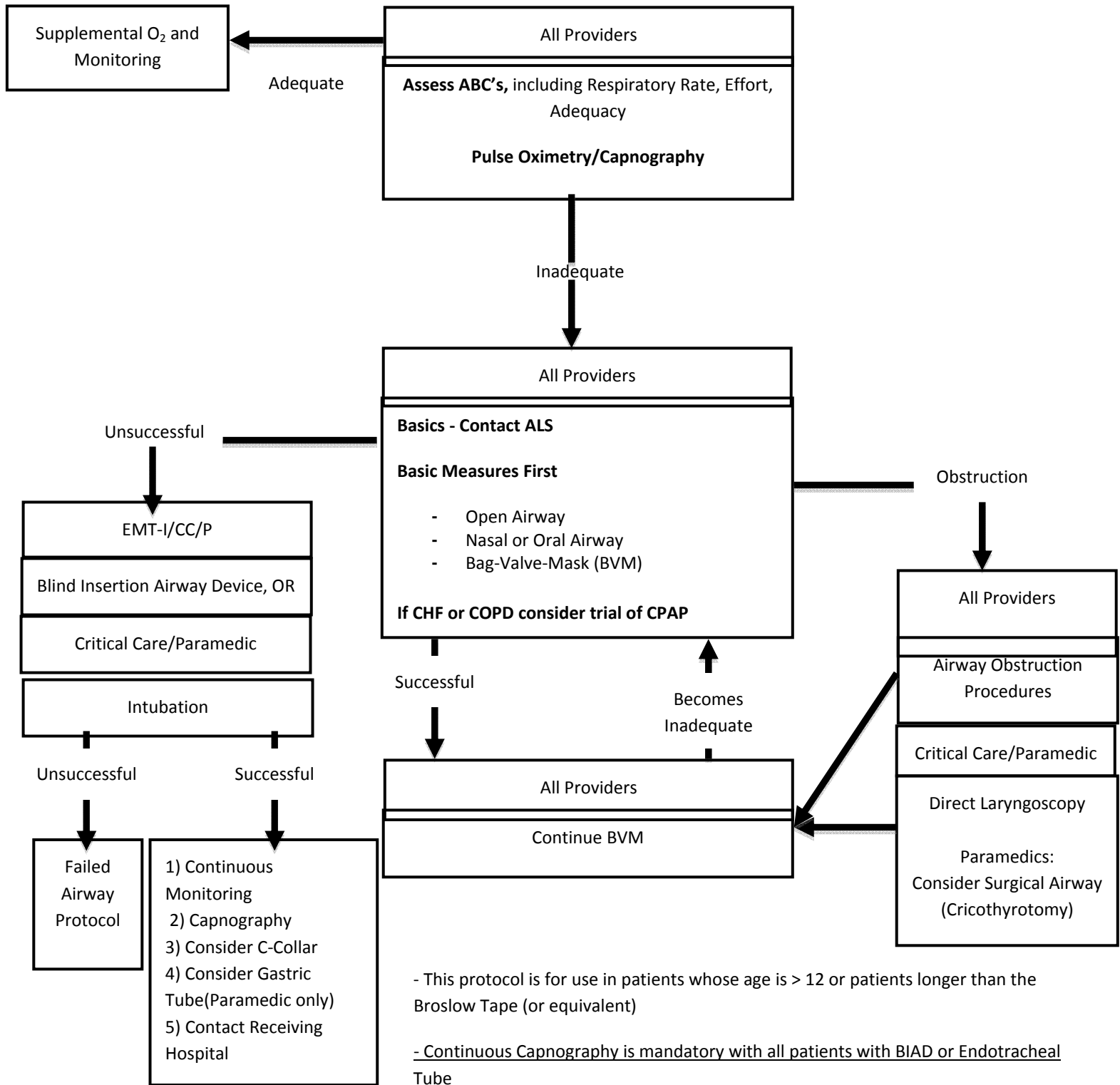


* For cardiac arrest patients, consider placement of the ET tube as well as lack of pulmonary circulation in the interpretation of ETCO₂ findings.

** Depending on the device used, ETCO₂ devices may not be applicable to the pediatric patient.

*** Nasotracheally-intubated patients should be assumed to have an incorrect placement if findings of breath sounds or ETCO₂ results are uncertain or equivocal

ADULT AIRWAY MANAGEMENT ALGORITHM



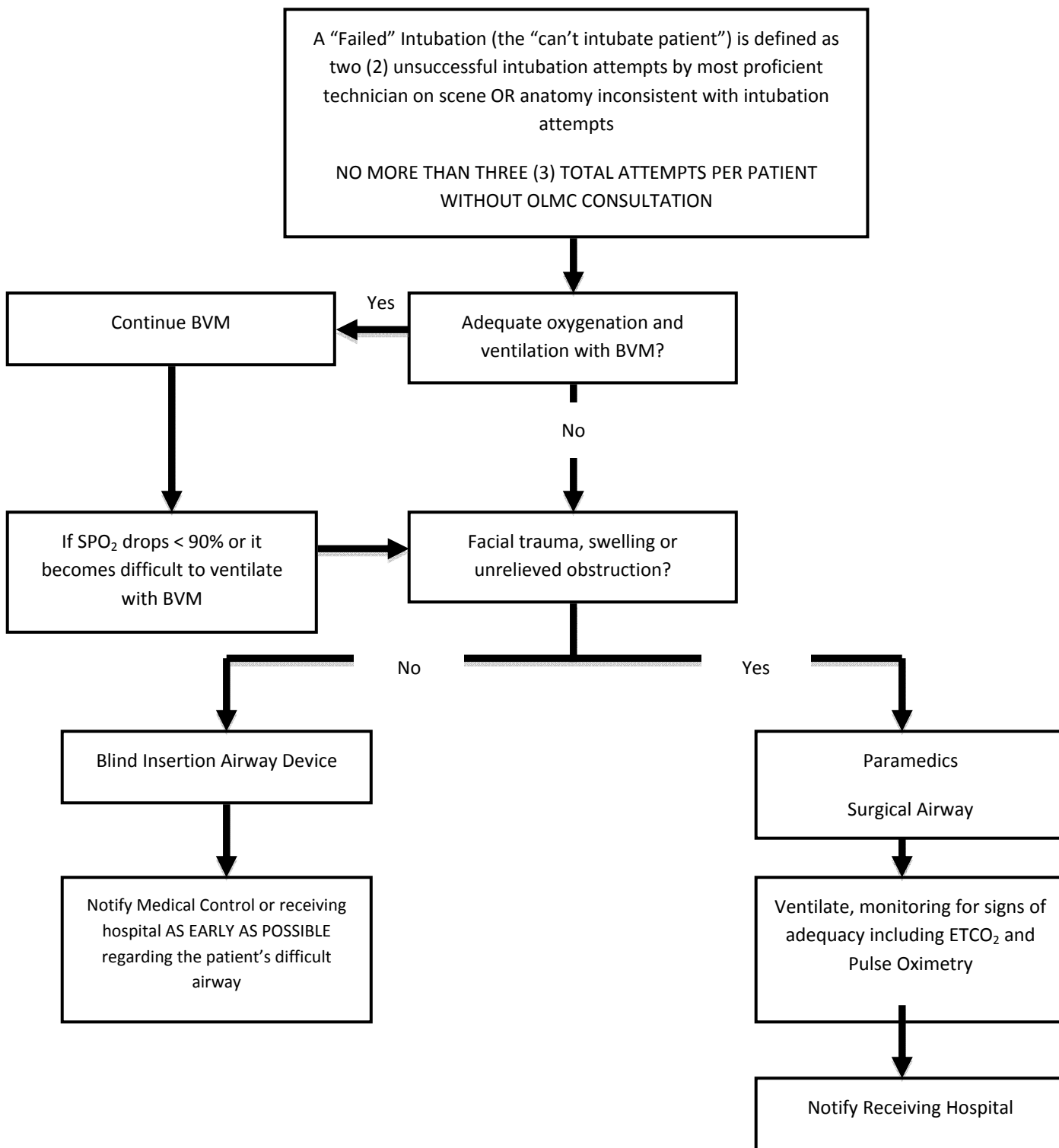
PEARLS for Endotracheal Intubation

- * Position the airway for best view of the cords – raise head to the sniffing position (i.e.: earlobe in line with sternal notch)
- * Preparation: (four cornerstones) 1) ET tube with loaded stylette, 2) laryngoscope with back up blade, 3) suction, 4) Bougie
- * Always have a back-up plan should the primary strategy fail

- The goal of Airway Management is adequate Oxygenation, Ventilation, and Airway Protection. If an effective airway is being maintained by BVM with OPA or NPA, it is acceptable to continue with basic airway measures rather than BIAD or Intubation.

- An Intubation attempt is defined as passing a Bougie or the endotracheal tube past the teeth or inserted into the nasal passage

Maine EMS Failed Intubation Algorithm



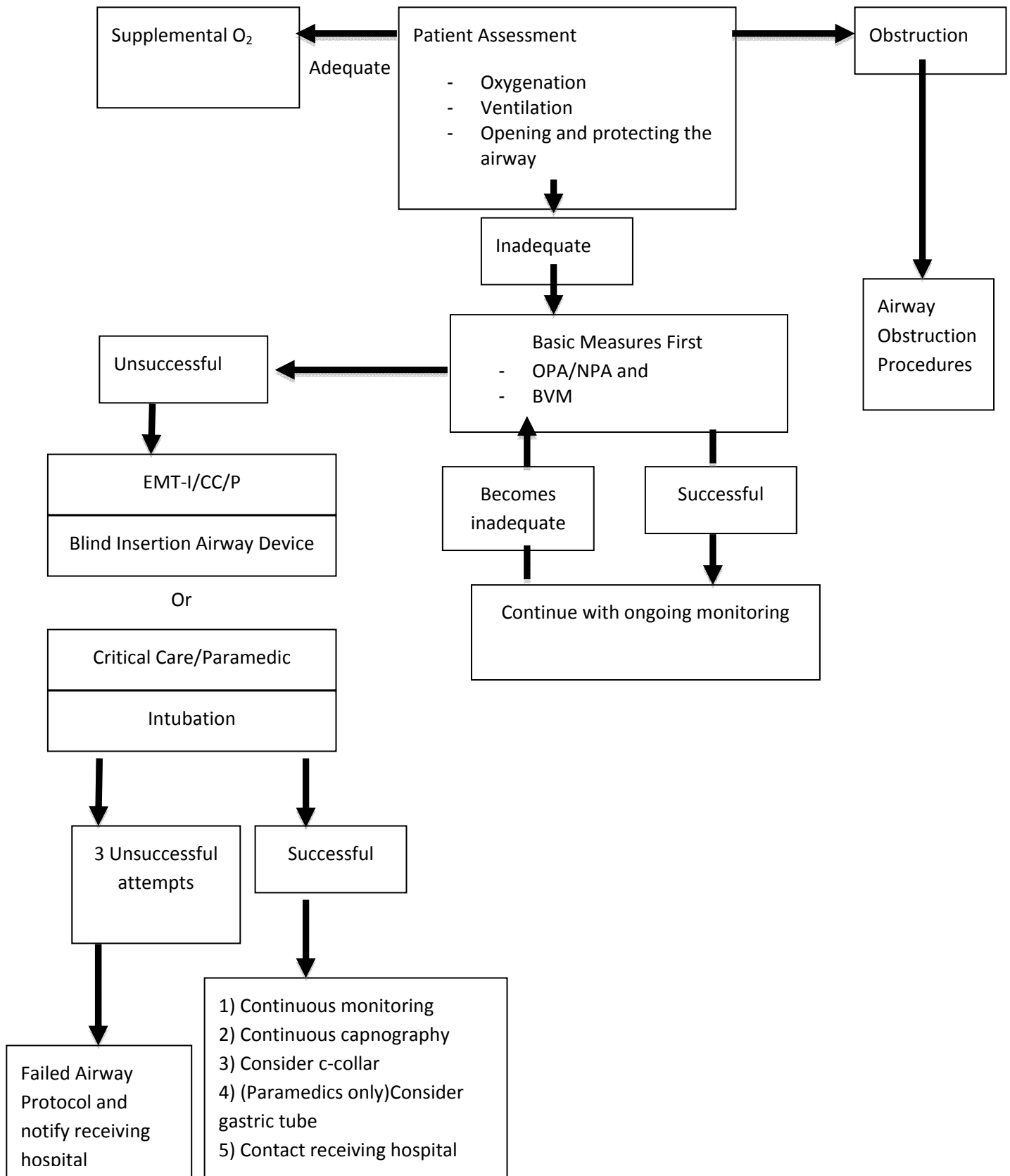
Continuous Pulse Oximetry and ETCO₂ monitoring should be utilized in all patients with difficult airways or respiratory distress

Notify Medical Control or receiving hospital AS EARLY AS POSSIBLE about the patient's difficult airway

FOR PEDIATRIC PATIENTS REQUIRING SURGICAL AIRWAY – Consider needle cricothyrotomy in patients < 10 years old OR if physiologically young enough that surgical landmarks are NOT identifiable

PEDIATRIC AIRWAY ALGORITHM

Surgical airways for paramedic only!



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RESPIRATORY DISTRESS WITH BRONCHOSPASM

(*COPD, emphysema, chronic bronchitis, asthma*)

CAUTION: RESPIRATORY DISTRESS MAY BE DUE TO MULTIPLE OTHER CAUSES FOR WHICH OTHER TREATMENTS MAY BE INDICATED, INCLUDING THE FOLLOWING:

Pulmonary Edema see page “Blue 9”

Anaphylaxis see page “Gold 1”

Chest Trauma see page “Green 10”

BASIC

1. O₂ as appropriate
 2. If needed, assist ventilations with PPV using 100% O₂
 3. Request ALS if available
-

4. For EMT-Basic level providers – assist with self-administered bronchodilator inhaler. Tell OLMC the name of the inhaler. OLMC will prescribe number of puffs
-



INTERMEDIATE

5. Cardiac monitor
 6. Manage airway as needed See “Blue 3 & 5”
-

7. Contact OLMC to administer albuterol, 2.5 mg by nebulization (use 3 ml premix or 0.5 ml of 0.5% solution mixed in 2.5 ml of normal saline)
-



8. Consider CPAP in patients > 18 y/o without asthma– Recall that CPAP should never take the place of bronchodilators and should be used only after or in concert with inhaled bronchodilators in patients with acute bronchospasm.

The EMT-I, in consultation with OLMC, may modify the Paramedic response as appropriate.

CRITICAL CARE / PARAMEDIC

9. Adult/Pediatric –
 - a. Albuterol 2.5 mg by nebulization. **May repeat 1 time;** or
 - b. Ipratropium bromide 0.5 mg / albuterol sulfate 3 mg nebulizer if greater than 1 year of age and more significant respiratory distress, and may repeat one time;

10. Consider CPAP - in patients > 18 y/o without asthma- Recall that CPAP should never take the place of bronchodilators and should be used only after or in concert with inhaled bronchodilators in patients with acute bronchospasm.

11. Contact OLMC for the following OPTIONS:

- a. Repeated or continuous albuterol by nebulization or inhaler.
 - b. Methylprednisolone 125 mg IV x 1 dose
 - c. For asthma only - pediatric - epinephrine: < 30 kg, 0.15 mg IM (0.15 ml of 1:1,000), > 30 kg, 0.30 mg IM (0.3 ml of 1:1,000) in anterolateral thigh
 - d. For asthma only - adult - epinephrine 0.3 mg IM of 1:1,000 solution every 20 minutes
-



PULMONARY EDEMA

(Without shock)

Do not give nitroglycerin if patient has taken erectile dysfunction medication (such as sildenafil [Viagra], tadalafil [Cialis], or vardenafil [Levitra]) within the past 72 hours.

Contact OLMC for options in patients who have taken such medicines.

If initial systolic BP is less than 100 mm Hg, , Cardiogenic Shock See “Red 21”.

BASIC

1. O₂ as appropriate. Assist ventilations (PPV) if needed.
2. Assess for shock. If BP greater than 100 mm Hg, place in sitting position.
3. Request ALS if available

INTERMEDIATE

4. Cardiac monitor
5. IV en route
6. Manage airway as needed See “Blue 3 & 5”

7. Contact OLMC for administration of nitroglycerin 0.4 mg or 1 spray SL. Repeat nitroglycerin at 2 minute intervals if systolic BP greater than 100 mm Hg. After initiation of SL nitroglycerin, may place 1 inch of nitroglycerine ointment 2% to the chest wall if BP greater than 100 mm Hg and remove nitroglycerine ointment 2% if BP less than 100 mm Hg. If the patient has had nitroglycerin before and no IV is established, and systolic BP is greater than 100 mm Hg, then it is OK to give nitroglycerin. Do not administer nitroglycerin if patient has taken erectile dysfunction medication within the past 72 hours.

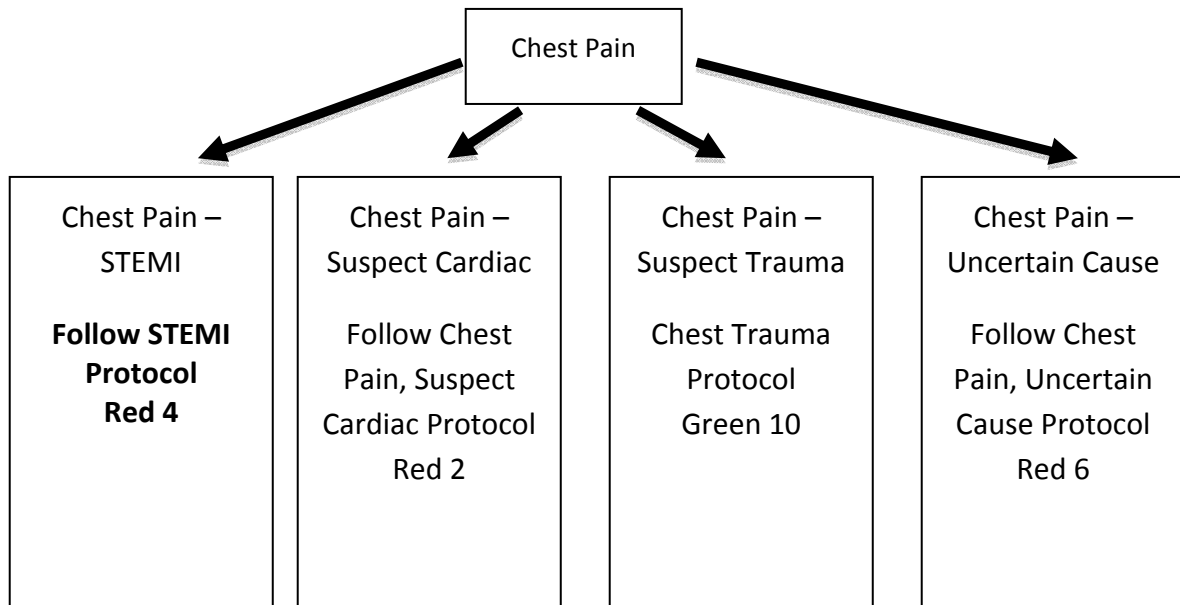
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8. Consider use of CPAP

CRITICAL CARE / PARAMEDIC

9. Nitroglycerin 0.4 mg or 1 spray SL. Repeat nitroglycerin at 2 minute intervals if systolic BP greater than 100 mm Hg. After initiation of SL nitroglycerin, may place 1 inch of nitroglycerine ointment 2% to the chest wall if BP greater than 110 mm Hg and remove nitroglycerine ointment 2% if BP less than 95 mm Hg. If the patient has had nitroglycerin before and no IV is established, and systolic BP is greater than 100 mm Hg, then it is OK to give nitroglycerin. Do not administer nitroglycerin if patient has taken erectile dysfunction medication within the past 72 hours.
10. Consider use of CPAP

CHEST PAIN – GENERAL

For all patients with chest pain, evaluation for acute coronary syndromes should occur. Commonly, it is difficult with the tools available to EMS providers to completely rule out a cardiac cause of chest pain. All patients therefore should be transported for Emergency Medical evaluation. Cardiac disease is but one of the many causes of chest pain and the EMS provider should consider various causes to include, but not limited to the following (pulmonary embolism, esophageal, chest wall, spontaneous pneumothorax, etc). Patients commonly fall into one of four categories; STEMI, suspected cardiac, suspected trauma, or uncertain cause of chest pain.



CHEST PAIN (Suspected cardiac origin)

Do not give nitro if patient has taken erectile dysfunction medications (such as sildenafil [Viagra], tadalafil [Cialis], or vardenafil [Levitra]) within the past 72 hours. Contact OLMC for options in patients who have taken such medicines.

BASIC

1. O₂ – as appropriate
2. Treat for shock if indicated
3. Request ALS
4. If patient has not taken an aspirin: administer chewable aspirin 324 mg PO, if not contraindicated by allergy. ALS back-up still mandatory despite use of aspirin.

-
5. For EMT-Basic level providers – Contact OLMC for the OPTION of assisting with the administration of patient’s own nitroglycerin



INTERMEDIATE

6. IV en route
7. Cardiac monitor and 12 lead EKG if so trained see “Red 7”
8. Chewable aspirin, 324 mg PO, if not contraindicated by aspirin allergy

-
9. Contact OLMC for administration of :

- a. Nitroglycerin 0.4 mg SL or 1 spray, SL. May repeat two times at 5 minute intervals if BP greater than 100 mm Hg. If the patient has had nitroglycerin before and no IV is established, and systolic BP is greater than 100 mm Hg, then it is OK to give nitroglycerin.



The EMT-I, in consultation with OLMC, may modify the Paramedic response as appropriate.

CRITICAL CARE / PARAMEDIC

10. Obtain 12 lead EKG (within first 10 minutes of patient contact)
11. Nitroglycerin 0.4 mg SL or 1 spray, SL. May repeat two times at 5 minute intervals if BP greater than 100 mm Hg. If the patient has had nitroglycerin before and no IV is established, and systolic BP is greater than 100 mm Hg, then it is OK to give nitroglycerin.
12. Chewable aspirin, 324 mg PO, if not contraindicated by aspirin allergy

13. Contact OLMC for OPTIONS:

b. Additional nitroglycerin

c. Fentanyl 1 microgram/kg IV or IM to a maximum dose of 100 micrograms



14. If patient develops a dysrhythmia, refer to appropriate protocol. Recall, inferior MI's and right sided MI's in particular are commonly associated with bradycardia and blocks. Be wary of these dysrhythmias and refer to appropriate protocol.

ST Elevation Myocardial Infarction (STEMI)

Inclusion Criteria:

Patient with symptoms of suspected cardiac etiology and has one of the following in a diagnostic quality EKG:

1. Anterior, Inferior, or Lateral MI: ST elevation greater than 1 mm in two or more contiguous leads **AND** QRS complex is narrower than 0.12 (3 small boxes) seconds (if Left Bundle Branch Block, you are unable to diagnose as STEMI)
2. Posterior MI: ST depression greater than 1 mm in V1 and V2 with an R/S ratio of greater than or equal to 1 **AND** QRS complex is narrower than 0.12 (3 small boxes) seconds **OR** ST segment elevation in leads V8/V9
3. NEW Left Bundle Branch Block: If patient has in his/her possession a previous EKG with narrow QRS to demonstrate that the wide complex is a new change.

TREATMENT:

1. **Basic / Intermediate:** Follow Chest Pain Protocol "Red 2"
2. **Critical Care/ Paramedic only:** Follow chest pain protocol for nitrates, aspirin and pain management. Obtain EKG within 10 minutes of first contact.
3. If patient meets above STEMI criteria, contact OLMC at receiving hospital (local hospital notification) and alert the receiving facility of impending arrival.
4. IF the patient meets one of the above condition sets for STEMI inclusion criteria refer to local or regional cardiac systems of care for destination decision support
5. Patients who present with inferior MI, clear lung sounds, and BP < 90, give a fluid bolus of 250-500 ml of NS. For additional bolus, contact OLMC

CHEST PAIN CHECKLIST

For chest pain of suspected cardiac origin, initiate therapy per protocol "Red 2 and 4", including the early use of aspirin and nitroglycerin if not contraindicated.

Use the Chest Pain Checklist or local equivalent if available. Report the information as soon as practical to the receiving ED.

- | | | |
|--|------------|-----------|
| 1. Is systolic BP less than 180 mm Hg? | YES | NO |
| 2. Is diastolic BP less than 100 mm Hg? | YES | NO |
| 3. Has pain persisted for greater than 15 minutes? | YES | NO |
| <hr/> | | |
| 4. CVA or other serious central nervous system problems in preceding 6 months? | YES | NO |
| 5. Surgery or major trauma in preceding 2 weeks? | YES | NO |
| 6. Any bleeding problems? (e.g. ulcers, hemophilia) | YES | NO |
| 7. Pregnant? | YES | NO |

You may copy and use this page as your checklist, or you may use a check-list recommended by your usual receiving hospital which contains at least these questions.

CHEST PAIN – UNCERTAIN ETIOLOGY

For ALL patients with chest pain, consider the possibility of cardiac disease no matter what the history and physical suggest, however there are other sources of non cardiac chest pain to consider (pulmonary embolism, esophageal, chest wall, spontaneous pneumothorax, etc)

If trauma suspected, refer to Chest Trauma “Green 10”

BASIC:

1. Administer O₂ as appropriate
2. Transport in position of comfort
3. REQUEST ALS

INTERMEDIATE:

4. Establish IV at TKO AND REQUEST CRITICAL CARE/PARAMEDIC
5. Perform 12 Lead EKG (If so trained)

The EMT-I, in consultation with OLMC, may modify the paramedic response as appropriate.

CRITICAL CARE/PARAMEDIC:

6. Perform 12 lead EKG
7. IF 12 lead indicates STEMI, refer to STEMI protocol
8. For non traumatic chest pain in a stable patient with a normal level of consciousness and no evidence of STEMI or Acute Coronary Syndrome, CONTACT OLMC TO CONSIDER DEVIATION FROM “CHEST PAIN-SUSPECTED CARDIAC PROTOCOL” AND FOR THE FOLLOWING OPTIONS:
 - A. If appropriate: administration of fentanyl 1mcg/kg IV
 - B. For nausea or vomiting, administer ondansetron (Zofran) 4 mg IV and may repeat once after 15 minutes if needed.

GUIDELINES TO THE PREHOSPITAL USE OF 12 LEAD EKG BY THE ALS PROVIDER

1. Prehospital 12-lead EKG is now a standard of care for increasing diagnostic information regarding the chest pain/cardiac patient.
2. Acquisition of a 12-lead EKG should be done in all patients with chest pain or a potential cardiac complaint/diagnosis such as syncope or shortness of breath. Given the frequency of atypical presentation in the elderly, responders must have a high index of suspicion in elderly patients.
3. Transmission of 12-lead EKG or presentation of pre-hospital 12-lead EKG to treating personnel at the receiving ED is intended to augment patient triage and facilitate rapid identification of a potential thrombolytic or PTCA candidate.
4. In the case of STEMI, notify receiving ED immediately.

Intermediate and Use of 12 Leads: The purpose of this is to get baseline data ASAP and acquire 12 lead EKG if available

1. If trained, place 12 lead stickers and acquire 12 lead EKG
2. This is intended to have Intermediate present this to the Paramedics or receiving facilities
3. This must not modify the ALS response

CARDIAC ARREST OR DYSRHYTHMIAS

BASIC

1. O₂ as appropriate. Ventilate if patient is in respiratory arrest.
2. **Initiate CPR immediately in cardiac arrest until AED available**
3. Attach AED if cardiac arrest. Do not withhold CPR while waiting for defibrillation equipment.
4. Request ALS.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

5. Cardiac monitor and treat arrhythmias following the appropriate algorithm and your training and level of licensure.
 - a. Ventricular Fibrillation/Pulseless Ventricula Tachycardia “Red 12”
 - b. Wide Complex Tachycardia “Red 14”
 - c. Asystole “Red 16”
 - d. Pulseless Electrical Activity “Red 17”
 - e. Bradycardia “Red 18”
 - f. Narrow Complex Tachycardia “Red 20”
6. Manage airway as needed, See “Blue 3 & 5,” and establish IV (Intermediates en route), per specific arrhythmia protocol.

REMEMBER: Effective chest compressions are one of the most important therapies for the pulseless patient – Effective is defined as: a rate of at least 100 compressions/minute, depth of at least 2.0 inches, allow for complete chest recoil, no interruptions, and avoid excessive ventilations. Also, consider resuscitating the patient on scene rather than moving to the ambulance, when appropriate, as the effectiveness of chest compressions is decreased during patient movement.

Consider use of capnography during resuscitation for both confirmation and monitoring of advanced airways as well as monitoring effectiveness of chest compressions and return or loss of spontaneous circulation.

Note: The algorithms for cardiac arrest or arrhythmias in the following pages reflect the MEMS Medical Direction and Practice Board’s interpretation of ACLS guidelines, as they should be used in the prehospital setting.

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TERMINATION OF RESUSCITATION

Resuscitation should be terminated under the following circumstances:

Unwitnessed Arrest:

1. When the patient regains pulse/respiration
2. When the patient is in asystole for greater than 20 minutes OR unresponsive to advanced cardiac life support with a non-shockable rhythm after 20 minutes of resuscitation.
3. In the absence of ALS, when the same Maine EMS licensed crewmember has documented the absence of all vital signs for 20 minutes, in spite of BLS, except in the case of hypothermia.
4. When irreversible signs of death, such as dependent lividity, pupils fixed and dilated, palpable hypothermia (not from exposure) and no audible heart sounds are noted in patient with unknown downtime or downtime > 20 minutes.
5. When the rescuers are physically exhausted or when equally or more highly trained health care personal take over
6. When it is found that the patient has a DNR order or other actionable medical order (e.g. POLST/MOLST, etc) form.
7. Continue resuscitation if conditions on scene are NOT amenable to cessation of resuscitation
8. Continuation of resuscitation beyond these protocols must be in consultation with OLMC*

Witnessed Arrest:

1. When the patient regains pulse/respiration
2. When the patient is in asystole for greater than 20 minutes OR unresponsive to advanced cardiac life support with a non-shockable rhythm after 20 minutes of resuscitation.
3. In the absence of ALS, when the same Maine EMS licensed crewmember has documented the absence of all vital signs for 20 minutes, in spite of BLS, except in the case of hypothermia.
4. When the rescuers are physically exhausted or when equally or more highly trained health care personal take over.
5. When it is found that the patient has a DNR or other actionable medical order (e.g. POLST/MOLST, etc) form.
6. Continue resuscitation if conditions on scene are NOT amenable to cessation of resuscitation

7. Continuation of resuscitation beyond these protocols must be in consultation with OLMC*

If Resuscitative Efforts are Terminated:

1. Focus attention on the family or bystanders. Explain the rationale for termination.
2. Consider accessing support for family members to potentially include other family, friends, or social support such as clergy.
3. If termination of resuscitation occurs, one must consider management of patient remains. No one option is correct for all circumstances and factors on scene will likely dictate the best option. Refer to "Grey 4". If questions remain regarding disposition of the patient's remains, refer to OLMC.

* Patients who do not respond to 20 minutes of EMS care do not survive neurologically intact to hospital discharge. It is dangerous to crew, pedestrians and other motorists to attempt to resuscitate a patient during ambulance transport. If circumstances do not allow termination of resuscitation for safety or other reasons, notify OLMC.

VENTRICULAR FIBRILLATION / PULSELESS VENTRICULAR TACHYCARDIA

BASIC

- 1) Check Pulse, if no pulse then:
 - a. CPR until AED is available
 - b. Analyze with AED, follow AED instructions*
 - c. If severe hypothermia, go to “Yellow 7”
 - d. Manage airway**
- 2) REMEMBER: Effective chest compressions are one of the most important therapies for the pulseless patient – Effective is defined as: a rate of at least 100 compressions/minute, depth of at least 2.0 inches, allow for complete chest recoil, no interruptions, and avoid excessive ventilations. Consider resuscitating the patient on scene rather than moving to the ambulance when appropriate as the effectiveness of chest compressions is decreased during patient movement.
- 3) After defibrillation, immediately resume chest compressions, analyze with AED after 2 minutes of CPR
- 4) Request ALS
- 5) Refer to Termination of Resuscitation “Red 10” as necessary

INTERMEDIATE

- 6) Continue CPR for 2 minutes if no pulse is present. After 2 minutes, perform pulse and AED/manual defibrillator check—defibrillate as indicated X 1 at 360 J (monophasic) or equivalent biphasic
- 7) Manage airway**
- 8) Establish IV/IO enroute

9) Call for Critical Care/Paramedic Back-up and contact OLMC

10) Refer to Termination of Resuscitation protocol as necessary See “Red 10”

CRITICAL CARE / PARAMEDIC

- 11) Continue CPR if no pulse—after 2 minutes of CPR, do rhythm and pulse checks and consider next intervention listed in order—do one medication intervention at each 2 minute re-assessment
- 12) Rhythm Check
 - a. If VF or pulseless VT, then defibrillate X 1 at 360 J (monophasic) or equivalent biphasic or AED
- 13) Manage airway**
- 14) Establish IV/IO
- 15) Epinephrine 1:10,000 1 mg IV/IO push—repeat every 3-5 minutes

- 16) Give 2 minutes of CPR, then do rhythm and pulse checks – defibrillate X 1 at 360J (monophasic) or equivalent biphasic if VF or VT
 - 17) Amiodarone 300 mg IV/IO push, may consider additional 150 mg IV/IO one time
 - 18) Give 2 minutes of CPR, then do rhythm and pulse checks – defibrillate X 1 at 360J (monophasic) or equivalent biphasic if VF or VT
 - 19) Give 2 minutes of CPR, then do rhythm and pulse checks – defibrillate X 1 at 360J (monophasic) or equivalent biphasic if VF or VT
-

20) Contact OLMC for OPTION of alternate therapies such as sodium bicarbonate



21) Upon successful conversion from VT or VF:

- a. Perform 12 Lead ECG. If STEMI present, refer to STEMI Protocol “Red 4” and local system of care.
- b. Optimize, oxygenation and ventilation
- c. Treat hypotension
- d. Follow local Post-Arrest Systems of Care including consideration of therapeutic hypothermia in appropriate patients.
- e. Contact OLMC for options of:
 - i. Post resuscitation amiodarone bolus
 - ii. Post resuscitation amiodarone drip
 1. RECALL, amiodarone is contraindicated in patients with 2nd degree Type II AV block, 3rd degree AV block, or prolonged QT Interval (greater than 0.5 s)

22) Refer to Termination of Resuscitation protocol as indicated See “Red 10”

*If return of spontaneous circulation (ROSC) is established, contact OLMC and follow appropriate protocol for patient rhythm

**See Airway Algorithm Protocol: “Blue 3 and 5”

WIDE COMPLEX TACHYCARDIA (PROBABLE VT)

If no pulse, treat as VF/Pulseless VT—See Red 12

Pulse is Present

Heart Rate is greater than 150 and patient is alert, comfortable and not hypotensive

Basic

1. Airway Management as indicated
2. Request ALS

Intermediate

3. Establish IV/IO
4. Cardiac Monitor/Perform 12 Lead EKG if available
5. Request Critical Care/Paramedic
6. Contact OLMC

Critical Care/Paramedic

7. In UNDIFFERENTIATED wide complex tachycardia: consider adenosine ONLY IF REGULAR AND MONOMORPHIC
 - a. Adenosine 6 mg IV rapid bolus at centrally located peripheral IV with rapid saline flush
 - b. May repeat adenosine x1 at 12 mg IV rapid bolus at centrally located peripheral IV with rapid saline flush
8. Consider amiodarone 150mg IV/IO over 10 minutes
9. DC cardioversion if unstable at any time
 - a. Contact OLMC for option for sedation with either midazolam 3 mg IV/IO or fentanyl 1 mcg/kg to a max initial dose of 100 mcg

-
10. Contact OLMC for further options



Heart rate is greater than 150 and patient has hypotension, altered level of consciousness, signs of shock, ischemic chest pain, or acute heart failure

Basic

1. Airway management as indicated
2. Request ALS

Intermediate

3. Establish IV/IO
4. Cardiac monitor/Perform 12 lead EKG if available
5. Request Critical Care/Paramedic
6. AED or manually defibrillate x 1 at 360 J or biphasic equivalent
7. Contact OLMC

Critical Care/Paramedic

8. Consider synchronized cardioversion:
 - a. If necessary, contact OLMC for option of sedation with midazolam 3 mg IV/IO or fentanyl 1 mcg/kg IV/IO to max of 100 mcg in initial dose
 - b. If unable to sync or in the case of patient instability or polymorphic VT, defibrillate x 1 at 360 J or equivalent biphasic

-
9. Contact OLMC for further options including amiodarone drip



For Polymorphic Ventricular Tachycardia or Torsades: Contact OLMC and consider magnesium sulfate 1-2 grams IV over 5 minutes. Do NOT give adenosine to a patient with Polymorphic Ventricular Tachycardia or Torsades. Do NOT give amiodarone to a patient converted from Polymorphic Ventricular Tachycardia UNLESS QT interval is less than 0.500 s. If QT interval is greater than 0.500 s, contact OLMC for options.

ASYSTOLE

Should be confirmed in two leads. If rhythm is unclear and possible ventricular fibrillation (VF), then treat as VF.

BASIC

- 1) Check Pulse, if no pulse then:
 - a. CPR until AED is available
 - b. Analyze with AED, follow AED instructions
 - c. If severe hypothermia, go to “Yellow 7”
 - d. Manage Airway*
- 2) 2 minutes of CPR and then reassess with pulse check and AED check
- 3) Request ALS
- 4) Refer to Termination of Resuscitation protocol “Red 10” as indicated

INTERMEDIATE

- 5) Continue CPR for 2 minutes, if no pulse is present perform pulse and AED/manual defibrillator check—defibrillate as indicated
- 6) Manage airway*
- 7) Establish IV/IO enroute

8) Call for Critical Care/Paramedic Back-up/Intercept and contact OLMC



9) Refer to Termination of Resuscitation protocol as necessary See “Red 10”

CRITICAL CARE / PARAMEDIC

- 10) Continue CPR if no pulse—after 2 minutes of CPR, do rhythm and pulse checks and consider next intervention listed in order
- 11) Establish IV/IO and consider treatable causes, including the AHA’s “H’s + T’s” and treat per appropriate protocol.
- 12) Epinephrine 1:10,000 1 mg IV/IO Push—repeat every 3-5 minutes
- 13) Give 2 minutes of CPR, then do rhythm and pulse checks
- 14) Manage airway*
- 15) Give 2 minutes of CPR, then do rhythm and pulse checks

16) Refer to Termination of Resuscitation Protocol “Red 10” as indicated



*See Airway Algorithm Protocol: Blue 3 and 5

PULSELESS ELECTRICAL ACTIVITY

BASIC

- 1) Check pulse, if no pulse then:
 - a. CPR until AED is available
 - b. Analyze with AED, follow AED instructions
 - c. If severe hypothermia, go to “Yellow 7”
 - d. Manage airway*
- 2) 2 minutes of CPR and then reassess with pulse check and AED check
- 3) Request ALS

INTERMEDIATE

- 4) Continue CPR for 2 minutes, if no pulse is present, After 2 minutes, perform pulse and AED/manual defibrillator check—defibrillate as indicated
- 5) Manage airway*
- 6) Establish IV/IO enroute, and give IV normal saline wide open

7) Call for Critical Care/Paramedic Back-up/Intercept and contact OLMC



CRITICAL CARE / PARAMEDIC

- 8) Continue CPR if no pulse, after 2 minutes of CPR, do rhythm and pulse checks and consider next intervention listed in order
- 9) Manage Airway*
- 10) Establish IV/IO and consider treatable causes, including the AHA’s “H’s + T’s” and treat per appropriate protocol.
- 11) Epinephrine 1:10,000 1 mg IV/IO push repeat every 3-5 minutes
- 12) Give 2 minutes of CPR, then do rhythm and pulse checks
- 13) Manage Airway*
- 14) Give 2 minutes of CPR, then do rhythm and pulse checks

15) Refer to Termination of Resuscitation Protocol “Red 10” as indicated



*See Airway Algorithm Protocol: Blue 3 and 5

BRADYCARDIA

(Heart rate less than 50 beats per minute)

Concerning Signs or Symptoms: Blood pressure less than 100 mm Hg, altered mental status, syncope/pre-syncope, chest pain, dyspnea, or cyanosis/pallor.

A) If NO concerning signs or symptoms, then all levels (Basic/Intermediate/Critical Care/Paramedic) may do the following:

- 1) O₂ as appropriate

B) If ANY concerning signs or symptoms, then:

BASIC

- 1) O₂ as appropriate
- 2) Request ALS

INTERMEDIATE

- 3) IV en route
- 4) Cardiac monitor
- 5) Call for Critical Care/Paramedic Back-up/Intercept

CRITICAL CARE / PARAMEDIC

- 6) Atropine 0.5 mg IV/IO*,**; give in repeat doses every 3-5 minutes up to a maximum dose of 0.04 mg/kg** (or up to a total of 3 mg in the adult patient)
- 7) Apply external pacer—Initiate transcutaneous pacing (TCP) for patients who do not respond to atropine; if serious signs or symptoms, do not delay TCP while awaiting IV/IO access or for atropine to take effect. Consider premedicating with midazolam (Versed) 3 mg IV/IO OR fentanyl 1 mcg/kg IV/IO to a maximum first dose of 100 mcg. Notify OLMC as soon as possible.

8) If continued Signs or symptoms, then contact OLMC for options of the following:

- a. Repeat atropine
 - b. Dopamine (800 mg in 500 ml, or premix). Titrate to maintain BP greater than 100 mm Hg (5 to 20 mcg/kg/min). Dopamine infusions in pediatrics must be administered via a Maine EMS approved medication pump. Consider using a pump in adult infusions.
-

NOTE: Application of TCP should be considered if deterioration is anticipated because of the following:

- a. Observed sinus pauses
- b. Episodes of 2nd degree Type II, or 3rd degree AV Block.

* Transplanted denervated hearts will not respond to atropine. Proceed to pacing, catecholamine infusion, or both

** Atropine should be used with caution in 2nd degree Type II AV block and new 3rd degree AV block with wide QRS complexes.

NARROW COMPLEX TACHYCARDIA

NOTE: For all cases, attempt to identify and treat the underlying cause of the patient's tachycardia which may include, maximizing oxygenation or (for Intermediates/Critical Care/Paramedics) maximizing hemodynamics. If uncertainty exists between sinus tachycardia and SVT, please contact OLMC.

Heart rate is greater than 150 and patient is alert and comfortable, not hypotensive

Basic

1. Manage airway as indicated
2. Request ALS

Intermediate

3. Establish IV/IO
4. Cardiac Monitor/Perform 12 lead EKG if available
5. Request Critical Care/Paramedic
6. Contact OLMC

Critical Care/Paramedic

7. Valsalva Maneuver
8. Adenosine 6 mg IV rapid bolus at centrally located peripheral IV with rapid saline flush
 - a. May repeat adenosine x1 at 12 mg IV rapid bolus at centrally located peripheral IV with rapid saline flush
9. If rhythm persists, contact OLMC for further options

Heart rate is greater than 150 and patient is hypotensive, has altered state of consciousness, evidence of shock, ischemic chest pain, or evidence of heart failure

Basic

1. Manage airway as indicated
2. Request ALS

Intermediate/Critical Care

3. Establish IV/IO and perform fluid challenge
4. Cardiac Monitor/Perform 12 lead EKG if available
5. Request Paramedic

Paramedic

6. Rate control for A Fib/A Flutter ONLY, contact OLMC for option of metoprolol 5 mg IV over 5 minutes. *REMEMBER, metoprolol must not be used in hypotension.*
 - a. Repeat with metoprolol 5 mg IV over 5 minutes after consult with OLMC
7. If unstable narrow complex tachycardia, consider synchronized cardioversion. First attempt at 50-100 J or biphasic equivalent. Subsequent attempts if needed progress to 100 J, then 200 J, then 300 J, 360 J (or biphasic equivalents)
 - a. Contact OLMC to consider premedication with fentanyl 1 microgram/kg IV push to a maximum initial dose of 100 micrograms OR midazolam (Versed) 3 mg IV bolus. Have a running IV in place of NS or LR.

CARDIOGENIC SHOCK

BASIC

1. O₂ as appropriate
2. Request ALS

INTERMEDIATE

3. Cardiac monitor
4. IV en route
5. Call for Critical Care / Paramedic Back-up / Intercept

-
6. Contact OLMC with following information:

Vital signs, lung sounds, cardiac rhythm, pedal edema assessment for OPTION
OF:

- a. Fluid challenge

CRITICAL CARE / PARAMEDIC

7. Fluid Challenge

-
8. Contact OLMC for the following OPTION:

- a. Dopamine (800 mg in 500 ml or premix). Titrate to maintain systolic BP greater than 100 mm Hg. Dopamine infusions in pediatrics must be administered via a Maine EMS approved medication pump. Consider using a pump in adult infusions.

SYNCOPE

Basic:

1. Obtain history (seizure, stroke, fluid loss, palpitations, chest pain, dizzy, trauma)
Consider spinal immobilization if appropriate
2. O₂ as appropriate
3. Obtain blood glucose if trained
4. Treat for shock if appropriate
5. Request ALS

Intermediate:

6. Establish IV/IO
7. Cardiac monitor and 12 lead EKG (if so trained)
8. Fluid challenge if appropriate, 250 ml over 10 minutes
9. Obtain Blood Glucose
10. Call for Critical Care/ Paramedic Back-Up/Intercept

Critical Care/Paramedic:

11. Cardiac monitor
12. Obtain Blood Glucose
13. 12-lead EKG

NOTE: At any time, if relevant signs/symptoms found, go to appropriate protocol


All of these patients should be transported for emergency evaluation. More than 25% of geriatric syncope is cardiac dysrhythmia based. Consider other causes: GI bleed, ectopic pregnancy, seizure, stroke, hypoglycemia, shock, toxicologic (alcohol), and medications.

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ALLERGY / ANAPHYLAXIS

BASIC

1. Manage airway as appropriate
 2. If shock present, treat
 3. Request ALS if available
 4. Consider local measures to prevent absorption
-

5. Contact OLMC 
 - a. Assist administration of patient's own anaphylaxis kit
 - b. Administer an adult or pediatric (as applicable) epinephrine autoinjector if the service is authorized and the personnel so trained
-

INTERMEDIATE

6. IV en route
 7. Cardiac monitor
 8. If shock present, perform fluid challenge
-

9. Contact OLMC for OPTION of administration of Epinephrine 0.3 mg, 1:1,000 IM in anterolateral thigh 

10. Contact OLMC for option of pediatric dose of epinephrine which is as follows: < 30 kg, 0.15 mg IM (0.15 ml of 1:1,000), > 30 kg, 0.3 mg IM (0.3 ml of 1:1,000) IM in anterolateral thigh

EMT-I, in consultation with OLMC, may modify the Paramedic response as appropriate.

CRITICAL CARE / PARAMEDIC

11. Manage airway as needed See "Blue 3 & 5"
12. Epinephrine:
 - a. Adult: 0.3 mg (0.3 ml of 1:1,000) IM in anterolateral thigh
 - b. Pediatric: < 30 kg, 0.15 mg IM (0.15 ml of 1:1,000), > 30 kg, 0.3 mg IM (0.3 ml of 1:1,000) in anterolateral thigh
13. Diphenhydramine (Benadryl)
 - a. Adult: 25-50 mg IV/IO/IM
 - b. Pediatric: 1-2 mg/kg IV/IO/IM
14. Albuterol 2.5 mg by nebulization; Consider repeat times 1 as needed or nebulizer of 5 ml of 1:1,000 Epinephrine

15. Methylprednisolone (Solu-Medrol):

- a. Adult: 125 mg IV
- b. Pediatric: 2mg/kg IV
- c. Consider glucagon 1 mg IV q 5 minutes for patients taking beta-blockers

Contact OLMC for repeat options and/or IV dosing of epinephrine for shock or cardiovascular collapse which may typically be dosed the following way: 0.5 to 1 ml of epinephrine 1:10,000 (0.1 mg) IV, pushed over one minute, repeated, as needed, in 10 to 20 minutes.



ADULT COMA

(Decreased level of consciousness)

Assess for trauma, drugs, diabetes, breath odor, needle tracks, medical alert tags suspected seizure. Refer to appropriate protocol for specific suspected conditions.

BASIC

1. Immobilize spine if indicated
2. Manage airway as appropriate
3. Request ALS if available
4. If shock present, refer to medical shock protocol "Gold 13"
5. Option to perform finger stick to measure blood glucose using MEMS approved technique/device limited to providers who have completed the MEMS BG monitoring training program

INTERMEDIATE

6. Manage airway as appropriate See "Blue 3 & 5"
7. IV en route
8. Draw blood as IV established or do finger stick, to measure blood glucose using MEMS approved technique/device
9. Cardiac monitor
10. If shock present, refer to medical shock protocol "Gold 13"

11. Contact OLMC for the following OPTIONS:

- a. If blood glucose less than 80 mg/dL, refer to Diabetic/Hypoglycemic Protocol "Gold 5"
- b. If respirations less than 12 per minute AND narcotic overdose suspected
 - i. Naloxone (Narcan) 0.1 – 2 mg IV/IO/IM or intranasal (may opt to give 2 mg as starting dose if using intranasal route) titrate to improve respiratory drive
 - ii. NOTE: patients abruptly fully awakened may become combative, or suffer acute narcotic withdrawal symptoms. Some drugs such as propoxyphene, Talwin, or methadone may require high doses.
 - iii. Once airway managed by BIAD, do not give naloxone

CRITICAL CARE / PARAMEDIC

12. Administer the following:
 - a. If blood glucose less than 80 mg/dL, refer to Diabetic/Hypoglycemic Protocol "Gold 5"

13. If respirations less than 12 per minute AND narcotic overdose suspected
- Naloxone (Narcan) 0.1 – 2 mg IV/IO/IM or intranasal (may opt to give 2 mg as starting dose if using intranasal route) titrate to improve respiratory drive
 - NOTE: patients abruptly fully awakened may become combative, or suffer acute narcotic withdrawal symptoms. Some drugs such as propoxyphene, Talwin, or methadone may require high doses.
 - Once airway managed by ETT or BIAD, do not give naloxone
14. If shock present, refer to medical shock protocol “Gold 13”
-

15. Contact OLMC for the following OPTIONS:

- Repeat dextrose
 - Repeat bolus of naloxone (*Narcan*) 0.1 – 2 mg IV/IO/ IM
-



ADULT DIABETIC/HYPOGLYCEMIC EMERGENCIES

Pediatric Diabetic Emergencies See "Pink 11"

BASIC

1. Manage airway as appropriate
2. Request ALS if available
3. If patient is a known diabetic, has a known low blood sugar, or has an altered mental status, and if the patient is conscious and able to swallow, give glucose orally
4. Option to perform finger stick to measure blood glucose using MEMS approved technique/device limited to providers who have completed the MEMS BG monitoring training program

Glucose paste is to be administered as soon as possible in patients presenting with the signs/symptoms of diabetic emergency.

INTERMEDIATE

5. IV en route
6. Draw blood as IV established or do finger stick, to measure blood glucose using MEMS approved technique/device
7. Cardiac monitor
8. If blood glucose is less than 80 mg/dL,
 - a. If patient is conscious and able to swallow, give glucose orally

 - b. Contact OLMC for OPTION of administering dextrose 25 gm (50 ml of 50% solution IV or 250 ml of 10% solution IV). Recheck blood glucose in 5 minutes.
 - c. If IV unavailable, DO NOT PLACE IO.
 - i. Contact OLMC for OPTION of glucagon 1 mg IM.



9. If blood glucose greater than 300 mg/dL, give 500 ml NS fluid challenge

CRITICAL CARE / PARAMEDIC

10. Dextrose
 - a. If blood glucose less than 80 mg/dL administer dextrose for adult coma and diabetic emergencies
 - i. If patient is conscious and able to swallow, give glucose orally.
 - ii. If patient unable to tolerate oral glucose, administer dextrose 25 gm (50 ml of 50% solution or 250 ml of 10% solution) IV.
 - iii. If IV unavailable, DO NOT PLACE IO.

1. Administer glucagon 1 mg IM

11. If blood glucose greater than 300 mg/dL, give 500 ml NS fluid challenge

12. Repeat glucose measurement in 5 minutes.

Contact OLMC for OPTION of repeating dextrose, repeating glucagon, or placing an IO

a. If IO placed, administer 250 ml of D10W via IO.



ADULT SEIZURES

Pediatric Seizures See "Pink 3"


Note: Most seizures are self-limited. Unless a specific underlying condition exists (i.e. diabetes with hypoglycemia), treatment of a seizure or multiple seizures with a total duration of less than 5 minutes should focus on patient protection and oxygenation.

BASIC

1. Manage airway as appropriate
2. Left lateral recumbent position and protect patient from injury
3. Spinal immobilization if indicated See "Green 6"
4. Request ALS if available
5. Option to perform finger stick to measure blood glucose using MEMS approved technique/device limited to providers who have completed the MEMS BG monitoring training program

INTERMEDIATE

6. Manage airway as needed See "Blue 3 & 5"
7. Cardiac monitor
8. IV en route
9. Draw blood as IV established or do finger stick, to measure blood glucose using MEMS approved technique/device

-
10. Contact OLMC for the following OPTIONS:
 - a. If blood glucose less than 80 mg/dL, refer to Diabetic/Hypoglycemic Protocol "Gold 5"
- 

-
11. If shock present, refer to medical shock protocol "Gold 13"

CRITICAL CARE / PARAMEDIC

12. If blood glucose less than 80 mg/dL, refer to Diabetic/Hypoglycemic Protocol "Gold 5"
13. If the patient is has a single seizure lasting greater than 5 minutes OR status epilepticus,
 - a. Midazolam (Versed) 1 mg IV / IO, every 1 minute for a total of 3 mg
 - i. If IV or IO cannot be established, midazolam (Versed) 5 mg IM.
14. For patients visibly pregnant or less than 2 weeks post partum
 - a. Magnesium sulfate 4 gm IV / IO over 10 minutes

i. If IV/IO not available, magnesium sulfate 8 gm IM (4 gm in each buttock)

15. Contact OLMC for the following OPTIONS:

a. If repeat of any of these options is necessary



ACUTE STROKE

Stroke should be suspected if any of the following have appeared in the last few hours or days: weakness on one side of face, weakness in one arm or leg, abnormal speech (slurred, incoherent, absent).

Refer to the next page for early hospital notification process for patients who are potential stroke patients.

See “Gold 3” Adult Coma if warranted


See “Gold 5” Diabetic Emergencies if warranted

BASIC

1. Manage airway as appropriate
2. Request ALS if available
3. Option to perform finger stick to measure blood glucose using MEMS approved technique/device limited to providers who have completed the MEMS BG monitoring training program.


INTERMEDIATE

4. Manage airway as needed See “Blue 3 & 5”
5. Cardiac monitor
6. IV en route
7. Draw blood as IV established or do a finger stick, to measure blood glucose using MEMS approved technique/device.

-
8. If blood glucose is less than 80 mg/dL,
 - a. Contact OLMC for OPTION of administering dextrose 25 gm (50 ml of 50% solution or 250 ml of 10% solution) IV.
 - i. If IV unavailable DO NOT PLACE IO. Contact OLMC for option of IO.
 - A. If IO placed, administer 250 ml of D10W via IO
- 

CRITICAL CARE / PARAMEDIC

9. If blood glucose less than 80 mg/dL
 - a. If patient is conscious and able to swallow, give glucose orally
 - b. If patient unable to tolerate oral glucose, administer dextrose 25 gm (50 ml of 50% solution or 250 ml of 10% solution) IV
 - c. If IV unavailable, DO NOT PLACE IO. Administer glucagon 1 mg IM

-
- i. Contact OLMC for OPTION of repeating dextrose, repeating glucagon, or placing an IO
 - A. If IO placed, administer 250 ml of D10W via IO.
- 

-
- d. Recheck blood glucose in 5 minutes.

Acute Stroke

1. Perform the *Cincinnati Prehospital Stroke Scale* and assess mental status. If any element is abnormal, proceed to Step 2
 - a. *Cincinnati Prehospital Stroke Scale*:
 - i. **Speech**: Have pt. state “You can’t teach an old dog new tricks”
 1. Abnormal = wrong word, slurred, or absent speech
 - ii. **Facial droop** when asked to show teeth or smile
 1. Abnormal = one side does not move as well as other
 - iii. **Motor**: Have patient close eyes and hold out both arms
 1. Abnormal = arm cannot move or drifts down when held out
 - b. Also assess **Level of consciousness**
 - i. Abnormal = lethargic, stuporous, comatose
2. Determine blood glucose level. If it is greater than 80 mg/dL, proceed to Step 3.
 - a. Basic EMT’s may only check blood glucose if they have completed the MEMS BG Monitoring Training program
 - b. If blood glucose is less than 80 mg/dL treat per MEMS protocols. Recheck the blood glucose in 5 minutes and, if it is greater than 80 mg/dL, repeat the *Cincinnati Prehospital Stroke Scale*, if it is positive (1 or more positives) proceed to Step 3.
3. Determine time of “Last Seen Normal.”
 - a. Get history from the patient and all available bystanders
 - b. “Time Last Seen Normal” starts with the onset of first symptoms or, if the symptoms improved or went away, the time the symptoms returned or got worse again.
 - c. Make sure to record contact information (cell phone, number etc.) for the individual able to identify the exact time when the patient was last asymptomatic
4. As early as possible, alert the receiving hospital of a “Code Stroke”
 - a. Relay the following information:
 - i. Patient age and gender
 - ii. Identify the patient as a potential stroke patient
 - iii. The patient’s neurologic deficits and the findings of the *Cincinnati Prehospital Stroke Scale*
 - iv. The “Time Last Seen Normal”
 - v. The patient’s mental status
 - vi. The patient’s vital signs and finger stick blood glucose results
 - vii. ETA

Stroke Checklist

Time of symptom onset/Time Last Seen Normal: _____

Yes No

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | History of intracranial hemorrhage? |
| <input type="checkbox"/> | <input type="checkbox"/> | Known arteriovenous malformation, neoplasm, or aneurysm? |
| <input type="checkbox"/> | <input type="checkbox"/> | Witnessed seizure at stroke onset? |
| <input type="checkbox"/> | <input type="checkbox"/> | Active internal bleeding or acute trauma (fracture)? |
| <input type="checkbox"/> | <input type="checkbox"/> | Intracranial or intraspinal surgery, serious head trauma, or previous stroke within the past 3 months? |
| <input type="checkbox"/> | <input type="checkbox"/> | Current use of Coumadin or received heparin within the last 48 hours? |
| <input type="checkbox"/> | <input type="checkbox"/> | Arterial puncture at a noncompressible site within past 7 days? |

Adapted from - Anonymous. "Table 3: Fibrinolytic Checklist" from Part 9: Adult Stroke. *Circulation* 2005; IV: 116.

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MEDICAL SHOCK

See “Red 21” Cardiogenic Shock if appropriate

See “Green 13” Hypovolemic Shock if appropriate

See “Gold 1” Allergy and Anaphylaxis if appropriate

See “Blue 3” Adult Airway Algorithm if appropriate

Definition of Severe Inflammatory Response Syndrome (SIRS), Sepsis, Severe Sepsis and Septic Shock		
Variable	Definition	
SIRS	Greater than or equal to 2 of the following	Temp > 38.3°C or < 36°C HR > 90 bpm Respiratory rate > 20 bpm Hyperglycemia > 120 mg/dl ¹ Altered Level of Consciousness Decreased capillary refill Lactate > 2 mmol/L
Sepsis	SIRS + a presumed or identified source of infection	
Severe Sepsis	Sepsis + one or more organ dysfunction ² , hypotension before fluid challenge, or Lactate > 4 mmol/L	
Septic Shock	Severe sepsis + hypotension ³ despite fluid challenge	
<p>☒Table adopted from 2001 SCCM/ESICM/ACCP/ATS/SIS International Sepsis Definitions Conference.☒</p> <p>¹Hyperglycemia without history of diabetes, Hypoglycemia, without diabetes, in an immunocompromised patient increases suspicion of infection.</p> <p>²Organ dysfunction can be defined as: respiratory failure, acute renal failure, acute liver failure, coagulopathy, or thrombocytopenia. Laboratories that will suggest organ dysfunction include: PaO₂ (mmHg)/FiO₂ <300, Creatinine >2.0 mg/dl OR Creatinine Increase >0.5 mg/dL, INR >1.5, PTT >60 sec, Platelets < 100,000/uL. Total bilirubin >4 mg/dL</p> <p>☒³Systolic Blood Pressure < 90 mmHg or Mean Arterial Pressure < 65 mmHg</p>		

BASIC

1. Attempt to identify cause (i.e. allergic reaction)
2. Manage airway as appropriate
3. Request ALS intercept
4. Transport

INTERMEDIATE/CRITICAL CARE/PARAMEDIC

5. Consider causes

- a. Massive GI bleed, vaginal bleeding, vomiting, diarrhea, ruptured aneurysm - Treat per “Green 13” Hypovolemic Shock
 - b. Cardiogenic shock - Treat per “Red 21”
 - c. Anaphylaxis - Treat per “Gold 1”
 - d. Severe Sepsis
 - i. Assess for acute pulmonary edema. If present, refer to cardiogenic shock “Red 21”
 - ii. If available and trained perform point of care lactate:
 - A. If POC lactate > 4 and no evidence of pulmonary edema, administer 1000 ml NS bolus
-
- iii. If POC lactate not available and no evidence of pulmonary edema
 - A. Contact OLMC for OPTION of 500 ml NS bolus
-
- iv. Notify receiving hospital that the patient is a “Code Sepsis”



CRITICAL CARE / PARAMEDIC

6. For anaphylactic or presumed septic shock

a. If no response to initial treatment

i. Contact medical control to discuss additional fluid bolus versus initiating dopamine infusion. Dopamine infusions in pediatrics must be administered via a Maine EMS approved medication pump. Consider using a pump in adult infusions.

A. Dose 5-20 mcg / kg / min (2-9 mcg / pound / min)

B. Titrate to maintain SBP greater than 90 mm Hg



7. Additionally, if the patient is found to have Adrenal Insufficiency (via medic alert bracelet, patient records, or family/staff reports), administer methylprednisolone (Solu-Medrol) as follows:

a. Adults – methylprednisolone (Solu-Medrol) 125 mg IV, IM, or IO x 1 dose

b. Pediatrics - methylprednisolone (Solu-Medrol) 2mg/kg IV, IM, or IO x 1 dose

Weight Based Dopamine Dosing Chart

Weight (lbs)	90	110	130	150	175	200	225	250	300
Weight (kg)	40	50	60	70	80	90	100	115	135
Gtts / min (60 gtt set)	8-30	9-38	11-45	13-53	15-60	17-68	19-75	22-86	25-101

ABDOMINAL PAIN

Many diseases cause abdominal pain. While it is almost impossible to diagnose the cause of abdominal pain in the EMS environment, it is important to be prepared for the patient to suddenly get very ill. If the patient is in shock, refer to the medical shock protocol.

BASIC

1. Manage airway as appropriate
2. If evidence of shock, refer to Medical Shock “Gold 13”

INTERMEDIATE

3. Establish IV at KVO rate
4. Perform 12-lead EKG (If so trained)

CRITICAL CARE / PARAMEDIC

5. Perform 12-lead EKG
 - a. If 12-lead EKG indicates STEMI, refer to Chest Pain “Red 1” and STEMI “Red 4”
6. Perform pain-rating score
7. For non-traumatic abdominal pain in a stable patient with a normal level of consciousness:
 - a. For nausea or vomiting, administer ondansetron (Zofran) 4 mg IV and may repeat once after 15 minutes as needed. For dosage question (such as in pediatrics), abnormal vital signs, coincident drug use (including alcohol) by patient, if IV cannot be established contact OLMC before administering medication.

-
8. Contact OLMC for the following option - If appropriate, administer fentanyl 1 mcg / kg IV
-



NAUSEA / VOMITING

Nausea and vomiting are symptoms of some other illness. Therefore, this is a supplemental protocol to be used in addition to other relevant protocols

BASIC

1. Transport in position of comfort

INTERMEDIATE

2. Perform 12-lead EKG (if so trained)
3. Establish IV TKO
4. Consider 250 ml NS bolus if active vomiting

CRITICAL CARE / PARAMEDIC

5. Complete 1-4 as above
6. Administer ondansetron (Zofran) 4 mg IV and may repeat once after 15 minutes as needed.

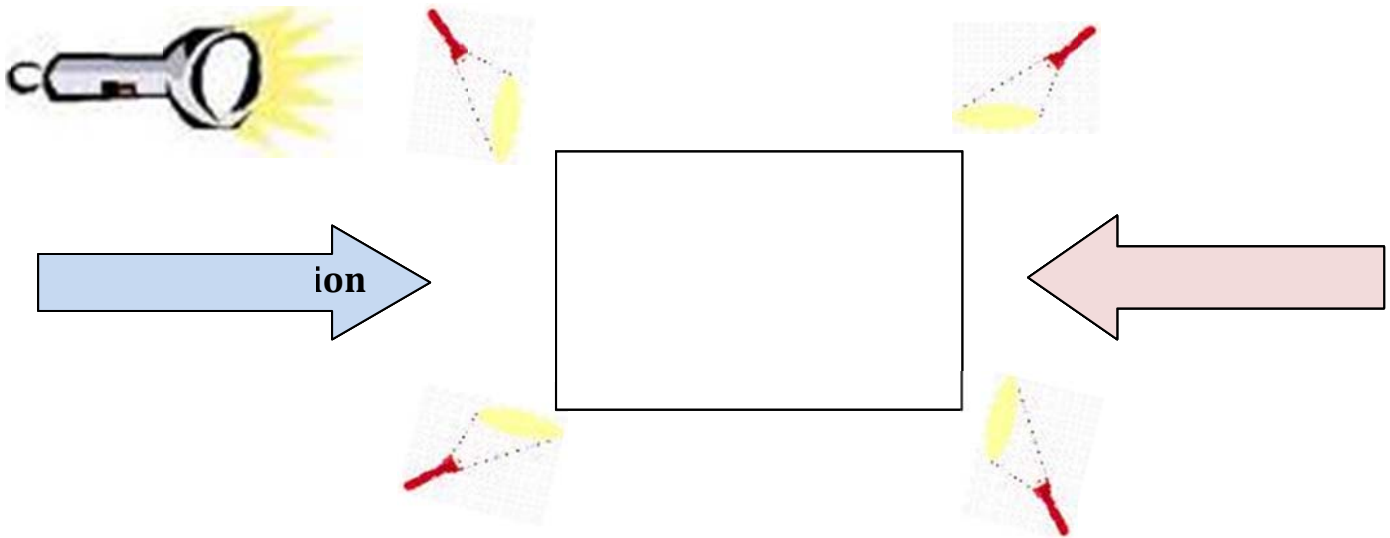
a. Contact Online Medical Control for dosage question (such as in pediatrics), abnormal vital signs, coincident drug use (including alcohol) by patient, if IV cannot be established, contact OLMC before administering medication.



MINIMUM LANDING ZONE (LZ) AREA

100' x 100'

Must mark wind direction at night



Aircraft Arrival

- Identify Scene and LZ Incident Command
- Establish radio communications prior to landing
- State Fire or State EMS are the default frequencies
- Advise pilot of terrain conditions, vertical obstructions, and wind direction
- Secure LZ and identify personnel to guard tail rotor guards
- Notify pilot if patient is packaged and ready for hot load

Operating Around Helicopter

- Approach aircraft with crew escort only
- Approach aircraft 90 degrees to door only
- Avoid tail boom and rotor at all times
- Eye and ear protection should be worn
- Do not carry anything above shoulder height
- Secure all loose medical and personnel equipment
- Spotlights, headlights, and/or handheld lights should not be pointed directly at the helicopter

Terrain:

- Flat, firm, free of debris
- Consider dust and snow
- LZ should be downwind of accident

Vertical Obstructions:

- Mark towers, antennas, poles, tall trees with vehicle
- Check the wind, helicopter must land

<p>scene</p> <ul style="list-style-type: none"> • Free of vehicles and people • Any markers must be able to withstand 60 mph winds • Approach path only from down slope of aircraft 	<p>and take off into the wind</p> <ul style="list-style-type: none"> • Ideal = clear approach and departure angle 8:1 (200' to 25' vertical obstruction)
<p><u>Wires:</u></p> <ul style="list-style-type: none"> • Electrical and utility wires are greatest single hazard to helicopters • Search LZ area for wires • Mark all wires, high-tension lines, guide wires with vehicles • Notify pilot of all wires in proximity to landing zone 	<p><u>Lighting:</u></p> <ul style="list-style-type: none"> • Never shine light directly at aircraft • All emergency lights on until aircraft overhead • Shut down vehicle strobes and white lights when aircraft on approach • Keep working lights on minimum

<p><u>Aircraft Departure</u></p> <ul style="list-style-type: none"> • Keep LZ clear for at least 5 minutes after helicopter departure • In case of emergency the helicopter may have to return to LZ • Keep communications open with pilot <p style="text-align: center;"><u>REMEMBER – EVERYONE IS RESPONSIBLE FOR SAFETY</u></p>

TRAUMA TRIAGE PROTOCOL
PATIENT WITH BLUNT OR PENETRATING TRAUMA

ASSESSMENT #1
(ASSESS PHYSIOLOGIC COMPROMISE)

Determine
Glasgow Coma Scale "Green 7"
Respiratory Rate
Systolic Blood Pressure

CALCULATE REVISED TRAUMA SCORE (RTS) "Green 8"
Pediatric Trauma Score (PTS) "Green 9"

OR
IS RTS less than 11 OR PTS less than 8?


NO

YES

ASSESSMENT #2
ASSESS ANATOMIC INJURY
DO ANY OF THE FOLLOWING CONDITIONS EXIST?

- a. Paralysis
- b. Penetrating injury to chest, abdomen, head, or neck
- c. Two or more proximal long bone fractures
- d. Unstable pelvic fracture
- e. Open or depressed skull fracture
- f. Major burn of 25% or greater associated with trauma
- g. Flail chest
- h. Use of tourniquet
- i. Amputation proximal to wrist or ankle

Go to nearest Regional Trauma Center (CMMC, EMMC, MMC) if total transport time is less than 45 minutes, otherwise go to closest ED which is a trauma system participating hospital; any questions, then contact OLMC



NO
↓

YES
↓

ASSESSMENT #3

ASSESS FOR PRESENCE OF HIGH ENERGY TRANSFER SIGNATURE

- a. Associated fatality in the same vehicle
- b. Ejection from the automobile
- c. Falls greater than 20 feet
- d. Rollover
- e. Auto-pedestrian or auto-bike with greater than 5mph impact
- f. Pedestrian thrown or run over by vehicle
- g. Motorcycle crash greater than 20mph or with separation of rider from cycle
- h. High speed auto crash
 - 1. Initial speed greater than 40mph
 - 2. Major auto deformity greater than 20 inches
 - 3. Intrusion into passenger compartment greater than 12 inches

NO

YES

ASSESSMENT #4

HIGH RISK INDICATORS

- a. Age less than 5 or greater than 55 years
- b. Cardiac or respiratory disease
- c. Insulin dependent diabetes, cirrhosis or morbid obesity
- d. Pregnancy
- e. Immunosuppressed patients
- f. Patient with bleeding disorder or an anticoagulant

NO

YES

**TRANSPORT TO TRAUMA SYSTEM
PARTICIPATING HOSPITAL**

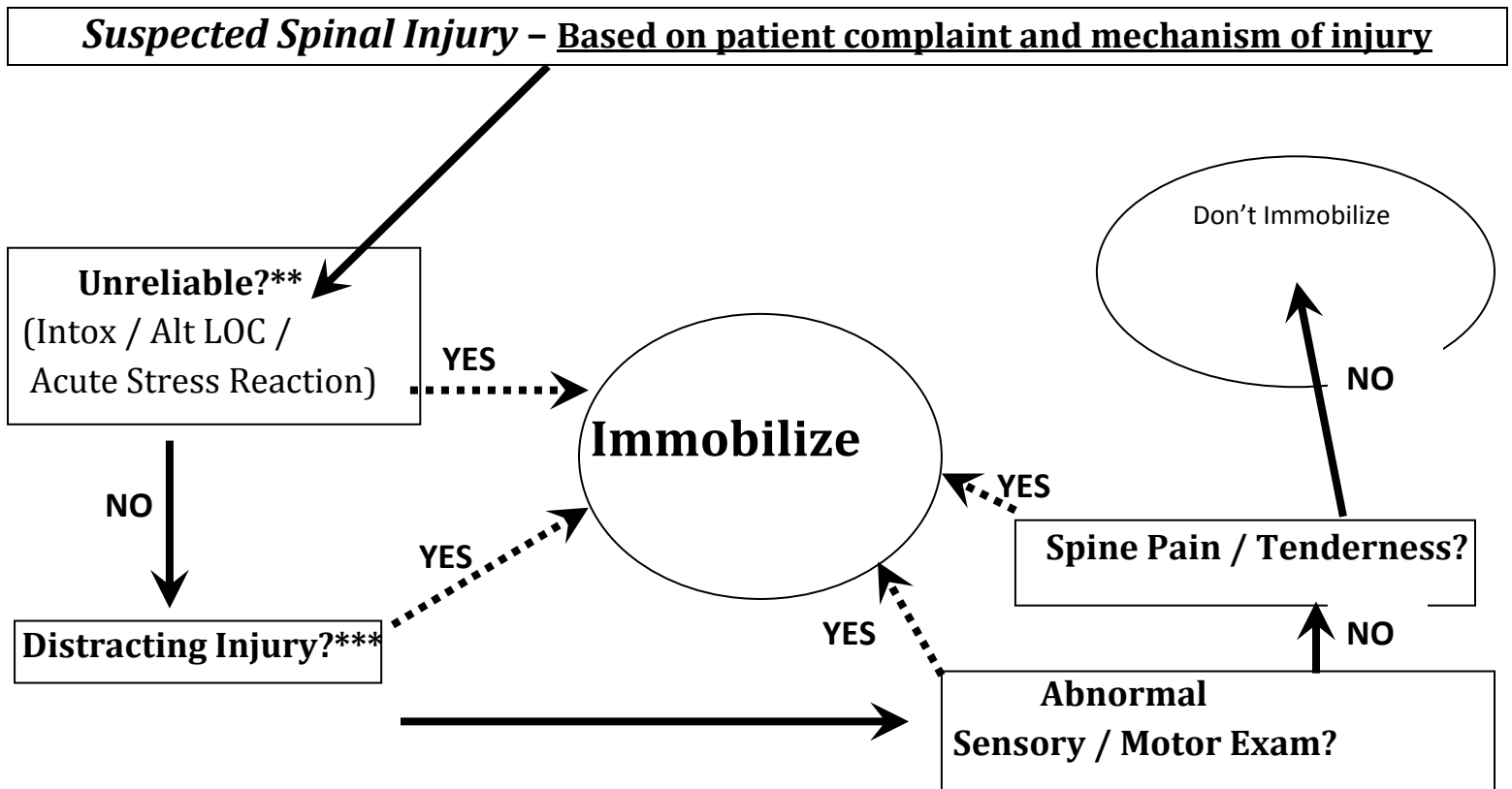
CONTACT OLMC



1. OLMC considers patient transport to Regional Trauma Center (RTC) using the following guidelines:
 - a. If patient would best be served by RTC and transport time less than 45 minutes, then OLMC may direct you to the RTC
 - b. If patient requires RTC but transport time greater than 45 minutes or patient requires life saving interventions, patient to go to the closest ED
2. If upon arrival in ED;
 - a. Facility is not a RTC and;
 - b. Patient continues to satisfy criteria of assessments One and Two, and;
 - c. Patient can be stabilized for further transport, then the sending ED clinician should follow the regional/state trauma plan

If prehospital providers are unable to definitively manage the airway, maintain breathing or support circulation, begin transport to most accessible hospital and simultaneously request ALS intercept or tiered response.

SPINE ASSESSMENT PROTOCOL



- MVC applies to crashes of all motorized vehicles: e.g. automobile, motorcycle, snowmobile, etc.

** Clearance of the spine requires the patient to be calm, cooperative, sober, and alert.

*** Distracting injury includes any injury that produces clinically apparent pain that might distract the patient from the pain of a spine injury.

This protocol may be used by MEMS licensees, at the EMT Basic level or above, who have successfully completed the MEMS Spine Injury Management Course

GLASGOW COMA SCALE (GCS)

The Glasgow Coma Scale or Score provides a practical means for monitoring changes in the level of consciousness. It is based upon eye opening, verbal, and motor responses. If each response is given a number (high for normal, low for impaired), the total responsiveness of the patient can be expressed by the sum of the numbers. Because the scale is physiologic, it is dynamic and subject to change as the patient's condition changes. Therefore, it must be repeated frequently. The lowest score is 3 and the highest is 15. When using the scale, it is best to DESCRIBE each response rather than just using numbers. A painful stimulus is rubbing the sternum with the knuckles or pinching an extremity.

Adult	Pediatric	Score
Eye Opening Response:	Same as Adult	
Open spontaneously on own		4
Open to voice command		3
Open to painful stimuli		2
Eyes remain closed		1
Best Motor Response:	Same as Adult	
Moves on command		6
Pushes painful stimuli away		5
Withdraws from painful stimuli		4
Decorticate (flexion)		3
Decerebrate (extension)		2
No motor response to pain		1
Best Verbal Response:		
Oriented	Appropriate words or social smile, fixes and follows	5
Confused	Cries but consolable	4
Inappropriate words	Persistently irritable	3
Incomprehensible sounds	Restless, agitated	2
No sounds	None	1
Total		3-15

REVISED TRAUMA SCALE

RESPIRATORY RATE 10 - 29 = 4 greater than 30 = 3 6 - 9 = 2 1 - 5 = 1 NONE = 0	Respiratory Points
SYSTOLIC BP greater than 90 = 4 76 - 89 = 3 50 - 75 = 2 1 - 49 = 1 NO PULSE = 0	Systolic BP Points
CONVERT GLASGOW COMA SCORE TO TRAUMA POINTS GCS: 13 - 15 = 4 9 - 12 = 3 6 - 8 = 2 4 - 5 = 1 3 = 0	Trauma Points =
REVISED TRAUMA SCORE =	

PEDIATRIC TRAUMA SCORE

SCORE →	+2	+1	-1
COMPONENT ↓			
Weight	greater than 44 LBS (greater than 20 KG)	22 - 44 LBS (10 - 20 KG)	less than 22 LBS (less than 10 KG)
Airway	Normal	Maintainable invasive	Unmaintainable
Blood Pressure	Greater than 90 mm Hg	50 - 90 mm Hg	less than 50 mm Hg
Level of Consciousness	Completely aware	Obtunded or any LOC	Comatose
Open Wound	None	Minor	Major or penetrating
Fractures	None	Closed fracture	Open or multiple fractures

CHEST TRAUMA PROTOCOL

BASIC

1. O₂ as appropriate
2. Assist ventilations (PPV) if needed
3. Request ALS if available

INTERMEDIATE / CRITICAL CARE

4. IV en route
5. If shock present, perform fluid challenge
6. Cardiac monitor
7. Request Paramedic if available

PARAMEDIC

8. For presumed tension pneumothorax, perform chest decompression

NOTE: Chest decompression will be performed on the involved side using a Maine EMS approved device at the second or third intercostal space on the mid-clavicular line, or fifth or sixth space on the anterior-axillary line.

HEMORRHAGE

BASIC

1. Ascertain all sites of bleeding and control with pressure
2. Treat for shock if indicated and manage airway as appropriate
3. If bleeding is on extremity and uncontrolled with pressure, consider applying a tourniquet proximal to the bleeding site
4. If amputation, rinse severed part briefly and gently with sterile saline to remove debris
 - a. Wrap severed part in sterile saline gauze, moisten with sterile saline (do not soak), place in a water-tight container. Place container on ice (do not use dry ice). Do not put part directly on ice. If necessary, use ice packs to provide some level of cooling.
5. If bleeding is not controlled by the above or is located in an area not amenable to placement of a tourniquet, consider applying a Maine EMS approved hemostatic agent.
6. Apply pressure dressing over Maine EMS approved hemostatic agent
7. Request ALS

INTERMEDIATE /CRITICAL CARE / PARAMEDIC

8. IV en route (see hypovolemic shock "Green 13").
9. Cardiac monitor

HEAD TRAUMA

BASIC

1. Immobilize entire spine on long spinal immobilization device
2. O₂ as appropriate. If necessary, airway management as per “Blue 3 and 5”
3. If necessary to support ventilation, provide PPV at 10 – 12 breaths per minute (BPM)
** It is important to neither hypoventilate or hyperventilate these patients**
4. If not in shock, elevate head of long spinal immobilization device while maintaining full spinal immobilization
5. Treat for shock if indicated
6. Request ALS if available and patient has altered mental status or abnormal vital signs

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

7. IV en route
8. If shock present, perform fluid challenge to maintain BP greater than 90 mm Hg
9. Cardiac monitor
10. Manage airway as needed See “Blue 3 and 5”

HYPOVOLEMIC SHOCK

If history of illness or mechanism of injury consistent with signs/symptoms of shock (elevated pulse, elevated respiratory rate, cool/pale skin, altered LOC, anxiety, sweating or lowered BP) then transport as soon and as efficiently as possible.

If the cause of the shock is:

Anaphylaxis, see “Gold 1”

Cardiogenic, see “Red 21”

Tension Pneumothorax, (Chest Trauma) see “Green 10”

Medical Shock, see “Gold 13”

BASIC

1. Control bleeding. Use Maine EMS approved method of hemorrhage control – to include direct pressure, tourniquet, hemostatic agents, etc.
2. Manage airway as appropriate
3. If patient in third trimester of pregnancy:
 - a. Place patient on left lateral recumbent side and re-evaluate
 - b. If shock is secondary to trauma, immobilize patient on a spinal board before placing in left lateral recumbent position (manually displace uterus to left if elevation not possible)
4. Request ALS

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

5. IV en route
6. Cardiac monitor
7. If shock present (see below table), perform fluid challenge according to the following guidelines:
 - a. Controlled bleeding-in situations where the provider has controlled the hemorrhage, give 1-2 liters of NS or LR to restore normal vital signs
 - b. Uncontrolled Bleeding — for suspected internal bleeding or uncontrolled bleeding, fluid resuscitate to maintain target systolic BP of 90 mm Hg.
 - c. Suspected TBI/CNS injury- fluid resuscitate to maintain BP greater than 90 mm Hg.

-
8. Contact OLMC if patient is greater than 65 years of age for a fluid challenge order
-

If the cause of hypovolemic shock is felt to be secondary to acute unstable pelvic fracture, the EMT-B, EMT-I, Critical Care or Paramedic may consider using a Maine EMS approved pelvic stabilization device. If Maine EMS approved pelvic binder is not available, consider immobilization with a sheet.

Classification of Hemorrhagic Shock

	Compensated Shock	Mild Shock	Moderate Shock	Severe Shock
Blood Loss	< 15% (<1000ml)	15-30% (1000-1500 ml)	30-40% (1500-2000 ml)	> 40% (> 2000 ml)
Pulse	Normal	Elevated (>100)	Elevated (>120)	Elevated (>140)
Blood Pressure	Normal	Orthostatic change	Marked fall	Profound fall
Cap Refill	Normal	May be delayed	Usually delayed	Always delayed
Respiration	Normal	Mild increased	Moderate tachypnea	Marked tachypnea and respiratory collapse
Mental Status	Normal or agitated	Agitated	Confused	Lethargic/Obtunded

BURNS

BASIC

1. Remove burned clothing and jewelry unless adhered to patient
2. O₂ as appropriate
3. Give highest priority to airway problems and major trauma
4. Manage shock if indicated
5. If burn area is **less than 10%** Body surface area (BSA), cover with dressing soaked in normal saline or other commercially prepared moist burn dressing
6. If burn area is **greater than 10%** BSA, cover with dry dressing, sterile sheet, or commercially prepared dry dressing
7. Request ALS if available; where there is a possibility of respiratory compromise, shock, burns greater than 10% BSA or need for pain medications

INTERMEDIATE

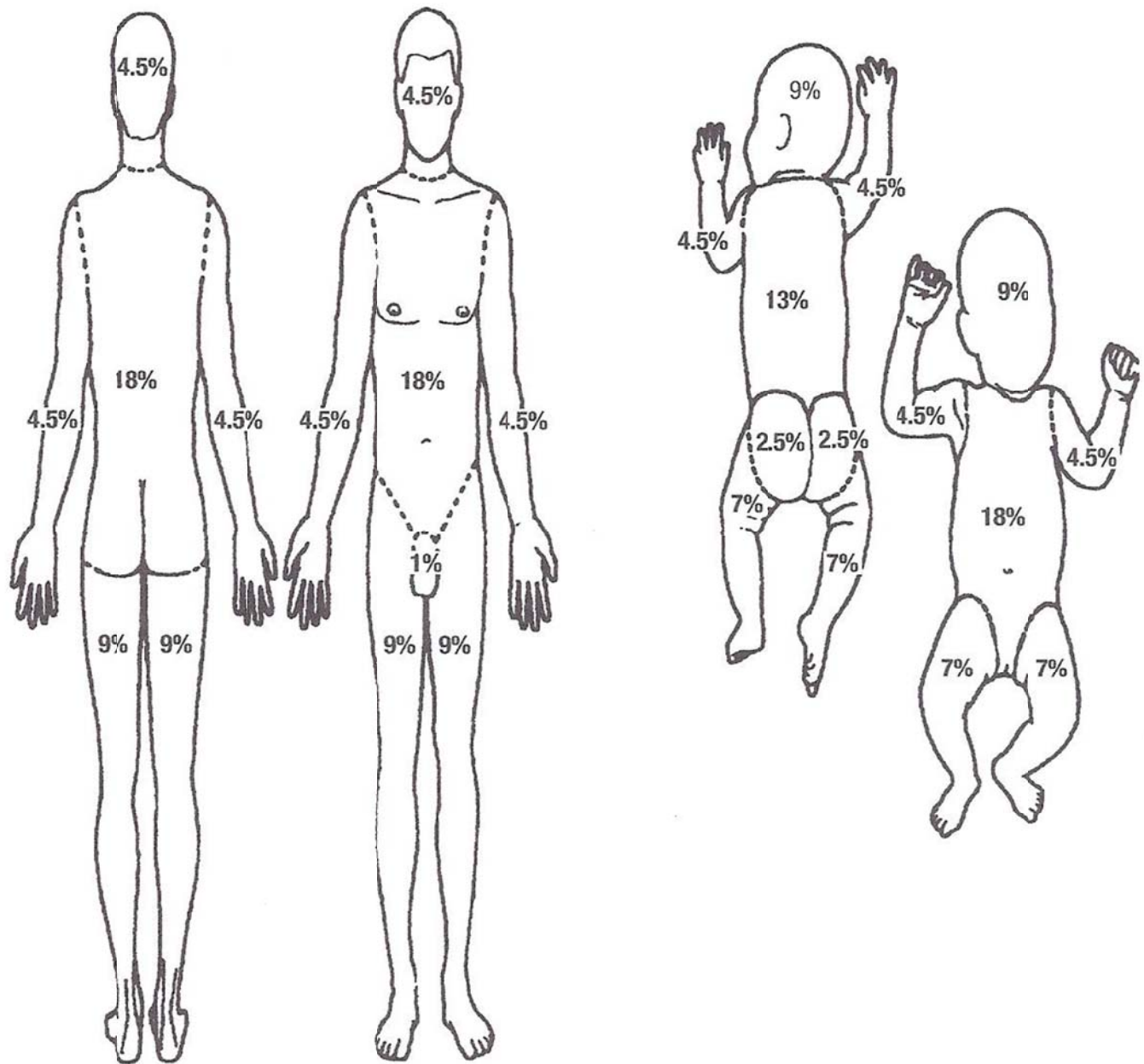
8. Venous access en route (avoid placing IV/IO in burned skin if possible)
9. Cardiac monitor (avoid placing leads on burned skin)
10. If shock present, perform fluid challenge
11. If Shock NOT present, resuscitate based on the Parkland Formula (see below)

CRITICAL CARE / PARAMEDIC

12. See "Green 17" (Pain Management)

RULE OF NINES

ESTIMATION OF BURNED BODY SURFACE (PERCENT)



Remember: The patient's palm (hand minus fingers) is about 1% of the patient's body surface area.

The Parkland Formula is as follows.

Fluid for first 24 hours (ml) = 4 x Patient's weight in kg x %BSA.

The first half of this amount is delivered in the first 8 hours from the time of the burn, and the remaining half is delivered in the remaining 16 hours.

PAIN MANAGEMENT

BASIC


1. Reassurance
2. Splinting as needed, provide inline stabilization. Consider ice application in isolated extremity trauma if hypothermia/frostbite is not an issue.
3. Request ALS if available for pain management

INTERMEDIATE


4. Consider IV access in preparation for ALS pain management

CRITICAL CARE / PARAMEDIC

5. **Isolated extremity trauma** (includes shoulders and hips) may use the following, otherwise go to number "6" below
 - a. For isolated extremity trauma in a stable patient, consider the use of fentanyl 1 microgram/ kg IV or IM initially with an initial maximum dose of 100 micrograms then, if pain persists, fentanyl 0.5-1.0 micrograms/kg (MAX dose 100 micrograms) IV every 5- 10 minutes titrated to effect with cumulative maximum dose of 5 micrograms/kg.
 - b. Alternative pain control: 50% nitrous oxide/oxygen mixture self administered (such as Nitronox).

-
- c. Contact OLMC if further dosing needed or vital signs are not stable. For dosage question (such as in pediatrics), abnormal vital signs, coincident drug use (including alcohol) by patient, if cannot be established or if not isolated extremity trauma, contact OLMC before administering medication. 

-
- d. For nausea or vomiting, administer ondansetron (Zofran) 4 mg IV and may repeat once after 15 minutes if needed. For dosage question (such as in pediatrics), abnormal vital signs, coincident drug use (including alcohol) by patient, if IV cannot be established or if not isolated extremity trauma, contact OLMC before administering medication.

-
6. **Contact OLMC** before using any narcotic, antiemetic, or anxiolytic for multiple trauma or isolated trauma involving head, spine, or torso (including thorax, abdomen, and pelvis). Use narcotics, antiemetics, and anxiolytics with caution in pediatrics, in those with hypotension, bradypnea, or if coincident drug use (including alcohol) by patient. If IV cannot be established, OLMC can help with IM drug doses. 

- a. Consider the use of fentanyl 1 microgram/ kg IV or IM initially with an initial maximum dose of 100 micrograms then 25-75 micrograms IV every 5- 10 minutes titrated to effect with cumulative maximum dose of 5 mcg/kg.
 - b. For nausea or vomiting, administer ondansetron (Zofran) 4 mg IV and may repeat once after 15 minutes if needed.
 - c. Consider self-administered fixed dose of 50% nitrous oxide/oxygen mixture delivered by commercially available device (such as Nitronox). (contraindicated in suspected pneumothorax).
-

TOXINS

Call Poison Control (1-800-222-1222) to receive either medical control directly from a toxicologist or guidance on patient care and so that information on the toxin can be faxed to ED prior to patient's arrival.

This protocol refers to toxins that are:

- Ingested
- Inhaled
- Absorbed
- Injected (envenomation)

This protocol refers to toxins that cause:

- Systemic effects
- Local effects
- Both systemic and local effects

I. GENERAL ASSESSMENT

- What** Identify specific toxin and amount of exposure if possible
Bring pill bottles, vomitus samples, MSDS sheets, placard info, shipping manifests, etc.
- When** Identify time of exposure if possible
- Why** Identify reason for exposure if possible

II. GENERAL TREATMENT

BASIC

1. Scene safety: protect rescuers and patients from immediate danger and contamination. Toxic exposures might require special precautions, including HAZMAT precautions, before patient treatment begins.
2. O₂ as appropriate
3. Clear airway as necessary with suction and position
4. Ventilate as necessary
5. Consider local measures for treatment
6. Request ALS if available

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

7. Manage airway as necessary See "Blue 3 & 5"
8. If patient is hypotensive – IV en route – perform fluid challenge

III. SPECIFIC TREATMENTS TO REMOVE AND DILUTE TOXINS
Initiate measures to remove and dilute toxin
For Ingested Toxins:

BASIC

1. O₂ as appropriate
2. Clear airway as necessary with suction and position
3. Ventilate as necessary
4. Consider local measures for treatment

INTERMEDIATE / CRITICAL CARE

5. Manage airway as necessary See “Blue 3 & 5”
6. If patient is hypotensive – IV en route – perform fluid challenge

PARAMEDIC

7. Contact OLMC for OPTION:
 - a. Activated charcoal without sorbitol 1 gm/kg PO
 - b. Contraindications to charcoal include:
 - i. Ingestion of caustic substance
 - ii. Hydrocarbons
 - iii. Seizures
 - iv. Patient is unable to swallow/protect airway



For Inhaled Toxins:

BASIC / INTERMEDIATE / CRITICAL CARE / PARAMEDIC

1. Remove the patient from exposure site
2. Deliver 100% oxygen if possible

For Absorbed Toxins:

BASIC / INTERMEDIATE

1. Flush skin vigorously and continuously with water
2. Flush eyes continuously with water, saline, or LR

CRITICAL CARE / PARAMEDIC

3. Consider pain medication See “Green 17,” or analgesic for eye pain See “Yellow 11”

For Injected Toxins:

There is no effective method of removing/diluting toxins that have already been injected through the skin. Avoid further exposure to injected toxins.

IV. ANTIDOTES FOR SPECIFIC TOXINS

For Cyclic Antidepressants

Some examples of cyclic antidepressants include: amitriptyline, desipramine, doxepin, imipramine, nortriptyline, **notify OLMC.**

BASIC

1. Manage airway as needed See “Blue 3 & 5”
2. Request ALS if available

INTERMEDIATE

3. Perform fluid challenge if hypotensive

CRITICAL CARE / PARAMEDIC

In patients with known cyclic overdose, with low BP, seizures, ventricular dysrhythmias, or wide QRS complex:

4. Administer sodium bicarbonate 1 mEq/kg IV

-
5. Contact OLMC if further direction needed for conditions such as arrhythmias.



-
6. IV fluid bolus if hypotensive

For Opiates:

BASIC

1. Administer O₂ as appropriate
2. Secure open airway by positioning or airway maneuvers (i.e.: chin lift or jaw thrust) as appropriate. See “Blue 3 & 5”
3. Request ALS if available

INTERMEDIATE

4. IV en route
5. Manage airway as needed See “Blue 3 & 5”

-
6. If respirations less than 12 per minute AND narcotic overdose suspected, Contact OLMC for the option of:
 - a. Naloxone (Narcan) 0.1 – 2.0 mg IV/ IO/ IM or intranasal (may opt to give 2.0 mg as starting dose if using intranasal route). Titrate to improved respiratory drive.
 - b. NOTE: Patients abruptly and fully awakened from narcotic overdose may become combative or suffer acute narcotic withdrawal symptoms. Some drugs such as propoxyphene, Talwin, or methadone may require higher doses.
 - c. Once airway managed by BIAD, do not give naloxone.
-

7. Cardiac monitor

CRITICAL CARE / PARAMEDIC

8. If respirations less than 12 per minute AND narcotic overdose suspected:
 - a. Naloxone (Narcan) 0.1 – 2.0 mg IV/ IO/IM or intranasal (may opt to give 2.0 mg as starting dose if using intranasal route). Titrate to improved respiratory drive.
 - b. NOTE: Patients abruptly and fully awakened from narcotic overdose may become combative or suffer acute narcotic withdrawal symptoms. Some drugs such as propoxyphene, Talwin, or methadone may require higher doses.
 - c. Once airway managed by ETT or BIAD, do not give naloxone.

For Organophosphate/Carbamate:

(WARNING: SKIN CONTACT WITH THIS TOXIN CAN BE FATAL TO RESCUER)

If you suspect a Bio-Terrorism/WMD threat, See "Gray 25". In unstable patients with known organophosphate/carbamate poisoning:

BASIC

1. O₂ as appropriate
2. Vigorous suctioning may be necessary
3. Request ALS if available

INTERMEDIATE

4. IV en route
5. Manage airway as appropriate. Ventilatory support can be critical in these poisonings
See "Blue 3 & 5"
6. Cardiac monitor

CRITICAL CARE / PARAMEDIC

7. Administer atropine 2 mg IV
8. If seizures are present, refer to "Gold 7" or "Pink 3" – Adult or Pediatric Seizure Protocol.

-
9. Contact OLMC for OPTIONS:
 - a. Repeat dose, as necessary, every 5 minutes
 - b. Administer other selected antidotes
-



HYPOTHERMIA

Classification Table

Classification	Core Temp (F / C)	Clinical Presentation	
Normal	≥ 95 / 35	Cold sensation, shivering	
Mild	90-95 / 32-35	<i>Loss of fine or gross motor skills</i>	Inability to complete simple thoughts.
Moderate	82-90 / 28-32	≤ 90° F / 32°C: Shivering stops ≤ 86° F / 30°C: AMS	
Severe	≤ 82 / 28	Rigidity, V.S reduced / absent, Severe risk of V-Fib with mechanical stimulation (rough handling)	
	≤ 77 / 25	Spontaneous V-Fib cardiac arrest	

Bold indicates major thresholds between stages

Adapted from Giesbrecht GG, Wilkerson JA. "Table 4.1: Classification of Levels of Hypothermia" in Hypothermia, Frostbite, and Other Cold Injuries: Prevention, Survival, Rescue and Treatment. 2nd ed. 2006. The Mountaineers, Seattle. p 41.

Treatment

Not in cardiac arrest

Basic

1. Prevent further heat loss
2. Pack thorax with wrapped heat packs
3. Consider warmed AND humidified 100% O₂
4. High sugar oral fluids if tolerated (only in mild hypothermia)

Intermediate/ Critical Care/ Paramedic

1. Consider one to two fluid challenges of NS heated to 104-108o F (40-42oC).

2. Contact OLMC for additional boluses



Severe hypothermia without signs of life

Note: Assess for pulse and respirations for 1 minute

Note: Definitive treatment for severe hypothermia without signs of life is rewarming with cardiopulmonary bypass. Do not delay transport of these patients. Do not initiate CPR if it will delay transport.

Do not initiate resuscitation if the patient meets any of the criteria of “Gray 1 Section II.A “ OR Rescuers are exhausted or in a dangerous situation. These patients are deceased.

Basic

1. Initiate CPR after 1 minute pulse/respiration assessment
2. Defibrillate as appropriate (AED or manual)
3. Rewarm using techniques as listed under Treatment: Not in Cardiac Arrest (above)
4. If no ROSC after 20 minutes CPR/ rewarming, consider termination of resuscitation.
Contact OLMC if possible

Intermediate/ Critical Care/ Paramedic

1. Consider one to two 500 ml (20 ml/ kg for peds) boluses of NS heated to 104-108° F (40-42°C).
-

2. Contact OLMC for additional boluses



3. Otherwise treat as per normothermic cardiac arrest management for the patient's dysrhythmia See “Red 8”

HYPERTHERMIA

HEAT EXHAUSTION – Volume depletion due to sweat loss

ASSESSMENT:

If core temperature is obtained, it will be variable, but always below 105°F (40.6°C).

Clinical pattern is essentially that of compensated hypovolemic shock:

- Weakness and vomiting
- Skin is variable. Core shell shunt to increase heat loss competes with shell core shunt to protect volume. Skin is usually pale and moist with variable skin temperature.
- Sweating
- Normal consciousness and CNS function

TREATMENT: Goal is to reduce sweating and to restore volume.

BASIC

1. Protect the patient from heat challenge. Stop exercise and put patient at rest in a cool, shady place.
2. Oral fluids can be effective if the patient is not vomiting. Use dilute (less than 5% sugar) fluids given in small sips. Appropriate fluids to use include the World Health Organization's Oral Rehydration Solution OR a "homemade" solution using 1 teaspoon of salt and 8 teaspoons of sugar per 1 liter of water.

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

1. IV Perform fluid challenge

HEAT STROKE – A true medical emergency that requires radical field treatment, usually, but not always, associated with heat exhaustion. Heat stroke is characterized by multisystem organ injury and failure.

ASSESSMENT:

If core temperature is obtained it is 105°F (40.6°C) or greater. Abnormal consciousness and/or CNS function; seizures are common. **Any acute change in consciousness/CNS function in the context of a significant heat challenge should be managed as heat stroke without delay.** Skin and sweating are variable, depending on volume status. Note that red, dry skin is not a dependable sign of heat stroke.

TREATMENT:

Immediate radical cooling is the urgent priority, followed by volume replacement.

BASIC

1. Cool the patient immediately by any means practical, such as:
 - a. Immerse the patient up to the neck in cold water
 - b. Moisten the skin and fan vigorously. This method is effective only at low ambient humidity.
 - c. Ice packs, wet patient, cool wet sheets, and air conditioning en route
2. Discontinue radical cooling if:
 - a. Shivering begins
 - b. Core temperature falls to 102°F (38.8°C).
 - c. Consciousness and CNS function return to normal

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

3. IV Perform fluid challenge

OPHTHALMOLOGY

Eye Pain from Chemical Exposure

BASIC / INTERMEDIATE

1. Flush eye with sterile saline or clean water source continuously

CRITICAL CARE / PARAMEDIC

2. If no penetrating eye trauma and if the patient has no allergy to local anesthetics: Administer 2 drops tetracaine ophthalmologic drops every 5 minutes as needed to affected eye to facilitate eye flushing. This may be repeated for a total of three doses. For further dosing, please contact medical control.
 - a. This is to be provided by the Critical Care /Paramedic/provider only and not provided to the patient for ongoing use.
3. To facilitate flushing, the paramedic may use a Morgan lens if trained to do so.

Eye pain all other sources

CRITICAL CARE / PARAMEDIC

If no penetrating eye trauma and if the patient has no allergy to local anesthetics (lidocaine, novicaine, bupivacaine, etc.): Administer 2 drops tetracaine ophthalmologic drops every 5 minutes as needed to affected eye. This may be repeated for a total of three doses. For further dosing, please contact medical control.

COMBATIVE PATIENT PROTOCOL

BASIC

1. Maintain crew safety; ask for law enforcement assistance if available.
2. If altered mental status, check oxygen saturation and option to perform finger stick to measure blood glucose using MEMS approved technique/device limited to providers who have completed the MEMS BG monitoring training program.

INTERMEDIATE

3. Consider blood glucose if patient with altered mental status. If blood glucose is less than 80 mg/dL, establish IV and contact OLMC for Option of administering dextrose 25 gm (50 ml of 50% solution IV or 250 ml of 10% solution IV). Recheck blood glucose in 5 minutes.



CRITICAL CARE / PARAMEDIC

4. Consider blood glucose if patient with altered mental status. If blood glucose is less than 80 mg/dL, establish IV and administer dextrose 25 gm (50 ml of 50% solution IV or 250 ml of 10% solution IV). Recheck blood glucose in 5 minutes.
5. If IV unavailable and blood glucose less than 80 mg/dL, consider IO or administer glucagon 1 mg IM.

6. Contact OLMC for OPTION of midazolam (Versed) 4 mg IM for patient safety and comfort. Contact OLMC if dosing adjustment needed

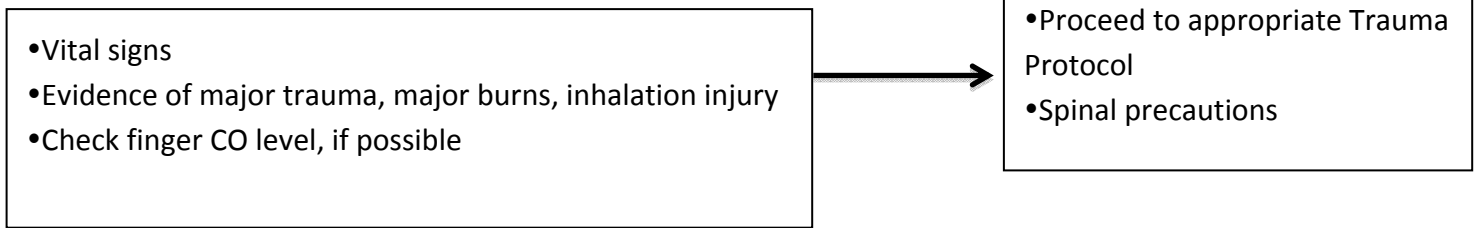


Known or Suspected Cyanide Exposure

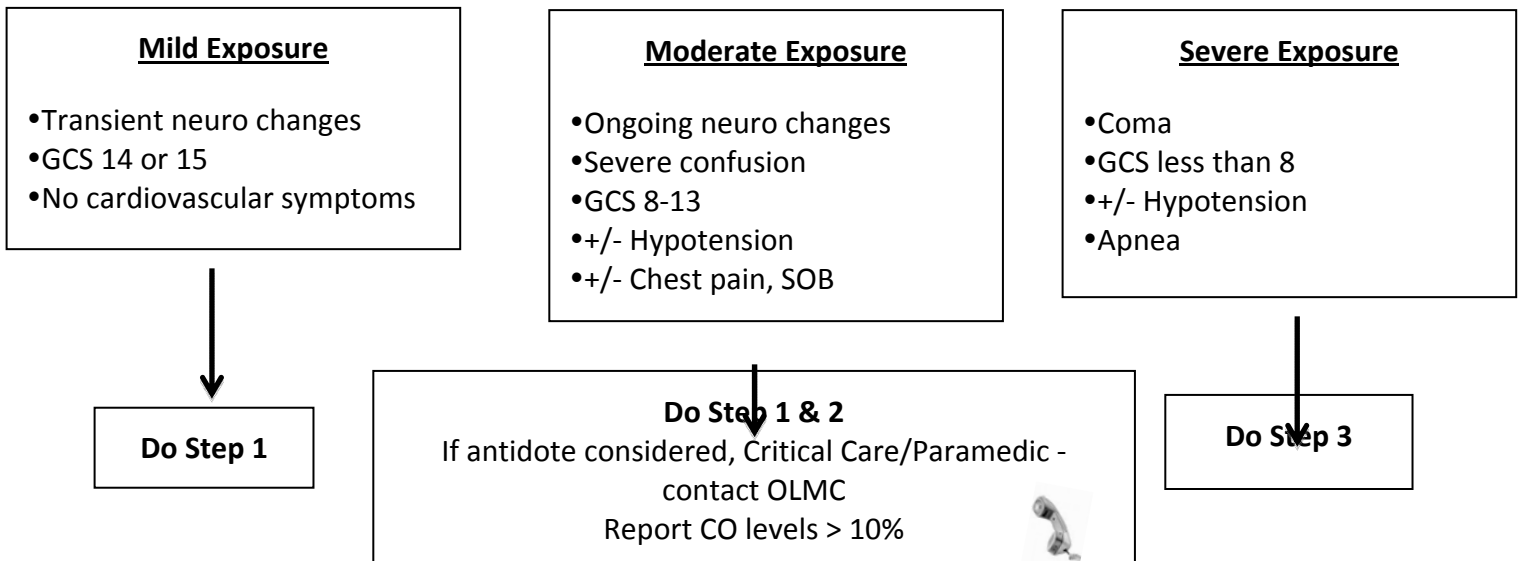
Don appropriate PPE if necessary, assess patient after evacuation

****Remove patient from source of smoke/inhalation****

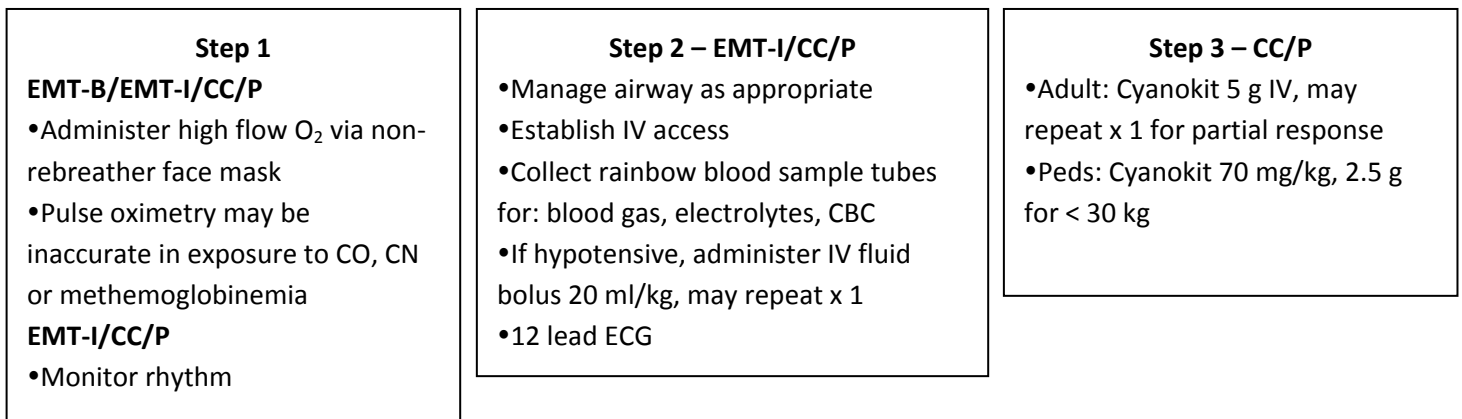
Assessment



Severity of Exposure Definitions (CO, CN, or Combined)



Treatment



Pearls

- 1) Carbon monoxide (CO) and Hydrogen cyanide (HCN) gases are chemical asphyxiants that can kill rapidly. Carbon monoxide is odorless. Only 40% are able to detect the almond smell of CN. Cyanide is generated by combustion of synthetic materials present in many structural fires.
- 2) Appropriate PPE includes self-provided air/oxygen source e.g. SCBA. Scene safety is the top priority. No patient decon is required for victims evacuated from CN gas exposure.
- 3) It is rare for viable CO exposed patients to have persistent unconsciousness requiring intubation.
- 4) Sources of CN: Structural fire (HCN), industrial cyanide salts*, unripe cassava, apricot pits, laetrile, etc.
- 5) If CPR in progress or injuries incompatible with life, DO NOT GIVE ANTIDOTE.

*may persist on skin, however water decon may liberate HCN gas.

PEDIATRIC COMA

(Decreased level of consciousness)

NEVER GIVE NALOXONE TO A NEONATE

BASIC

1. Manage airway as appropriate, PPV if needed
2. Spinal immobilization if indication of trauma
3. Option to perform finger stick to measure blood glucose using MEMS approved technique/device limited to providers who have completed the MEMS BG monitoring training program.
4. Request ALS if available

INTERMEDIATE

5. Cardiac monitor en route
6. IV/IO, TKO en route (18 or 20 gauge catheter is acceptable for IV)
7. Draw blood as IV established, or do finger stick to measure blood glucose, using MEMS-approved technique/device

8. Contact OLMC for the following OPTION:

- a. **If blood glucose less than 80 mg/dL**, 10% dextrose (1 ml of D50 in 4 ml IV fluid or use pre-mix) IV/IO, according to the following table:

Weight (Kg/Lbs)	Volume to be infused
10/22	50 ml
20/44	100 ml
30/66	150 ml
40/88	200 ml

b. If respirations less than 12 per minute AND narcotic overdose suspected:

- i. Naloxone (Narcan) Less than 20 kg: 0.1 mg/kg. If greater than 20 kg or 5 years old or greater, 0.1 – 2 mg IV/IO/IM or intranasal (may opt to give 2.0 mg as starting dose if using intranasal route). Titrate to improved respiratory drive.

- ii. NOTE: Patients abruptly and fully awakened from narcotic overdose may become combative or suffer acute narcotic withdrawal symptoms. Some drugs such as propoxyphene, Talwin, or methadone may require higher doses.

- iii. Once airway managed by BIAD, do not give naloxone.

9. Contact OLMC for the following:

- a. If respirations less than 12 per minute AND narcotic overdose suspected:
 - i. Naloxone (Narcan) Less than 20 kg: 0.1 mg/kg. If greater than 20 kg or 5 years old or greater, 0.1 – 2 mg IV/IO/M intranasal (may opt to give 2.0 mg as starting dose if using intranasal route). Titrate to improved respiratory drive.
 - ii. NOTE: Patients abruptly and fully awakened from narcotic overdose may become combative or suffer acute narcotic withdrawal symptoms. Some drugs such as propoxyphene, Talwin, or methadone may require higher doses.
 - iii. Once airway managed by ETT or BIAD, do not give naloxone
 - b. **If blood glucose less than 80 mg/dL**, 10% dextrose (1 ml of D50 in 4 ml IV fluid or use pre-mix) IV/IO, according to the above table.*
 - c. Glucagon: if less than 3 kg (6.5 lbs) give 0.3 mg/kg IM. If weight is 3 kg or larger, give 1.0 mg IM (if IV/IO access is unavailable for administration of dextrose.)
-

PEDIATRIC SEIZURES

BASIC

1. Open, protect and maintain airway, O₂, and manage airway as appropriate
2. Spinal immobilization if indicated
3. Protect the patient from self-injury
4. Option to perform finger stick to measure blood glucose using MEMS approved technique/device limited to providers who have completed the MEMS BG monitoring training program.
5. Request ALS if available if history of seizures, if seizure continues, or if unstable vital signs

INTERMEDIATE

6. Manage airway as needed See “Blue 3 & 5”
7. Cardiac monitor
8. IV/IO en route
9. Draw blood as IV established, or do finger stick, to measure blood glucose using MEMS-approved technique/device

10. Contact OLMC for the following options:

- a. **If blood glucose less than 80 mg/dL**, 10% dextrose (1 ml of D50 in 4 ml IV fluid or use D10W) IV/IO, according to the following table:*



Weight (Kg/Lbs)	Volume to be infused
10/22	50 ml
20/44	100 ml
30/66	150 ml
40/88	200 ml

CRITICAL CARE / PARAMEDIC

11. Administer:
 - a. Midazolam (*Versed*) 0.15 mg/kg IV maximum 3 mg

- b. Contact OLMC if repeat dosing is necessary.




- c. Alternate routes to IV dosing:

- i. Intramuscular dosing – midazolam (*Versed*) 0.3 mg/kg IM if IV cannot be established to maximum dose of 5 mg.

- ii. Rectal administration: midazolam (*Versed*) 0.3 mg/kg PR to a maximum dose of 10 mg.
 - iii. Intranasal dosing – midazolam (*Versed*) 0.2 mg/kg IN over 15 sec – one half of dose into each nostril – to a maximum dose of 6 mg.
-

12. Contact OLMC for the following OPTIONS:

- a. **If blood glucose less than 80 mg/dL**, 10% dextrose (1 ml of D50 in 4 ml IV fluid or use D10W) IV/IO, according to the above table.* 
 - b. Glucagon: if less than 3 kg (6.5 lbs) give 0.3 mg/kg IM. If weight is 3 kg or larger, give 1.0 mg IM (if IV/IO access is unavailable for administration of dextrose.)*
-

PEDIATRIC RESPIRATORY DISTRESS

BASIC

1. If adequate ventilation, let child assume position of comfort
2. O₂ – allow patient or parent to assist in administration
3. Attempt to discern between upper airway respiratory distress (stridor) or lower airway respiratory distress (wheezing)
 - a. If stridor is found, proceed to the MEMS Pediatric Respiratory Distress with Stridor Protocol “Pink 9”. If wheezing is found, proceed to the MEMS Pediatric Respiratory Distress with Wheezing Protocol “Pink 7”.
4. Request ALS if available
5. If inadequate ventilation:
 - a. If foreign body suspected, use the AHA Foreign Body Airway Obstruction protocol
 - b. IF CHILD HAS INSPIRATORY STRIDOR, ESPECIALLY IF LEANING FORWARD OR IN THE SNIFFING POSITION, THEN:
 - i. Put child in position of comfort
 - ii. **DO NOT ATTEMPT ANY PROCEDURE/MANEUVER (INCLUDING EXAMINATION OF OROPHARYNX) WHICH MAY INCREASE CHILD’S ANXIETY AND THEREBY RAISE CHANCES OF LARYNGOSPASM UNLESS ABSOLUTELY NECESSARY TO PRESERVE AIRWAY**
6. Open airway if needed, ventilate with bag-valve-mask if inadequate ventilation. In epiglottitis, this may require forceful ventilation, including closure of pop-off valve on BVM, and use of cricoid pressure (Sellick’s maneuver) to prevent gastric distention.
7. Constantly monitor airway for patency in any unconscious child

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

8. Proceed to Pediatric Respiratory Failure see “Pink 10” as necessary.

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PEDIATRIC RESPIRATORY DISTRESS WITH WHEEZING

Wheezing may occur from various etiologies including asthma, inflammation, infections and foreign body.

BASIC / INTERMEDIATE

Contact OLMC for the following OPTIONS:

1. Assist the patient in self-administering 5 puffs of their rescue inhaler.
2. If uncertainty regarding the type of inhaler, contact OLMC for permission to assist patient with self-administered bronchodilator (using spacer if available*). Inform OLMC of the name of the inhaler. OLMC will prescribe the number of puffs.

* If Spacer unavailable and Intermediate/Critical Care/Paramedic present, they should use nebulizer instead

INTERMEDIATE

3. Contact OLMC to administer albuterol, 2.5 mg by nebulization (use 3 ml premix or 0.5 ml of 0.5% solution mixed in 2.5 ml of normal saline)
-

CRITICAL CARE / PARAMEDIC

4. If expiratory wheezing with spontaneous ventilation, use the following OPTIONS:

- a. Albuterol 2.5 mg by nebulization. **May repeat 1 time**

Or

(Paramedic only b and c)

- b. Ipratropium bromide 0.5 mg /albuterol sulfate 3 mg nebulizer if greater than 1 year of age and more significant respiratory distress, and may repeat one time

Or

- c. Ipratropium bromide/albuterol sulfate (Combivent) Inhaler 2 puffs if greater than 1 year of age and may repeat one time in those with more significant respiratory distress – patients receiving Combivent inhaler must be questioned regarding peanut allergies prior to inhaler administration as a peanut allergy is an absolute contraindication to this medication.
-

5. Contact OLMC for the following options:

- a. Epinephrine: If < 30 kg, 0.15 mg IM (0.15 ml of 1:1,000), If > 30 kg, 0.3 mg IM (0.3 ml of 1:1,000) in anterolateral thigh OR inhalation of nebulized solution of 1 ml of 1:1,000 epinephrine mixed with 2 ml normal saline solution. *
 - b. Methylprednisolone (Solu-Medrol) 2 mg/kg IV x 1 dose
-

* Nebulized epinephrine may be contraindicated in children with a history of congenital heart disease.

PEDIATRIC RESPIRATORY DISTRESS WITH INSPIRATORY STRIDOR

Inspiratory stridor may be due to many causes in the pediatric population, including croup, foreign body aspiration, or epiglottitis.

Stridor refers to upper airway obstruction as in laryngotracheitis/croup, and is often accompanied by hoarseness and/or a barking cough (seal-like cough).

As stridor worsens in severity, the following may also be observed: tachypnea, retractions, accessory muscle use, nasal flaring, fatigue from respiratory effort, and cyanosis.

BASIC / INTERMEDIATE

1. Humidified O₂, if available, as appropriate with upright posture
2. If needed, assist ventilations with PPV using 100% O₂
3. Request ALS if available

CRITICAL CARE / PARAMEDIC

4. Contact OLMC for the following OPTION:
 - a. Inhalation of nebulized solution of 1 ml 1:1,000 epinephrine mixed with 2 ml normal saline solution.*

* Nebulized epinephrine may be contraindicated in children with a history of congenital heart disease.

PEDIATRIC RESPIRATORY FAILURE

(With or without obstruction)

Prehospital providers should consider patient age, diagnosis, transport time, provider experience, and effectiveness of ongoing bag-mask ventilation in considering whether to continue with bag-mask ventilation versus proceeding to further airway management procedures. Bag-mask ventilation has been shown to be equivalent to endotracheal ventilation in pediatric patients in most situations with short transport times. If suspected opiate overdose, refer to naloxone dosing under Pediatric Coma Protocol "Pink 1"

BASIC

1. Follow AHA Respiratory Arrest procedure utilizing bag valve mask and 100% O₂ for ventilation. Use the AHA foreign body obstructed airway procedure as necessary.
2. Request ALS if available

INTERMEDIATE

3. Secure airway, including airway management as needed See "Blue 3 & 5"
4. Cardiac monitor IV/IO en route
5. Pulse oximetry if available

CRITICAL CARE/PARAMEDIC

6. Magill forceps if indicated
7. OG Tube (Paramedic only)

PEDIATRIC DIABETIC EMERGENCIES

BASIC

1. Manage airway as appropriate
2. Request ALS if available
3. If patient is conscious and able to swallow, give glucose orally
4. Option to perform finger stick to measure blood glucose using MEMS approved technique/device limited to providers who have completed the MEMS BG monitoring training program.

Glucose paste is to be administered as soon as possible in patients presenting with the signs/symptoms of diabetic emergency.

INTERMEDIATE

5. IV en route
6. Draw blood as IV established or do finger stick, to measure blood glucose, using MEMS-approved technique/device
7. Cardiac monitor

-
8. If blood glucose less than 80 mg/dL contact OLMC for OPTION of administering 10% dextrose (D10W) IV/IO. Recheck blood glucose in 5 minutes.
 9. If blood glucose greater than 300 mg/dL, give 10 ml/kg NS fluid challenge.

Use the following table for D10 dosing:

Weight (Kg/Lbs)	Volume to be infused
10/22	50 ml
20/44	100 ml
30/66	150 ml
40/88	200 ml

EMT-I, in consult with OLMC, may modify the Paramedic response as appropriate.

CRITICAL CARE / PARAMEDIC

10. Dextrose
 - a. 10% dextrose (D10W) IV/IO according to the above table. Recheck blood glucose in 5 minutes.
 - b. If blood glucose greater than 300 mg/dL, give 10 ml/kg NS fluid challenge.
 - c. If IV, IO access is unavailable administer glucagon: if less than 3 kg (6.5 lbs) give 0.3 mg/kg IM. If weight is 3 kg or larger, give 1.0 mg IM

11. Repeat glucose measurement

12. Contact OLMC for OPTION of repeating dextrose



PEDIATRIC MEDICAL SHOCK

If Trauma related See “Green 10”

Pediatric Shock is well established before the appearance of classic signs and symptoms. The earliest sign is delayed capillary refill. This may also be accompanied by altered level of consciousness, rising pulse and increasing respiratory rate. By the time blood pressure drops, circulatory collapse is near.

See “Red 21” Cardiogenic Shock if appropriate

See “Green 13” Hypovolemic Shock if appropriate

See “Gold 1” Allergy and Anaphylaxis if appropriate

See “Blue 5” Pediatric Airway Algorithm if appropriate

Definition of Severe Inflammatory Response Syndrome (SIRS), Sepsis, Severe Sepsis and Septic Shock		
Variable	Definition	
SIRS	Greater than or equal to 2 of the following	Temp > 38.3°C or < 36°C HR > 90 bpm Respiratory rate > 20 bpm Hyperglycemia > 120 mg/dl ¹ Altered level of consciousness Decreased capillary refill Lactate > 2 mmol/L
Sepsis	SIRS + a presumed or identified source of infection	
Severe Sepsis	Sepsis + one or more organ dysfunction ² , hypotension before fluid challenge, or Lactate > 4 mmol/L	
Septic Shock	Severe Sepsis + Hypotension ³ despite fluid challenge	
<p>☒ Table adopted from 2001 SCCM/ESICM/ACCP/ATS/SIS International Sepsis Definitions Conference.☒</p> <p>¹Hyperglycemia without history of diabetes, Hypoglycemia, without diabetes, in an immunocompromised patient increases suspicion of infection.</p> <p>²Organ dysfunction can be defined as: respiratory failure, acute renal failure, acute liver failure, coagulopathy, or thrombocytopenia. Laboratories that will suggest organ dysfunction include: PaO₂ (mmHg)/FiO₂ <300, creatinine >2.0 mg/dl OR creatinine Increase >0.5 mg/dL, INR >1.5, PTT >60 sec, Platelets < 100,000/uL. Total bilirubin >4 mg/dL</p> <p>☒³Systolic Blood Pressure < 90 mmHg or Mean Arterial Pressure < 65 mmHg</p>		

BASIC

1. Attempt to identify cause (i.e. allergic reaction)
2. O₂ and airway management as appropriate
3. Keep child warm and dry
4. Request ALS intercept
5. Transport

INTERMEDIATE

6. Consider causes

- a. Massive GI bleed, vomiting, diarrhea, - Treat per "Green 13" Hypovolemic Shock
- b. Cardiogenic Shock - Treat per "Red 22"
- c. Anaphylaxis - Treat per "Gold 1"
- d. Undifferentiated Shock or Suspected Severe Sepsis
 - i. Assess for pulmonary edema (crackles in the lungs)
 - ii. If available and trained perform point of care lactate
 - A. If POC lactate > 4 and no evidence of pulmonary edema, 40 ml / kg NS bolus

iii. If POC lactate not available and no evidence of pulmonary edema

- A. Contact OLMC for OPTION of 20 ml / kg NS bolus
- 


iv. Notify receiving hospital

CRITICAL CARE / PARAMEDIC

7. For presumed septic shock or shock of unknown origin

- a. Treat as per intermediate 6 above
- b. If no response to initial treatment:

i. Contact medical control to discuss additional fluid bolus versus initiating dopamine infusion. **NOTE: dopamine in the pediatric patient MUST be infused by a pump.**

- A. Dose 5-20 mcg / kg / min (2-9 mcg / pound / min)
 - B. Titrate to maintain SBP greater than 80 mm Hg
- 

8. Additionally, if the patient is found to have Adrenal Insufficiency (via medic alert bracelet, patient records, or family/staff reports), administer methylprednisolone (Solu-Medrol) as follows:

- a. Pediatrics - methylprednisolone (Solu-Medrol) 2mg/kg IV/IM/ IO x 1 dose

Weight Based Dopamine Dosing Chart

(800mg in 500ml IV fluid=1600mcg/ml)

Dose= 5-20 mcg/kg/min (2-9 mcg/pound/min)

Administered by infusion pump only

Weight (lbs)	10	15	20	25	30	35	40	50	60
Weight (kg)	5	6	8	10	13	15	18	22	25
Gtts / min (60 gtt set)	1- 4	1- 6	2- 6	2- 8	3-10	3- 12	4-14	4-17	5-19

PEDIATRIC CARDIAC ARREST

(Non-breathing, pulseless patient)

Pediatric cardiac dysfunction is usually due to a respiratory cause and is thus more likely to initially respond to effective oxygenation and ventilation, then fluid administration - and then medications may be needed. Defibrillation alone is rarely successful.

BASIC

1. 100% O₂ and ventilate with bag valve mask
2. CPR first, and use AED per current AHA guidelines
3. Request ALS if available

INTERMEDIATE / CRITICAL CARE / PARAMEDIC

4. Manage airway as needed See "Blue 5" (consider possibility of foreign body obstruction)
5. IV/IO
6. Cardiac monitor and treat dysrhythmias according to protocol using pediatric dosages listed below
7. For traumatic cardiac arrest give IV/IO bolus of 20 ml/kg IV fluid. **May be repeated once.**

-
8. Contact OLMC for option of medications, fluid boluses, defibrillations, or other ongoing interventions that may be necessary.
-



PEDIATRIC CARDIAC ARREST DOSAGES

Prehospital providers should consider patient age, diagnosis, transport time, provider experience, and effectiveness of ongoing bag-mask ventilation in considering whether to continue with bag-mask ventilation versus proceeding to endotracheal intubation. Bag-mask ventilation has been shown to be equivalent to endotracheal ventilation in pediatric patients in most situations with short transport times.

Atropine 0.02 mg/kg	IV/IO: Minimum dose: 0.1 mg Maximum single dose: 0.5 mg (child), may repeat once
Epinephrine* (bradycardia)	IV/IO: 0.01 mg/kg (1:10,000, 0.1 ml/kg, to a maximum single dose of 1 mg)
Epinephrine* (Asystole/pulseless arrest)	<u>FIRST DOSE:</u> IV/IO: 0.01 mg/kg (1:10,000, 0.1 ml/kg) <u>SUBSEQUENT DOSES:</u> IV/IO, 0.01 mg/kg (1:10,000, 0.1 ml/kg) Repeat every 3-5 minutes
Amiodarone	5 mg/kg IV/IO bolus; can repeat up to total dose of 15 mg/kg (2.2 grams in adolescents) maximum single dose: 300 mg

Synchronized cardioversion: 0.5 – 1.0 J/kg (initial); 2 J/kg (subsequent)

Defibrillation: 2 J/kg (initial); 4 J/kg (subsequent) or equivalent biphasic energy

CHILDBIRTH

BASIC / INTERMEDIATE / CRITICAL CARE / PARAMEDIC

1. O₂ as appropriate
2. Encourage mother to NOT bear down
3. If hypotensive, roll patient onto left hip
4. If the presenting part is the cord, apply pressure to the baby with a sterile, gloved hand to keep pressure off the cord. Raise mother's hips onto pillows. Keep cord warm. Do not clamp or cut cord.
5. Request ALS if available and DO NOT DELAY TRANSPORT.
6. If baby's head is delivering:
 - a. Do not hurry or slow delivery
 - b. Check to see if cord is wrapped around neck. If so, attempt to unwrap the cord. Failing this, clamp and cut immediately and deliver child.
 - c. Double clamp the cord at least 4 inches from baby and cut between clamps.
 - d. Dry baby, examine and keep warm (may place next to mother's skin). As soon as possible, enable child to nurse at mother's breast.
 - e. Assess APGAR SCORE at 1 and 5 minutes see "Pink 18"
 - f. Do not externally massage the uterus en route until placenta has delivered
 - g. Do not forcibly remove placenta
 - h. If placenta is delivered, wrap and package with cord intact
7. If delivery has occurred, please transport the child on the mother's chest/abdomen in an effort to keep newborn warm

APGAR SCORE

Assess the baby at 1 minute and again at 5 minutes

DO NOT DELAY RESUSCITATION to obtain APGAR Score.

A score of less than 7 suggests need for resuscitation with suction, ventilation, and ALS back up.

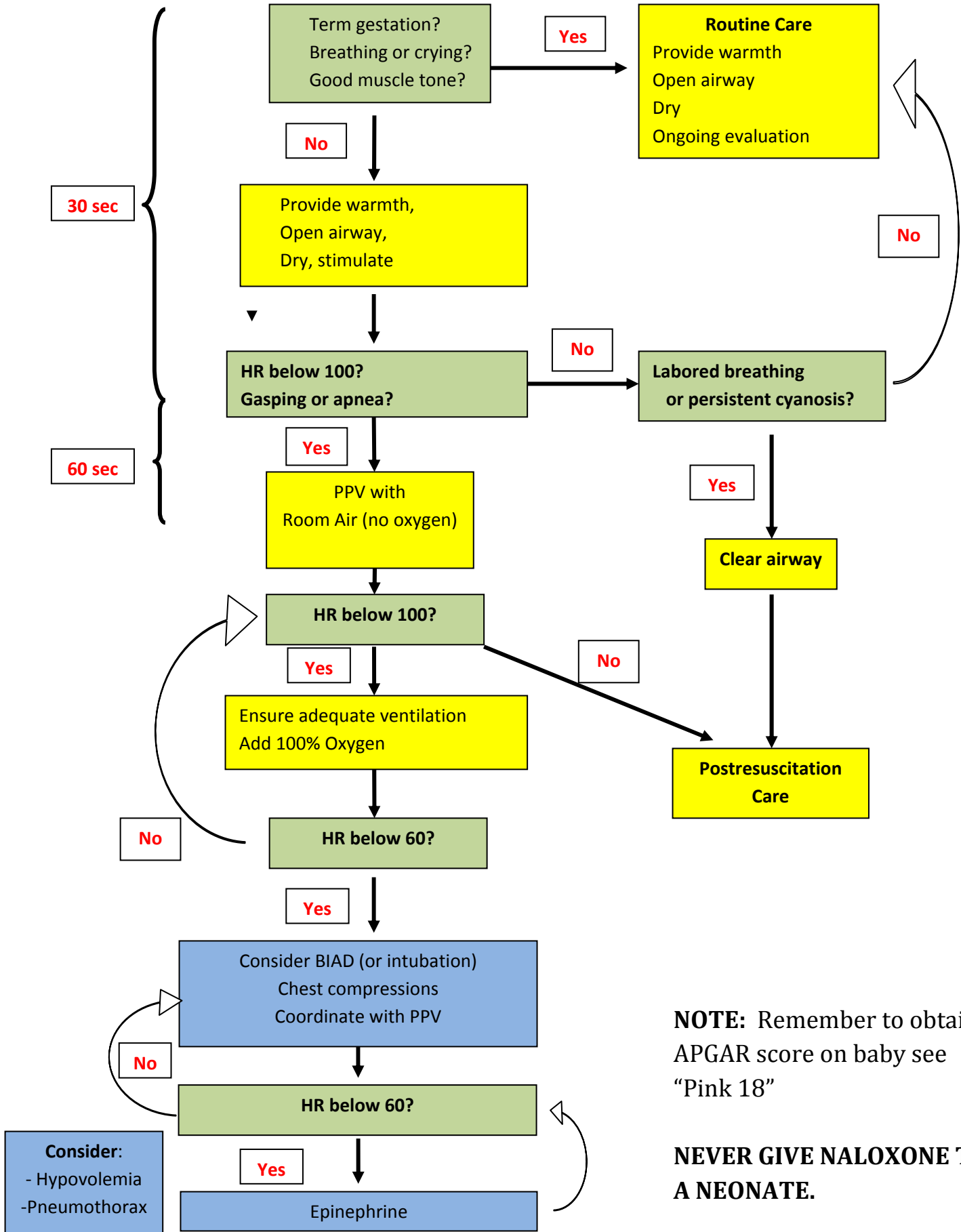
SCORE

		0	1	2
A	Appearance	Blue or pale	Body pink Hands blue	Pink
P	Pulse	Absent	less than 100	greater than 100
G	Grimace*	None	Grimace	Cough
A	Activity**	Flaccid	Some	Good
R	Respiration	Absent	Weak	Good

* Tested by a suction catheter or bulb syringe tip gently placed in the nose or mouth.

** Amount of spontaneous flexion of extremities.

NEONATAL RESUSCITATION



NOTE: Remember to obtain APGAR score on baby see "Pink 18"

NEVER GIVE NALOXONE TO A NEONATE.

NORMAL PEDIATRIC VITAL SIGNS

Normal Pediatric Vital Signs

	Systolic	Pulse Awake	Pulse Sleeping	Respirations
Newborn-3 months	>60mm Hg	85-205	80-160	30-60
3 months-2 years	>70mm Hg	100-190	75-160	24-40
2-10 years	See below	60-140	60-90	18-30
>10 years	>90mm Hg	60-100	50-90	12-16

Note: Estimated weight in kilograms: $[2 \times (\text{age in years})] + 8$

Typical Systolic BP for a child 1-10 years of age: $90 + (\text{age in years} \times 2)$

Lower Limits of Systolic BP for a child 1-10 years: $70 + (\text{age in years} \times 2)$

Modified GCS for Infants and Children

	Child	Infant	Score
EYE OPENING	Spontaneous	Spontaneous	4
	To speech	To speech	3
	To pain only	To pain only	2
	No response	No response	1
BEST VERBAL RESPONSE	Oriented, appropriate	Coos and babbles	5
	Confused	Irritable, cries	4
	Inappropriate words	Cries to pain	3
	Incomprehensible sounds	Moans to pain	2
	No response	No response	1
BEST MOTOR RESPONSE	Obeys commands	Moves spontaneously/purposefully	6
	Localizes painful stimuli	Withdraws to touch	5
	Withdraws in response to pain	Withdraws in response to pain	4
	Flexion in response to pain	Abnormal flexion posture to pain	3
	Extension in response to pain	Abnormal extension posture to pain	2
	No response	No response	1

ENDOTRACHEAL TUBE SIZES

Equipment	GREY 3-5kg	PINK Small infant 6-7 kg	RED Infant 8-9 kg	PURPLE Toddler 10-11kg	YELLOW Small child 12-14 kg	WHITE Child 15-18kg	BLUE Child 19-23kg	ORANGE Large Child 24-29kg	GREEN Adult 30-36kg
BVM	Infant or child	Infant or child	Infant or child	Child	Child	Child	Child	Child	Adult
Oral airway (mm)	50	50	50	60	60	60	70	80	80
Laryngoscope Blade (size)	1 straight	1 straight	1 straight	1 straight	2 straight	2 straight	2 straight or curved	2 straight or curved	3 straight or curved
ET Tube	3.5 uncuffed	3.5 uncuffed	3.5 uncuffed	4.0 uncuffed	4.5 uncuffed	5.0 uncuffed	5.5 uncuffed	6.0 cuffed	6.5 cuffed
ET Tube Insertion length (cm)	3 kg 9-9.5 4 kg 9.5-10 5 kg 10-10.5	10.5-11	10.5-11	11-12	13.5	14-15	16.5	17-18	18.5-19.5
Stylet	Pedi	Pedi	Pedi	Pedi	Pedi	Pedi	adult	adult	adult
Suction Catheter (F)	8	8	8	10	10	10	10	10	10-12
BP Cuff	Neonate	Infant or child	Infant or child	Child	Child	Child	Child	Child	Small Adult
IO (Ga)	18/15	18/15	18/15	15	15	15	15	15	15
NG Tube (F)	5-8	5-8	5-8	8-10	10	10	12-14	14-18	16-18
LMA	1	1 1/2	1 1/2	2	2	2	2 1/2	2 1/2	3
KING	None available	None available	None available	None available	2	2	2	2.5	2.5

For ET size, pinky finger diameter in a child affords an acceptable approximation of OD. The formula is the following: “Age (in years) / 4 + 4” and the Broselow-Hinkle Tape may be used for ID determination. Using a tube one size larger or smaller than this guideline is also acceptable.

DO NOT RESUSCITATE (DNR) GUIDELINES

I. When to Start Resuscitation:

As soon as the absence of pulse and respiration is established.

II. When Not to Start Resuscitation:

- A. **All Patients:** Any patient displaying obvious and accepted signs of irreversible death such as rigor mortis, dependent lividity, decapitation, decomposition, incineration, other obvious lethal injuries, evidence of central freezing (such as ice in the airway), core temperature less than 50 degrees F, chest wall so stiff that compressions cannot be performed, or patients submerged in cold water (less than 50 degrees F) for greater than one hour.
- B. **All Normothermic Patients:** Major blunt trauma victims who have no respiration and no pulse, no sign of life at the time of Maine EMS licensed crewmember arrival, and whose cardiac monitor - if available - shows asystole or an agonal rhythm.
- C. When a Do Not Resuscitate (DNR) order is presented in one of three forms:
 - 1. EMS DNR orders from other state EMS/DNR programs. If the order or device (e.g., plastic bracelet, jewelry, or card) appear to be in effect, and understandable to the crew, follow the order's specific instructions. If there are no specific instructions beyond "DNR", follow Maine EMS Comfort Care/DNR Guidelines.
 - 2. Non-EMS actionable medical order (e.g. POLST/MOLST, etc.) - A written order executed by a patient's personal physician/PA/NP should be honored if it is understandable to the crew and if it is dated within 1 (one) year. Follow the order as written. If it is non-specific as to care to provide or withhold, follow the MEMS Comfort Care/DNR guidelines.
 - 3. Maine EMS Comfort Care / DNR Program - A Maine EMS Comfort Care/DNR order does not have an expiration date. Once activated, it remains in effect until the patient or someone acting on their behalf as described and authorized on the Comfort Care/DNR form cancels it. (Note: Although no longer distributed by Maine EMS, extant DNR/Comfort Care "orange" forms, wallet cards and plastic bracelets remain valid.)
- D. When a signed Maine EMS Do Not Resuscitate Directive form or Maine EMS-approved Do Not Resuscitate Directive jewelry is presented to EMS personnel. Once executed by the patient and signed by a physician, physician's assistant or nurse practitioner, the Do Not Resuscitate Directive remains in effect until the expiration date on the form or, if no expiration date is noted on the form, until the patient cancels it.
- E. A photocopy is acceptable as proof of the existence of valid DNR Order or DNR Directive, provided that the photocopy is legible and understandable by EMS personnel.

III. Treatment/Comfort Care

- A. When treating a patient with a Maine EMS Comfort Care/DNR Order or Do Not Resuscitate Directive, the responding EMS provider should perform routine patient assessment and resuscitation or intervention until EMS personnel verify:
 - 1. That an EMS Comfort Care/DNR Order or Do Not Resuscitate Directive exists; or,

2. That a Maine EMS-approved EMS Comfort Care/DNR wallet card, plastic bracelet or Maine EMS-approved DNR jewelry is present, intact and not defaced. The plastic bracelet may be worn on the wrist or ankle or on a necklace; or,
3. That Maine EMS-approved Do Not Resuscitate Directive jewelry is present, intact and not defaced; and,
4. The identity of the patient through family or friends present, or with photo ID such as a driver's license. A good faith effort only is required.

B. Follow these EMS Comfort Care/DNR procedures in all cases:

1. These comforting interventions are encouraged:

- a. Open the airway manually (NO intubation, No BVM unless invited by conscious patient);
- b. Suction and provide oxygen;
- c. Make the patient comfortable (position, etc.);
- d. Control bleeding;
- e. Pain and other medications of comfort to a conscious patient only (ALS per On Line Medical Control);
- f. Be supportive of the patient and family;
- g. Contact patient's physician/PA/NP or On Line Medical Control if questions or problems.

2. Resuscitative measures to be avoided: (to be withheld, or withdrawn if resuscitation has begun prior to confirmation of EMS Comfort Care/DNR Order or Do Not Resuscitate Directive status).

- a. CPR;
- b. Intubation (ET Tube, or other advanced airway management); surgical procedures;
- c. Defibrillation;
- d. Cardiac resuscitation medications;
- e. Artificial ventilation by any means;
- f. Related procedures per On Line Medical Control.

IV. Revocation, Documentation & When to Stop Resuscitation

A. Who may revoke an EMS Comfort Care/DNR Order or Maine Do Not Resuscitate Directive:

1. The patient (by destroying EMS Comfort Care/DNR Order Form, wallet card, plastic bracelet and DNR jewelry, or by destroying the Do Not Resuscitate Directive and DNR jewelry, or verbally withdrawing the order or directive);
2. For the EMS Comfort Care/DNR Order form only:
 - a. The patient's physician/PA/NP who signed the order;
 - b. The Authorized Decision-Maker for the patient who signed the order.

B. Documentation:

1. Use the Maine EMS patient/run report.
2. Describe assessment of patient's status.

3. Document which identification (i.e., form, wallet card, plastic bracelet or DMR jewelry) was used to confirm EMS Comfort Care/DNR or Do Not Resuscitate Directive status and indicate that it was intact and not canceled.
4. Indicate the patient's physician/PA/NP name, on the patient/run report.
5. If the patient has expired on arrival, comfort the family and follow your EMS agency's procedure for death at home. A Maine EMS patient/run report still needs to be completed.
6. If transporting the patient, EMS providers should keep the original EMS Comfort Care/DNR Order Form, wallet card, plastic bracelet, Do Not Resuscitate Directive Form or DNR jewelry with the patient.

C. When to Stop Resuscitation: Resuscitation should be terminated:

1. Unwitnessed Arrest:

- a. When the patient regains pulse / respiration
- b. When the patient is in asystole or unresponsive to Advanced Cardiac life support efforts for > 20 minutes.
- c. When irreversible signs of death, such as dependent lividity, pupils fixed and dilated, palpable hypothermia (not from exposure) and no audible heart sounds are noted in patient with unknown downtime or downtime > 20 minutes.
- d. When the rescuers are physically exhausted or when equally or more highly trained health care personal take over
- e. When it is found that the patient has a DNR order or other actionable medical order (e.g. POLST/MOLST.etc) form.
- f. Continue resuscitation if conditions on scene are NOT amenable to cessation of resuscitation
- g. Continuation of resuscitation beyond these protocols must be in consultation with OLMC

2. Witnessed arrest:

- a. When the patient regains pulse/ respiration
- b. When the patient is in asystole or unresponsive to advanced cardiac life support protocols performed by Critical Care EMT/ Paramedic for >20 minutes.
- c. In the absence of ALS, when the same Maine EMS licensed crewmember has documented the absence of all vital signs for 20 minutes, in spite of BLS, except in the case of hypothermia.
- d. When the rescuers are physically exhausted or when equally or more highly trained health care personal take over.
- e. When it is found that the patient has a DNR or other actionable medical order (e.g. POLST/MOLST.etc) form.
- f. Continue resuscitation if conditions on scene are NOT amenable to cessation of resuscitation
- g. Continuation of resuscitation beyond these protocols must be in consultation with OLMC

V. Management of Bodies

If resuscitation efforts are discontinued, arrangements should be made with On Line Medical Control with regards to disposition of the body. Contact your local ED with regard to tissue donation options and procedures in advance.

DEATH SITUATION GUIDELINES FOR EMERGENCY MEDICAL RESPONDERS

PURPOSE: Development of DEATH SITUATION PROCEDURES by Emergency Medical Services.

PREPARED JOINTLY BY: Attorney General, Office of Chief Medical Examiner, and Maine State Police.

GENERAL AIM: Preservation of scene, including body as found, for investigative purposes within practical limits consistent with the role and responsibilities of emergency medical care givers.

Death Situation Guidelines

I. Preserve life: While forensic guidelines emphasize that the scene should not be disturbed, the first and most important course of action is to follow all usual procedures to ensure the preservation of life.

II. Once Death is confirmed: *If the decedent is clearly dead, **the body should not be moved or disturbed** unless there is a danger that the body may be lost or further damaged.*

- a. Maine statutes do not require a pronouncement of death.
- b. The scene should be secured and left undisturbed.
 - i. If the police are present, they should take charge in order to determine whether the case falls under the jurisdiction of the Office of Chief Medical Examiner (OCME) or may be certified by the private attending physician.
 - ii. If there is no police officer present, EMS should call the local police or call the OCME directly to report the case, so that a determination may be made as to the need for further investigation into the cause and manner of death. OCME emergency line to report deaths: 1-800-870-8744.
 - iii. If it is determined not to be an ME case, try to accommodate the family's request or contact OLMC for guidance.
- c. **Tubes and Medical Devices** should be left in place. Certain reusable equipment may be removed to resupply the ambulance; however written documentation of any such action must be given to investigators.
- d. Any clothing or property should be left undisturbed.

III. What is a Medical Examiner (ME) case?:

- a. Any suspected HOMICIDE
- b. Any suspected SUICIDE
- c. Any death involving any ACCIDENT or INJURY
- d. Any death of a CHILD

- e. Any death in CUSTODY
- f. Deaths caused by SUSPECTED GROSS NEGLIGENCE during a Medical Procedure
- g. SUDDEN DEATH from an UNKNOWN cause or any death where there is no private attending physician
- h. UNIDENTIFIED persons
- i. OCCUPATIONAL Deaths (Work related)
- j. Unnatural Deaths in a Mental, Residential Care of DHS Facility
- k. Any death that might ENDANGER or THREATEN the Public Health

IV. Deaths in Children:

- a. All deaths in children under the age of three automatically become medical examiner cases unless the death is expected based on previously diagnosed natural disease.
- b. Determination of the cause of death in infants and children is very difficult. While the OCME understands the concerns of the parents, the child must be left undisturbed until investigating police officers have finished the initial investigation. SIDS is not an acceptable reason to transport a deceased infant or allow the infant to be moved prior to investigation.

V. Reports and follow-up on Medical Examiner cases:

- a. If families have questions, they may be referred to the OCME. Families should call the office using the 24 hour business line at 624-7180
- b. Copies of EMS run sheets should be given to police investigators and/or the OCME.
- c. If any EMT wishes follow-up information on any specific case, or if there is a question of infectious exposures, call the OCME on the business line, 624-7180.

MASS CASUALTY / DISASTERS / HAZMAT

GENERAL RESPONSIBILITY FOR DECEASED PERSONS: The Office of Chief Medical Examiner is responsible for deceased victims of mass disasters including identification and removal from the scene. The Office of Chief Medical Examiner (1-800-870-8744, restricted emergency call number) should be informed immediately of any multiple fatality situations.

1. **BODIES SHOULD BE LEFT IN PLACE AT SCENE** except when they must be moved to preserve them from destruction or when they block access. The resting place of the victim may be critical for identification of the body and/or reconstruction of the incident. They can be tagged as fatalities to prevent other medical personnel from repeating examination.
2. **IF DEATH OCCURS EN ROUTE TO THE HOSPITAL**, the body need not be returned to the scene but can be brought to the hospital or other suitable storage place as determined by distances and needs of other patients in the ambulance. If the body is left anywhere other than the hospital or designated temporary morgue, the body should be tagged and the Office of Chief Medical Examiner should be advised.
3. **THE SITE A VICTIM IS REMOVED FROM SHOULD BE NOTED** on a tag along with the name and agency of the person who removed it whenever removal is needed and in cases of death after removal. Such information may be critical for identification of the body and/or reconstruction of the accident.
4. **IF AN IDENTIFICATION OF A PATIENT IS MADE**, a tag with at least the name and date of birth of the patient/deceased along with the identifier's name, relationship, address and where he/she can be located should be put on the body.
5. **PERSONAL PROPERTY SHOULD BE LEFT WITH THE BODY** including clothing removed from a patient if the victim dies. Nothing should be removed from those already deceased.

MASS CASUALTY / DISASTERS / HAZMAT

(Continued)

Consistent with New England EMS Council MCI Management the action priorities for the first medical crews arriving on the scene are:

1. Assess and avoid exposure to existing dangers
2. Notify dispatch of type of MCI and estimate of number and type of patients
 - a. Request EMS, fire, police assistance
 - b. Request hospital notification
3. First ambulance or other vehicle with medical frequencies becomes EMS command vehicle – locate near fire and police command vehicles. Strip equipment/supplies – place in equipment area (near planned patient collection/treatment area).
4. Designate, in the following order, the following positions as qualified personnel become available:

EMS CONTROL OFFICER – Reports to Incident Commander. Responsible for overall patient triage, treatment, and transportation. Procures EMS back-up, supplies, equipment, transport vehicles as needed, supervises and assigns all other medical personnel.

PRIMARY TRIAGE OFFICER – Rapidly assesses all patients then assigns personnel to provide treatment to those patients in most need of immediate treatment, who will most benefit from immediate care with the resources available. Treatment is limited to:

- Bleeding – rapid pressure dressing if severe
- Airway – reposition patient
- Shock – elevate extremities

SECONDARY TRIAGE OFFICER – Rapidly tags all patients, or assigns personnel to do tagging (with METTAGS, SMART Tags, or other locally approved Triage System) and, supervises immobilization after classification, and oversees transfer to collection/treatment area.

Tag categories are:

RED (I): Conditions requiring immediate transport by ambulance to prevent jeopardy to life or limb and which will not unduly deplete personnel/equipment resources (examples: progressive shock, major blood loss, major multiple injuries, severe respiratory distress. Cardiac arrest – only if personnel can be spared).

YELLOW (II): Not requiring immediate transport to prevent jeopardy to life or limb, but eventually will require ambulance transport to hospital for attention.

GREEN (III): Minor conditions probably not requiring ambulance transport to hospital.

BLACK (O): Are obviously dead, or dying from lethal injuries, or requiring CPR when no personnel available to do so without compromising other patients.

TREATMENT OFFICER – Sets up / supervises patient collection / treatment area. Reassesses and retags (if necessary) patients, assigns patients and personnel to treatment areas. Prioritizes for transport. Coordinates with Loading/Transport officer to make single radio transmission to receiving facility (pt. ID#, METTAG priority, nature of injury, ambulance, and ETA ONLY).

LOADING OFFICER – Stages ambulances in holding area. Instructs crews to put all available equipment in equipment area. Assigns patients to vehicles. Directs drivers to hospital(s). Instructs not to contact hospital unless OLMC required for condition change. Notifies hospital, or coordinates communication to hospital notification times, patient ID#'s and destination of all transporting vehicles.

SUGGESTED SCENE ORGANIZATION:

NOT FOR HAZMAT

INCIDENT COMMAND POST



EMS CONTROL OFFICER

EQUIPMENT

AMBULANCE

LOADING

**I
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N
E**

RED

**PRIMARY
TRIAGE
OFFICER**

**LOADING
OFFICER**



**TREATMENT
OFFICER**

YELLOW

**SECONDARY
TRIAGE
OFFICER**

GREEN



TRIAGE / HOLDING AREA

SEXUAL ASSAULT VICTIM

ALL LEVELS

1. Treat any life-threatening emergency first and according to these protocols.
2. Try to attend to maintenance of forensic evidence. Try not to cut through tears or stains in clothing. Do not cleanse any skin area more than necessary to provide immediate care.
3. If the patient so desires and/or mandated reporting is indicated, police should be called if they have not already been notified.
4. If no life-threatening situation is present, prehospital care may require waiting for police to secure the scene which is a potential crime scene.
5. Victims of sexual assault commonly have much guilt, and may require psychological support. Please respect the stress that they are enduring.
6. By nature of this event, any touch may be traumatic for this patient. Overtly and repeatedly explain what you are doing to try to lessen the impact of procedures and touching.
7. Advise the patient not to eat, drink, smoke, bathe, change clothing or go to the bathroom if at all possible in order to preserve any forensic evidence. If they must urinate, request that they do not wipe.
8. If the patient has removed any clothing worn in the assault, each piece of clothing should be separately bagged in paper bags and brought to the hospital with the patient.
9. When transporting the patient, it is preferable whenever possible to have a same sex provider as the primary provider. If the assault is a same sex assault, than a provider of the opposite sex may be more comfortable for the patient.
10. To maintain privacy and confidentiality, use a landline for hospital reporting whenever possible and do not clarify the type of assault, only that you are transporting a "victim of assault."
11. The patient should be encouraged to go to the hospital for a sexual assault forensic examination that would allow not only the option to have collection of forensic evidence, but also treatment of possible injuries and the chance to obtain pregnancy and sexually transmitted disease prophylactic treatment.
12. If the patient refuses treatment and/or transportation to the hospital, document all findings and observations as completely as possible. When signing the patient off at the scene, try to have a police officer witness this sign off.

CHILD ABUSE MANAGEMENT AND REPORTING

All levels

- Child abuse and child neglect are sufficiently widespread to guarantee that virtually every EMS provider will encounter them at least once during his/her career.
- It is estimated that approximately 2-3 million cases occur each year or approximately 11 cases per every 1,000 children within the U.S. Each year at least 2,000 children die from physical abuse.
- The most commonly identified forms of abuse by the EMS provider are physical abuse and severe physical neglect, although sexual abuse may on occasion be observed.
- The EMS provider must at all times demonstrate and maintain a supportive and non-judgmental attitude with primary caregivers. Accusation and confrontation delay immediate treatment as well as transportation to a definitive care facility.
- When abuse is a possibility the healthcare professional has two major responsibilities: first, to provide medical care to the child; and second, to collect and document all information that may possibly establish the occurrence of abuse or neglect. Refrain from asking the child too many questions and specifically do not ask any leading questions – keep questions simple and open-ended such as “What happened?” and “Are you hurt?”
- As an EMS provider, you must report immediately to Child Protective Services any child whom you have “reasonable cause to suspect” has been abused or will be abused. Failure to do so is punishable as a civil violation. It is not enough to tell someone else of your suspicions. If a child is abused and unreported, there is a 50% chance that the child will be abused again and a 10% chance that the child will die from future abuse. (Title 22, Subchapter II, subsection 4011)

Possible Indicators of Abuse

1. Injured child under two years of age, especially hot water burns or fractures
2. Facial, mouth, or genital injuries
3. Multi-planar injuries (front and back, right and left) – especially when not over bony prominences
4. Poor nutrition or poor care
5. Delay in seeking treatment
6. Vague, inconsistent, or changing history
7. The comatose child, the child in shock, or the child in arrest See “Pink 13”

Treatment of suspected child abuse in the field

1. Suspect abuse but do not accuse the caretaker. Every time a child is encountered by the healthcare professional having a traumatic injury the question that should come to mind is, "Could this be abuse?" In most cases the answer will be an obvious "no;" however, enough uncertainty will exist in some cases to warrant further assessment.
2. Follow normal initial assessment priorities of the ABC's and mental status when caring for the child.
3. Provide the appropriate intervention procedures for any abnormal findings such as respiratory, trauma, or other medical emergencies; shock; or altered mental status.
4. EMS providers are in key positions to assess environmental conditions and the observable interactions of family and child. Environmental signs of possible abuse or neglect may include but not be limited to: unsanitary conditions; garbage scattered about the house; unsafe conditions such as open, unguarded windows or potentially dangerous objects within reach of children.
5. Perform a detailed physical examination on any child in stable enough condition to allow for such. Examine all parts of the body for deformities, ecchymosis, lacerations, abrasions, punctures, burns, tenderness, and swelling. It is vitally important that injuries of the mouth and sternum be observed in detail prior to the initiation of resuscitative measures and documented that such injuries were found prior to resuscitation.
6. It is important to transport all children having evidence of abuse or neglect due to the possibility of additional injuries not immediately obvious. Transport of potentially abused or neglected children ensures that they receive the appropriate and necessary social service. Assistance may be necessary from law enforcement, OLMC, etc.
7. Convey your impressions and information to the hospital staff.
8. Write a detailed and descriptive report, which provides an accurate and clear record of all observations and treatment from the time of the initial call through transfer of the patient to the ED staff. Do not make a diagnosis of abuse, and refrain from including personal opinions, emotional overtones, or interpretations. Primary caregiver quoted statements must be documented as such with quotation marks, and exactly word for word as stated by the person. As well, this legal document must be legible.
9. **You must contact Adult and Children's Emergency Services at 1-800-452-1999 to make a report. This is a 24-hour a day reporting number. You will be protected by law from civil liability for making such a report if made in good faith.**

ADULT ABUSE

(Title 22 MRSA, Chapter 1-A, Subsection 3477)

“Reasonable cause to suspect, when, while acting in a professional capacity, an...ambulance attendant, emergency medical technician...suspects that an adult has been abused, neglected or exploited, and has reasonable cause to suspect that the adult is incapacitated, then the professional shall immediately report or cause a report to be made to the department.”

Call the Adult’s and Children’s Emergency Services: 1-800-452-1999 (24 hours a day). Similar protection from liability for reporting exists.

INTOXICATED DRIVERS

(Title 29-A)

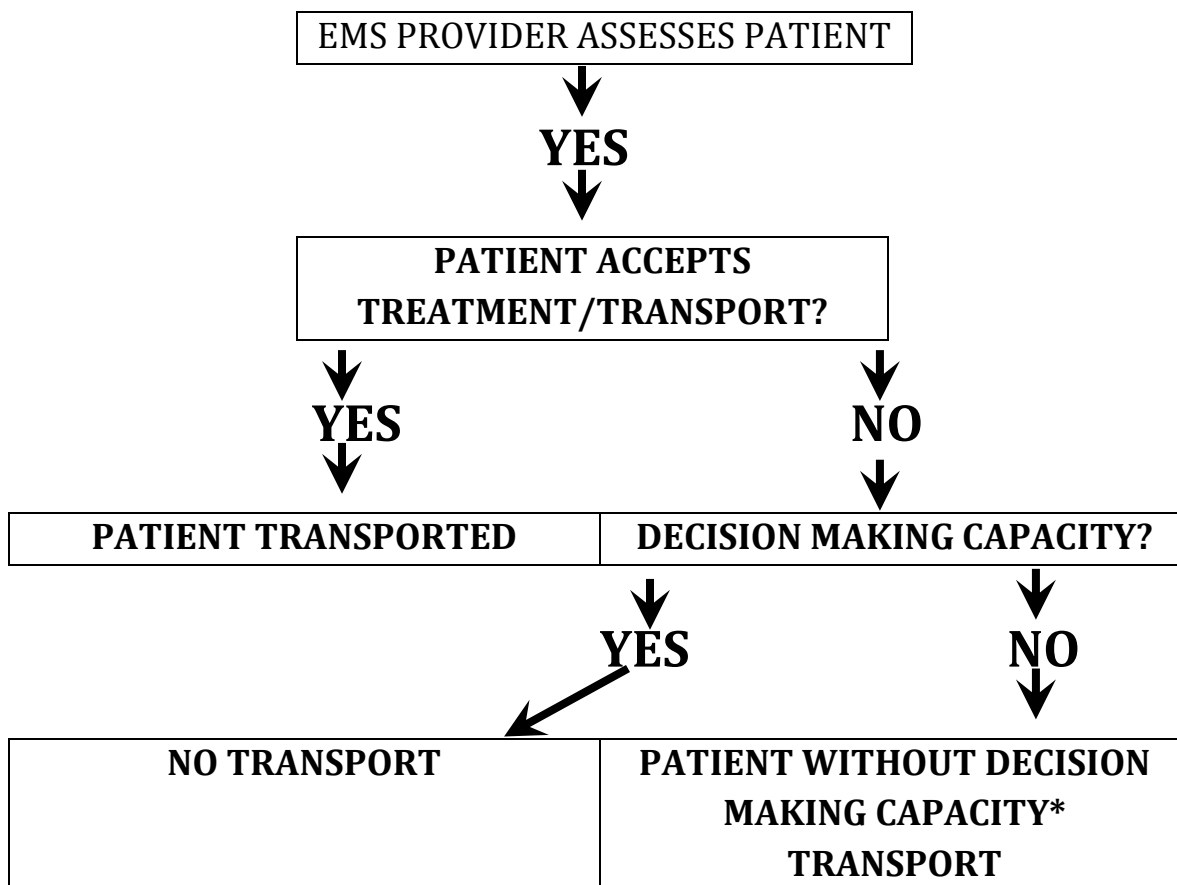
§ 2405 (1) “Persons who may report If, while acting in a professional capacity a...emergency medical services person...knows or has reasonable cause to believe that a person has been operating a motor vehicle, hunting or operating a snowmobile, all-terrain vehicle or watercraft while under the influence of intoxicants and that motor vehicle, snowmobile, all-terrain vehicle or watercraft or a hunter has been involved in an accident, that person may report those facts to a law enforcement official.”

§ 2405 (2) Immunity from liability. A person participating in good faith in reporting under this section, or in participating in a related proceeding, is immune from criminal or civil liability for the act of reporting or participating in the proceeding.

§ 2524 (1) Persons qualified to draw blood for blood tests. “Only a physician, registered physician's assistant, registered nurse, person whose occupational license or training allows that person to draw blood samples or a person certified by the Department of Health and Human Services may draw a specimen of blood for the purpose of determining the blood-alcohol level or drug concentration.”

§ 2528 Liability. “A physician, physician's assistant, registered nurse, person certified by the Department of Health and Human Services, hospital or other health care provider in the exercise of due care is not liable for an act done or omitted in collecting or withdrawing specimens of blood at the request of a law enforcement officer pursuant to this chapter.”

TRANSPORT PROTOCOL



* A patient without decision making capacity would be one who has one of the following: an altered mental status or intoxicated, confused, delirious, psychotic, comatose, unable to understand the language, or is a minor, etc.

1. If there is a question of decision making capacity or the patient does not appear to understand the consequences of his/her refusal of transport, then contact OLMC.
2. The patient must be informed of the consequences of his/her refusal to be transported. This must be documented in the patient/run report.
3. This screening may typically arise when an ambulance is requested by someone other than the patient (e.g. the police, a bystander). The EMS run report must always be completed.
4. If the patient refuses transport and is judged to be without decision making capacity, the EMT must speak directly with OLMC. If unable to reach OLMC, the patient is transported.
5. **EMS System initiated patient sign offs are tremendously risky interactions and are not condoned by Maine EMS.**
6. **The service is expected to review all patient sign off's through the service's quality assurance mechanism. Patient medical records must be completed for all of these interactions, including the following information:**

- a. **Service(s) offered**
- b. **Reason service(s) declined**
- c. **Discussion of alternatives to service offered and potential consequences of declining offered service**
- d. **Discussion with patient that EMS services may be accessed at any time, and that the patient had decision making capacity.**

TRANSPORT OF MENTALLY ILL PATIENTS

Maine EMS personnel are generally called to transport a mentally ill patient in one of two situations:

Emergency Transport

Safety for the patient and the crew is the primary concern in the transport of the mentally ill patient. Personnel should make sure they do a thorough evaluation of the patient to find and treat possible medical causes of the behavior. Refer to Yellow 12 for Combative Patient Protocol.

EMS personnel are authorized under Maine law as physician extenders to physically restrain any patient who poses a threat to themselves or others. Providers are cautioned to use physical restraint as a last resort, preferably with the assistance of local law enforcement. Once the decision is made to restrain a patient, the patient should remain restrained until arrival at the emergency department, unless it interferes with the delivery of medical care.

Non-Emergency Transfer

Mentally ill patients who are being transferred usually fall into one of these categories:

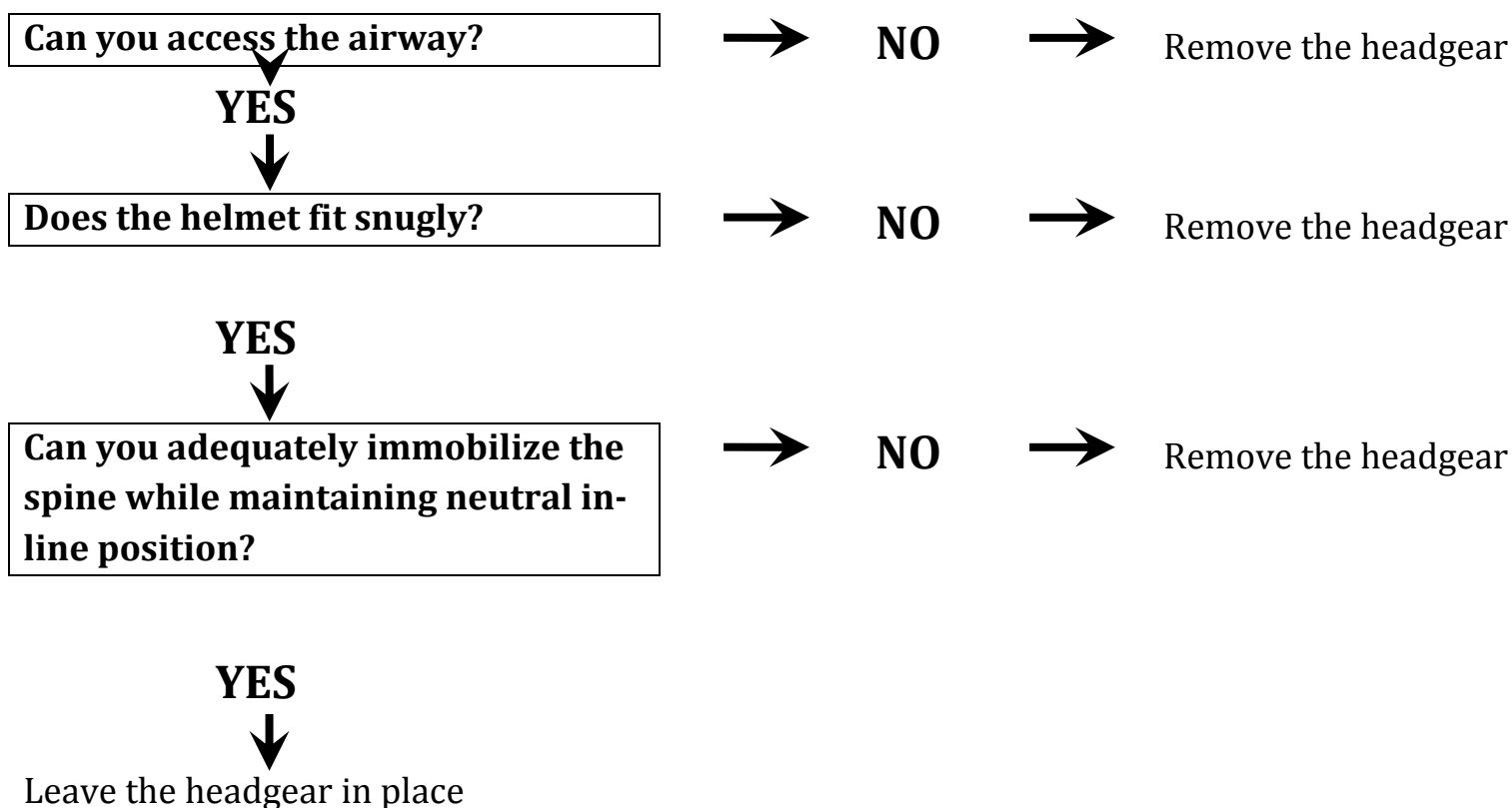
Voluntary Committal – These patients have agreed to be transferred to a facility for evaluation and treatment of an underlying mental illness. It is important to get a thorough report on the patient prior to transport to avoid surprises en route. Voluntary committal patients can change their mind during transport. In this case, it is the responsibility of the EMS personnel to discharge the patient at a safe location, *preferably at the originating facility*. If it is not possible to return the patient to the originating facility, notify local law enforcement to meet you at your location.

Involuntary Committal – Patients who are being committed involuntarily must have committal papers (blue papers) completed prior to transport. Between the hours of 7 a.m. and 11 p.m. a judge has to sign the committal papers. After 11 p.m. and before 7 a.m. the papers do not have to be signed except for Riverview Psychiatric Center (formerly AMHI) – this is known as the “pajama clause”. Make sure that the transporting service is listed correctly on the papers. According to Maine law, the patient must be transported in the least restrictive form of transportation available. Make sure you get a thorough history to determine whether restraints will be necessary. *If the receiving facility refuses to accept the patient after evaluating them, the transporting service is required by law to transport the patient back to the originating facility.*

PROTECTIVE HEADGEAR REMOVAL

The decision to remove protective headgear from an injured patient rests with the EMS provider on scene unless a Maine licensed physician is on scene and takes responsibility for the patient. It is important to immobilize the patient in a neutral in-line position, regardless of whether or not you choose to remove the helmet. This requires that you evaluate each patient and determine if other equipment (i.e. shoulder pads) must be removed or if additional padding under the shoulders or head is necessary. *In the case of an athletic injury, the EMS provider should consider input from athletic trainers. Disputes should be referred to OLMC for resolution.*

When deciding whether to remove protective headgear, please evaluate the following criteria:



DEFIBRILLATION / CARADIOVERSION SETTING

DEFIBRILLATION SETTING*

	Initial	Second	Third	Subsequent
Adult	360 J	360 J	360 J	360 J
Pediatric	2 J/kg	4 J/kg	4 J/kg	4 J/kg

*Adult 360 J monophasic or MEP or 200 J biphasic for all attempts

CARDIOVERSION SETTING*

	Initial	Second	Third	Subsequent
Adult (V-TACH)	100 J	200 J	300 J	360 J
Adult (SVT)	50 J	100 J	200 J	300 J
Pediatric	0.5 -1.0 J/kg	2 J/kg	2 J/kg	2 J/kg

* Use closest machine setting possible

For biphasic defibrillation device, use monophasic equivalents as noted above.

	Weight (lb)	22	44	66	88	110	132	154	220
	Weight (kg)	10	20	30	40	50	60	70	110
Adenosine IV/IO Pedi dose: 0.1 mg/kg; Adult dose: 6 mg initial dose; 2 nd dose 12 mg		1	2	3	4	5 or 6	6	6	6
Albuterol (mg) 2.5 mg of 0.5% solution		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Albuterol MDI (puffs multi-dose inhaler) 5 puffs; Pediatric dose: 5 puffs		5	5	5	5	5	5	5	5
Amiodarone (mg) (V-fib, pulseless V-tach) Adult dose: 300 mg IV/IO push, then consider additional 150 mg IV/IO one time		NA	NA	NA	NA	300	300	300	300
Amiodarone (mg) (wide complex tachycardia with pulse) Adult dose: 150 mg infused over 10 minutes		NA	NA	NA	NA	150	150	150	150
Amiodarone (mg) Pediatric dose: 5 mg/kg IV/IO over 20-60 minutes (to a maximum dose of 300 mg)		50	100	150	200	NA	NA	NA	NA
Atropine (mg) Pediatric dose: 0.02 mg/kg (min dose 0.1 mg, max single dose: 0.5 mg)		0.2	0.4	0.5	0.5	0.5	0.5	0.5	0.5
Dextrose (grams)		5	10	15	20	25	25	25	25
Diphenhydramine IM, IV (mg)		10	20	30	40	50	50	50	50
Dopamine (Pediatric Dopamine Chart see "Pink 14", adult see "Gray 21") (mcg/min) (Recommended starting dose)		50 2	100 4	150 6	200 8	250 9	300 11	350 13	500 19
Epinephrine (mg) (VF / Pulseless VT) 1:10,000 IV						1	1	1	1
Fentanyl (mcg) Adult dose: 1 mcg/kg to a max. initial dose 100 mcg IV		5	10	15	20	50	60	70	100
Glucagon (mg) (Pediatrics < than 3kg give 0.3mg/kg)		1	1	1	1	1	1	1	1
Ipratropium Bromide/Albuterol Sulfate (mg/mg): Ipratropium 0.5 mg/Albuterol 3 mg nebulizer - may repeat once - age greater than 1 year		0.5/3	0.5/3	0.5/3	0.5/3	0.5/3	0.5/3	0.5/3	0.5/3
Ipratropium Bromide/Albuterol Sulfate (Combivent) inhaler 2 puffs if greater than 1 year of age; may repeat once if significant resp. distress		2	2	2	2	2	2	2	2
Magnesium (gram)(Cardiac)		1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2
Methylprednisolone (mg) Adult dose: 125mg Pedi dose: 2mg/kg		20	40	60	80	125	125	125	125
Metoprolol (mg) Adult dose: 5 mg IV/IO over 5 minutes		NA	NA	NA	NA	5	5	5	5
Midazolam (mg) Adult dose: 3 mg IV/IO Pediatric dose: 0.15 mg/kg IV max dose 3mg		.15	.3	.45	.6	3	3	3	3
Naloxone (mg) Adult dose: .1-2 mg Pediatric dose: if <20kg give .1mg/kg *NEVER GIVE NALOXONE TO A NEONATE		1	0.1-2	0.1-2	0.1-2	0.1-2	0.1-2	0.1-2	0.1-2
Ondansetron (Zofran) (mg) Adult dose: 4 mg IV/IO; may repeat once after 15 mins. Pediatric dose: 0.15 mg/kg IV/IO to a maximum dose of 4 mg		1.5	3	4	4	4	4	4	4

DRUG DOSAGE TABLE

RATE CONVERSION CHART

(ml/hr to gtts/min)

Drip Rate in gtts/min

IV Rate ordered in ml/hr	15 gtts/ml (Abbott)	10 gtts/ml (Travenol)	20 gtts/ml (Cutter)	60 gtts/ml (Microdrip)
1	0	0		1
5	1		2	5
10	3	2	3	10
20	5	3	7	20
30	8	5	10	30
40	10	7	13	40
50	13	8	17	50
75	19	13	25	75
100	25	17	33	100
125	31	21	42	125
150	38	25	50	150
200	50	33	67	200
300	75	50	100	300

To get gtts/min.,
you may also
divide the order
given in ml/hr
by:

4	6	3	1
---	---	---	---

INTRAVENOUS ADMIXTURES

DOPAMINE: Mix 800 mg in 500 ml IV fluid. Makes 1600 micrograms/ml (mcg/ml).

Dopamine Drip Rate (mcgtts/min)

Mcg/kg/min	Weight				
	Lbs	88	132	176	220
	Kg	40	60	80	100
5		7	11	15	19
10		15	23	30	38
20		30	46	60	76

MAINE EMS DRUG / MEDICATION LIST

The following are medications currently approved for use by Maine EMS licensees - as authorized by the Maine EMS Protocols. This list may be altered through protocol revision.

Prehospital Medications:

Activated Charcoal (without sorbitol)

Adenosine

Albuterol

Amiodarone

Aspirin

Atropine

Cyanide poisoning kit contents

Dextrose (D10, D50)

Diphenhydramine

Dopamine

Epinephrine (1:1000, 1:10,000)

Epinephrine Autoinjector

Fentanyl

Glucagon

Hemostatic Agents

Heparin Solution (for use in maintaining IV access in a heparin lock only; otherwise this is not considered a prehospital medication. Approved also at Intermediate level).

Ipratropium Bromide (Combivent)

Lidocaine 2% (preservation free)

Magnesium Sulfate

Methylprednisolone (Solu-Medrol)

Metoprolol (Lopressor)

Midazolam (Versed)

Naloxone (Narcan)

Nitroglycerin (Non-parenteral)

Nitrous Oxide

Oxygen

Ondansetron (Zofran)

Tetracaine Ophthalmologic Drops

Sodium Bicarbonate

Intentionally Left Blank

TELEPHONE / RADIO REFERENCES / CONTACT NUMBERS

NAME

RADIO FREQ

PHONE #

Hospital:

Hospital:

Hospital:

Hospital:

Hospital:

Hospital:

Dispatch:

State wide EMS Frequency 155-385

Maine EMS: Phone: 626-3860; Fax: 287-6251
e-mail: maine.ems@maine.gov www.maine.gov/dps/ems

Jay Bradshaw, Director
Drexell White, EMT-P, EMD Coordinator
Dawn Kinney, EMT-P, Licensing Agent
Alan Leo, EMT-B, Licensing Agent
Jonathan Powers, EMT-P, Data & Preparedness Coordinator
Kerry Pomelow, EMT-P, Education & Training Coordinator
Medical Director: Matthew Sholl, M.D

Region 1 – Southern Maine EMS 741-2790

e-mail: smems@smems.org

Medical Director: Marlene Cormier, M.D.

Region 2 Tri-County EMS 795-2880

e-mail: lebrunj@cmhc.org Joanne LeBrun, Coordinator

Medical Director: Rebecca Chagrasulis, M.D.

Region 3 – Atlantic Partners EMS, INC. 877-0936

e-mail: office@apems.org Rick Petrie, Coordinator

Medical Director: Timothy Pieh, M.D.

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Medical Director: Jonnathan Busko, M.D.

Region 5 - Aroostook EMS 492-1624
e-mail: arems@maine.rr.com Steve Corbin, Coordinator
Medical Director: Peter Goth, M.D.

Region 6 - Atlantic Partners EMS, INC. 785-5000
e-mail: office@apems.org Rick Petrie, Coordinator
Medical Director: Whitney Randolph, D.O.

Maine ACEP Representative

Kelly Klein, MD

Bio-Terrorism / WMD

If you suspect a chemical or biological agent threat, call your local law enforcement agency immediately.

Maine Bureau of Health Emergency

Reporting and Consultation 1-800-821-5821

Maine National Guard 11th Civil Support Team (WMD) 207-877-9623

Maine Emergency Management Agency 207-624-4400

To Report Workplace Injury:

Bureau of Labor Business Hours 207-623-7923

Evenings & Weekends 207-592-4501

**NON-EMS SYSTEM
MEDICAL INTERVENERS**

Thank you for your offer of assistance.

Please be advised that these Emergency Medical Technicians are operating under the authority of the State of Maine and under protocols approved by the State of Maine. These EMS providers are also operating under the authority of a Medical Control physician and standing medical orders.

If you are currently providing patient care,
you will be relinquishing care
to these EMS personnel **and their Medical Control physician.**

No individual should intervene in the care of this patient unless the individual is:

1. Requested by the attending EMT, **and**
2. Authorized by the Medical Control physician, **and**
3. Is capable of assisting, or delivering more extensive emergency medical care at the scene.

If you are the patient's own physician, PA, or nurse practitioner, the EMTs will work with you to the extent that their protocols and scope of practice allow.

If you are not the patient's own physician, PA, or nurse practitioner, you must be a Maine licensed physician who will assume patient management and accept responsibility. These EMT's will assist you to the extent that their protocols and scope of practice allow. They will not assist you in specific deviations from their protocols without Medical Control approval. This requires that you accompany the patient to the hospital and that their Medical Control physician is contacted and concurs.