Ocala/Marion County EMS Pre-Hospital Guidelines
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OCALA/MARION COUNTY EMERGENCY MEDICAL SERVICE

FUNDAMENTALS OF CARE

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Resources are limited. First and foremost, remember these guidelines when approaching an EMS scene:

A. Make sure the emergency personnel are safe and cautious.
B. Take advantage of the personnel available to efficiently provide care. On any scene with more than one patient, or where there is a single patient with complicating factors (fire, extrication, hazardous materials present), utilize the Incident Command System.
   1. Person(s) in charge to identify victims/ patients and available paramedics, EMT's, other resources and assign responsibilities. Where more than three patients are present, or if fewer than that number exceeds the resources immediately available, formal triage (START/JumpSTART) using triage tags should take place.
   2. Paramedic arriving to patient takes available information from previous provider or paramedic.
   3. Identification of transport priority relayed to scene commander as soon as apparent for staging in multiple transport situations.
C. Survey the patient with an eye to the mechanism of injury.
D. Identify yourself to patient and seek permission to examine and treat.
E. Follow ABC sequence with attention to need for spinal immobilization and concerns reference removing patient to a place of safety and a place for transport.

General Guidelines

A. Airway with attention to spinal immobilization should be an immediate concern. Decision that patient has an adequate airway without intervention requires reassessment periodically to allow for those patients whose airway becomes compromised during assessment or transport (refer to airway procedures).
   1. Airway maneuvers include:
      a. BLS methods of opening airway
      b. Identification and relief of airway obstruction
      c. Oral or Nasal Airways
      d. Supplemental Oxygen
      e. Oral or Nasal Intubation with or without sedation or sedation and paralysis
         1) Attempts should be limited to 2 – 3. If unsuccessful, consider another method of airway control.
      f. King LTS-D™, King LT-D™
      g. Cricothyroid puncture

2. SUPPLEMENTAL OXYGEN should be used whenever the patient is short of breath or has a condition expected to improve with increased inspired oxygen concentration (angina, asthma, COPD, oxygen saturation less than 94%).

B. Intravenous Access should be obtained whenever the paramedic feels one of four conditions exists (see IO protocol for alternate vascular access situations):
   1. The patient needs intravenous fluids (e.g. volume depletion, hypotension, right-sided or inferior wall MI, heat related illness);
   2. The patient needs intravenous medicine per protocol;
   3. The patient is likely to need intravenous medication en route to the hospital (history of weakness with low blood pressure, history of possible syncope or near syncope, history of seizure other than recurrent brief seizures in an epileptic);
   4. The paramedic feels there is any reason why intravenous medicine or fluids may be necessary en route.

C. Heart Monitor should be applied:
   1. Whenever the history is one of palpitation or syncope/near-syncope;
   2. Whenever the complaint appears to be cardiac-related chest pain
   3. Whenever the patient has stroke or hypertension
   4. Whenever the patient has complaint of dizziness
   5. Prior to medications being administered (other than oxygen, ammonia inhalants, glucagon and oral glucose).
   6. Whenever the paramedic suspects for any reason heart rhythm disturbance is or may be a problem in route.
   7. 12 lead, when available, should be considered based upon protocol.

D. Oxygen Saturation monitor should be used whenever:
   1. Airway interventions are undertaken or expected to be needed
   2. The presenting complaint includes shortness of breath, wheezing, difficulty breathing or noisy respiration
   3. The paramedic suspects hypoxia as a contributor to patient's condition.
   4. Paramedic feels oxygen saturation monitoring would help him diagnose or treat the patient.

E. Glucometer should be used when:
   1. The patient is a diabetic with weakness or alteration in LOC;
   2. The patient has unexplained alteration in LOC;
   3. The paramedic feels the knowledge of blood glucose would help him or her assess or treat the patient.

F. Capnography should be applied when:
   1. The patient is complaining of a respiratory related problem.
   2. All intubated patients.

G. CPAP (if available) should be applied when:
   1. Treatment of severe respiratory distress with evidence of bronchospasm (COPD, severe asthma)
   2. Treatment for cardiogenic pulmonary edema

H. The Autovent 4000-CPAP:
   1. May be used for interfacility transports
      a. Vent settings will be obtained from transferring Physician
   2. The CPAP function of the Autovent 4000-CPAP may be used as a backup to Whisperflow, however realize the Autovent will use a significant amount of Oxygen
   3. May be used for ventilation of adult patients in cardiopulmonary arrest.
      a. Vent settings will be in Autovent protocol.

I. PAIN should be addressed whenever appropriate, including use of Fentanyl and midazolam as indicated for severe pain but without causing substantial decrease in level of consciousness or respiratory effort.
   1. Fentanyl 25 mcg increments to effect up to 50 mcg for an adult. If administering more than 50 mcg fentanyl, consider administering ondansetron hydrochloride 4 mg undiluted IV over 2 to 5 minutes. Contact OLMC if more than 50 mcg of fentanyl is needed.
   2. Midazolam in 0.025 mg/kg increments, max of 2 mg/increment, used for patient comfort during cardioversion and pacing.
   3. Be careful not to sedate the patient to the point it is difficult for the receiving physician to examine and question the patient.

J. Administration of medications
   1. Confirm that patient is not allergic to medication prior to administration

K. Vital signs
   1. A minimum of two sets should be obtained during each patient encounter. If two sets are not obtained, documentation should cover the reason.
   2. Vital signs should be repeated after each medication administration.
   3. Vital signs should be repeated after any change in clinical status.
   4. If vital signs appear to be abnormal, then vital signs should be obtained using manual methods.

Emergency Medical Services (EMS) is provided to the public by various agencies that operate at both the Advanced Life Support (ALS) and Basic Life Support (BLS) levels. Paramedics and emergency medical technicians (EMT) are an integral part of Ocala/Marion County EMS. While these guidelines are specific towards care provided by paramedics, EMTs are authorized by these guidelines to provide patient care up to their level and scope of practice both under the direction of a paramedic and while operating alone. Use of EMS medications listed below may only be performed under the direction of a paramedic. The following items define the EMT scope of practice with Ocala/Marion County EMS.

General Operations:

A. BSI precaution
B. Obtaining and recording vital signs (manual/automatic)
C. Completion of Patient Care Report (PCR) in the rare circumstances where patient care/assessment was not under direction of a paramedic
D. Reporting of suspected child/elder abuse
E. Approach to Hazmat situations
F. Infection control procedures

Airway Management:

A. Open and maintain the airway
B. Airway adjuncts – OPA, NPA
C. Obstructed airway management
D. Suctioning
E. Pulse oximetry application/reading
F. Oxygen administration – NC, NRBM
G. Ventilatory management – BVM
H. End Tidal CO_2 application
I. Set up for ET/NT Intubation
J. Set up for King LT-D™/LTS-™D placement
K. Set up for CPAP administration
L. Set up nebulizer equipment for paramedic to administer
M. Set up for ventilator administration

Cardiac Management:

A. Automated External Defibrillator (AED)
B. Cardiopulmonary Resuscitation (CPR)
C. Administration of baby aspirin
D. Application of monitor and 12-lead
E. Assist in application of therapeutic hypothermia protocol

Medical Management:

A. Glucose monitoring
B. Oral glucose administration
C. Auto – Injector Epinephrine (patient assisted)
D. Nitroglycerin administration (patient assisted)
E. Metered dose inhaler (patient assisted)
F. Criteria for stroke alert
G. Assist in emergency childbirth

Trauma Management:

A. Spinal Immobilization – long/short board, KED
B. Splinting
C. Traction splinting
D. Cervical Immobilization Device (CID)
E. Cervical collar application
F. Helmet removal
G. Rapid extrication procedures
H. Soft tissue management and hemorrhage control
I. Management of suspected fractures
J. Application of tourniquet
K. Trauma triage determination
L. MCI protocol/procedure
M. Application of Combat Application Tourniquet (CAT)

Miscellaneous:

A. Application of patient restraints
B. Fill blood tubes from a syringe
C. Set up for IV/IO administration

OCALA/MARION COUNTY EMERGENCY MEDICAL SERVICE

MEDICAL TREATMENT PROTOCOLS

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ABDOMINAL PAIN

Treatment:

A. Assist patient to position of comfort.
B. Monitor vital signs (including heart monitor).
C. If shock present, follow shock protocol, initiate second large bore IV & rapid transport.
D. Consider 12 lead, especially for patients greater than 40.

Precautions:

A. If suspected AAA, titrate IV to SBP to about 90 mm/Hg.
B. If history of traumatic event with BP less than 90 refer to Trauma Protocol.

Key Considerations:

- Inferior MI
- Ruptured spleen or liver
- Ectopic pregnancy
- Perforated viscus
- Emesis (type/amount)
- Recent trauma
- Bowel movements (black, bloody, or change in nature)
- Urinary output
- Last meal
- GI Bleed
- Abnormal
- Vaginal bleeding
- Dehydration
- AAA (Consider seriously in men greater than 50 and women greater than 60)

Pediatric Patients: (Child age less than 14)

A. Consider abuse.
B. Closely monitor vitals. BP may drop suddenly.

Treatment:

A. Monitor vital signs.
B. Determine capillary blood glucose level. If less than 60mg/dl:
   1. Consider Thiamine 100mg IVP if pt. malnourished or history of alcohol abuse.
   2. Give 25g of D50% slow IVP ensuring patency of line, or oral glucose (if able to protect own airway)
   3. If no IV can be established, give Glucagon 1mg, IM.
C. If suspected CVA, consider rapid transport.
D. Consider Naloxone 0.4 mg/min maximum of 2 mg if it will assist care delivery and patient can be contained to prevent injury to self or others.
E. If suspected poisoning or known OD, use Poisoning and Overdose Protocol.
F. If patient combative:
   1. Protect airway.
   2. Consider Midazolam IVP/IM 0.025 Mg/Kg increments, max of 2 mg/increment, up to 4 doses. Monitor LOC and BP

Precautions:

A. If patient is disoriented, think of medical causes.
B. If suicidal, do not leave patient alone.
C. All patients in restraints must be monitored closely, to include pulse oximeter.

Key Considerations:

- Previous Psych disorders
- Medication reactions
- Breath odors
- Possible poisoning (inhaled / contact / ingest)
- Medic alert tags
- Needle tracks
- ETOH or drug intoxication
- Recent head trauma
- Recent emotional crisis
- Suicidal ideas
- Dysrhythmias
- Hot/cold emergencies

Pediatric Patients: (Child age less than or equal to 14)

A. Determine capillary blood glucose. If less than 60mg/dl
   1. Patients over 10kg, 1cc/kg of D25% slow IVP. May repeat once.
B. If no IV established, and child is able to protect airway, give oral glucose.
C. If no IV established, and airway protective reflexes not intact:
   1. Patients less than 20kg, 0.5 mg of Glucagon IM.
   2. Patients greater than 20kg, 1.0 mg of Glucagon IM.
D. If mental status and respirations are depressed, give:
   1. Naloxone 0.1 mg/kg IVP up to 2 mg.
   2. Repeat every 5 minutes if opiate OD strongly suspected.

Newborn/Neonate: (less than 1 month) or Infant: (less than 1 Year)

A. Determine capillary blood glucose. If less than or equal to 40mg%:
   1. Patients less than or equal to 10kg, administer 2cc/kg of D10 slow IVP. May repeat once.
   2. For patients greater than 10kg use Child guidelines above.

NOTE – See Dextrose Medication Sheet in Appendix A for Mixing Instructions

Treatment:

A. Mild/Moderate allergic reaction
   1. Monitor vital signs (including heart monitor)
   2. Consider diphenhydramine 1 mg/kg deep IM or IVP, to a maximum of 50 mg.

B. Severe/Anaphylactic allergic reaction
   1. Monitor vital signs (including heart monitor).
   2. If signs of progressive anaphylaxis (falling BP, decreased LOC, SOB) and BP is greater than 90:
      a. Epinephrine 0.3 mg 1:1000 SQ
   3. If shock syndrome present and/or BP is less than 90:
      a. Epinephrine 0.3 mg 1:1000 SQ or IM, OR
      b. Epinephrine 0.3 mg 1:10,000 IVP (or 0.6mg ET, if intubated).
   4. Diphenhydramine 1 mg/kg deep IM or IVP, to a maximum of 50 mg.
   5. Consider Albuterol, 2.5 mg via nebulizer.
   6. Consider fluid challenge if BP remains low (see shock protocol).

Precautions:

A. Epinephrine increases cardiac workload, may cause angina or AMI.
B. Normal side effects: Anxiety, palpitations, headache, vomiting.
C. Allergic reactions, even systemic in nature, are not necessarily anaphylaxis.
D. Predisposed conditions (i.e. previous cardiac arrhythmia/arrest/procedure).

Key Considerations:

- Toxic exposure
- Recent exposure to allergen, last meal
- Insect bites
- Known allergies
- Dyspnea or hives
- Chest/throat tightness
- Abdominal cramps
- Swelling, numbness, tingling

Pediatric Patients: (Child age less than 14)

A. Mild/Moderate allergic reaction
   1. Consider Diphenhydramine deep IM or IVP, 1 mg/kg to a maximum of 50 mg.

B. Severe/Anaphylactic allergic reaction
   1. Mild respiratory distress:
      a. If wheezing: Nebulized Albuterol 2.5 mg using a updraft.
      b. If child unable to benefit from (or cooperate with) inhalation: Epinephrine 0.01 mg/kg of 1:1000 SQ. Max single dose 0.3 mg.
      c. If itching is severe: Diphenhydramine deep IM or IVP, 1 mg/kg to a maximum of 50 mg.
   2. Severe respiratory distress:
      a. Administer Albuterol 2.5 mg using updraft. If patient is intubated and wheezing is present or there are no breath sounds, administer Albuterol 2.5 mg ET.
      b. Epinephrine 0.01 mg/kg (1:10,000) IVP or IO. Repeat q-5 minutes as needed.
      c. If child intubated, Epinephrine 0.02 mg/kg (1:1000 diluted in 1-2cc NS) ET.
      d. If no IV or ET access, Epinephrine 0.01 mg/kg (1:1000) SQ. Max dose 0.3 mg.
      e. If shock present, consider fluid challenge per shock protocol.
      f. If itching severe: Diphenhydramine deep IM or IVP, 1 mg/kg to a maximum of 50 mg.

BLOOD TRANSFUSION MONITORING

Indications:

A. Transporting a patient with blood being infused is indicated when the risks involved in discontinuing blood transfusion enroute are outweighed by the benefits to the patient.

Procedure:

A. All blood products to be infused must be initiated by the transferring facility. This protocol does not authorize the paramedic to start, hang or otherwise initiate the infusion of blood products.

B. Before accepting responsibility for the patient, confirm together with a nurse or physician from the transferring facility that the name on the patient's armband is the same as the name on the unit(s) of blood which is(are) infusing. The patient must have an armband, no exceptions.

C. Obtain a written order from the transferring nurse or physician as to the rate of infusion, the total amount to be infused during transport of the patient.

D. Vital signs, including body temperature, must be recorded prior to the transport and every ten minutes during transport, until arrival at the receiving facility.

E. If the patient develops any sign of allergy/sensitivity reaction, including; chills, fever (an increase of more than 1° C, or 1.8° F above the patient's initial temperature), chest pain, flank pain, hives, wheezing, urticaria, or the patient begins showing signs of shock; then the following actions should be initiated immediately:
   1. The infusion of blood products must be immediately stopped and the blood administration tubing removed. The tubing, the blood container, and any unused blood must be saved for delivery to the receiving facility.
   2. A normal saline infusion should be initiated and fluid should be administered as indicated in the shock protocol if shock is present.
   3. Anaphylactic reactions (hives, wheezing, and shock without fever) should be treated as indicated in the Anaphylaxis protocol.
   4. Hemolytic reactions (fever, chills, chest pain, flank pain, and/or shock) may require a diuretic in addition to large amounts of fluid to maintain intravascular volume. Treat shock as indicated in the Shock Protocol and contact OLMC for orders regarding diuretic administration in hemolytic reactions.

F. The written orders, or copy thereof, by the transferring physician must accompany the Patient Care Report and must be delivered to the receiving facility with the patient.

Treatment:

A. Intubate to protect airway if needed.
B. Monitor vital signs, & ECG if electrical burn.
C. Start IV, give fluids as follows: Patients weight in kg ÷ 4, x percent of burn = cc/hr.
D. Pain Management
    1. Fentanyl 25 mcg increments to effect up to 50 mcg for an adult. If administering more than 50 mcg fentanyl, consider administering ondansetron hydrochloride 4 mg undiluted IV over 2 to 5 minutes. Contact OLMC if more than 50 mcg of fentanyl is needed.
E. Cool burned area (for less than 10 min for large burns), then cover large burns with dry dressings.
F. If chemical burn, carefully brush off dry chemical or flush with large amounts of water. Always protect yourself from contamination FIRST!
G. If eyes are involved, flush continuously with NS.
H. Transport Guidelines - the following patients should be transported to appropriate facility by ground (consideration of transport to a burn facility should be in compliance with Trauma Transport Protocols):
    1. Total partial and/or full thickness burn that is 15% or more of body surface area (2nd and 3rd degree).
    2. Full-thickness burn that is 5% or more of body surface area.
    3. Significant burns with inhalation injuries or severe trauma.
    4. Significant burns in high risk patients:
        a. Pediatrics
        b. Elderly
        c. Those with history of significant cardiovascular or respiratory problems.
    5. Significant facial burns, genital burns, burns to hands and feet, or circumferential burns.

Precautions:

A. Protect patient from hypothermia. Do not leave wet dressings on patient.
B. Use ring cutters to remove constricting bands/rings ASAP.
C. For firefighters, consider the potential for other traumatic injury or MI.

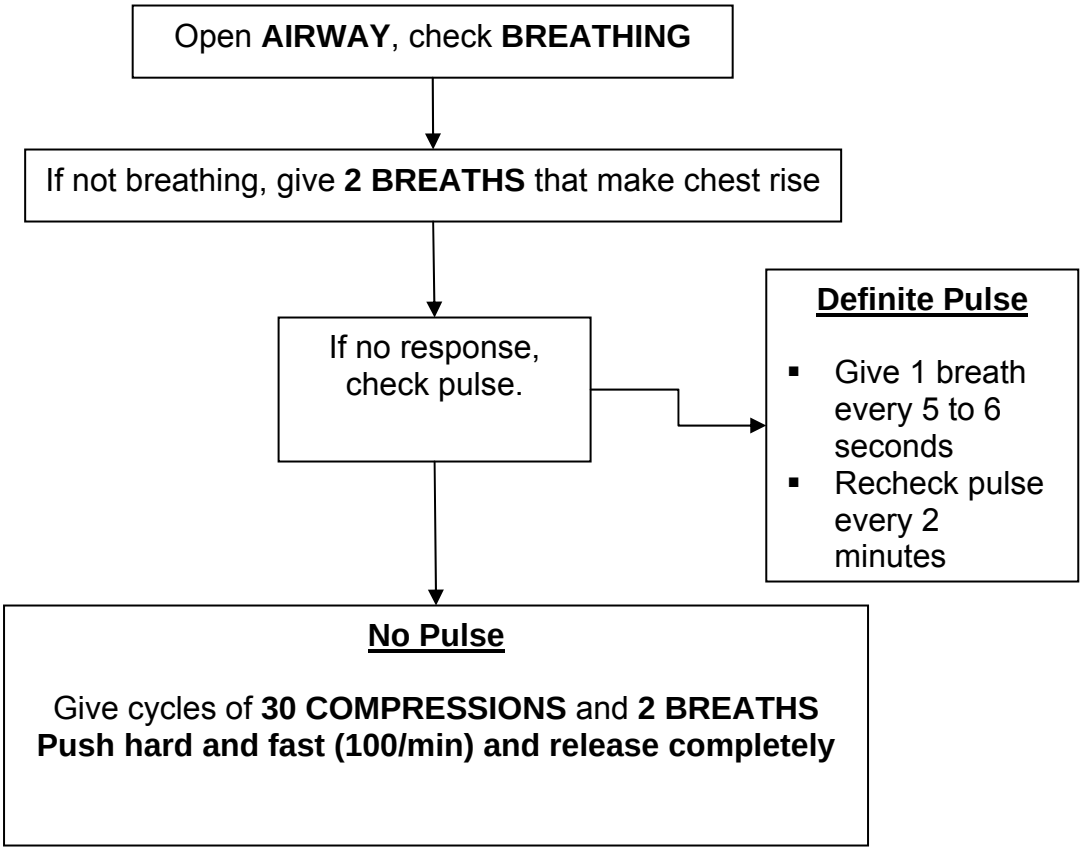
Key Considerations:

- Was patient in enclosed space
- Probability of inhaled toxins
- Past medical history
- Explosion (traumatic internal injuries)
- Entry/exit wounds with electricity
- CO poisoning

Pediatric Patients: (Child age less than 14)

A. Pain Management
   1. Fentanyl 1 mcg/kg increments up to a total 25 mcg. Contact OLMC if more than 25 mcg of fentanyl is needed.
B. In children, consider the possibility of abuse.

BLS Algorithm



Treatment:

A. **Do not pause compressions when providing treatments other than defibrillation.**
B. Place defibrillator/monitor pads.
C. Establish vascular access (consider IO as first line or if unable to obtain IV after 2-3 total attempts).
D. Manage airway appropriately (BLS and then ALS).
E. It may be helpful to press the "Event/Record" button at each intervention.
F. "Mark" rhythm changes and medications on monitor.
G. Remember to minimize scene time to less than 10 minutes if possible.
H. If return of spontaneous circulation without regaining consciousness, see Therapeutic Hypothermia protocol.

Precautions:

A. If contagious disease is suspected, protect yourself with appropriate PPE.
B. If traumatic arrest from blunt trauma, consider declaring death in field.

Key Considerations:

- Past medical history
- Medications
- Bystander CPR
- Recent trauma
- Hypothermia
- Down time
- Evidence of toxic exposure/ingestion

Pediatric Patients: (Child age less than 14)

A. Most pediatric arrests are due to respiratory causes. Pediatric patients rarely require intubation for airway management.
B. Carefully check scene for evidence of trauma or child abuse.
C. Consider contagious disease precautions.
D. IO in infants and small children if unable to start IV, or IV is delayed.

ASYSTOLE

Lightning and electrocution victims should be aggressively resuscitated even if found in asystole with unknown down time.

PULSELESS ARREST

- BLS Algorithm
- Give oxygen when available
- Attach monitor/defibrillator when available

↓

Resume CPR immediately for 5 cycles

When IV/IO available,

- Epinephrine 1 mg IV/IO every 3 to 5 minutes
- Atropine 1 mg IV/IO every 3 to 5 minutes after epinephrine, to a maximum of 3 mg
- Consider sodium bicarbonate 1 mEq/kg IV/IO in patients with Hyperkalemia, cyclic antidepressant overdose or significant acidosis

Treatment:

A. Follow guidelines listed in Cardiac Arrest: General Approach

B. If return of spontaneous circulation without regaining consciousness, see Therapeutic Hypothermia protocol.

C. Consider possible causes

- Hypovolemia
- Hypoxia
- Hydrogen ion/acidosis
- Hypo-/Hyperkalemia
- Hypoglycemia
- Hypothermia
- Toxins
- Tamponade, cardiac
- Tension Pneumothorax
- Thrombosis (coronary or pulmonary)
- Trauma

Precautions:

A. All patients in a witnessed arrest situation will be treated according to the above treatment modality and transported to the appropriate facility. Death in the field does not apply in these cases.
B. For those patients found to be in Asystole or a dying heart rhythm upon initial monitoring, consider applying the Death in the Field Protocol.
C. For those patients who decline into Asystole from another rhythm other than dying heart rhythm, Death in the Field does not apply.
D. If history of traumatic event, consider death in the field.

Key Considerations:

- Preceding symptoms
- Bystander CPR
- Cardiac history
- Medications
- Drug overdose
- Evidence of toxic exposure/ingestion
- History of traumatic injury
- History of renal disease (increased K+)

Pediatric Patients: (Child age less than 14)

A. CPR, aggressive airway management (rarely requires intubation.)
B. Gain IV access (on infants and small children, use IO).
C. Epinephrine 0.01 mg/kg IVP (1:10,000) every 3-5 minutes. For ET doses, administer Epinephrine 0.1 mg/kg (1:1000, diluted in 2 ml of NS).
D. Atropine 0.02 mg/kg IVP, minimum single dose 0.1 mg, maximum single dose 1.0 mg.

PULSELESS ELECTRICAL ACTIVITY (PEA)

PULSELESS ARREST
- BLS Algorithm
- Give oxygen when available
- Attach monitor/defibrillator when available

↓

Resume CPR immediately for 5 cycles
When IV/IO available,
- Epinephrine 1 mg IV/IO every 3 to 5 minutes
- If slow PEA rate, Atropine 1 mg IV/IO every 3 to 5 minutes after epinephrine, to a maximum of 3 mg

Treatment:

A. Follow guidelines listed in Cardiac Arrest: General Approach
B. If return of spontaneous circulation without regaining consciousness, see Therapeutic Hypothermia protocol.
C. Consider possible causes
   - Hypovolemia
   - Hypoxia
   - Hydrogen ion/acidosis
   - Hypo-/Hyperkalemia
   - Hypoglycemia
   - Hypothermia
   - Toxins
   - Tamponade, cardiac
   - Tension Pneumothorax
   - Thrombosis (coronary or pulmonary)
   - Trauma

Precautions:

A. If mechanism of injury is penetrating trauma (stab, gunshot, etc.), consider fluid challenge and rapid transport to appropriate facility.

PULSELESS ELECTRICAL ACTIVITY (PEA)

Key Considerations:

- Preceding symptoms
- Bystander CPR
- Cardiac history
- Medications
- Drug overdose
- Evidence of toxic exposure/ingestion
- History of traumatic injury
- Renal failure

Pediatric Patients: (Child age less than 14)

A. CPR, aggressive airway management (rarely requires intubation)
B. Gain IV access (on infants and small children, use IO).
C. Epinephrine 0.01 mg/kg IVP (1:10,000) every 3-5 minutes. For ET doses, administer Epinephrine 0.1 mg/kg (1:1000, diluted in 2 ml of NS).
D. If absolute or relative bradycardia, first consider hypoxia and hypoventilation, then:
E. Atropine 0.02 mg/kg IVP, minimum dose 0.1 mg, maximum 1.0 mg.

V-FIB OR PULSELESS V-TACH

1

PULSELESS ARREST
- BLS Algorithm
- Give oxygen when available
- Attach monitor/defibrillator when available

2

Give 1 shock (200 J)
Resume CPR immediately
- Give 5 cycles of CPR

3

Check rhythm
If shockable rhythm, continue algorithm.
If non-shockable, go to appropriate algorithm.

4

Continue CPR while defibrillator is charging
Give 1 shock (300 J)
Resume CPR immediately after the shock
When IV/IO available, give epinephrine 1 mg
- Repeat ever 3 to 5 min

Give 5 cycles of CPR

5

Check rhythm
If shockable rhythm, continue algorithm.
If non-shockable, go to appropriate algorithm (pulse check if electrical activity present)

6

Continue CPR while defibrillator is charging
Give 1 shock (360 J)
Resume CPR immediately after the shock
When IV/IO available, give amiodarone 300 mg (May repeat once at 150 mg in 3 to 5 minutes)
Consider magnesium, loading dose 1 to 2 g IV/IO for torsades de pointes
Give 5 cycles of CPR
Return to Box 3 above (all subsequent shocks at 360 J)

A. ***If unwitnessed arrest, perform 2 minutes of quality CPR prior to first defibrillation.***
B. If unable to obtain IV/IO, then consider administration of medications through ET tube. This is strongly discouraged and should only be used as a last resort.
C. Start Amiodarone therapy after successful conversion and return of pulses and BP,
   1. If no Amiodarone bolus given prior to cardioversion, administer 150 mg Amiodarone over ten minutes
      (10 gtts/ml set – 150 mg in 100 ml D5W – 100 gtts/minute)
   2. After Amiodarone bolus already given, administer an Amiodarone drip
      (10 gtts/ml set – 150 mg in 100 ml D5W – 7 gtts/min = 1.0 mg/min)
D. If return of spontaneous circulation without regaining consciousness, see Therapeutic Hypothermia protocol.

Key Considerations:

- Preceding symptoms
- Bystander CPR
- Cardiac history
- Medications
- Drug overdose
- Evidence of toxic exposure/ingestion

Pediatric Patients: (Child age less than 14)

A. Follow Adult algorithm, use the following dosing for:
   1. Defibrillate 2 joules/kg, 4 joules/kg, 4 joules/kg.
   2. Epinephrine: 0.01 mg/kg (1:10,000) IVP every 3-5 minutes. For ET doses, administer Epinephrine 0.1 mg/kg (1:1000, diluted in 2 ml of NS).
   3. Amiodarone 5 mg/kg rapid IV/IO.
   4. Alternate epinephrine/shock, amiodarone/shock to a total of three doses of amiodarone.

THERAPEUTIC HYPOTHERMIA

Scientific studies into the use of induced hypothermia in the patient who has return of spontaneous circulation show an increased survivability rate. This process can be started in the field and continued in the hospital setting.

Indications:

A. Return of spontaneous circulation (ROSC) post arrest and
   1. Greater than 18 years of age
   2. Patient is unresponsive
   3. Patient is making no purposeful movements
   4. Patient systolic BP is greater than 90 mmHg
   5. If possible, obtain patient family consent for destination to facility with Therapeutic Hypothermia capability.

Contraindications:

A. Pregnant
B. Presence of other potential ideologies for coma (i.e. head trauma, hemorrhagic stroke, overt status epilepticus)
C. DNR and/or end stage illness
D. Comatose state or severe neurological dysfunction (e.g. dementia) prior to arrest
E. Drug intoxication
F. Awake and responsive to verbal commands post cardiac arrest

Process:

For patients meeting the above indications perform the following actions after ROSC.

A. Provide proper airway control through use of ET, King-LTD™ or King-LTSD™
B. Ensure venous access
C. Check capillary blood sugar level
   1. If less than 90 administer 12.5 grams D_{50}
   2. If less than 60 administer 25 grams D_{50}
D. Document full neurological examination and tympanic temperature.
E. Apply ice pack to the groin, axilla and neck (ensure ice pack does not come into direct contact with the skin).
F. If patient begins shivering or becomes agitated, administer midazolam 2 mg IV/IO increments up to a maximum of 10 mg
G. If systolic BP drops to 90 mmHg, initiate dopamine drip and titrate to effect to maintain a systolic of at least 90 mmHg.

H. Continuously monitor patient included repeated neuro examination and EKG
I. Transport to a hospital capable of induced hypothermia
J. If loss of pulse discontinue cooling and dopamine drip and treat per protocol

Key Considerations:

A. Take care to protect patient modesty. Undergarments may remain in place during cooling.
B. Do not delay transport to initiate cooling
C. If ROSC occurs enroute to facility, contact OLMC to determine destination

Treatment:

A. Monitor vital signs every five minutes, including heart monitor.
B. Acquire initial 12 lead, if available and repeat every ten minutes.
C. Nitroglycerin 0.4 mg SL (use with caution, prepare for fluid bolus in right sided or inferior MI).
    1. Repeat every 5 minutes until pain relief if BP remains greater than 100 systolic.
D. Aspirin 324 mg (Have patient chew 4 baby aspirin if patient did not take aspirin prior to EMS arrival) if no contraindications:
    1. Patient must not be allergic or have sensitivity to ASA.
    2. Patient has no recent history of bleeding disorder.
    3. Patient is not suspected of having an aortic dissection.
E. If pain unrelieved by Nitroglycerine (3 EMS doses), provide pain management
    1. Fentanyl 25 mcg increments to effect up to 50 mcg for an adult. If administering more than 50 mcg fentanyl, consider administering ondansetron hydrochloride 4 mg undiluted IV over 2 to 5 minutes. Contact OLMC if more than 50 mcg of fentanyl is needed.
F. Treat any malignant arrhythmias that are believed to be associated with patient's cardiac chest pain or decreased perfusion.
G. A "STEMI Alert" will be issued in patients with
    1. 1 mm of elevation in the ST segment or greater in 2 or more contiguous leads verified by 12 lead (exception: ST segment elevation in Bundle Branch Blocks). Contiguous is considered any lead looking at the same wall (inferior, lateral) of the heart or any two precordial leads that are next to one another.
H. 12 lead will be transmitted to receiving facility.
I. Provide receiving healthcare provider with rhythm strips and 12 lead.

Precautions:

A. DO NOT ambulate any patient with complaint of chest pain.
B. If suspected AAA, active bleeding disorders, or ulcer, do not administer ASA.
C. Strongly consider IV prior to nitroglycerin in patients who do not currently take nitroglycerine, or who have a potential for hemodynamic instability.
D. Do not administer nitroglycerine to patients taking Viagra® or other erectile dysfunction medication.

Key Considerations:

- Past history
- SOB, diaphoresis
- Medications
- Palpitations
- Fever or recent illness

Pain Evaluation:

- O—Onset: What were you doing at onset?
- P—Provoke: What makes the pain worse? Better?
- Q—Quality: Quality of the pain, i.e. sharp, dull, burning, stabbing, crushing, etc.
- R—Radiation: Does the pain go from one area to another? E.g. arm, jaw, etc.
- S—Severity: on a 0-10 scale.
- T—Time: Constant or intermittent. Have you had it before? When did it start?

Pediatric Patients: (Child age less than 14)

- Consider pleuritic causes, trauma.
- Monitor ECG for ectopy. Some children may have congenital disease or palpitations due to very rapid tachycardia. Contact OLMC for advice.

BRADYCARDIA

BRADYCARDIA
Heart rate less than 60 bpm and inadequate for clinical condition

- Maintain patent **airway**; assist **breathing** as needed
- Give **oxygen**
- Monitor ECG (identify rhythm), blood pressure, oximetry
- Establish IV access

Signs or symptoms of poor perfusion caused by the Bradycardia?
(eg, acute altered mental status, ongoing chest pain, hypotension or other signs of shock

Adequate Perfusion → Observe/Monitor

Poor Perfusion →

- **Prepare for transcutaneous pacing;** use without delay for high-degree block (type II second-degree block or third-degree AV block)
- Consider **atropine** 0.5 mg IV while awaiting pacer. May repeat to a total dose of 3 mg. If ineffective, begin pacing
- Consider **epinephrine** (2 to 10 µg/min) or **dopamine** (2 to 10 µg/kg per minute) infusion while awaiting pacer or if pacing ineffective

- Treat contributing causes
- Consider expert consultation

Reminders

- If pulseless arrest develops, go to Pulseless Arrest Algorithm
- Search for and treat possible contributing factors:
  - **H**ypovolemia
  - **H**ypoxia
  - **H**ydrogen ion (acidosis)
  - **H**ypo-/hyperkalemia
  - **H**ypoglycemia
  - **H**ypothermia
  - **T**oxins
  - **T**amponade, cardiac
  - **T**ension pneumothorax
  - **T**hrombosis (coronary or pulmonary
  - **T**rauma (hypovolemia, increased ICP)

Goal of treatment is to improve perfusion & maintain BP greater than 90.

A. If mechanical capture achieved, follow transcutaneous pacing protocol.
B. If mechanical capture is NOT achieved, try repositioning pads.
C. If patient is uncomfortable and has systolic blood pressure greater than 90 mmHg, give Midazolam 0.025 mg/kg increments, max of 2 mg/increment, slow IVP (repeat x1 if needed, to a Max. of 4mg) or if no IV 4.0 mg IM.

Precautions:

A. Bradycardia may be protective in the setting of cardiac ischemia and should ONLY be treated if associated with serious signs or symptoms of hypoperfusion.
B. Renal failure may elevate blood potassium levels (hyperkalemia) causing bradycardia. If patient is on dialysis and bradycardic see hyperkalemia protocol.

Key Considerations:

- Speed of onset
- Angina
- Drug overdoses
- Medications (BETA Blockers)
- History of MI
- Palpitations, syncope

Pediatric Patients: (Child less than 14), Infant: (1 month to 1 Year), If less than 1 month see Neonate

A. Most pediatric bradycardia is due to hypoxia. Oxygenate and ventilate. If appropriate, start CPR, manage airway, and hyperventilate. Special considerations may apply in the hypothermic child.
B. Establish IV or IO access.
C. If no IV access, start pacing per transcutaneous pacing protocol.
    1. Pediatric Midazolam®, 0.025 mg/kg IVP to a Max of 2 mg, or 0.2 mg/kg IM to a Max of 5 mg.
D. If IV access:
    1. Epinephrine 0.01 mg/kg (1:10,000) IVP, maximum of 1.0 mg. May repeat q 3-5 minutes as PRN.
    2. For ET doses, administer Epinephrine 0.1 mg/kg (1:1000, diluted in 2 ml of NS).
    3. Atropine 0.02 mg/kg IVP, (minimum single dose 0.1 mg in infant, 0.5 mg up to 14 y/o). May repeat once

PREMATURE VENTRICULAR CONTRACTIONS (PVC'S)

Only treat the underlying cause:

A. VT (See V Tach Protocol).
B. Chest pain, suspected ischemia (see Chest Pain Protocol).
C. Bradycardia with ventricular escape beats (see Bradycardia Protocol).
D. Hypoxia, electrolyte imbalance, anxiety, etc. (see appropriate protocols).

CARDIAC DYSRHYTHMIAS

SUPRAVENTRICULAR TACHYCARDIA (SVT)

TACHYCARDIA
With Pulses

- Assess and support ABC's as needed
- Give oxygen
- Monitor ECG (identify rhythm), blood pressure, oximetry
- Identify and treat reversible causes

Symptoms Persist

Is patient stable?
Unstable signs include altered mental status, ongoing chest pain, hypotension or other signs of shock. *Note: rate related symptoms uncommon if heart rate less than150/min.*

Stable

Unstable

- Establish IV access
- Obtain ECG (12-lead if available)
- Is QRS narrow (less than 0.12 sec)?

Wide

See V-Tach Protocol

Narrow

Is Rhythm Regular?

Regular

Irregular

Perform immediate synchronized cardioversion
- Establish IV access and give sedation if patient is conscious; do not delay cardioversion
- Energy (50, 100, 200, 300, 360 Joules)
- If pulseless arrest develops, see appropriate algorithm.

- Attempt vagal maneuvers
- Give adenosine 6 mg rapid IV push. If no conversion give 12 mg rapid IV push; may repeat 12 mg dose once

Does rhythm convert?

If rhythm does NOT convert, possible atrial flutter, ectopic atrial tachycardia, or junctional tachycardia:
- Treat underlying cause

Probable atrial fibrillation or possible atrial flutter or MAT (multifocal atrial tachycardia)
- Control rate with diltiazem 10 mg IV over 2 minutes. May repeat in 15 minutes @ 15 mg over 2 minutes.

If rhythm converts, probable reentry SVT:
- Observe for recurrence
- Treat recurrence with adenosine

During Evaluation
- Secure, verify airway and vascular access.
- Prepare for cardioversion

Treat possible contributing factors
- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-/Hyperkalemia
- Hypoglycemia
- Hypothermia
- Toxins
- Tamponade, cardiac
- Tension Pneumothorax
- Thrombosis (coronary or pulmonary)
- Trauma (hypovolemia)

SUPRAVENTRICULAR TACHYCARDIA (SVT)

Precautions:

A. Think VT in older patients with underlying heart disease.
B. A-fib, A-flutter, and SVT are often hard to differentiate. If the patient is perfusing well and has no signs of hypoperfusion (pain, low BP, AMS), no treatment is needed.
C. If dysrhythmia is resulting in a hemodynamically unstable patient, immediate cardioversion should be performed. Be prepared for full resuscitation.
D. Think VT if wide complex rhythm. It may be helpful to check in more than one lead. A wide complex tachycardia is VT until proven otherwise.
E. Consider and treat underlying causes of tachycardia (such as febrile patients).

Key Considerations:

- Palpitations
- Chest Pain (quality, level, etc.)
- Medications (Verapamil vs. Digoxin)
- Past History
- Speed of Onset
- SOB

Pediatric Patients: (Child age less than 14)

(SVT: greater than or equal to 220 bpm for under 2 years old, greater than or equal to 180 bpm for 2-10 year old)

A. If child shows diminished perfusion and poor responsiveness, consider Midazolam, 0.025 mg/kg IVP to a Max of 2 mg, or 0.2 mg/kg IM to a Max of 4 mg,
B. Deliver synchronized cardioversion at 0.5 joules/kg. If no response, repeat at 1 joule/kg.
C. If still no response, then defibrillate at 2 joules/kg and at 4 joules/kg.
D. If child has normal perfusion, attempt vagal maneuvers: less than 6 years, ice water to face, valsalva in older children. Call OLMC for Adenosine.

CARDIAC DYSRHYTHMIAS

VENTRICULAR TACHYCARDIA WITH A PULSE

TACHYCARDIA
With Pulses

- Assess and support ABC's as needed
- Give oxygen
- Monitor ECG (identify rhythm), blood pressure, oximetry
- Identify and treat reversible causes

Symptoms Persist

Is patient stable?
Unstable signs include altered mental status, ongoing chest pain, hypotension or other signs of shock. *Note: rate related symptoms uncommon if heart rate less than150/min.*

Stable

Unstable

- Establish IV access
- Obtain ECG (12-lead if available)
- Is QRS narrow (less than 0.12 sec)?

Narrow

See SVT Protocol

Wide

Is Rhythm Regular?

Regular

Irregular

Perform immediate synchronized cardioversion

- Establish IV access and give sedation if patient is conscious; do not delay cardioversion
- Energy (100, 200, 300, 360 Joules)
- If pulseless arrest develops, see appropriate algorithm.

If ventricular tachycardia or uncertain rhythm

- Amiodarone 150 mg IV over 10 min. Repeat as needed to maximum dose of 2.2g/24 hours
- Prepare for elective synchronized cardioversion

If SVT with aberrancy, follow SVT protocol.

If atrial fibrillation with aberrancy, follow SVT protocol

If pre-excited atrial fibrillation (AF + WPW)

- Avoid adenosine or diltiazem
- Consider amiodarone 150 mg over 10 min

If recurrent polymorphic VT, seek expert consultation

If torsades de pointes give magnesium (load with 1-2 g over 5 min)

During Evaluation

- Secure, verify airway and vascular access.
- Prepare for cardioversion

Treat possible contributing factors

- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-/Hyperkalemia
- Hypoglycemia
- Hypothermia
- Toxins
- Tamponade, cardiac
- Tension Pneumothorax
- Thrombosis (coronary or pulmonary)
- Trauma (hypovolemia)

VENTRICULAR TACHYCARDIA WITH A PULSE

Precautions:

A. Watch for hypotension or prolonged QT interval.
B. Use amiodarone with caution in renal failure patients.

Key Considerations:

- Medications
- Chest pain
- Past medical history
- SOB

Pediatric Patients: (Child age less than 14)

A. Ventricular Tachycardia: Rate greater than 150 bpm, Diminished perfusion
   1. Cardiovert at 0.5 joule/kg with subsequent countershocks at 1.0 joule/kg to a total of three shocks. Consider Midazolam, 0.025 mg/kg increments, IVP to a Max of 2 mg, or 0.2 mg/kg IM to a Max of 4 mg.
B. Ventricular Tachycardia: Rate greater than 150 bpm, Normal perfusion
   1. Amiodarone 5 mg/kg IV/IO over 20 minutes
C. Use pediatric pads for children less than 10kg.

Treatment:

A. Monitor vital signs.
B. If in third trimester and delivery not imminent, transport in left lateral recumbent position.
C. If birth is imminent, follow guidelines below. After delivery, follow Neonate Resuscitation protocol.
    1. Normal Birth:
        a. Guide/control, but do not retard or hurry delivery. Check for cord around neck and remove gently. Suction mouth, then nose with bulb syringe after head is delivered. Keep infant level with mother's heart until cord is cut. Assess APGAR at one minute and after five minutes. Clamp & cut cord, dry infant, and if no treatment needed place on mothers chest and cover to maintain warmth. Massage uterus to encourage contraction and prevent bleeding. Do not delay transport to deliver placenta.
    2. Meconium:
        a. Contact OLMC early for advice. Transport to nearest hospital. If thick meconium present, use meconium aspirator to suction mouth, pharynx, and nose. Follow normal childbirth procedure. See Suctioning procedure.
    3. Breech Presentation (Buttocks First):
        a. If delivery is imminent, prepare the mother as usual and allow the buttocks and trunk to deliver spontaneously. Support the body while the head delivers. If the head does not deliver within 3 minutes, suffocation can occur. Place a gloved hand into the vagina to keep the vaginal wall away from baby's face. Inserting a finger into the infant's mouth and gently tilting the head toward the chest can sometimes ease delivery. Transport mother in knee-chest position.
    4. Prolapsed Cord:
        a. Place mother in knee-chest position or with hips elevated on pillows. With a gloved hand gently attempt to push the baby back up the vagina several inches. Initiate transport. Do not attempt to push cord up.
    5. Arm or Leg Presentation:
        a. Place mother in knee-chest position, immediately transport to the nearest hospital. Call OLMC early.

Precautions:

A. Toxemia of pregnancy is a life threatening maternal condition of hypertension that can lead to seizures (eclampsia). See Pre-Eclampsia Protocol
B. Abruptio Placenta and Placenta Previa occur in the third trimester. Shock may develop without significant vaginal bleeding in Abruptio Placenta.

Key Considerations:

- Due date, regular prenatal care
- Last menstrual period
- Multiple births?
- Medications & allergies
- Recent trauma?
- Membrane rupture?
- Gravida/Para (# of pregnancies/live births)
- Multiple births?
- Edema, hypertension, or pain
- Fetal heart tones, movement
- Vaginal bleeding
- Past medical history, including premature births, abortions, miscarriages

	0 points	1 point	2 points
Appearance(color)	Blue, pale	Blue and Pink	Fully Pink
Pulse	Absent	less than 100 BPM	greater than 100 BPM
Grimace (irritability)	No response	Grimace	Vigorous
Activity (muscle tone)	Limp	Some flexion of extremities	Active motion
Respirations	Absent	Slow, irregular	Good, crying

Treatment:

A. Monitor vital signs.
B. Prepare for prolonged extrication.
   1. Begin warming methods to prevent hypothermia.
      a. Warm blankets, heated air with blower, warm IV fluids.
      b. Protect patient from environment (rain, direct sun, etc.).
   2. Plan extrication activities to allow for periodic patient assessment.
      a. Plan for occasional extrication equipment "shut down" to assess vitals.
      b. Carefully track vitals, IV fluids, and medications during extrication.
   3. Evaluate degree of entrapment and viability of extremities.
      a. Carefully assess collateral injuries that may have occurred during event.
      b. Look for signs of circulation or absence of circulation if limb entrapment.
         1) Absent pulse.
         2) Blanched Skin.
         3) Capillary refill.
         4) Diminished sensation.
         5) Extremely cold to the touch.
      c. If extrication of a limb will be prolonged, direct mechanical crush injuries are present (tissue is crushed), and patient's condition is deteriorating, strongly consider calling OLMC to arrange on-scene amputation.
   4. If one or more extremities are trapped and circulation is compromised or absent consider the placement of constricting bands to inhibit rapid venous return to the central circulatory system of potassium, lactic acid, and myoglobin upon extrication. Contact OLMC for direction.
C. If patient is trapped in a heavy dust environment, consider methods to provide filtered oxygen to the patient. If patient is in respiratory distress, consider dust impaction injuries and prepare to administer nebulized Albuterol per OLMC direction.
D. During extrication of a severely trapped patient who is at risk for crush syndrome, administer 1000 - 2000 cc IV bolus, then maintain at 500 cc/hr.
E. To control severe pain
   1. Fentanyl 25 mcg increments to effect up to 50 mcg for an adult. If administering more than 50 mcg fentanyl, consider administering ondansetron hydrochloride 4 mg undiluted IV over 2 to 5 minutes. Contact OLMC if more than 50 mcg of fentanyl is needed.

F. Consider the administration of Sodium Bicarbonate, per OLMC direction, prior to release to buffer acid release from anaerobic metabolism.

Precautions:

A. Do not allow any personnel into extrication area (inner circle) without proper protective equipment and thorough briefing to include evacuation signal.
B. Notify the appropriate receiving facility through OLMC early in the extrication process to facilitate receiving advanced medical resources if needed.
C. Leader should coordinate all extrication activities, especially the release of patient, with Incident Commander or his/her delegate.
D. Keep patient well-hydrated and warm during extrication efforts.
E. Constantly evaluate the risks associated with your position, and the possibility of complicating factors (HazMat, wind, rain or runoff, gas leaks, etc.).

Key Considerations:

- Previous medical history
- Current medications
- Length of entrapment, extrication
- Do Not Use RSI or Succinylcholine
- Use Technical Rescue
- Develop alternative treatment plans

ELECTRICAL INJURIES/LIGHTNING

Overview:

EMS providers must first protect themselves from the source, and then render assistance to the patient. Electricity can cause injuries ranging from mild to fatal. A lightning strike sends a strong electrical charge either through the body or over its surface. Both can cause extensive neurological damage, injuries to internal organs, spinal injuries, deep tissue damage, cardiac arrhythmias/arrest, temporary paralysis, respiratory arrest, difficulties with vision, hearing and memory. Burns may not be visible at first but may appear hours later.

Treatment:

A. IN MCI OR MULTI-PATIENT SCENE, MASS CASUALTY TRIAGE PROTOCOLS ARE REVERSED. THOSE PATIENTS IN CARDIAC OR RESPIRATORY ARREST SHOULD BE IMMEDIATELY TREATED WITH CPR AND APPROPRIATE ACLS RESUSCITATION.
B. Protect C-spine – Oxygen (via NRB mask or BVM if respiratory distress), IV, ECG monitor.
C. Monitor vital signs.
D. Prepare patient for rapid transport; refer to Burn Protocol if indicated.
E. Assess for shock; refer to Shock Protocol if indicated.

Precautions:

A. Ensure the scene/area is safe. DO NOT BECOME A VICTIM.
B. Patients should be kept immobilized if not in immediate danger.
C. Closely observe the patient's respiratory and cardiac status, monitor vital signs.
D. The primary cause of death following a lightning strike is cardiopulmonary arrest. Most victims survive if they receive CPR.
E. Cardiac arrhythmias are common but generally resolve. Respiratory arrest is more common. After a lightning strike, the heart will often resume beating while the respiratory drive will be paralyzed for hours.
F. Patients who have been subjected to electrical charges from a stun gun or taser type device should be treated based on their injuries (i.e. treat trauma as trauma, treat arrhythmias under appropriate protocol, etc.). Barbs will not be removed in the field by EMS providers.

Key Considerations:

- Time of exposure
- Voltage and amperage
- Dilated pupils should not be used as an indication of brain damage because these findings can be induced by the lightning strike without head injury
- Vascular instability injuries result in cold, pulseless and mottled extremities
- Mechanism of injury:
    - Direct strike
    - "Side flash"
    - Ground current injuries
    - Indirect strikes

EXTRA PYRAMIDAL SYNDROME

Overview:

A. Large or strong voluntary muscles contracting uncontrollably after intake of certain medications including Haldol, Compazine, and other major psychiatric drugs and anti-histamine type medications. PATIENT OFTEN DOESN'T READILY RECALL INTAKE OR ADMIT USE OF A FRIEND'S TRANQUILIZERS.

B. Most Common:
   1. Buccal Lingual Crisis – "Thick Tongue" Can develop airway compromise
   2. Oculogyric Crisis – Eyes roll to one side, up or down and patient appears to lose attention to the environment due to confusion about what is happening and efforts to move head to chase eyes.
   3. Rectus Abdominus Muscle Spasm
   4. Torticollus – Neck turns and won't turn back.
   5. Opisthotonus – Back muscles spasm. In a strong person, the spasm can contort the body enough to compromise respiratory effort.

C. DIAGNOSIS IS MADE BY TREATMENT BECAUSE RESPONSE IS DRAMATIC AND QUICK

Treatment:

A. Assist patient to position of comfort.
B. Monitor vital signs.
C. Administer Diphenhydramine 25-50 mg IV or 25-50 mg IM.
D. May repeat Diphenhydramine at same dose when symptoms recur.

Precautions:

A. Patient must be cautioned that the drug causing the side effect will likely last up to days longer than the Diphenhydramine and that symptoms will likely reoccur.

PEDIATRIC PATIENTS (CHILD AGE LESS THAN OR EQUAL TO 14)

A. Administer Diphenhydramine 1-1.5 mg/kg up to 50 mg. IV or IM.

EYE EMERGENCIES

Overview:

The eyes are a direct window to the brain and can quickly and accurately tell the general condition of the central nervous system. Injuries involving the eyes can hamper assessment findings as well as increase patient anxiety and fear. It is essential to communicate well with the patient. They will be fearful of losing their sight, as well as have an increased fear if both eyes are bandaged.

General Treatment/Assessment:

A. Assess patient as normal
B. Assess vital signs
C. Assess patient's ability to see

Chemical Exposures:

A. The treatment of chemical exposures to the eyes should only be conducted once rescuer safety has been ensured (see Hazardous Materials Medical Response Protocol)
    1. Determine if patient is allergic to "caine" derivatives
    2. Administer Tetracaine 2 drops per affected eye to relieve blepharospasm
    3. Irrigate with sterile saline solution
    4. Assess patient for systemic effect from the chemical exposure
    5. If product is identified, provide identification information to receiving facility.
    6. If product is not identified, request Hazardous Materials Team response to provide testing of the product (pH level, etc.) and forward this information to the receiving facility

Penetrating Injuries:

A. DO NOT REMOVE IMPALED OBJECT
B. Immobilize the object
C. Protect the globe of the eye
D. Cover both eyes to prevent reciprocal movement
E. Avoid placing any pressure on the eye itself

Hematomas (Without Penetrating Injury):

A. Apply an ice pack to the affected area
B. Verify presence of head/neck trauma and provide C-spine control if indicated

Pediatric Patients: (Child age less than 14)

A. Administer Tetracaine 1 drop per affected eye to relieve blepharospasm

Treatment:

A. Protect cervical spine.
B. Check blood glucose level.
C. Monitor vital signs (including capnography).
D. Provide appropriate treatment to maintain $ETCO_2$ of 35-45.
E. Check GCS. Consider Trauma Alert If unable to maintain airway, intubate.
F. If patient combative (transport units):
   1. If patient unable to maintain own airway, secure airway using paralytic protocol.
   2. If patient has a GCS greater than 8, and oxygen saturation remains above 98% without assisted ventilations, Contact OLMC to consider sedation/chemical restraint with Midazolam 0.025 mg/kg increments, max of 2 mg/increment IV or IM.

Precautions:

A. Restlessness and/or agitation can be due to hypoxemia and/or hypoglycemia.
B. If patient is placed in restraints, always monitor oxygen saturation.
C. Isolated head injury rarely causes shock syndrome.

Key Considerations:

- Mechanism of injury
- GCS on initial exam and prior to transport
- Changes in LOC
- Protective devices worn
- Past medical history
- Medications

Pediatric Patients: (Child age less than 14)

A. Consider non-accidental trauma.
B. Head injury may cause shock in infants.

Treatment:

A. Treatment is going to be based upon patient history. Renal failure may elevate blood potassium levels (hyperkalemia) causing bradycardia, hypotension, weakness, weak pulse and shallow respirations. Other patients who are predisposed to hyperkalemia are those who have muscular dystrophy, paraplegic/quadriplegic, crush injury, or patients who have sustained serious burns greater than 24 hours previously.
   1. Monitor vital signs including heart monitor (12 lead if available).
   2. ECG changes that may be present with hyperkalemia include:
      a. Peaked T-waves.
      b. Lowered P-wave amplitude or the loss of the P-wave altogether.
      c. Prolonged PR interval (greater than 0.20 seconds or 5 small boxes).
      d. Second degree AV block.
      e. Widened QRS.
   3. If Hyperkalemia is suspected, contact OLMC and prepare to:
      a. Administer 1g (10cc) of Calcium Chloride 10% solution slow IVP over 5-10 minutes in a proximal port.
      b. If no change in rhythm and transport time is prolonged, consider alternative therapy as per OLMC contact:
         1) Glucose and regular insulin if available.
         2) High Dose Albuterol (10 mg by nebulizer).
         3) Administer 50 mEq of Sodium bicarbonate IV.

Precautions:

A. Note: Do not mix Sodium bicarbonate solutions with calcium preparations. Slowly flush remaining calcium chloride from the catheter prior to administering sodium bicarbonate.

Key Considerations:

- Previous medical history
- Medications & allergies

HYPERTENSION

Overview:

While neurologists agree that we should be cautious in addressing hypertension when it is a compensatory mechanism for a stroke, treatment should be initiated in accordance with the following indications/contraindications.

Indications:

A. Patient has a systolic pressure over 220 and/or a diastolic pressure over 120 confirmed with a manual BP cuff and has nausea, headache, blurred vision, epistaxis, changes in mental status or seizures.
B. Patient DOES NOT have underlying causes of the hypertension such as abdominal pain, pre-eclampsia or traumatic injury.

Contraindications:

A. Acute CVA as indicated by any of the following focal hard findings:
B. Weakness
C. Neglect
D. Drift
E. Aphasia in an alert patient

Treatment:

A. Monitor vital signs.
B. Acquire further ECG Leads
C. Treatment sequence:
    1. Check blood pressure
    2. Brief neurological exam
    3. Check blood pressure
        a. If improving, and patient stable, monitor blood pressure
        b. If not improving, begin treatment:
            1) For patients not in acute CHF and with a heart rate greater than or equal to 60 with a systolic pressure greater than 220 and/or a diastolic pressure greater than 120, Trandate 10 mg IV – may be repeated Q 10 minutes times three.

2) For patients with a heart rate below 60 and/or CHF with a systolic pressure greater than 220 and/or a diastolic pressure greater than 120,
   (a) administer Bumetanide
      (i) For patients weighing less than 70 kg, administer 1 mg IVP.
      (ii) For patients weighing 70 kg or more, administer 2 mg IVP.
   (b) Nitroglycerine SL Q 5 minutes as needed.

Key Considerations:

- Previous medical history
- Onset of symptoms
- Medications & allergies

Treatment:

A. Monitor vital signs, including heart monitor.
B. Begin cooling measures that maximize evaporation.
   1. Remove clothing, cool patient.
   2. Wipe down with cool (not cold) water
   3. Use fans for evaporation.
C. Initiate venous access and start fluid resuscitation per Shock Protocol if low BP.

Precautions:

A. If patient begins to shiver, stop cooling measures.
B. Wet sheets over patient without good airflow tend to increase temperature.
C. Do not let cooling measures in the field delay transport.

Key Considerations:

- Speed of onset
- Type of activity prior to onset
- Previous medical history
- History of hyperthermia?
- Recent infection, sepsis?
- Medications & allergies

Pediatric Patients: (Child age less than 14)

A. Use tepid, not cold water.
B. Closely monitor vitals, airway, and temperature.
C. Consider sepsis and/or contagious disease.
D. Examine for rashes or blotches on the skin and nuchal rigidity.

Treatment:

A. Carefully assess vital signs. At least 60 seconds may be needed to confirm vitals due to slow pulse and respirations. Consider holding polished metal or glass (e.g. laryngoscope handle or blade), under the nostrils to determine if patient is breathing.
B. Carefully remove wet clothing and move patient into a warm environment ASAP.
C. Establish IV; infuse warmed fluids (99ºF - 104ºF) if possible.
D. Use the following guidelines for resuscitation:
    1. If patient has an organized ECG (may be bradycardia, with or without pulses) handle gently. Contact OLMC immediately for CPR and medication instructions.
    2. If patient is in VF, VT, or asystole, do CPR and follow Cardiac Arrest Protocols. Contact OLMC prior to administering medications.
    3. If patient has frozen tissue, is lifeless, with no pulses or electrical activity, declare patient dead. If in doubt, contact OLMC.

Precautions:

A. In the profoundly hypothermic patient, medications may not be effective until circulation is adequately restored. Repeat dosages of cardiac medications may not be advised.
B. Patients who are profoundly hypothermic may require pump re-warming.
C. Rescue teams may need to use protocols that apply to their specific environment. It is recognized that they may not be able to contact OLMC when stated in the protocol.

Key Considerations:

- Environmental exposure: (submersion, cool rainy weather, wind chill, prolonged exposure)
- At risk patients: (trauma, alcohol and drug abuse, homeless, elderly, infants, low income, and entrapped patients).

AMPUTATION

Treatment:

A. Control active bleeding (consider use of Combat Application Tourniquet for uncontrolled bleeding).
B. Monitor vital signs.
C. Treatment of stump: Cover with moist pressure dressing.
D. Treatment of severed part:
   1. Wrap in sterile dressing, place in plastic bag and keep dry.
   2. Place bag in ice-water bath, if available.
   3. If extrication will be prolonged, consider sending amputated part ahead to be surgically prepared for reimplantation.
E. To control severe pain:
   1. Fentanyl 25 mcg increments to effect up to 50 mcg for an adult. If administering more than 50 mcg fentanyl, consider administering ondansetron hydrochloride 4 mg undiluted IV over 2 to 5 minutes. Contact OLMC if more than 50 mcg of fentanyl is needed.
F. If amputation is proximal to the wrist or ankle issue trauma alert.

Precautions:

A. Do not soak amputated part in water or saline solution.

Key Considerations:

- Time of injury

Pediatric Patients: (Child age less than 14)

A. Pain Management
   1. Fentanyl 1 mcg/kg increments up to a total 25 mcg. Contact OLMC if more than 25 mcg of fentanyl is needed.

Treatment

A. Monitor vital signs.
B. Check for pulses, movement and sensation (PMS) in affected extremity.
C. Splint the fracture or dislocation:
D. Control external bleeding(consider use of Combat Application Tourniquet for uncontrolled bleeding)
    1. Immobilize in place if PMS are intact.
    2. If no PMS distal to injury, consider applying gentle traction and move limb into normal position of alignment. Recheck PMS and immobilize.
    3. For femur fractures (open or closed), use a traction splint.
    4. For other extremity fractures, if bone is protruding, cover with moist dressing. Splint in place unless total ischemia (no PMS) is present distal to the fracture.
    5. For pelvic fractures, consider snugly wrapping pelvic region with a sheet or blanket and securing patient to a backboard to minimize movement and internal blood loss.
E. To control severe pain:
    1. Fentanyl 25 mcg increments to effect up to 50 mcg for an adult. If administering more than 50 mcg fentanyl, consider administering ondansetron hydrochloride 4 mg undiluted IV over 2 to 5 minutes. Contact OLMC if more than 50 mcg of fentanyl is needed.
F. If two or more proximal long-bone fractures, issue trauma alert.

Precautions

A. Total ischemia is demonstrated by pain, pallor, pulselessness, parasthesia, and paralysis (Five P's).
B. Always check (and record) presence of PSM distal to injury before and after immobilization.
C. Do not reduce dislocations in the field. If total ischemia present, contact OLMC.
D. Do not administer fentanyl if patient has head, abdominal, or pelvic trauma.

Key Considerations:

- Mechanism of injury
- Previous medical history
- Time of injury
- Medications & allergies

Pediatric Patients: (Child age less than 14)

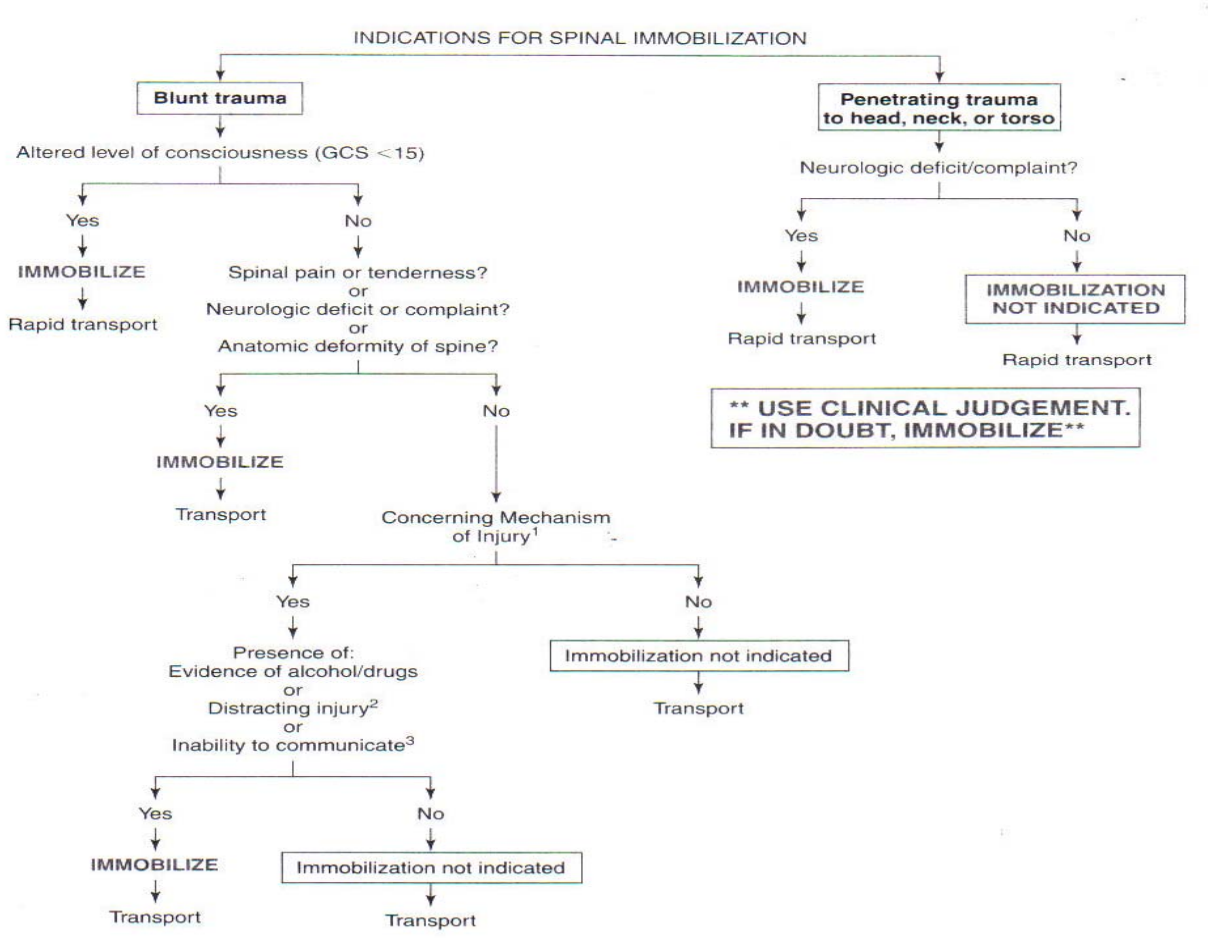
A. Pain Management
    1. Fentanyl 1 mcg/kg increments up to a total 25 mcg. Contact OLMC if more than 25 mcg of fentanyl is needed.

B. Consider abuse as a cause of injury.

Treatment:

A. Treatment assumes there was an appropriate mechanism of injury or potential for spinal injury and the patient exhibits ANY of the following:
   1. Altered mental status or possible influence of intoxicants.
   2. Neck pain or tenderness.
   3. Neurologic deficits (numbness, tingling, paralysis).
   4. Significant distracting injuries.

B. Utilize the decision tree below to assist you in making the decision to immobilize or not (see footnotes on next page).



C. Footnotes for decision tree.
   1. Concerning Mechanisms of Injury
      a. Any mechanism that produced a violent impact to the head, neck, torso, or pelvis (e.g., assault, entrapment in structural collapse, etc.)
      b. Incidents producing sudden acceleration, deceleration, or lateral bending forces to the neck or torso (e.g., moderate- to high-speed MVC, pedestrian struck, involvement in an explosion, etc.)
      c. Any fall, especially in elderly persons
      d. Ejection or fall from any motorized or otherwise-powered transportation device (e.g., scooters, skateboards, bicycles, motor vehicles, motorcycles, or recreational vehicles).
      e. Victim of shallow-water diving incident
   2. Distracting Injury
      a. Any injury that may have the potential to impair the patient's ability to appreciate other injuries. Examples of distracting injuries include
         1) Long bone fracture;
         2) A visceral injury requiring surgical consultation
         3) A large laceration, degloving injury or crush injury
         4) Large burns
         5) Any other injury producing acute functional impairment

D. Immobilize cervical spine using manual in-line stabilization.
   1. Place a rigid cervical collar, sized to patient, as soon as possible.
   2. Immobilize patient to a long board, using ITLS/PHTLS standards.
   3. Use a KED™ if the patient exhibits significant neck pain, neuro deficits, or crepitation and/or deformity are noted. Time of application should not significantly interfere with trauma resuscitation or transport.

E. Monitor vital signs.

Precautions:

A. In third trimester pregnancy or any obviously pregnant patient, elevate the right side of the backboard 6 inches.
B. Carefully assess the patient's respiratory status during transport. Loosen straps if necessary to avoid respiratory compromise.
C. Consider leaving helmet and shoulder pads (if pertinent) in place, unless airway management is necessary.
D. If any immobilization techniques cause an increase in pain or neuro deficits immobilize the patient in position found, or position of greatest comfort.
E. Complete secondary neurological exam after full immobilization.

Key Considerations:

- Mechanism of injury
- Any loss of consciousness
- Previous medical history
- PMS before and after immobilization
- Neuro deficits, pain, tenderness
- Medications & allergies

Pediatric Patients (Child age less than 14)

A. Small children may require extra padding under upper torso to maintain neutral cervical alignment.
B. Movement on the backboard can be minimized by using dense, soft support material on both sides of the patient prior to securing the straps on the backboard. Consider using a KED™ to immobilize the patient prior to placing on a backboard.
C. Children are very susceptible to respiratory compromise from straps that are too tight.
D. Continually monitor the child's respiratory status, and loosen straps if needed.

Treatment:

A. Monitor vital signs, including heart monitor.
B. If vomiting sufficient to interfere with exam and treatment, administer ondansetron hydrochloride 4mg undiluted IV/IM over 2 to 5 minutes. May repeat with 4 mg IV after two minutes if the patient is still vomiting.
C. Consider fluid challenge per shock protocol.
D. If patient becomes restless or develops extrapyramidal symptoms after ondansetron hydrochloride, give Diphenhydramine 25 mg IVP or 50 mg deep IM (See EPS Protocol).

Precautions:

A. Unless directed by OLMC, do not administer ondansetron hydrochloride in the following situations:
   1. Patients who have ingested large amount of depressants.
   2. Known allergy or prior reaction to ondansetron hydrochloride.

Key Considerations:

- Abdominal pain
- Vomiting blood or bile
- Pregnancy
- Any recent abdominal or head trauma
- Diarrhea
- Orthostatics

NEONATAL RESUSCITATION

LESS THAN 1 MONTH OLD

(See also Childbirth Protocol)

Treatment: (consider use of weight-length based tape)

A. Use weight length based tape
   1. Use length as the determinate for treatment.
   2. Consider withholding resuscitation if fetal age less than 24 weeks or best estimate less than or equal to 20 weeks. If in doubt, contact OLMC.
B. Assess respiratory effort, heart rate, and skin color.
C. Dry thoroughly and keep warm.
D. Suction mouth, then nose as needed. Keep neck in neutral position.
E. If meconium is present, and baby not actively crying use a meconium aspirator attached to an ETT to suction mouth, pharynx, and nose.
F. Evaluate the respirations. If apneic or gasping:
   1. Provide positive pressure oxygen using an infant BVM.
G. If there are adequate respirations, evaluate heart rate (HR):
   1. If HR greater than 100, and color improving, monitor vitals.
   2. If HR 60 or greater and increasing, assist ventilations with 100% O_2 until HR greater than 100.
   3. If HR less than 60 and NOT increasing:
      a. Ventilate, CPR.
      b. Epinephrine 0.01 mg/kg (1:10,000) IV or IO (0.1 mg/kg ET) Repeat every 3-5 minutes.
      c. If no change, give 10 ml/kg of NS.
H. Maintain warmth, monitor vital signs.

Precautions:

An infant may need resuscitation if intrapartum risk factors for asphyxia are present:

- Meconium stained fluid
- Prolapsed cord
- Painful bleeding (abruptio placenta)
- Prolonged rupture of membranes
- Maternal fever
- Multiple births
- Abnormal presentation
- Hypertension, hypotension, seizure

NEONATAL RESUSCITATION

LESS THAN 1 MONTH OLD

Key Considerations:

- Fetal presentation
- Any recent trauma
- Maternal health/risk factors
- Maternal medications
- APGAR
- Previous births/difficulties

	0 points	1 point	2 points
Appearance(color)	Blue, pale	Blue and Pink	Fully Pink
Pulse	Absent	less than 100 BPM	greater than 100 BPM
Grimace (irritability)	No response	Grimace	Vigorous
Activity (muscle tone)	Limp	Some flexion of extremities	Active motion
Respirations	Absent	Slow, irregular	Good, crying

Treatment: (Always decontaminate patient prior to treatment and transport if necessary). Consider contacting communications for poison control.

A. Monitor vital signs.
B. If patient is poorly responsive or has decreased respirations:
   1. Consider Naloxone 2 mg IV/IO at 0.4 mg/min, IM or ET if treatment will assist care delivery and patient can be contained to prevent injury to self of others.
   2. Determine capillary glucose. If less than or equal to 60 mg/dl, administer 25g of D50% slow IVP and ensure patency of line. If no IV site available, give Glucagon 1.0 mg IM.
   3. In the event the patient cannot be managed (e.g. airway difficulties), administer Naloxone 2 mg IV/IO at 0.4 mg/min, IM, or ET. May repeat every 5 minutes up to maximum of 8 mg. Be prepared for a combative patient. PLEASE DO NOT ADMINISTER NARCAN TO CHRONIC NARCOTIC USERS WITHOUT OLMC APPROVAL DUE TO POSSIBLE UNCONTROLLABLE SEIZURE ACTIVITY.
C. If overdose includes a cyclic antidepressant:
   1. Hyperventilate patient if possible & contact OLMC.
   2. Treat hypotension per shock protocol.
   3. Administer 1 mEq/kg of Sodium Bicarbonate IVP for arrhythmias or QRS widening.
D. If organophosphate poisoning has occurred and patient has SLUDGEM symptoms:
   1. Call Haz Mat Team
   2. Recognize signs/symptoms of organophosphate poisoning:
      a. **S**alivation
      b. **L**acrimation
      c. **U**rination
      d. **D**efecation
      e. **G**I Symptoms
      f. **E**mesis
      g. **M**iosis
   3. Protect yourself from contamination from the patient (including the gross amount of copious secretions that may be present). If patient appears to be grossly contaminated, assessment and treatment should be performed by properly trained and equipped personnel after decontamination of the patient.

4. **Treatment by OLMC order only**
   a. Mild symptoms (SLUDGEM)
      1) Inject one (1) DuoDote™ into the mid-lateral thigh if the patient persists with two or more mild symptoms.
      2) Wait 10 – 15 minutes. If the patient does not develop any severe symptoms at that time, DO NOT ADMINISTER further doses.
      3) If at any time after administration of the first dose the patient presents with severe symptoms, administer two (2) additional DuoDote™ in rapid succession and seek definitive medical care.
   b. Severe symptoms(SLUDGEM and respiratory distress or severe muscular twitching
      1) Administer three (3) DuoDote™ in the patient's mid-lateral thigh in rapid succession and seek definitive medical care.
      2) DO NOT administer more than three (3) DuoDote™

B. If Carbon Monoxide poisoning has occurred:
   1. Do not enter poisonous atmosphere without appropriate respiratory protection.
   2. Consider proper airway management and ventilation with 100% oxygen.
   3. Consider capnography.
   4. Consult OLMC regarding transport to hyperbaric chamber.

C. Other ingested or inhaled toxin:
   1. Take isolation precautions, provide supportive care, contact Poison Control.
   2. For all ingested poisons, if prolonged transport is expected, contact OLMC regarding administration of Activated Charcoal 1 gm/kg.

D. Beta Blocker Overdoses:
   1. If hypotensive follow Shock Protocol.
   2. Contact OLMC for consideration of Glucagon.

E. Calcium Channel Blocker Overdoses:
   1. If hypotensive, follow Shock Protocol.
   2. Contact OLMC for consideration of administration of Calcium Chloride, 1 GM over 5-10 minutes.

F. Cyanide Poisoning
   1. Ensure personnel safety and request HazMat Team response.
   2. Exposure may be confirmed by good patient history of event or by air monitoring equipment.
   3. If equipped, contact OLMC for administration of Cyanokit© (5 mg IV pgb)

Precautions:

A. DO NOT neutralize acids or alkalis.
B. Inhaled poisons and contact poisons are a danger to rescuers. Use proper precautions.
C. Consider HazMat Team activation if airborne or spilled poisons are present.

Key Considerations:

- Type of poisoning: Inhalation, ingestion, absorption
- Previous medical history.
- Medications & allergies.
- Suicidal intent
- Drug, ETOH, or child abuse
- How much ingested, contacted
- Multiple patients
- Psychiatric history
- "Antidote" given

Pediatric Patients (Child age less than 14)

A. Determine capillary blood glucose. Follow Altered Mental Status Protocol.
B. Activated Charcoal dose, 1 gm/kg if indicated per OLMC contact.
C. Sodium Bicarbonate dose, 1 mEq/kg, if indicated per OLMC.
D. Atropine dose, 0.02 mg/kg if indicated (Minimum 0.1, max 0.5 mg, may be increased in organophosphate poisoning)

PRE-ECLAMPSIA/ECLAMPSIA

Overview:

This protocol should be used for the patient in her third trimester of pregnancy (greater than or equal to 20 weeks gestation) who is exhibiting signs of pre-eclampsia or eclampsia.

Signs and Symptoms:

The signs of toxemia include proteinuria (dark-colored urine), excessive weight gain, and hypertension. The presence of two of these signs constitute pre-eclampsia; the presence of all three constitutes eclampsia. The seizing patient in her third trimester of pregnancy should be assumed to be eclamptic and treated as specified below. However, consideration of another underlying etiology, such as hypoglycemia, drug overdose, head injury, or fever, should also be considered. Eclamptic seizures can also occur postpartum (less than or equal to 1 week after giving birth). Witnessed continuous convulsions (generalized tonic-clonic seizures or grand mal) or repeating episodes without regaining consciousness or sufficient respiratory episodes without regaining consciousness or sufficient respiratory decompensation demonstrate a need for immediate treatment.

Treatment:

A. If the patient is seizing, administer magnesium sulfate 4 grams IV over 5-10 minutes.
   1. 4 grams in 100 cc
      a. 10 gtts/ml set – 200 gtts/min = 4 gm/5 minutes
      b. 10 gtts/ml set – 100 gtts/min = 4 gm/10 minutes

B. If the patient continues to seize, may give versed 2 mg IV/IM.

C. **If patient has been actively seizing for an extended period of time prior to arrival, consider administration of versed 2 mg IV/IM while setting up magnesium sulfate administration.**

Key Considerations:

- Previous medical history
- Onset of symptoms
- Medications & allergies

Treatment:

A. Monitor vitals, carefully assess lung sounds and utilize continuous capnography wave form monitoring.

B. Treat patient per clinical impression:

1. Upper Airway (Croup, epiglottitis, anaphylaxis, foreign body).
   a. Croup & epiglottitis: Transport in position of comfort, monitor airway.
   b. Allergic reaction: see Allergic Reaction protocol.
   c. Foreign body: Remove using direct laryngoscopy if complete obstruction.
2. Pulmonary Edema
   a. Sit patient upright.
   b. Consider CPAP (see protocol) with 7.5 PEEP/30% FIO2
   c. Apply heart monitor (12 lead if available)
   d. Nitroglycerine 0.4 mg SL every 5 minutes if BP remains greater than 100mm/Hg. Note: For patients, who are being treated with CPAP, administer Nitroglycerine paste 1" on the chest wall.
   e. Bumetanide:
      1) For patients weighing less than 70 kg, administer 1 mg IVP.
      2) For patients weighing 70 kg or more, administer 2 mg IVP.
   f. Morphine (if available) in 2 mg IVP increments to a total of 10 mg for patients who are awake and have a systolic blood pressure greater than 100 mmHg.
   g. Contact OLMC for additional medication orders.
   h. If BP less than 90 mm/Hg, start Dopamine drip per Cardiogenic Shock Protocol.
   i. Consider RSI early (if equipped).
3. Asthma/COPD
   a. Apply heart monitor (consider 12 lead if available)
   b. Nebulized Albuterol, 2.5 mg, repeat as needed. If second and/or third dose of Albuterol is needed, add one unit dose of Ipratropium 0.5 mg (if no history of peanut allergy) to the Albuterol in the nebulizer and administer the combined medications.
   c. Consider CPAP (see protocol) with 7.5 PEEP/30% FIO2
   d. If patient is deteriorating and less than 40 years old, give Epinephrine 0.3 mg SQ. Contact OLMC for additional doses or if patient is greater than or equal to 40 years old.
   e. If continuous nebulized treatment is needed during transport (which may be necessary in some pediatric patients), contact OLMC for advice.

Precautions:

A. Aggressive airway management, including early intubation, is appropriate for the patient who does not respond to treatment or is rapidly deteriorating.
B. Hyperventilation may be a response to an underlying medical problem. Do not treat hyperventilation by rebreathing CO_2, and look carefully for specific causes (i.e. pulmonary embolus).
C. The best indicator for the cause of respiratory distress is past history (recent and long-term). Consider medications, environment, trauma (surgeries), & symptoms.
D. The paramedic may use CPAP on any patient with severe respiratory distress if he/she feels that it will benefit the patient, but it should not be used in place of aggressive airway management and intubation.

Key Considerations:

- Speed of onset
- Type of activity prior to onset
- Pain or parasthesia
- Previous medical history
- Fever, chills, productive cough
- Hx of asthma
- Recent infection, illness
- Medications & allergies

Pediatric Patients (Child age less than 14)

A. Avoid IV access, if not necessary for treatment.
B. Treat the pediatric asthma patient as outlined above under Adult COPD/Asthma. Do not reduce or dilute the dose of Albuterol in pediatric patients.
C. Try to transport parent with patient.
D. Consider sepsis and/or contagious disease.
E. The usual cause of respiratory arrest in children with croup, epiglottitis, or laryngeal edema is exhaustion, not obstruction.
F. Pediatric dose of epinephrine is 0.01 mg/kg of 1:1000 SQ to a maximum of 0.3 mg

Treatment:

A. Monitor vital signs, including heart monitor.
B. Protect head and place patient in lateral recumbent position for airway management.
C. Quickly try to determine cause of seizures:
    1. Cardiac Dysrhythmia:
        a. Manage airway and follow appropriate Cardiac Dysrhythmia Protocol.
    2. Head Injury:
        a. Follow Head Injury Protocol.
    3. Hypoglycemia: (Verified by glucometer per standards in AMS Protocol)
        a. Follow Altered Mental Status Protocol for doses of Dextrose and Glucagon.
    4. Hypoxia:
        a. Aggressive airway management, follow Airway Management Procedure.
    5. Status grand mal seizures: (Continuous or repetitive seizures, without regaining consciousness)
        a. Administer Midazolam 0.025 mg/kg increment, max of 2 mg/increment, IV.
        b. If no IV access, give Midazolam 4.0 mg IM.
        c. If patient continues to exhibit seizure activity for more than 5 minutes, repeat Midazolam 0.025 mg/kg increment, max of 2 mg/increment, IV.(4.0 mg IM). If further doses are needed, contact OLMC.

Precautions:

A. Transport may be unnecessary if patient regains orientation after a postictal period, is taking anti-seizure medication, has his/her own physician, and is experiencing the usual frequency of seizures. Document the patient's mental status prior to having them sign release form.
B. Severe respiratory depression can occur after administration of Diazepam and Midazolam, and it may be delayed if Midazolam is given via the IM route. Always prepare to support the patient's airway and monitor ventilation and oxygenation carefully.
C. New onset seizures in pregnant women, especially during the third trimester, may indicate toxemia of pregnancy, which is life threatening to both mother and fetus.
D. ALL first time seizures require emergency evaluation. Call OLMC if patient refuses.
E. Seizures in patients greater than 50 years old are frequently caused by arrhythmias.

Key Considerations:

- Type (focal, febrile, grand mal)
- Length of seizure
- Previous medical history
- Previous trauma
- Drug, ETOH, or toxin exposure
- Medications & allergies
- Hx of diabetes or headaches
- Pregnancy

Pediatric Patients (Child age less than or equal to 14)

A. First time seizures should be considered sepsis and/or meningitis until proven otherwise.
B. Febrile seizures are generally found between the ages of 1-6 years, and are usually short in duration (less than15 minutes).
C. Always test blood glucose in pediatric seizures. If hypoglycemic, follow Altered Mental Status Protocol.
D. Administer Midazolam 0.025 mg/kg IVP to a maximum initial dose of 2 mg. May repeat once in 5 minutes if patient still seizing.
E. If no IV access, administer Midazolam 0.2 mg/kg IM, to a maximum initial dose of 5.0 mg. May repeat once (for a maximum of 10 mg total) in 5 minutes if patient is still seizing. For repeat doses, contact OLMC.

Treatment:

A. Monitor vital signs.
B. Prepare patient for rapid transport.
C. Determine shock category:
    1. Hypovolemic Shock:
        a. Give 500 cc fluid bolus, repeat if needed if no signs of pulmonary edema.
        b. For penetrating trauma, do not cause fluid overload. Goal is systolic BP of 90.
    2. Cardiogenic Shock:
        a. Follow appropriate cardiac dysrhythmia protocol.
        b. Consider fluid challenge.
        c. Start Dopamine infusion. Start at 5 mcg/kg/min, increase in 5 mcg/kg increments every five minutes to a maximum of 20 mcg/kg/min, or until systolic BP is at least 90 and signs of shock are alleviated. Call OLMC.
    3. Distributive Shock: (Including anaphylaxis, sepsis, neurogenic)
        a. Give 500 cc fluid bolus. Check lung sounds. May repeat to a total of 1000 cc.
        b. If possible, treat underlying causes (e.g., anaphylaxis).
        c. If shock persists, contact OLMC for advice regarding additional fluid or dopamine.
    4. Obstructive Shock: (Including cardiac tamponade, tension pneumo, aneurysm, PE)
        a. For tension pneumothorax, follow needle thoracentesis procedure.
        b. Consider 500 cc fluid challenge or dopamine infusion.
        c. Call OLMC for advice.

Precautions:

A. Closely observe patient's respiratory status and vital signs. Avoid fluid overload.
B. Signs and symptoms of shock are those of inadequate tissue perfusion: Confusion, restlessness, altered LOC, moist skin, apathy, and hypotension.
C. For penetrating trauma and suspected AAA, do not fluid overload the patient.

Key Considerations:

- Medical history
- Medications
- Mechanism of injury
- Recent illness

Pediatric Patients: (Infant: age less than 1 year. Child: age less than 14.)

A. Hypovolemic Shock: Fluid bolus, Infants 10 cc/kg, Children 20 cc/kg.
B. Cardiogenic and Obstructive Shock:
    1. Fluid bolus as in Hypovolemic Shock, maximum 60 cc/kg.
    2. Contact OLMC and consider Dopamine drip.
C. Distributive Shock:
    1. Fluid bolus as in Hypovolemic Shock, maximum 500cc.
    2. If anaphylaxis, follow Allergic Reaction protocol.
    3. Contact OLMC and consider Dopamine drip.

SNAKE BITE

Overview:

Venomous snakes may inflict large amounts to little or no venom (never assume it is a dry bite). Treatment for systemic symptoms may jeopardize the vascularity to the affected limb. Therefore, treatment will vary depending on severity of symptoms.

Treatment:

A. Be sure offending snake is identified and the threat to others is eliminated.
B. Do not move the victim and especially the affected extremity any more than necessary
C. Assess the severity of the systemic symptoms
D. Monitor vital signs.
E. Notify receiving hospital of bite, severity of symptoms, and species and size of snake.
F. Transport with as little movement as possible of the affected extremity.

Key Considerations:

- Previous medical history
- Onset of symptoms
- Medications & allergies

Treatment:

A. Monitor vital signs.
B. Treat hypothermia per Hypothermia Protocol.

Precautions:

A. If patient is still in the water, it is recommended properly trained and equipped personnel perform that rescue only.
B. It is common to underestimate trauma injuries in near-drowning events. If there is any doubt as to mechanism of injury, or a known traumatic event preceded submersion, fully immobilize patient.
C. Be prepared for vomiting.
D. Even if patient initially appears fine, delayed pulmonary edema is likely to occur.

Key Considerations:

- Water temp at recovery depth
- Activity prior to drowning event
- Previous medical history
- Length of time patient submerged
- Medications & allergies

OCALA/MARION COUNTY EMERGENCY MEDICAL SERVICE

MEDICAL PROCEDURES

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AIRWAY MAINTENANCE, INCLUDING CONTROL OF THE CERVICAL SPINE, IS THE PRIMARY CONCERN IN THE TREATMENT OF ALL PATIENTS. IF UNABLE TO ESTABLISH AND/OR MAINTAIN AN ADEQUATE AIRWAY, THE PATIENT SHALL BE TRANSPORTED TO THE NEAREST ACUTE CARE FACILITY TO OBTAIN DEFINITIVE AIRWAY CONTROL.

Purpose:

Proper airway management is the first priority in patient care.

Indications:

Nearly all patients encountered in the field can benefit from the administration of oxygen. The amount delivered will differ based on the patient's needs. The following guidelines can be used for oxygen therapy. Disease processes, which limit the amount of oxygen delivered to the tissues, (e.g.: MI, CVA, CO poisoning, shock, etc.) require higher flow rates and systems that deliver greater concentrations of oxygen.

Methods of Assessment:

Observation of inspiratory to expiratory ratio, use of accessory muscles, pulse rate, EKG changes such as bradycardia or ectopy, and changes in the respiratory rate are also valuable assessment parameters. Pulse oximeter and end tidal CO_2 should be used to evaluate patients in respiratory distress, and end-tidal CO_2 detection should be used to evaluate the perfusing intubated patient. Mentation changes and agitation are some of the early signs of hypoxia.

Delivery Systems:

A. Nasal Cannula
   1. Nasal cannulas are to be used when small amounts of supplemental oxygen are desired. Flow rates should not exceed six (6) liters per minute or discomfort and drying of the nasal mucosa will occur. If greater flow rates are required, use a NRB mask. Delivery of oxygen using oxygen tubing inserted into the base of a paper cup held near the face may help alleviate anxiety in young children.

B. Non-Rebreather (NRB) Mask
   1. NRB masks are recommended when higher flows and concentrations need to be delivered. Oxygen concentrations near 100% can be achieved with a high flow and good facial fit. High flows and concentrations are to be used in all patients who have altered levels of consciousness, severe chest pain, or exhibit signs of shock.

Maintenance Devices:

A. Nasopharyngeal Airway (NPA)
   1. NPAs are recommended for adult patients who are unconscious or have an altered level of consciousness and are unable to maintain their own airway. While a conscious child might better tolerate an NPA than an OPA, the smaller diameter and relatively greater length make the NPA more likely to become obstructed by secretions. All NPAs must be lubricated with water-soluble jelly prior to insertion and may be used with NRB mask or with bag-valve-mask assist devices. NPAs are not a substitute for intubation. When an NPA is used, the paramedic must continually assess the patient's respiratory status using methods described above to determine if the patient becomes a candidate for endotracheal intubation.

B. Oropharyngeal Airway (OPA)
   1. OPAs may be used in patients who are unable to maintain their airway and do not have a gag reflex. OPAs may be used on both adult and pediatric patients. It is important that the proper size be utilized. An OPA may also be used as a block to keep patients from biting down on an endotracheal tube and restricting airflow. Most patients who will tolerate an OPA are candidates for endotracheal intubation. OPAs must always be used with high flow, high concentration oxygen delivery devices such as a Bag-Valve-Mask.

C. Bag/Valve/Mask (BVM) Device

1. The BVM is used when the patient is unable to maintain an airway and his/her respiratory drive is compromised. In all cases where the patient needs ventilatory assistance, the paramedic will utilize a bag/valve device either with a mask or attached to an endotracheal tube. The BVM must be equipped with an oxygen reservoir and attached to an oxygen source capable of delivering at least 15 liters/minute. The EMT must ensure a proper facial seal if using the bag/valve device with a mask; the patient's head must be positioned for optimum air delivery, and an OPA should be inserted. Proper ventilations are ensured by auscultating the patient's chest, observing the chest rise and fall with each ventilation, and verifying oxygen concentrations using a pulse oximeter. Suction must be nearby and ready for use, as it is recognized that the use of a BVM device can cause abdominal distention and regurgitation of stomach contents. The BVM should not be used passively to provide blow-by oxygen to the spontaneously breathing child since most children are unable to overcome the pop-off valve. However, the pop-off valve may need to be occluded (taped) if higher pressures are needed to adequately ventilate a child.

NOTE: The use of a bag/valve/mask and NPA or OPA is not considered sufficient to provide and maintain a protected airway except for a limited time prior to placement of an advanced airway or during Naloxone administration in the Altered Mental Status Protocol.

Indications:

A. For inter-facility transfers, vent (settings will be obtained from transferring Physician)
B. May be used for adult patients in cardiac arrest with an advanced airway (King/ET)
    1. Settings
        a. Oxygen percentage toggle switch – 100%
        b. 10 breaths per minute.
        c. Initial tidal volume is set at 8 ml/kg. If chest rise and/or lung sounds are inadequate, increase to 9 ml/kg. If chest rise and/or lung sounds are inadequate, increase to 10 ml/kg.
C. CPAP function may be used as a backup to Whisperflow, however realize the Autovent will use a significant amount of Oxygen

Contraindications:

A. Patients less then 20 kg (44 lbs)
B. Patients with a pneumothorax
C. Pulmonary over pressurization syndrome (blast injury, water ascent injury, etc.)
D. Will not be utilized for pediatric patients (less than or equal to 14 years of age) in cardiac arrest.

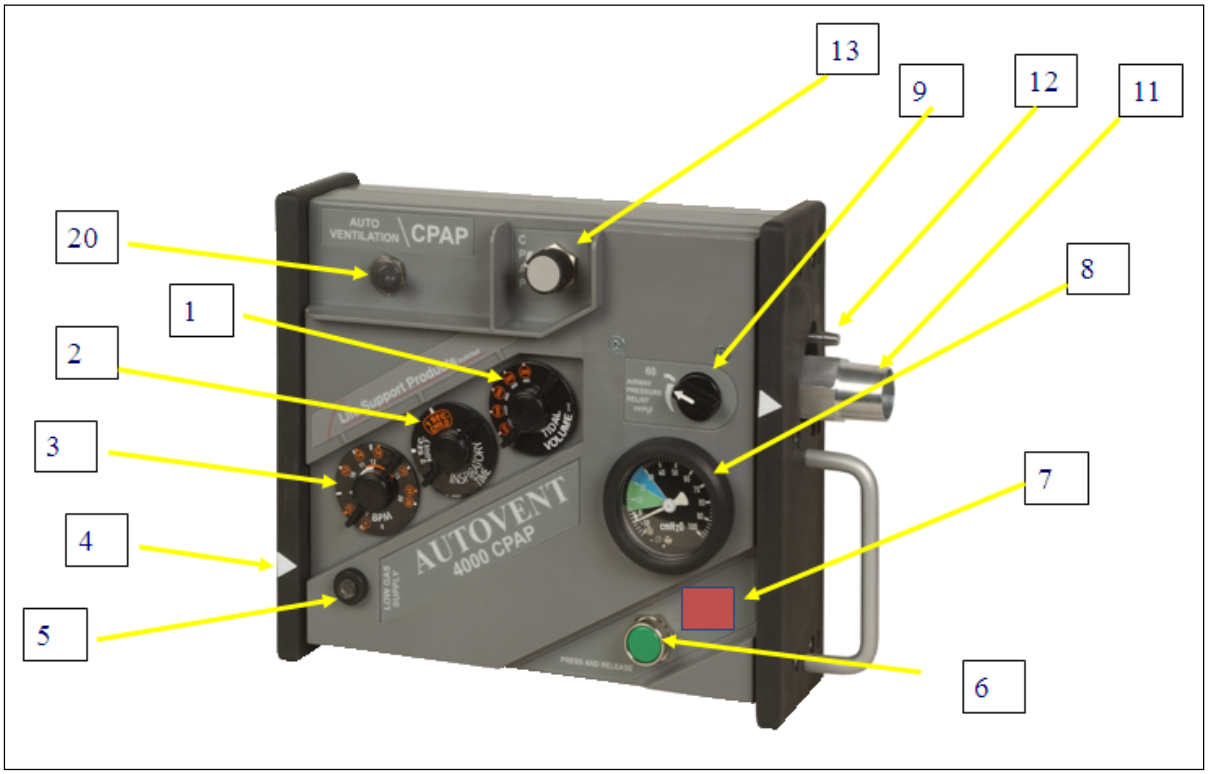
Patient Monitoring:

A. Reevaluate patient every 5 minutes for:
    1. End-tidal CO2
    2. Heart rate
    3. Pulse oximetry
    4. Re-auscultate lungs
    5. Look for any physical changes in the patient

Complications

A. Pneumothorax
B. Tube Failure
C. Ventilator Failure
D. Patient becomes combative or anxious
E. Ventilator circuit failure

Procedure



A. Set ventilator to Auto Ventilation mode (20)
B. Connect Oxygen source (4)
C. Connect breathing circuit (11)
D. Select proper inspiration time (2)
E. Select desired breaths per minute (BPM) (3)
F. Select desired Tidal Volume (1)
G. Verify Pressure Relief setting (9)
    1. Block the end of the ventilator circuit and observe the reading, this will be the maximum airway pressure.
H. Select desired gas mixture (7)
I. Connect to patient
J. Confirm tube placement
    1. By chest rise
    2. Auscultation

WHISPER FLOW CPAP

Indications:

A. Treatment of severe respiratory distress with evidence of bronchospasm (COPD, severe asthma)
   1. retractions, accessory muscle use
   2. tachypnea (respiratory rate greather than 25/min)
   3. Pulse oximetry reading less than 90% on room air.
B. Treatment for cardiogenic pulmonary edema
   1. Bibasilar or diffuse rales
   2. Peripheral edema

Contraindications:

A. Respiratory or cardiac arrest.
B. Systolic BP less than 90 mm.
C. Severely depressed level of consciousness/inability to maintain airway patency
D. Major Trauma (head or facial injury, blunt or penetrating chest trauma)
E. Vomiting/ gastric distention
F. Signs and symptoms of a pneumothorax.

Procedure:

A. Place patient in a semi fowlers or fowlers position
B. Assess vital signs, attach cardiac monitor, pulse oximeter,
C. Select a face mask and ensure that the masks fits comfortably and seals the bridge of the nose and fully covers the nose and mouth
D. Attach 7.5cm H_2O PEEP valve
E. Connect the CPAP generator to a 50psi oxygen source.
F. Begin at 30% FIO2
G. Adjust the FIO2 to the patients O2 saturation Titrate the FIO2 to maintain O2 saturation of greater than 95%. BY ¼ turn of the FIO2 every 2 minutes until a SAO2 of 95% or greater is obtained.
H. Hold the mask or have the patient hold the mask to their face. If the patient seems anxious, it is all right to turn the generator on and have the gas flowing before placing the mask on the patients face. When the patient is comfortable, use the head strap to hold the mask in place. Ensure that the mask is not too tight. Some air leakage is acceptable unless it is the eye area.

I. For patient comfort you may turn the flow adjustment knob down to maintain the flow just above what the patient's flow rate is. For example, if the patient is inspiring at a rate of 60 liters per minute you only need a flow rate slightly above that to maintain CPAP. When fully open the generator produces about 140 liters per minute flow. This is far in excess of what is needed and may be uncomfortable for the patient and in addition will waste oxygen.

J. The patient should be reassessed every 5 minutes for level of consciousness, heart rate, respiratory rate, blood pressure, pulse oximetry, and lung sounds.

K. Patient improvement should be note in the first 5-10 min of treatment with CPAP and should be evidenced by decreased heart rate, decreased respiratory rate, decreased blood pressure and increased pulse oximetry readings. If the patient does not show any signs of improvement intubation should be considered.

L. If the CPAP generator should fail to function, refer to the protocol for use of the Autovent 4000-CPAP in its place.

Documentation:

A. It is important that documentation of this procedure be in the narrative of the patient care report, and the following should be documented.
   1. PEEP level
   2. FIO2
   3. Vital Signs Every 5 minutes
   4. Effects of treatment or adverse reactions
   5. Oxygen saturation
   6. End tidal CO_2

CRICOTHYROTOMY

Indications:

This technique is to be used only when other attempts to establish an airway have been unsuccessful (i.e., you are unable to intubate or ventilate using BVM) and respiratory obstruction exists. Such conditions are most likely to be found with foreign-body obstruction; facial and laryngeal trauma; inhalation, thermal, or caustic injury to the upper airway; angioneurotic edema; upper airway bleeding; epiglottitis; and severe croup.

Contraindications:

A. Inability to identify the cricothyroid membrane.
B. Children under 8 (unless the membrane is clearly identifiable).
C. Burns or infection at the incision site.
D. Direct trauma obscuring the landmarks.

Procedure:

Place the patient in a supine position with support under the shoulders and mild hyperextension of the neck. Palpate the neck in the midline and locate the slight depression just below the notch of the thyroid cartilage. This is the position of the cricothyroid membrane.

Cricothyroid Kits:

A. Identify cricothyroid membrane; clean area with Betadine or alcohol swabs.
B. While stabilizing the cartilage make a midline vertical incision approximately 2cm (about the width of your Thumb).
C. Using needle or needle/catheter attached to 6-cc syringe, advance needle or needle/catheter through membrane caudally (towards the feet) at a 45-degree angle. When air is aspirated, secure needle or needle/catheter and detach syringe.
D. Options
    1. If using just the needle, pass guide wire through needle. Remove needle, holding end of guide wire until needle tip is clear from skin; then grasp guide wire at entrance to skin.
    2. If using the needle with catheter, remove needle, leaving catheter in place. Pass guide wire through the catheter. Remove catheter, holding end of guide wire until catheter tip is clear from skin; then grasp guide wire at entrance to skin.
E. If needed, make a small vertical stab wound (5 mm wide) at base of guide wire. Incise through skin and subcutaneous tissue only.

F. Place tracheal tube over silastic dilator (ET tube adapter end should be opposite from tapered end of dilator). Insert guide wire into tapered end of dilator and grasp at opposite end as wire emerges. Gently but firmly place dilator/tube assembly caudally through incision and into trachea.
G. Remove dilator and guide wire, leaving tube in place.
H. Secure tube. Attach ET tube adapter end to BVM.
I. Confirm placement utilizing lung sounds, chest rise and end tidal CO_2.
J. Assist or perform ventilations with 100% O_2 via BVM.
K. If unsuccessful in obtaining an airway, contact OLMC for alternative procedures.

Precautions:

Hazards in performing this procedure are primarily those of damage to nearby structures - major vessels to either side of the midline, to the vocal cords if the puncture is made too high, and a through and through injury of the trachea if the puncture is made too deeply. The latter is more commonly seen in infants and children whose tracheas may be deceptively narrow.

END TIDAL CO_2 MONITORING

Indications:

A. For use in any patient complaining of a respiratory related problem.
B. For use in intubated patients to measure effectiveness of ventilation by measuring the amount of carbon dioxide in exhaled air.

Procedure:

C. Manage airway according to appropriate Airway Management Procedure.
D. Apply EtCO2 monitor. Maintain $ETCO_2$ output between 35-45 mmHg.
E. The following approximates the degree of ventilation:
   1. Greater than 45 mmHg = Hypoventilation
   2. 35 – 45 mmHg = Normal ventilation
   3. 30 – 35 mmHg = Hyperventilation
   4. Less than 30 mmHg = Aggressive hyperventilation
F. **NOTE:** Monitoring should include both numerical value and waveform.

Precautions:

A. Remember, pulse oximetery does not equate ventilation. You can have a poorly ventilated patient displaying an oxygen saturation of 100%. Excessively high PaCO2 levels can be detrimental to your patient's outcome.
B. A sudden drop in CO2 output from normal (35-40 mmHg) to 15-20 mmHg and an obvious change in waveform is indicative of tube displacement, most likely into the hypopharynx. Re-assess tube placement immediately and take corrective action.
C. DO NOT rely on pulse oximetery or ETCO2 monitoring solely to determine the efficacy of intubation.

ENDOTRACHEAL INTUBATION

Indications:

A. Respiratory insufficiency or arrest.
B. Airway obstruction.
C. Brain injury (patient unable to maintain airway).
D. Unconsciousness or altered mental status with airway compromise.
E. Situations that require positive pressure ventilation.

Procedure:

A. Standard Endotracheal Intubation:
B. Open airway and pre-oxygenate with cricoid pressure.
C. Assemble and check all equipment, including cardiac monitor, suction, and pulse oximeter.
D. Intubate in a controlled, but timely manner.
E. Verify placement with a careful five-point check. Watch for chest expansion. Use an end-tidal CO2 detector and pulse oximeter.
F. Secure the tube utilizing ETT securing device. Record ET Tube depth at the teeth or gum line.
G. Ventilate and monitor patient's vital signs including SAO2.
H. Administer Midazolam 0.025 mg/kg increments, max of 2 mg/increment, IVP up to a maximum of 10 mg for agitation.
I. If available, administer Vecuronium 0.05 - 0.1 mg/kg (only after patient is intubated) as needed for combativeness and long transport.

Precautions:

A. Recheck tube placement with every major movement of the patient, movement of equipment, or if a significant change in vital signs occurs.
B. DO NOT rely solely on monitoring equipment to determine the efficacy of intubation. Auscultate for lung sounds.

Pediatric patients less than 2 years of age

Intubation of pediatric patients under the age of 2 years old should be avoided if the patient can be adequately ventilated using standard BLS airway management techniques (consider OPA, one or two NPA and BVM).

NASOTRACHEAL INTUBATION

Indications:

A. Breathing patient in whom oral intubation is difficult.
B. Patient who may have a spinal injury.
C. Patient who is conscious and needs a definitive airway.
D. Patient whose mouth cannot be opened due to clenched teeth.
E. Patient with a fractured jaw.
F. Patient with oral or maxillofacial injuries.
G. Patient who has recently undergone oral surgery.
H. Severely obese patient in whom oral intubation is difficult.
I. Patient with neck arthritis that prevents placing into the sniffing position.
J. Patient who cannot be adequately ventilated by another means.

Contraindications:

A. Nasal fractures.
B. Patient with cerebral spinal fluid leakage or evidence of a basilar skull fracture.
C. A significantly deviated nasal septum.
D. Nasal obstruction.
E. Patient receiving anticoagulants such as coumadin (warfarin).
F. Patient with airway hemorrhage, significant mid-facial trauma, or laryngeal trauma.
G. Patient less than 14 years-of-age.
H. Uncontrolled hypertension (greater than or equal to 220/120)

Procedure:

A. Open airway and pre-oxygenate while applying cricoid pressure.
B. Assemble and check all equipment, including cardiac monitor, suction, and pulse oximeter.
C. Select the largest and least obstructed nostril.
D. Lubricate the distal end of a proper-sized tube.
E. Remove the nasal pharyngeal airway and gently insert the tube, keeping the bevel of the tube towards the septum.
F. Continue to pass the tube, listening for air movement and looking for vapor condensation in the tube.
G. Gently trigger the proximal ring (if endotrol tube is used) and evenly advance the tube through the glottic opening on inspiration. This may cause some patients to cough, buck, strain or gag, which is a normal reflex. You should be prepared to maintain cervical spine alignment and the potential need to suction due to vomiting.

H. Verify placement with a careful five-point check. Watch for chest expansion. Use an end-tidal CO2 detector and pulse oximeter in perfusing patients.
I. Secure the tube. Record ET Tube depth at the nare line.
J. Ventilate and monitor patient's vital signs including SAO2.
K. Administer Midazolam 0.025 mg/kg increments, max of 2 mg/increment, IVP up to a maximum of 10 mg for agitation.
L. Administer Vecuronium 0.05 - 0.1 mg/kg (only after patient is intubated) as needed for combativeness and long transport.

Precautions:

A. Recheck tube placement with every major movement of the patient, movement of equipment, or if a significant change in vital signs occurs.
B. DO NOT rely solely on monitoring equipment to determine the efficacy of intubation. Auscultate for lung sounds.
C. Epistaxis.
D. Intubation of the esophagus.
E. Trauma to the oropharynx, vocal cords, esophagus, or trachea.
F. Right mainstem bronchus intubation.
G. Vomiting.
H. Intracranial tube placement through basilar skull fracture.
I. Pneumothorax, tension pneumothorax from high pressure ventilation or underlying pre-existing trauma.

KING LTS-D™ /LT-D™ AIRWAY

Definition:

A. The King LTS-D™ is a sterile, single use device intended for airway management. It consists of a curved double-lumen tube with separate pathways for ventilation and access to the stomach. It consists of a curved tube with ventilation apertures located between two inflatable cuffs. Both cuffs are inflated using a single valve/pilot balloon. The distal cuff is designed to seal the esophagus, while the proximal cuff is intended to seal the oropharynx. Attached to the proximal end of the tube is a 15 mm connector for attachment to a standard breathing circuit or resuscitation bag. The gastric access lumen is a separate conduit that allows passage of up to an 18 Fr standard gastric tube from its external proximal opening to the distal tip of the King LTS-D™, which is intended to be positioned in the upper esophagus. This allows the gastric tube to be easily inserted into the stomach for removal of fluids.

B. The King LT-D™ is similar to the LTS-D™ but does not have the second lumen for suctioning.

Indications:

A. Immediate intubation is not available or cannot be performed.
B. Access to the patient's head is inhibited due to entrapment.
C. Direct visualization of the larynx is inhibited.

Contraindications:

A. Patient who has an intact gag reflex.
B. Patient with known esophageal disease.
C. Patient who has ingested a caustic substance.
D. Oropharynx or facial trauma.

Procedure:

A. Choose the correct King LT-D™ /LTS-D™ size based on patient height:
   1. Size 2 for patients 35 – 45 inches
   2. Size 2.5 for patients 41 – 48 inches
   3. Size 3 for patients 4 – 5 feet
   4. Size 4 for patients 5 – 6 feet
   5. Size 5 for patients greater than 6 feet

B. Test cuff and inflation system for leaks by injecting the maximum recommended volume of air into the cuffs (size 2 – 35 ml, size 2.5 – 40 ml, size 3 – 60 ml, size 4 – 70 ml, size 5 – 80 ml). Remove all air from both cuffs prior to insertion.
C. Apply lubricant to the beveled distal tip and posterior aspect of the tube, taking care to avoid introduction of lubricant in or near the ventilatory openings.
D. Have a spare King LTS-D™ ready and prepared for immediate use.
E. Pre-oxygenate, if possible.
F. Position the head. The ideal head position for insertion of the King LT-D™ /LTS-D™ is the "sniffing position". However, the angle and shortness of the tube also allows it to be inserted with the head in a neutral position.
G. Hold the King LT-D™/LTS-D™ at the connector with dominant hand. With non-dominant hand, hold mouth open and apply chin lift.
H. With the King LT-D™/LTS-D™ rotated laterally 45 – 90 degrees such that the blue orientation line is touching the corner of the mouth, introduce tip into mouth and advance behind base of tongue.
I. As the tube passes under tongue, rotate tube back to midline (blue orientation line faces chin).
J. Without exerting excessive force, advance tube until base of connector is aligned with teeth or gums.
K. Using the syringe provided, inflate the cuffs of the King LT-D™ /LTS-D™ with the appropriate volume(size 2 – 35 ml, size 2.5 – 40 ml, size 3 – 60 ml, size 4 – 70 ml, size 5 – 80 ml)
L. Attach resuscitator bag to the 15 mm connector of the King LT-D™/LTS-D™. While gently bagging the patient to assess ventilation, simultaneously withdraw the King LT-D™ /LTS-D™ until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).
M. Confirm proper position by auscultation, chest movement and verification of CO_2.

Special Considerations:

A. **Medications can not be administered through the King LT-D™/LTS-D™.**

INTUBATION WITH NEUROMUSCULAR BLOCKING AGENTS

Indications:

A. Patient meets criteria described previously under "Intubation," and patient has any of the following:
   1. Clenched jaw.
   2. Active gag reflex.
   3. Uncontrollable combative behavior.
   4. Clinical condition requiring airway protection.

Contraindications:

A. A hypersensitivity to the drug.
B. A family or personal history of malignant hyperthermia.
C. Major trauma or burn patients, 7 to 10 days post burn.
D. Known hyperkalemia.
E. Chronic paralysis of a limb or limbs (extremity or extremities).
F. Patients with acute exposures to organophosphate substances.
G. Patients who have been entrapped two hours or longer.

Procedure:

A. Intubation with Neuromuscular Blocking Agents:
B. Open airway and pre-oxygenate while maintaining cricoid pressure.
C. Assemble airway equipment, including suction and alternative airway devices, and attach required monitoring equipment (ECG, pulse oximeter).
D. Start IV.
E. Pre-medicate with:
   1. Lidocaine 1.5 mg/kg for patients with increased ICP, acute asthma or suspected/known acute MI.
   2. Midazolam 0.025 mg/kg, or 2 mg increments at a time, IVP with a maximum initial dose of 10.0 mg.
F. Apply cricoid pressure and maintain until ET tube is in place, verified, and secured.
G. Administer Succinylcholine 1.5 mg/kg IV for patients greater than 6 years. If Succinylcholine is repeated (same dose after four minutes) give Atropine 0.5 mg.
H. Intubate in a controlled, but timely manner when patient becomes relaxed.
I. Verify placement with five-point check and chest expansion. Use CO2 detector and pulse oximeter, monitor closely.
J. Secure the tube using ETT securing device. Record ET tube depth at the teeth.
K. Ventilate and monitor patient's vital signs, including SAO2.

L. If patient begins exhibiting signs/symptoms of agitation call OLMC if additional sedation (Midazolam) is required. Signs/symptoms of agitation may include increased pulse rate, ocular movement, or patient fighting tube.
M. Patient should be reassessed at a minimum of every 5 minutes.
N. If additional paralysis is needed in the event of long scene time or long transport, administer Vecuronium 0.05 – 0.1 mg/kg IVP. Contact OLMC if additional doses are necessary. REMEMBER TO ADDRESS LEVEL OF CONSCIOUSNESS - CONSIDER SEDATION

Precautions:

A. Recheck tube placement with every major movement of the patient, movement of equipment, or if a significant change in vital signs occurs.
B. Check IV patency if the first dose of Succinylcholine does not appear to be effective in paralyzing the patient.
C. In most situations, the number of intubation attempts should be limited to 2. Once maximum attempts have been met, consider use of superglottic airway (King LT-D™/LTS-D™.)
D. DO NOT rely solely on monitoring equipment to determine the efficacy of intubation. Auscultate for lung sounds.
E. Succinylcholine does not affect the level of consciousness.
F. Avoid use of Succinylcholine in patients suspected of poisoning by organophosphates. Vecuronium may be used if absolutely necessary.

Pediatric Patients:

A. Pre-medicate with:
   1. Lidocaine 1.5 mg/kg for patients with increased ICP or acute asthma.
   2. Atropine 0.02 mg/kg for patients 2 years and younger (minimum dose 0.1 mg, maximum dose 0.5 mg).
   3. Midazolam 0.025 mg/kg, or 2 mg increments at a time, IVP with a maximum initial dose of 4.0 mg.
B. Apply cricoid pressure and maintain until ET tube is in place, verified, and secured.
C. Administer Succinylcholine 2 mg/kg for patients less than 6 years. If Succinylcholine is repeated, DO NOT REPEAT PEDIATRIC ATROPINE.
D. Intubate in a controlled, but timely, manner when patient becomes relaxed

BLOOD ALCOHOL DRAW

In accordance with Florida Statute 316.1932-316.1933, a law enforcement officer may request that a "…test for determining the weight of alcohol in the defendant's blood…". Paramedics are authorized to withdraw blood at the request of a law enforcement officer. The person does not have to be under arrest for the request to be a lawful order. "No…certified paramedic shall incur any civil or criminal liability as a result of the withdrawal or analysis of a blood specimen pursuant to accepted medical standards, regardless of whether or not the subject resisted administration of the test."

Procedure:

A. Patient being transported:
   1. Initiate medical care.
   2. Treat the patient per the appropriate medical protocol.
   3. Determine if you can safely (without jeopardizing patient care) draw the blood and convey to the officer requesting the blood draw.
   4. Draw blood, utilizing standard procedure for venipuncture, utilizing the blood draw kit provided by the law enforcement officer. (Do not use an alcohol swab to prep the site.)
   5. Record needed information provided with blood draw kit.
   6. Complete patient care and transport, include documentation of the blood alcohol draw in the narrative of the patient care report, describing the process utilized (refer to law enforcement kit instructions), and include the agency name requesting the blood draw.

B. Patient not being transported (refusing treatment and transport):
   1. Assess patient's ability to refuse treatment and transport in accordance with medical protocol. Contact Online Medical Control, as needed, per protocol.
   2. Draw blood, utilizing standard procedure for venipuncture, utilizing the blood draw kit provided by the law enforcement officer. (Do not use an alcohol swab to prep the site.)
   3. Record needed information provided with blood draw kit.
   4. Complete any needed patient care, include documentation of the blood alcohol draw in the narrative of the patient care report, describing the process utilized refer to law enforcement kit instructions), and include the agency name requesting the blood draw.
   5. Have the patient sign a refusal, if applicable. The law enforcement officer may sign as a witness for the refusal.

C. **NOTE:** All legal blood alcohols, regardless of the patient's chief complaint are considered patients for the purpose of care and documentation. A patient history and assessment (including vital signs) should be obtained and documented for all patients that have blood drawn.

Definition:

The use of 12-lead ECG equipment to establish clinic support for suspected, stable MI patients with typical and atypical presentation.

Indications:

A. Generally, 12-Lead ECG monitoring should be implemented on patients with the following complaints:
   1. All chest pain, including blunt trauma to the chest, unless due to penetrating injury
   2. Cardiac dysrrhythmia:
   3. Epigastric pain, dizziness, diaphoresis, altered LOC
   4. Thoracic back pain without trauma
   5. Sudden onset of shortness of breath with clear lung sounds
   6. Syncope or near syncope
   7. Patients with PVC's unchanged by oxygen and/or greater than 6 per minute
   8. CHF/Pulmonary Edema
   9. Tricyclic anti-depressant overdose
   10. All overdoses with abnormal rhythms
   11. Stable patients with suspected MI
   12. Confirmation of SVT versus A-Fib
   13. Confirmation of V-Tach with a pulse and other wide complex tachycardias
   14. Any other situation in which the paramedic feels it would assist in assessment and treatment of the patient.

Procedure:

A. Acquiring the 12-lead:
   1. Attach the 12-lead cable to the monitor.
   2. Attach the electrodes to the pads and place on patient for 12-lead acquisition. When acquiring a 12-lead ECG, limb lead electrodes are typically placed on the wrists and ankles, or anywhere along the limbs. Do not place the limb lead electrodes on the torso when acquiring a 12–lead ECG. The six precordial (chest) leads are placed on specific locations. Proper placement is important for accurate diagnosis. When placing electrodes on female patients, always place leads under the breast rather than on the breast. Never use the nipples as a reference point for locating electrodes.
   3. Encourage the patient to remain as still as possible.

4. Assure a readable tracing on the monitor. A reading with excessive artifact will be unusable for the hospital.
5. Press 12-LEAD, the 12-LEAD/AGE menu appears, enter patient age.
6. Tell patient to remain still
7. If the monitor detects signal noise, the acquisition is interrupted until the noise is removed. Take appropriate action, as required, to eliminate noise, or press 12-LEAD again to override.
8. One reading will print automatically. A copy is to accompany the patient to the hospital and be turned over to the receiving facility.

B. Transmitting the ECG.
1. Transmit the ECG to the receiving facility.
2. Contact ED to confirm successful transmission.

Precautions:

A. Do not delay transport of the critical or unstable patient to perform a 12-lead reading.

ECG MONITORING

MULTI-LEAD

Definition:

The use of multi-lead ECG equipment to establish clinical support for suspected, stable MI patients with typical and atypical presentation.

Indications:

A. Multi-Lead ECG monitoring should be implemented on patients with the following complaints:
   1. All chest pain, including blunt trauma to the chest, unless due to penetrating injury
   2. Cardiac dysrrhythmia:
   3. Epigastric pain, dizziness, diaphoresis, altered LOC
   4. Thoracic back pain without trauma
   5. Sudden onset of shortness of breath with clear lung sounds
   6. Syncope or near syncope
   7. Patients with PVC's unchanged by oxygen and/or greater than 6 per minute
   8. CHF/Pulmonary Edema
   9. Tricyclic anti-depressant overdose
   10. All overdoses with abnormal rhythms
   11. Stable patients with suspected MI
   12. Confirmation of SVT versus A-Fib
   13. Confirmation of V-Tach with a pulse and other wide complex tachycardias
   14. Any other situation in which the paramedic feels it would assist in assessment and treatment of the patient.

Procedure:

A. Apply the cardiac monitor leads as follows:
   1. White (RA) on the right upper deltoid.
   2. Black (LA) on the left upper deltoid.
   3. Red (LL) on the left lower leg.
   4. Green (RL) on the right lower leg.
   5. Brown (C) at the fifth intercostal space three finger breadths to the left of the sternum.

Precautions:

Do not delay treatment or transport of the critical or unstable patient to perform a multi-lead reading.

ICD DEACTIVATION

AUTOMATIC IMPLANTED CARDIO-DEFIBRILLATOR

Definition:

An ICD is an implanted defibrillator device that consists of: a lead system that senses cardiac activity, logic circuitry to analyze sensed signals, a power supply for device function and generating high voltage, and a capacitor that stores and delivers shocks. This device activates when brady-and/or tachyarrhythmias are detected within programmed parameters.

Indications:

For verified frequent and recurrent inappropriate ICD discharges, a doughnut magnet may be utilized to deactivate "runaway" devices. Inhibition of ICD devices should be considered when continuous ECG monitoring verifies malfunction and ACLS is readily available.

Procedure:

A. Contact OLMC.
B. Monitor ECG and verify sinus rhythm AND inappropriate defibrillator discharge.
C. Locate the position of the ICD device.
D. Place doughnut magnet directly over the device.
E. After proper positioning and ICD deactivation, tape magnet securely in place and transport.

Precautions:

A. It is very important to make the correct diagnosis before utilizing this protocol. Be sure that the ECG is showing a normal sinus rhythm without ectopy AND indications of recurrent ICD discharges.
B. Some ICD devices will emit varying beeping or continuous tones when magnets are applied, others will not. Disregard these tones.
C. If the magnet placement is successful in overriding the pulse generation of the ICD, DO NOT REMOVE THE MAGNET. Some units will return to normal operation after removal of the magnetic field.
D. Magnets should be stored so as not to come into contact with magnetic sensitive materials, i.e., monitor screens, tapes, credit cards, magnetic door entry cards, and other electronic equipment.
E. A small percentage of ICD's is impervious to magnetic fields (ICD recipients who normally work around magnetic fields have these special units). These will not be deactivated with the doughnut magnet. In such cases, advise OLMC and transport.

F. Consider use of the ICD magnet in deactivating cardiac pacemaker malfunctions. Call OLMC.

G. Identification information of the ICD type, date implanted, and location of implantation should accompany the patient to the hospital. This information is typically found on a wallet card that the patient has.

INTRAOSSEOUS INFUSION

ADULT

Indications:

A. Intraosseous (IO), if available, may be used as the first line for vascular access for patients in confirmed cardiac arrest (pulseless/apneic).
B. Intraosseous (IO), if available, should be considered for use in the following patients for whom IV access cannot be established in a timely manner (2 attempts).
    1. Severe burn injury with signs of shock
    2. Severe multiple trauma with signs of shock
    3. Any unstable medical patient (by Physician order only)
C. EZ-IO Sizes
    1. EZ-IO AD – patients greater than 39 kg
    2. EZ-IO LD – patients greater than 39 kg with excessive tissue at the insertion site

Contraindications:

A. Inability to locate landmarks
B. Fracture or recent surgery in the extremity to be used
C. Gunshot wound in the extremity to be used

Precautions:

A. If possible, placement at or near sites of infection or burns should be avoided (this is a last resort location)

Procedure for EZ-IO:

A. Identify the penetration site
B. Prep the site with Betadine or Alcohol
C. Prepare infusion system
D. Ensure that the driver and needle set are securely seated
E. Remove and discard the needle set safety cap from the IO needle set installed on the EZ-IO power driver.
F. Position driver at insertion site with needle set at a 90-degree angle to the bone. Gently power or press needle set until needle set tip touches bone.
G. Ensure at least 5 mm of the catheter is visible
H. Penetrate bone cortex by squeezing the driver's trigger and applying gentle, steady downward pressure

I. Release driver's trigger and stop insertion process when:
   a. A sudden "give" or "pop" is felt upon entry into the medullary space
   b. A desired depth is obtained
   c. **IMPORTANT:** use gentle-steady pressure. Do not use excessive force. Allow the catheter tip rotation and gentle downward pressure to provide the penetrating action.
   d. **Note:** If the driver stalls and will not penetrate the bone you may be applying too much downward pressure.

J. Remove power driver and stylet

K. Confirm catheter stability

L. Attach primed EZ-Connect® extension set to catheter hub's luer lock. DO NOT ATTACH A SYRINGE DIRECTLY TO THE EZ-IO CATHETER HUB

M. Flush the EZ-IO AD catheter with 10 ml of normal saline
   e. Prior to flush consider the aspiration of a small amount of blood to confirm placement.
   f. Consider IO lidocaine (20 mg of 2% solution) for conscious patients prior to flush. If pain persists provide an additional 20 mg for a maximum of 40 mg.
   g. No Flush = No Flow. Failure to appropriately flush the IO catheter may result in limited or no flow

N. Apply dressing

O. Administer fluids as medications as indicated

P. Frequently monitor the insertion site for extravasation

Procedure for BIG:

A. Identify the penetration site 2 cm medially and 1 cm proximally to the Tibial Tuberosity. (Adult IOs with the Bone Injection Gun (B.I.G) are approved for adults only in the Tibia)

B. Prep the site with Betadine or Alcohol

C. Position the B.I.G with one hand and pull out the safety with the other hand and trigger the device at 90 degrees to the surface of the leg

D. Remove the B.I.G. and pull out the stylet trocar, fix the cannula with the safety

E. Check placement by attempting to aspirate bone marrow and by flushing the cannula with Normal Saline

F. Connect the infusion set with a 3 way stopcock and a standard IV set.

G. Secure the needle with the red safety pin and dress the site.

H. Fluids should be administered under pressure up to 300 mmHg for optimal flow of administration of fluids and medications.

I. Consider IO lidocaine (20 mg of 2% solution) for conscious patients prior to flush. If pain persists provide an additional 20 mg for a maximum of 40 mg.

I. Observe the site for infiltration. All medication and blood products may be given through the IO.

INTRAOSSEOUS INFUSION

PEDIATRIC

Definition:

The placement of a metal needle into the bone to administer medications and resuscitation fluids.

Indications:

A. IO is indicated in emergency situations when life-saving fluids or drugs should be administered and IV cannulation is either too difficult or time consuming to perform. There is NO specific age limit to this procedure, but expect more difficulty on older children.
B. This procedure should not delay transport time, and airway management should be the priority.
C. EZ-IO PD is for patients 3 – 39 kg.

Procedure for EZ-IO:

A. Identify the penetration site
B. Prep the site with Betadine or Alcohol
C. Prepare infusion system
D. Ensure that the driver and needle set are securely seated
E. Remove and discard the needle set safety cap from the IO needle set installed on the EZ-IO power driver.
F. Position driver at insertion site with needle set at a 90-degree angle to the bone. Gently power or press needle set until needle set tip touches bone.
G. Ensure at least 5 mm of the catheter is visible
H. Penetrate bone cortex by squeezing the driver's trigger and applying gentle, steady downward pressure
I. Release driver's trigger and stop insertion process when:
    1. A sudden "give" or "pop" is felt upon entry into the medullary space
    2. A desired depth is obtained
    3. **IMPORTANT:** use gentle-steady pressure. Do not use excessive force. Allow the catheter tip rotation and gentle downward pressure to provide the penetrating action.
    4. **Note:** If the driver stalls and will not penetrate the bone you may be applying too much downward pressure.
J. Remove power driver and stylet
K. Confirm catheter stability

L. Attach primed EZ-Connect® extension set to catheter hub's luer lock. DO NOT ATTACH A SYRINGE DIRECTLY TO THE EZ-IO CATHETER HUB
M. Flush the EZ-IO PD catheter with 5 ml of normal saline
   1. Prior to flush consider the aspiration of a small amount of blood to confirm placement.
   2. Consider IO lidocaine (0.5 mg/kg of 2% solution) for conscious patients prior to flush
   3. No Flush = No Flow. Failure to appropriately flush the IO catheter may result in limited or no flow
N. Apply dressing
O. Administer fluids as medications as indicated
P. Frequently monitor the insertion site for extravasation

Procedure for Manual IO:

A. Assemble equipment:
   1. Proper size IO needle with short extension tubing, 3-way stopcock, 10-12 cc syringe, 35-60 cc syringe for fluid bolus, betadine, roll gauze, tegaderm dressing
B. Site Selection:
   1. The proximal tibia is the site of choice. Avoid using a leg that has been traumatized or infected.
C. Site Preparation:
   1. Palpate the landmarks and note the entry point that is the anteromedial flat surface 1-3cm below the tibial tuberosity.
   2. Prep the surface with Betadine and dry with a sterile gauze pad.
   3. If the patient is particularly small, it may be helpful to preadjust the length of the exposed needle prior to insertion in order to prevent insertion too deeply.
D. Insert Needle:
   1. Insert at the proximal tibial site at a 90 degree angle, perpendicular to the axis of the bone.. The needle should penetrate the skin and subcutaneous tissue and be pushed through the cortex of the bone using rotation (avoid rocking the needle!), until a "pop" or loss of resistance is felt. Placement in the marrow should then be confirmed by firm fixation of the needle, and either:
      a. Removal of the stylet with free aspiration of marrow or blood.
      b. Infusion of 2-3cc of NS, palpating for extravasation or noting significant resistance. If extravasation should occur, further attempts in the same leg should be avoided.

E. Consider IO lidocaine (0.5 mg/kg of 2% solution) for conscious patients prior to flush
F. Start Infusion:
   1. Pressurized infusions may be needed during resuscitation. The best method of infusing medications is via an infusion pump. If this is not available, then pressure must be applied to the IV bag in order to maintain flow rates. Continually monitor the rate of infusion.

IV MANAGEMENT

IV ACCESS AND INFUSIONS

Indications:

A. Normal Saline is indicated for replacement of fluid volume losses such as in trauma, burns, dehydration, or shock.

Procedure:

A. IV access:
   1. Establish IV access and prepare NS.
   2. Connect an extension set between the IV hub and the solution bag and tubing. All IVs will be started using macrodrips, unless otherwise indicated.

B. All IV accesses shall have the following information provided at the IV site, as well as on the patient record:
   1. Initials
   2. Time/Date
   3. Catheter size

C. IV Medication Infusions using an infusion pump:
   1. Establish IV access and prepare solution.
   2. Connect IV tubing to infusion pump according to manufacturer's directions.
   3. Begin infusing solution at the appropriate rate.

Precautions:

A. NS should be used with caution in patients with renal impairment (hyperkalemia), cardiac and respiratory disorders (fluid overload), or extremes of age.

ORAL/NASOGASTRIC TUBE PLACEMENT

Indications:

A. To alleviate gastric distention which is inhibiting effective ventilation in an intubated patient.

Procedure:

A. Assemble equipment:
B. Proper size Gastric Tubes (12 or 18 french), lubricant, 30 or 60 cc syringe, suction unit.
C. Measure tube length from nose to tip of earlobe and then to xiphoid process.
D. Select nostril.
E. Lubricate end of tube (6-8 inches)
F. Position head in slightly flexed position if no spinal precautions.
G. Gently insert and advance toward posterior nasopharynx and into stomach.
H. Confirm location by:
   1. Aspirating gastric contents
   2. Placing stethoscope over epigastrium and auscultate while inserting 20-30 cc of air into the tube.
I. Secure tube in place with tape.
J. Mark and document tube size and depth.

Precautions:

A. Do not use in patients with obvious skull fracture or severe head/facial injuries with suspected skull fracture.
B. Do not use in patients with known esophageal varices or who have had caustic substance ingestion

PACING - CARDIAC

LIFEPAK 12

Definition:

Non-invasive pacing is the technique of electronic cardiac pacing accomplished by using Quick-Combo electrodes to pass repetitive electrical impulses through the thorax.

Indications:

Non-invasive pacing should be considered in bradycardia with evidence of inadequate perfusion, (e.g., hypotension, altered mental status).

Procedure:

A. Ensure ECG pads are attached and monitor displays a rhythm.
B. Attach pacing electrodes to anterior-lateral position. If there is difficulty in obtaining capture, try alternative anterior-posterior position.
C. Connect therapy electrodes to the therapy cable.
D. Press PACER. Confirm the LED illuminates, indicating that the pacemaker power is on. Observer the ECG rhythm. Confirm that a triangle sense marker appears near the middle of each QRS complex. If the sense markers do not appear, or are displayed in the wrong location (e.g. on the T-wave), adjust ECG Size or select another lead. It is normal for the sense marker location to vary slightly on each QRS complex. Begin pacing at a heart rate of 80 beats per minute and 30mA current output.
E. Increase current by increments of 10mAs while observing monitor for evidence of electrical capture. Confirm mechanical capture by checking pulses and BP.
F. If patient is comfortable at this point, continue pacing. If patient is uncomfortable, administer Midazolam 0.025 mg/kg increments, max of 2 mg/increment, or if no IV, 4.0 mg IM.
G. If patient still complains of pain during pacing despite reduced current output, repeat dose of Midazolam and contact OLMC.
H. If the patient remains unconscious during pacing, assess capture by observing the monitor and evaluating pulse and blood pressure changes. In the event of electrical capture and no pulses, follow PEA protocol.
I. If there is no response to pacing and drugs, consult with OLMC. If a change in pacing rate is desired, contact OLMC.

Precautions:

A. Transcutaneous pacing should not be used in the following settings:
    1. Patients meeting death in the field criteria.
    2. Patients in traumatic cardiac arrest.

Pediatric Patients: (Child age less than 14)

A. Use above guidelines except:
   1. Use anterior/posterior pad placement first for patients less than 1 year.
   2. Begin pacing at 0 mA output.

B. Increase current in increments of 10 mA's while observing monitor for evidence of electrical capture. Confirm mechanical capture by checking pulses and BP. Contact OLMC for adjustments to rate based on age and response to pacing.

QUICK CLOT

SWAT MEDICS ONLY

Treatment:

A. Monitor vital signs
B. Prepare patient for rapid transport
C. Treat for hypovolemic shock, including a 500cc bolus may repeat to maintain a systolic blood pressure of 90.
    1. Use direct pressure to control bleeding.
    2. Use pressure dressing to control bleeding.
    3. Use pressure points to control bleeding.
    4. If these fail to control bleeding use a tourniquet on extremity wounds (consider use of Combat Application Tourniquet).
D. If all bleeding control methods fail or unable to use a tourniquet due to trunk or head injury, quick clot may be used. Quick Clot should only be used as a last resort and after at least 3 minutes of bleeding control.

Quick Clot ACS Usage:

A. Wipe excessive blood and water from wound. No water should be near wound. A possible exothermic reaction may occur if water is present.
B. Remove the number of ACS bandages required to completely cover the wound. (Two to a package)
C. Completely cover the wound and apply direct pressure over the ACS bandage for 3 minutes.
D. Do not throw out the package of Quick Clot; it must be given to the emergency room staff for removal instructions.

Precautions:

A. Sucking chest wounds may develop into a tension pneumothorax after application of Quick Clot.
B. Spurting blood is a potential hazard.
C. Head and scalp wounds, patients should be warned of heat generated by quick clot.
D. Exothermic reaction possible with water may generate heat greater than 140 degrees.
E. Avoid using on face.
F. Thermal burns are a possible side effect; lab tests reveal possible temperature up to 140 degrees in rare cases.

General Information:

A. Quick Clot is made from volcanic rock.
B. Quick Clot ACS comes packaged in the form of a bandage.
C. Quick Clot has a 3 year shelf life
D. Can be stored in high temperature areas and will not freeze.
E. Many emergency rooms are not familiar with Quick Clot, removal instructions are printed on package. At no time should field personnel remove Quick Clot ACS bandage due to the possibility of uncontrollable hemorrhage from the wound.

RESTRAINING OF PATIENTS

PHYSICAL & CHEMICAL RESTRAINTS

Purpose:

Patient restraints should be utilized only when necessary and in those situations where the patient is exhibiting behavior that presents a danger to the patient and/or others.

Procedure:

A. Physical Restraint Guidelines:
   1. Use the minimum number of physical restraints required to accomplish necessary patient care and ensure safe transportation (Soft restraints may be sufficient). If law enforcement or additional manpower is needed, call for it prior to attempting restraint procedures. Do not endanger yourself or your crew.
   2. Avoid placing restraints in such a way as to preclude evaluation of the patient's medical status.

B. Physical Restraint Procedure:
   1. Place patient face up on long backboard.
   2. Secure ALL extremities to backboard. Try to restrain lower extremities first using flexcuffs around both ankles. Next, restrain the patient's arms at his/her sides.
   3. If necessary, utilize cervical spine precautions (tape, foam bags, etc.) to control violent head or body movements.
   4. Secure the backboard onto gurney for transport using additional straps if necessary. Remember to secure additional straps to the upper part of the gurney to avoid restricting the wheeled carriage.
   5. Evaluate the patient's respiratory and cardiac status every few minutes to ensure that no respiratory compromise exists. Monitor SAO_2. Evaluate distal pulses and circulation every few minutes to ensure that no circulatory compromise exists.
   6. DO NOT tighten chest straps to the point that they restrict breathing.

C. Chemical Restraint Guidelines:
   1. Sedative agents may be used to provide a safe method of restraining the violently combative patient. These patients may include alcohol and/or drug-intoxicated patients and restless, combative, head-injury patients.

D. Chemical Restraint Procedure:
   1. Evaluate the personnel needed to safely attempt restraining the patient.
   2. Prepare for possible hypotensive side effects.
   3. Administer Midazolam 0.025 mg/kg increments, max of 2 mg/increment IV or IM tritrate to effect. Assess vital signs q 5 minutes. Contact OLMC for additional sedation.

4. Follow altered mental status protocol to address possible causes of combativeness.

Precautions:

A. Patients, who are restrained, particularly in a prone position, are at risk for asphyxia and sudden death. Constant evaluation of the patient's respiratory status is necessary.
B. Only the minimum amount of restraint is to be used on the patient's chest area.
C. Hypoxia may be a cause of combativeness.

STROKE ALERT

Definition:

Patients in the pre-hospital setting that are suffering from possible acute ischemic stroke symptoms with time of onset clearly defined FIVE (5) HOURS or less. A "Stroke Alert" to the receiving hospital will be issued.

Indications:

Some of the following signs of acute ischemic stroke that are not related to a traumatic event must be present before a "Stroke Alert" is issued.

A. Patients with new onset of:
   1. Unilateral weakness
   2. Unilateral numbness
   3. Slurred speech
   4. Facial drooping
   5. Not suffering from hypoglycemia

B. Focused assessment to obtain patient's medical history, and a clearly defined time of symptom onset. If family or friends are present they may know when the patient was normal (free from symptoms) if possible have them ride to the hospital with the patient.

C. TIA's are not to be considered a field diagnosis and should be treated as an acute neurological deficit.

Procedure:

A. Aggressive airway management and 0_2 therapy. Aspiration is frequent in acute stroke because of loss of airway reflexes and intubation may be necessary.

B. Assess patient for signs of trauma since frequently the onset of stroke may involve the patient falling.

C. IV per guidelines with blood draw and glucose check.

D. Further ECG monitoring
   1. Transport – 12 Lead
   2. Non-transport – multi-lead
   3. Transport expeditiously to nearest state approved stroke center, unless patient/family member signs waiver of recommended hospital destination.

E. Notify dispatch of a "Stroke Alert" Advise receiving facility, age of patient, and time of onset of symptoms. This should be done as soon as possible after patient contact.

STROKE ALERT CHECKLIST				
DATE & TIMES				
Date:	Dispatch Time:	EMS Arrival Time:	EMS Departure Time:	ED Arrival Time

BASIC DATA					
Patient Name:		Age:		Gender:	
Witness Name:		Witness Phone:			
Last Time Without Symptoms:					
Blood Glucose (if possible):					

HISTORY	**YES**	**NO**
Severe Headache		
Head Trauma at Onset		

EXAMINATION		**√ IF ABNORMAL**
Subaracnoid Hemmorrhage?	Level of Consciousness (AVPU)	
	Neck Stiffness (cannot touch chin to chest)	
Prehospital Stroke Scale	Speech (repeat "You can't teach an old dog new tricks")	
	Facial Droop (show teeth and smile)	
	Arm Drift (close eyes and hold out both arms)	

STROKE ALERT CRITERIA	**YES**	**NO**
Time of onset less than 5 hours?		
Any abnormal finding on examination?		
Deficit not likely due to head trauma?		
Blood glucose greater than 50 (if fingerstick possible)?		

IF ANSWER IS YES TO ALL STROKE ALERT CRITERIA,
CALL STROKE ALERT AND TRANSPORT PATIENT URGENTLY
TO THE NEAREST APPROPRIATE "STROKE CENTER"
EN ROUTE, PERFORM MORE COMPLETE NEURO ASSESSMENT IF TIME ALLOWS

DESTINATION STROKE CENTER		STROKE CENTER CONTACT	

SUCTIONING

Indications:

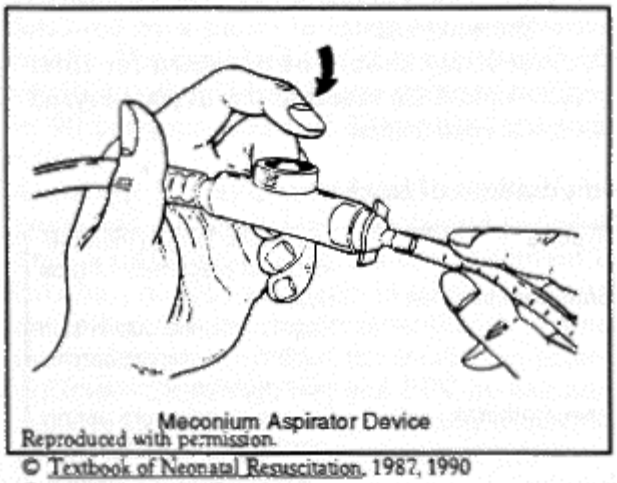
When patient is exhibiting respiratory difficulty secondary to secretions in airway or the potential for aspiration exists.

Procedure:

A. Oral Suctioning
   1. Pre-oxygenate patient with 100% oxygen.
   2. Assemble equipment: Suction unit with yankauer or other appropriate catheter, use personal protective equipment (gloves, goggles, gown).
   3. Attach required monitoring equipment.
   4. Turn suction unit on and confirm mechanical suction is present.
   5. Insert tip without suction.
   6. Turn unit on. Cover thumbhole to begin suction if applicable.
   7. Apply suction for less than 15 seconds.
   8. Monitor patient's oxygen saturation.
   9. Re-oxygenate patient for at least 2 – 3 minutes between suction attempts.

B. Tracheal Suctioning
   1. Pre-oxygenate patient with 100% oxygen.
   2. Assemble equipment: Suction unit, correct size suction catheter, sterile rinse, and personal protective equipment (gloves, goggles, gown).
   3. Attach required monitoring equipment.
   4. If patient is being ventilated with BVM prior to suctioning, have someone else remove the bag from end of ET tube prior to suction attempt.
   5. Insert catheter into the ET tube without applying suction.
   6. Advance catheter as far as possible. Withdraw slowly using intermittent suction while rotating catheter.
   7. Do not suction more than 10 seconds.
   8. Monitor patient's oxygen saturation.
   9. Rinse catheter in sterile saline.
   10. Re-oxygenate patient for at least 2 – 3 minutes between suction attempts.

C. Suctioning with Meconium Aspirator
   1. If meconium is lightly stained and newborn is vigorous do not suction infant.
   2. Assemble equipment: Suction unit, appropriate size ET tube, personal protective equipment (gloves, goggles, gown.
   3. Attach required monitoring equipment.
   4. Turn suction unit on and confirm mechanical suction is present.
   5. After infant has been intubated, attach meconium aspirator to end of ET tube.
   6. Cover thumbhole to begin suctioning while slowly withdrawing the ET tube. (See diagram below)
   7. Do not suction for more than 10 seconds.
   8. Monitor patient's oxygen saturation and heart rate and stop if patient becomes bradycardic.
   9. Re-oxygenate patient for at least 2 – 3 minutes between suctioning attempts.
   10. If patient has not been intubated and meconium is thick, at the least, aggressive oropharyngeal suctioning should be carried out with the largest diameter suction device available.



Meconium Aspirator Device

Precautions:

Oral and tracheal suctioning is potentially traumatic and dangerous, not only because of the possible trauma to the oropharynx and airway but also because of the risk of bradycardia, hypoxia, and an increased delay in resuscitation.

TENSION PNEUMOTHORAX

CHEST DECOMPRESSION

Definition:

The emergency decompression of a tension pneumothorax using an over-the-needle catheter and a one-way valve.

Indications:

Some of the following signs of simple pneumothorax as well as some of the signs of tension pneumothorax must be present before decompression is undertaken:

A. Tension pneumothorax (indications):
   1. Consistent history, i.e., chest trauma, COPD, patient on positive pressure ventilation.
   2. Shock, low BP or rapidly decreasing BP.
   3. Progressive respiratory distress.
   4. Tracheal shift away from affected side (late sign).
   5. Distended neck veins.
   6. Asymmetrical movement on inspiration.
   7. Hyperexpanded chest on affected side.
   8. Drum-like percussion on affected side.
   9. Increased resistance to positive pressure ventilation, especially if intubated.

B. Simple or non-tension pneumothorax is relatively common, is not immediately life threatening, and should not be decompressed in the field.

Procedure:

A. Expose the entire chest.
B. Clean chest vigorously with alcohol or Betadine in the area of the mid-axillary line at the level of the nipple or in the area of the mid-clavicular line at the second/third intercostal space. Mid-clavicular is the preferred site.
C. On affected side, locate the site and insert needle/angiocath over the superior margin of the appropriate rib until the chest is entered.
D. After the air has escaped, monitor breath sounds. Leave the catheter in place and secure with sterile 4X4's and tape.
E. Reassess and continually monitor, including end tidal CO_2 and pulse oximetry.

G. To control severe pain:
   1. Fentanyl 25 mcg increments to effect up to 50 mcg for an adult. If administering more than 50 mcg fentanyl, consider administering ondansetron hydrochloride 4 mg undiluted IV over 2 to 5 minutes. Contact OLMC if more than 50 mcg of fentanyl is needed.

COMBAT APPLICATION TOURNIQUET (CAT)

Indications:

To stop bleeding when:

A. Life-threatening limb hemorrhage is not controlled with direct pressure or other simple measures, as may occur with a mangled extremity.

B. Traumatic amputation has occurred.

Procedure:

A. Placement
   1. Expose the extremity by removing clothing in proximity to the injury.
   2. Place directly over exposed skin at least 5 cm proximal to the injury.
   3. Route the self-adhering band across the extremity.
   4. Pass the band through the outside slit of the buckle.
   5. Pull the self-adhering band tight.
   6. Twist the rod until bright red bleeding stops.
   7. Lock the rod in place with the clip.
   8. Record the date/time of application on the tourniquet and TK along with time on the forehead (may utilize a piece of tape).

B. Evaluation
   1. The tourniquet is effectively applied when there is cessation of bleeding from the injured extremity, indicating total occlusion of arterial blood flow.
   2. Any preexisting distal pulse should be absent at that time as well.

C. Tourniquet time and removal
   1. Tourniquets should be removed as soon as possible under conditions where the hemorrhage can be directly controlled.
   2. Tourniquet placement must be communicated in patient reports for all pre-hospital to hospital and inter-hospital transfers.
   3. Tourniquet time greater than 6 hours is associated with distal tissue loss.

OCALA/MARION COUNTY EMERGENCY MEDICAL SERVICE

MEDICAL OPERATIONS

Originally Issued
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ADVANCE DIRECTIVES/DNRO

Purpose:

This EMS system believes in respect for patient autonomy. The patient with decision-making capacity has the right to accept or refuse medical intervention. This includes the right to specify, in advance, patient preferences when the person is no longer able to communicate wishes.

Procedure:

A. The EMS system shall honor a DNRO (Do Not Resuscitate Order) that the EMTP sees in writing under the following circumstances:
   1. Do Not Attempt Resuscitation: In the pulseless and apneic patient who does not meet the criteria of the DEATH IN THE FIELD protocol, but is suspected to be a candidate for withholding resuscitation, BLS procedures will be followed until one of the following occurs:
      a. The EMTP sees a written DNRO order, which should be honored and resuscitation stopped.
      b. The patient's physician is contacted and directs EMTP to discontinue resuscitation and a valid Advance Directive or Directive to Physician is seen and directs not to continue resuscitation.
      c. If family member is present and advising of a DNR but is unable to produce the document, contact OLMC for direction.
      d. OLMC directs the EMT's not to continue resuscitation.
   2. DO NOT RESUCITATE ORDER only applies if the patient is in cardiopulmonary arrest.
   3. For patients with a DNR who are not pulseless, begin BLS procedures and consult OLMC for further airway management.

Definitions:

A. Do Not Resuscitation Order (DNRO): An order written by a physician stating that in the event of cardiopulmonary arrest, cardiopulmonary resuscitation will not be administered. DNRO orders apply only if the patient is pulseless and apneic. The properly completed form will be signed by the patient, or patient's representative and the physician. If form is not on yellow paper, or is questionable as to completeness, contact OLMC.
B. Health Care Instruction: A document executed by a person to indicate the person's instructions regarding health care decisions.
C. Advance Directive: A document that contains a health care instruction or a power of attorney for health care.

D. Living Will: A document that may confirm an Advance Directive or Directive to Physician informing her/him that if the patient has a terminal illness and death is imminent, the patient would not wish to be placed on artificial life support that will only prolong the process of dying. In general, the traditional Living Will document alone is not helpful in the out-of-hospital setting because of its multiple restrictions and lack of clarity on when it should take effect.

E. Attorney in Fact: An adult appointed to make health care decisions for a person.

F. Durable Power of Attorney for Health Care (DPAHC): A power of attorney executed and still in effect that authorizes an attorney-in-fact to make health care decisions for a person when the person is incapable. When an attorney-in-fact speaks, it is as if the patient is expressing wishes.

G. Power of Attorney for Health Care (PAHC): Power of attorney document executed that authorizes an attorney-in-fact to make health care decisions for a person when the person is incapable.

CONTINUITY OF PATIENT CARE

The purpose of this protocol is to describe the transfer of an individual patient on the scene of medical emergencies between various EMS care providers and how to resolve disputes that may arise over transfer of patient care.

Procedure:

A. EMT's/Paramedics/Other Pre-hospital Providers On-Scene: The first arriving, highest certified EMS provider available to perform patient care on the scene will be the Medical Person-In-Charge (MPIC) of his/her particular patient and will assume responsibility for directing that patient's overall care. A team approach to patient care, assessment, and treatment shall be utilized by all medical providers on scene, regardless of agency.

B. When a higher-level EMS provider arrives, in an EMS role, that individual shall assume the role of MPIC, after receiving verbal report from the initial MPIC.

C. Where a non-transporting (dual-role fire services/EMS) EMT or Paramedic is MPIC at an incident involving multi-function response (e.g., automobile extrication, fire, technical rescue scene, etc.), that MPIC shall relinquish MPIC responsibilities as early as practical, in his or her discretion, and follow accepted Incident Management System (IMS) procedures and directives of the on-scene Incident Commander (IC), to single role (e.g. transporting ambulance) personnel.

D. The responsibilities of the MPIC directing a specific patient's care include:
   1. Assuring that treatment, operations, and communications follow protocols and standard operating guidelines.
   2. Coordinating patient care activities. This MPIC must watch over the scope of a specific patient's care and be sure that the patient care activities are being accomplished in a rapid, efficient, and appropriate manner.
   3. Directing other EMS personnel to perform appropriate EMS interventions.
   4. Establishing the appropriate time to be spent at the scene for doing patient care.
   5. Determining when transportation of the patient is to occur.
   6. Performing medical coordination with all agencies and personnel with respect to that specific patient

E. The MPIC directing a patient's overall care will be held responsible and accountable for patient care activities performed at the scene and be identified on all patient care reports.

F. If a patient requires transport and the first arriving MPIC is from a non-transporting agency, provision of patient care will be turned over to the transporting Paramedic or aeromedical provider personnel when:
   1. At a time agreed upon by the initial MPIC and the transport Paramedic prior to the patient being placed on the transport unit's gurney, OR
   2. The patient is placed on the transport unit's gurney.

3. Continued patient care will then become the responsibility of the transporting unit. There will be a verbal report and agreement any time transfer of care from one EMS provider to another takes place.

G. For patients transported to a receiving facility, the Paramedic will provide a complete verbal report to the appropriate staff at the time of patient transfer. They will also provide the receiving facility with written documentation in accordance with requirements by the Florida Department of Health and local policy. When possible, the PCR should be completed prior to leaving the facility.
   1. For patients transported to Shands at UF, the verbal report will be provided AFTER the patient has been transferred to the facility's gurney.

Disputes On-Scene Between EMS Providers or Other Medical Professionals:

A. Disagreements about care should be handled in a professional manner and shall not detract from patient care. Where there is a disagreement concerning the assessment of a patient's condition or the treatment to be provided, the decision of the person then serving as MPIC shall govern and all team members will implement the MPIC's directions. Disputes or disagreements shall not take place in the presence of patients, family, bystanders, etc. This paragraph does not prohibit individuals other than the MPIC from making suggestions or recommendations provided that those are made in a collegial, respectful, and professional manner.

B. To the extent possible, the patient care protocols shall be followed and provide the basis for resolving disputes. After the call is completed, the dispute shall be documented and presented, via the chain of command, to the Medical Director for resolution.

C. If an unresolved dispute regarding appropriate patient medical care continues between EMS providers or other medical professionals concerning the care of a patient, OLMC shall be contacted by the MPIC.

D. If a dispute arises during a call in which the MPIC responsibility changes, or which results in transfer of patient care from one MPIC to another, the approximate time of the transfer shall be included on the patient care report. Documentation should include a comment or line in the flow chart that states, e.g., "1430 hrs. Paramedic Smith assumed MPIC of this patient from EMT Jones."

E. DISPUTES SHALL NOT APPEAR ON PATIENT CARE REPORTS. Separate written documentation will be completed and forwarded through the chain of command of each involved organization.

Physician On-Scene Policy (Within Office):

A. When EMS is called to a physician's office, the EMT's and paramedics should receive information from the physician in an attempt to provide the service requested by the physician.
B. While in the physician's office, the physician shall remain in charge of the patient. The EMT's and paramedics may follow the direction of the physician as long as it is within the Scope of Practice and protocols of the MPIC. Anytime there is a conflict between a physician's orders and the protocols, OLMC shall be contacted.
C. Once the patient is in the ambulance, unless the physician accompanies the patient, paramedics shall follow the protocols.

Physician On-Scene Policy (Outside Office):

A. Any physician (MD or DO) at the scene of an emergency may be qualified to provide assistance to EMT's and paramedics and shall be treated with professional courtesy.
B. A licensed physician requesting control patient care at the scene shall be:
    1. Thanked for the offer by the MPIC.
    2. Advised that the EMT's and paramedics work under regional protocols and on-line medical control.
    3. Advised that we are not permitted to relinquish medical control to a physician on the scene without agreement from OLMC.
C. If the physician requesting control is not the patient's "physician of record," EMT's and paramedics shall be authorized to proceed under the direction of the physician ONLY IF ALL THREE OF THE FOLLOWING PROVISIONS ARE MET:
    1. OLMC is contacted and authorized transfer of patient care.
    2. The physician agrees to accompany the patient to the hospital in the ambulance.
    3. The physician agrees to complete and sign the appropriate patient care report.
D. If communication with OLMC cannot be established, care may be provided only according to approved ALS protocols. No direction from an on-scene physician may be accepted.

CRIME SCENE RESPONSE

Purpose:

Law enforcement agencies stress that their first priority on any crime scene is the preservation of life with reconstruction of the crime scene second. EMS personnel can be of assistance by adhering to the following guidelines regarding crime scene response.

Procedure:

A. Response and Arrival
   1. Be conscious of physical and weather conditions around the site. Tire tracks of suspect vehicles are often located in or adjacent to a driveway.
   2. Limit the number of personnel allowed onto the scene. Consult with police on the scene to direct placement of vehicles and route of personnel onto the scene.

B. Access and Treatment
   1. Select a single route to the victim. Maintaining a single route decreases the chance of altering or destroying evidence or tracking blood over a suspect's footprints.
   2. Note the location of furniture, weapons, and other articles, and avoid disturbing them. If they need to be moved, someone should note the location the article was moved from, by whom it was moved, and where it was placed.
   3. Remove from the scene all EMS generated debris that is contaminated with blood or body fluid and dispose of through established channels.
   4. Be conscious of any statements made by the victim or other persons at the crime scene. Write down what these statements were and report to the investigating officers.
   5. Note the specific garments worn by the patient at the time of treatment. It is also important not to tear the clothing off or cut through any holes, whether made by a knife, bullet, or other object.
   6. The victim should be placed on a clean sheet when ready for transport. At the hospital, please try to obtain the sheet once the victim is moved off of it, fold it carefully in on itself, and give it to the investigating officers. This is especially important in close contact crimes such as rape, serious assault and death cases.
   7. Transport destination decisions are made by the transport unit, not law enforcement.

C. Documentation

1. A detailed report is important in case you are later called to testify in court. An incident report should be completed and should cover your observations, conversations with family or witnesses, location of response vehicles and equipment, furniture, weapons, clothing that has been moved, items that were handled and your route to the victim.
2. Do not offer your opinions or evaluations about the crime scene.

Reminder:

Any location can be, or may become, a crime scene. When responding, and upon arrival, if something does not appear to be right, notify police. If you suspect a crime scene and police are not present, secure area and document what you see. Ultimately, law enforcement has decision making authority in regards to scene preservation and security.

DEATH IN FIELD (DIF)

Purpose:

The purpose of the Death in the Field Protocol is to define under what conditions medical care can be withheld or stopped once it has been started. Death in the Field only applies to those patients who have not been loaded into a transport unit for transport to a receiving facility.

Procedure:

A. Resuscitation efforts may be withheld if:
B. The patient qualifies is a "DNRO". (See DNRO Protocol)
C. The patient is pulseless and apneic in a mass casualty incident or multiple patient scene where the resources of the system are required for the stabilization of living patients.
D. The patient is decapitated.
E. The patient has rigor mortis in a warm environment.
F. The patient is in the stages of decomposition.
G. The patient has skin discoloration in dependent body parts (dependent lividity).

Any time a DIF is called (whether prior to or after resuscitation efforts) the MPIC shall notify the Medical Examiner or Law Enforcement.

Specific Guidelines for:

A. TRAUMATIC ARREST:
   1. A victim of trauma (blunt or penetrating) who has no vital signs in the field may be declared dead on scene. A cardiac monitor may be beneficial in determining death in the field when you suspect a medical cause or hypovolemia (a narrow complex rhythm with a QRS less than .10 suggests profound hypovolemia, which may respond to fluid resuscitation).
   2. At a trauma scene, the paramedic should consider the circumstances surrounding the incident, including the possibility that a medical event (cardiac arrhythmia, seizure, and hypoglycemia) preceded the accident. When a medical event is suspected, treat as a medical cardiac event. VF should raise your index of suspicion for a medical event.

B. MEDICAL CARDIAC ARREST:
   1. Patient's ECG shows asystole or dying heart rhythm upon initial monitoring at least two leads, the MPIC shall follow one of the following two choices:
      a. If in the paramedic's judgment (down-time, scene issues, etc.) the patient would not benefit from resuscitation, begin BLS procedures and contact OLMC with available patient history, current condition, and with a request to discontinue resuscitation.

b. If there is potential for resuscitation (unknown down-time, etc.) then the Asystole protocol should be followed until a maximum of 3 mgs of Atropine has been administered. If the patient's ECG remains unchanged or declines to Asystole from a dying heart rhythm (after checking in all leads), the MPIC may contact OLMC to request to discontinue resuscitation.

2. The patient who has PEA and has not responded to the initial cycle of ACLS may be determined to be dead at the scene after appropriate consultation with OLMC.
3. All patients in VF should be treated and transported.

DOCUMENTATION

Purpose:

To provide guidelines that specify the minimum documentation required after any patient contact.

Procedure:

A patient care report shall be completed for each patient seen, evaluated, treated, and/or transported. MPIC shall provide the receiving caregiver with the completed Ocala/Marion County EMS Patient Evaluation form and rhythm/12-lead documentation upon patient transfer. When possible, the PCR should be completed prior to leaving the facility.

Patient Care Form

A. At a minimum, documentation shall include:
   1. The patient's name
   2. Date of birth
   3. Allergies and medications
   4. Chief Complaint
   5. Narrative, to include subjective information (history), objective findings, assessment, and plan of action including treatment rendered. (See "Key Considerations" in each protocol for hints)
   6. Vital signs and OLMC contacts
   7. Any changes in patient condition, whether related to treatment or not
   8. All medications, dosages, and times of administration
   9. All procedures, invasive or otherwise, including times and outcome
   10. Printed ECG strips to document baseline, pre-treatment and post-treatment rhythms (if, due to scene situation, this is not able to be completed, it should be documented in the narrative of the PCR).
   11. Documentation of application and result (or failure of result) of CPAP.
   12. Documentation of application and result (or failure of result) of capnography.
   13. Documentation of intubation
       a. Capnography
       b. Lung sounds
       c. Chest rise
       d. Visualize passing through vocal cords
   14. Name of person to whom care was transferred.

Adult and Pediatric Scorecard Methodology Forms

For all trauma alert patients, this form shall be completed by the MPIC who has designated the patient as a trauma alert (based upon the UTTP). This is a two-part form. The original of this form will be submitted through the normal report procedures to the agency of the personnel that called the trauma alert. The second copy of the form will be provided to the agency which will transport the patient to a facility (ground unit or air ambulance).

Incident Reports, Operational and Clinical Errors

A. Emergency Medical Service accepts that EMS is performed in a stressful environment with time-critical decisions, and these decisions often have to be made without the benefit of a careful risk-benefit analysis. Given these situations, it is expected that we as individuals will make mistakes. Our QI process is designed to be non-punitive, and clinical or operational problems that are reported in a timely, honest, and complete manner will be evaluated according to the following criteria:
   1. System problems (protocols, procedures, equipment, etc.)
   2. Education or Training problems
   3. Circumstances led to unusual operational decision
   4. Negligent behavior

B. Quality improvement staff has the obligation to identify system and educational problems and plan effective changes, ensuring that the results are measured through the QI process so that the desired improvement is achieved. Circumstances that lead to difficult scenes will be evaluated for their educational value, the case will be "blinded", and the information shared with other medics. Negligent behavior will be carefully evaluated as to its context (intentional or non-intentional), and appropriate improvement plans will be developed.

C. An Incident Report shall be completed any time one of the following situations occurs (there are NO exceptions):
   1. Major operational errors or problems on scene
   2. Any equipment failure during patient care
   3. Any time a clinical error is made, or there is a deviation from protocols or accepted practice
   4. Any on-scene conflict that is unresolved at the crew level
   5. Any repeated behavior problems with any agency.
   6. Any situation where the medic believes a crime has occurred

7. Any calls to incidents where abuse against the elderly or children is observed (see protocols)
8. Any other unusual event or occurrence

D. ALL Incident Reports will be sent through the appropriate chain of command.

GRIEVING PEOPLE

Purpose:

These guidelines are intended to provide paramedics with direction during the difficult emotional times immediately before and following death.

Resuscitation Phase:

A. Remove children from the resuscitation area. Depending upon the emotional state of family members, consider allowing them to watch and/or participate in a limited and appropriate way.
B. If family or friends were doing CPR prior to your arrival, commend their efforts even though they may have been inadequate.
C. If family or friends are disruptive, remove them, with as little force as necessary. Remember why they may be agitated. If there is no help to remove them, try assigning simple tasks, such as helping bring in the stretcher, holding doors open, telling other family about the event and calling the doctor or minister. Make requests. Don't give orders.
D. As time allows give accurate and truthful updates about the patient's prognosis.

Death Pronouncement:

A. After the decision to stop resuscitation efforts, certain practices can be employed for telling loved ones that will help them understand and begin their grieving process.
B. Tell family and friends of the death honestly. Avoid using past tense terms when speaking to survivors of the recently dead. Allow family and friends to express their emotions.
C. Give factual information. Knowing certain pertinent details will help family and friends de-mystify the death. These details could include an explanation of resuscitation efforts or why resuscitation was not attempted or, if appropriate, why the terminal event happened. Be honest with children.
D. Genuine warmth and compassion will be more helpful than almost anything else for survivors. Don't feel it necessary to say the "right" things. Listening often provides grieving people with the most comfort.

Focusing on the Survivors:

A. Friends and family may not be able to focus on what needs to be done after they learn about death of a loved one. See to it that survivors have a support system present before you leave. Call friends, family, clergy, or neighbors to be with them. Respect the survivor's wishes to be alone. Explain the next steps to them after you have pronounced death.
B. Help them to make decisions such as which people should be called. If they ask you to make the calls, try to comply, mention the need to find a funeral home, if one has not already been chosen. Clergy will also be helpful with this decision, as may the Medical Examiner's office.
C. The Medical Examiner's office shall be contacted and the paramedic shall obtain instructions from the Medical Examiner before moving, altering or cleaning the body.

Death of a Child:

A. Make every effort to resuscitate children. This helps parents feel that everything possible was tried. Do not accuse the parents of abuse or neglect, but take careful note of the patient surroundings and the general physical condition of the child. Do not be overly silent, which may imply guilt to the parents.
B. Do not allow the parents to drive themselves to the hospital. Remind parents to arrange for child care of other children.
C. Listen carefully to their statements and answer only with accurate information. If there is a police investigation, tell the parents that this is only routine. Successful management of child deaths requires supportive, compassionate and tactful measures.

HAZARDOUS MATERIALS: MEDICAL RESPONSE

Purpose:

Paramedics may be first on the scene of a hazardous materials situation because of shorter response times or no knowledge of dispatch that hazardous materials are involved. This protocol is intended to guide paramedics who do not normally function in hazardous materials scenes. If the scene you are responding to is a known or suspected (based on information from dispatch) hazardous materials situations stage and wait for the hazardous materials personnel. When you have arrived at the scene and find out during scene assessment that hazardous materials are involved, stage and wait for the hazardous materials personnel. All scenes (MVA, Industrial, etc.) should be considered as being a potential hazardous materials situation. The following approach procedure should be used:

Procedure:

A. Approach
   1. All scenes:
      a. Be cautious at all times.
      b. The reported location may be inaccurate, response into a contaminated area might occur.
      c. Approach upwind and upgrade if possible.
      d. Position vehicle well away from the incident.
      e. Communicate your actions to the Dispatch Center.
      f. Remember: contaminated and/or exposed response personnel may add to the overall problem and reduce their effectiveness to help.
   2. If at any time you suspect a hazardous materials situation:
      a. Confirm that fire and police have been notified. The agency responsible for hazardous materials responses may respond with different levels of personnel and equipment based upon the information received. Do not always expect a hazardous materials team to respond.
      b. If you are a first-in responder, the first priority is scene isolation.
      c. If you believe that you or your vehicle is contaminated, stage in an isolated area.

B. KEEP OTHERS AWAY! KEEP UNNECESSARY EQUIPMENT FROM BECOMING CONTAMINATED.

C. Person in Charge of Patient Care
   1. If the paramedic is the first medical person on the scene, he/she should assume the role of MPIC (medically) until a "hazardous materials trained paramedic"1 (HMP) or agency supervisor arrives. If at all possible the Incident Command Structure should be implemented.

2. The HMP or agency supervisor will direct all care.
3. The HMP or agency supervisor will determine the method of transport of the exposed patient (air vs. ground) in coordination with IC.
4. The HMP or agency supervisor will determine who will provide care during transport (HMP may remain in that position during transport).

D. Patient Care for the Contaminated Patient:
1. Types of incidents which may require decontamination of the patient:
   a. Radiation
   b. Chemical
   c. Biological hazards
   d. Toxic substances
2. Contamination can occur through:
   a. Smoke
   b. Vapor
   c. Direct contact
   d. Run off

E. Ambulance Preparation:
1. The HMP or agency supervisor shall determine the process needed for ambulance preparation.
2. Remove any supplies and equipment that will be needed for patient care
3. Seal cabinets and drape interior, including floor and squad bench, with plastic (available from hazardous materials team).

F. Transport and Arrival at the Hospital (if requested by "HMP or agency supervisor ")
1. If an ambulance has transported a patient from an incident that is subsequently determined to involve hazardous materials exposure, scene personnel must immediately relay all relevant information to the transporting unit(s) and/or receiving facility(s) involved (via dispatch).
2. Dispatch and the receiving hospital should be contacted as soon as possible. The paramedic should communicate the material involved, degree of exposure, decontamination procedures used, and patient condition.
3. The ambulance should park in an area away from the emergency room or go directly to a decontamination center or area.
4. Patient(s) should not be brought into the emergency department before paramedics receive permission from the hospital staff.
5. Once the patient(s) has been released to the hospital, follow the HMP or agency supervisor‘s direction and if necessary double bag the plastic sheeting used to cover the gurney and the floor. Double bag any equipment, which may have been contaminated.

6. After unloading the patient from the ambulance, check with the "HMP or agency supervisor" to see where the ambulance can be safely decontaminated and whether or not there is equipment available for this purpose. Do not begin decontamination without direction from the "HMP or agency supervisor". After consultation with the Hazardous Materials Team leader the HMP or agency supervisor may recommend that the ambulance be decontaminated.
7. Following decontamination recommendations from the "HMP or agency supervisor", decontaminate the ambulance and personnel before returning to the incident scene. When returning to the incident scene, bring bags containing contaminated materials, equipment, clothing, etc., and turn them over to the "HMP or agency supervisor ".

G. Associate Exposure
1. If an associate is exposed or is concerned with the possibility of exposure, medical help should be sought immediately through HazMat Medical Sector.
2. Report all exposures to the agency supervisor.
3. Do not return to service until cleared to do so through agency procedures.

INFECTION CONTROL PRACTICES

CLEANING MEDICAL EQUIPMENT

Purpose:

This protocol identifies equipment and its degree of risk for exposure to blood and body fluids. The degree of risk is divided into disposable, high, medium and low categories.

Definitions:

A. Disinfect
   1. Disinfection will not remove 100% of the infection-causing organisms. The effectiveness of a disinfectant will vary depending on its application. Anything that is going to be laid on the unbroken skin can be disinfected. If the item is going to come in contact with broken skin/mucus membrane then it must be sterilized to prevent infection.

B. Sterilize
   1. To remove all growth. An item that is going in the body or in contact with skin should be sterilized.

C. Decontamination
   1. The process of rendering an object, person, or area free of a contaminating substance such as bacteria, poison, gas, or a radioactive substance.

Categories:

A. Disposable (single use equipment)
   1. Oxygen masks, nasal cannulas, disposable airway devices and suction catheters
   2. Disposable extremity splints and bandages of all types
   3. Obstetric kits
   4. Emesis containers, disposable protective eyewear and face masks and disposable gowns
   5. Laryngoscope blades

B. High
   1. High-risk equipment decontamination measures shall consist of washing or wiping off the equipment to remove all particulate material before sterilizing it. Appropriate cleaning methods are described in the SOG's.
   2. Equipment
      a. McGill forceps

C. Intermediate
   1. Intermediate risk equipment decontamination measures shall consist of washing or wiping the equipment before disinfecting it. Appropriate cleaning methods are described in the EMS Infectious Disease SOG's.
   2. Equipment
      a. Stethoscope and sphygmomanometers
      b. Laryngoscope handle
      c. Vacutainer holders and syringe holder
      d. Traction splints, backboards and straps, KED and extremity splints
      e. Stretcher mattress and non-disposable linen

D. Low
   1. Low risk equipment decontamination measures consist of washing the equipment with soap or detergent.
   2. Equipment
      a. Monitor/defibrillation paddles
      b. Non-disposable eyewear and non-disposable gowns.

A. The pre-hospital guidelines are to be the primary guidelines for patient care. A "Physician's Orders Request" may be utilized should a situation fall outside the pre-hospital guidelines.

B. On-scene paramedics and EMT's are to contact the physician, or designee, at the receiving facility when requesting physician's orders. This ONLY applies to the four facilities within Marion County (Munroe Regional Medical Center, Ocala Regional Medical Center, West Marion Community Hospital, and Timber Ridge Emergency Center).

C. For those patients who are either not being transported, or are being transported out-of-county, the MPIC shall contact the on-duty physician for physician's orders. This will be rotated on a monthly basis between the emergency departments at ORMC and MRMC. The rotation schedule will be as follows:
   1. Odd months (January, March, May, July, September, November) MRMC will be the designated facility.
   2. Even months (February, April, June, August, October, December) ORMC will be the designated facility.

PATIENT DESTINATION

A. Munroe Regional Medical Center (MRMC) will accept all patients, except under the following circumstances:
   1. Ambulance diverted because a service is temporarily not available at MRMC.
   2. Trauma Alert patients, as classified by Unified Trauma Transport Protocols (UTTP), shall be transported to a State Approved Trauma Center (SATC) or to a State Approved Pediatric Trauma Referral Center (SAPTRC). Refer to Ocala/Marion County Prehospital Guidelines Trauma Transport Protocol for classifications and exceptions.

B. Timber Ridge Emergency Center (ECTR) will accept all patients, except under the following circumstances:
   1. Ambulance diverted because a service is temporarily not available at ECTR.
   2. Patients sustaining burn injuries, in accordance with Trauma Transport Protocols, that can safely be transported to the Burn Center at Shands at the University of Florida.
   3. Cardiac Alerts, as indicated per EMS protocols that may be best served by immediate cardiac catheterization at either MRMC or ORMC.
   4. Trauma Alert patients, as classified by Unified Trauma Transport Protocols (UTTP), shall be transported to a State Approved Trauma Center (SATC) or to a State Approved Pediatric Trauma Referral Center (SAPTRC). Refer to Ocala/Marion County Prehospital Guidelines Trauma Transport Protocol for classifications and exceptions.
   5. Stroke Alert patients, based on EMS protocols. These should be transported to nearest state approved stroke center, unless patient/family member signs waiver of recommended hospital destination.
   6. Women greater than 20 weeks gestation with obstetrical complaints, and not in imminent delivery status may be best served at MRMC.
   7. Violent patients, including Baker Acted patients, requiring considerable security personnel intervention, as the staff at ECTR may be at risk without adequate assistance.
   8. Patients with ROSC being treated under Therapeutic Hypothermia protocol.

C. Ocala Regional Medical Center (ORMC) will accept all patients, except under the following circumstances:
   1. Ambulance diverted because a service is temporarily not available at ORMC.
   2. Patients sustaining burn injuries, in accordance with Trauma Transport Protocols, that can safely be transported to the Burn Center at Shands at the University of Florida.
   3. Trauma Alert patients, as classified by Unified Trauma Transport Protocols (UTTP), shall be transported to a State Approved Trauma Center (SATC) or to a State Approved Pediatric Trauma Referral Center (SAPTRC). Refer to Ocala/Marion County Prehospital Guidelines Trauma Transport Protocol for classifications and exceptions.
   4. Pediatric patients, less than Age 16, shall be transported to MRMC by Local Community Standard, unless patient/family member signs waiver of recommended hospital destination.
   5. Women greater than 20 weeks gestation with obstetrical complaints, and not in imminent delivery status may be best served at MRMC.

D. West Marion Community Hospital (WMCH) will accept all patients, except under the following circumstances:
   1. Ambulance diverted because a service is temporarily not available at WCMH.
   2. Patients sustaining burn injuries, in accordance with Trauma Transport Protocols, that can safely be transported to the Burn Center at Shands at the University of Florida.
   3. Cardiac Alerts, as indicated per EMS protocols that may be best served by immediate cardiac catheterization at either MRMC or ORMC.
   4. Trauma Alert patients, as classified by Unified Trauma Transport Protocols (UTTP), shall be transported to a State Approved Trauma Center (SATC) or to a State Approved Pediatric Trauma Referral Center (SAPTRC). Refer to Ocala/Marion County Prehospital Guidelines Trauma Transport Protocol for classifications and exceptions.
   5. Pediatric patients, less than Age 16, shall be transported to MRMC by Local Community Standard, unless patient/family member signs waiver of recommended hospital destination.
   6. Women greater than 20 weeks gestation with obstetrical complaints, and not in imminent delivery status may be best served at MRMC.
   7. Patients with ROSC being treated under Therapeutic Hypothermia protocol.

E. Villages Regional Hospital
   1. Patients sustaining burn injuries, in accordance with Trauma Transport Protocols, that can safely be transported to the Burn Center at Shands at the University of Florida.
   2. Trauma Alert patients, as classified by Unified Trauma Transport Protocols (UTTP), shall be transported to a State Approved Trauma Center (SATC) or to a State Approved Pediatric Trauma Referral Center (SAPTRC). Refer to Ocala/Marion County Prehospital Guidelines Trauma Transport Protocol for classifications and exceptions.
   3. Pediatric patients, less than Age 16, shall be transported to MRMC by Local Community Standard, unless patient/family member signs waiver of recommended hospital destination.
   4. Women greater than 20 weeks gestation with obstetrical complaints, and not in imminent delivery status may be best served at MRMC.
   5. Stroke Alert patients, based on EMS protocols. These should be transported to nearest state approved stroke center, unless patient/family member signs waiver of recommended hospital destination.

PSYCHIATRIC PATIENT TRANSPORT

Patients with life threatening medical problems (despite their psychiatric condition) should be taken to the closest appropriate hospital.

Procedure:

A. After a thorough history and physical exam of a psychiatric patient is completed, and the patient is deemed not to have a life threatening medical condition, the patient will be transported to The Centers by appropriate law enforcement agency whenever the paramedic can ascertain that the following conditions are met:
   1. Patient has a primary psychiatric problem without acute medical needs.
   2. Patient has not apparently taken any substance, which would require medical management (including, but not limited to: excess alcohol, stimulants, CNS depressants, aspirin, Tylenol).
   3. Patient is able to cooperate for an exam (IT IS NOT THE PARAMEDIC'S RESPONSIBILITY OR RIGHT TO DECIDE A PATIENT IS "FAKING" A DECREASED LEVEL OF CONSCIOUSNESS).
   4. Patient is not under the age of twelve or over the age of fifty with a first-time psychosis.
   5. Patient is not complaining of a medical problem that in and of itself warrants a doctor's assessment (e.g. chest or abdominal pain).
   6. Patient does not require chemical restraint in order to be safely managed by staff at the receiving facility. (See physical and chemical restraint protocol).

B. If transport method is not mutually agreed upon by law enforcement agency and transporting agency, consult OLMC.

C. If the above conditions are not met, patient should be transported to the Hospital or discussed as needed with OLMC.

D. Be prepared for the occasional episode where the crisis worker wants to speak with the patient over the phone. They may be able to obtain further information, help calm the patient and facilitate an alternative option to transport.

Precautions:

A. If the patient or family insists on transport to a preferred hospital, despite a thorough explanation of the normal process, then the patient should be transported to that facility after contact with OLMC. This protocol only applies for patients with stable, non-life threatening medical conditions.

B. Drug and alcohol intoxication is not considered an acute psychiatric problem and for patients suffering from these conditions ensure that the patient's behavior isn't due to hypoxia, hypoglycemia or a head injury.

REFUSAL OF CARE

Policy:

Any and all individuals that are involved as patients or potential patients should receive proper evaluation, treatment and transportation to the appropriate medical facility. There may be times when this policy may not be carried out due to a refusal of care. The refusal of care procedure should be utilized in situations in which a patient refuses evaluation, treatment and/or transportation by prehospital personnel. Persons should be presumed competent to make decisions affecting their medical care. In cases of minors, attention should be given to signs of child abuse.

Definitions:

A. Patients **ABLE** to refuse care.
   1. A person can refuse medical care based on the following guidelines:
      a. **Competent** – defined by the ability to understand the nature and consequences of their actions by refusing medical care and/or transportation, and
      b. **Adult** – eighteen (18) years of age or older, except:
         1) An emancipated minor
            (a) A self-sufficient minor (must provide documentation)
            (b) A married minor
            (c) A minor in the military
         2) A legal representative for the patient (parent or guardian).

B. Patients **NOT ABLE** to refuse care
   1. A person may be considered incompetent to refuse medical care and/or transportation if the severity of their medical condition prevents them from making an informed, rational decision regarding their medical care. Therefore, they may not refuse medical care and/or transportation based on the following guidelines:
      a. Altered level of consciousness (e.g. head injury or under the influence of alcohol and/or drugs).
      b. Suicide (attempt or verbal threat).
      c. Severely altered vital signs.
      d. Mental retardation and/or deficiency.
      e. Not acting as a "reasonable person would do, given the same circumstances."
      f. Under eighteen (18) years of age (except those outlined in above section).

C. Implied Consent
   1. If a person is determined to be incompetent, they may be treated and transported under an "implied consent" (what the reasonable individual would consent to under the same circumstances).
   2. If the patient is transported and/or treated on the basis of implied consent, field personnel should use reasonable measures to ensure safe transport to the closest appropriate facility.

Refusal Procedure

A. Single patient
   1. Determine that the individual is involved in the incident.
   2. Determine that the individual is refusing to allow the proper evaluation, or necessary treatment, or necessary transport to the appropriate medical facility.
   3. Determine the mental status and extent and history of injury, mechanism, or illness
      a. Ensure that the patient is conscious, alert, oriented and understands (mental reasoning) their condition (patient GCS = 15)
      b. Unless the patient specifically refuses, do a complete physical assessment
   4. Inform the patient and/or responsible party (parent or guardian) of the potential consequences of their decision to refuse treatment and/or transport to a definitive-care facility (loss of life or limb), and ensure that the patient and/or responsible party fully understand.
   5. All measures should be taken to convince the patient to consent, including enlisting the help of family or friends.
   6. If the patient continues to refuse, the patient and/or responsible party may then sign a "Refusal of Care" form. Ensure that the following information is provided:
      a. That the release is against medical advice.
      b. That it applies to this instance only.
      c. That EMS should be requested again if necessary or desired.
   7. After the "Refusal of Care" form is signed, it must be witnessed (including legibly printed name, contact information and signature of witness).
   8. If the patient or responsible party will not sign the release, then document this on the EMS run report. If available, witness signatures should be obtained.
   9. Where it is possible, patients will be left in the care of family, friends, or responsible parties.

10. Carefully document the assessment and vital signs, including all issues and circumstances indicated.

B. Multiple patients
   1. The protocol does not allow for more than one refusal on a single EMS run report. However, individuals that refuse ALL assistance, including proper evaluation, can be combined on a single report (e.g. all parties deny injury). Once an examination is begun on an individual, a separate EMS run report must be filled out to record the examination. Also, any later refusal of care requires following the complete protocol outlined above. The use of multiple refusals of care is primarily designed for incidents that have numerous participants (potential patients) where it becomes evident that some participants are not injured at all or refuse to be examined when approached by EMS personnel.
   2. Steps 1 through 10 in A above.
   3. Document all names, addresses and witnesses

C. Medical direction
   1. Medical direction should be considered for consultation under the following circumstances:
      a. A low severity patient that is under 18 years of age.
      b. The patient's refusal represents a significant risk to the patient or EMS system/agency.
      c. A patient who is not their own legal guardian.
      d. A patient that refuses transport post-seizure of post-administration of D_{50} (also consider calling law enforcement for assistance).
   2. If any questions on the assessment of competency or refusal of care occurs, contact medical direction for further guidance.

D. Refusal of transport or transport destination
   1. Patients that refuse to be transported to the closest appropriate facility and, moreover, are adamant on being transported to a different facility should sign waiver of recommended hospital destination.
   2. When a patient refuses to be transported to any facility, medical direction should be considered for further consultation, when such refusal represents a significant risk to the patient or the EMS system/agency.

REPORTING SUSPECTED CHILD ABUSE

Purpose:

To establish guidelines for the reporting of suspected child abuse.

Definitions:

A. Abuse: The non-accidental assault or physical injury to a child. This may include mental abuse, sexual abuse, neglect, etc.
B. Child: An unmarried person under the age of 18.
C. Public or Private Officials: physicians, including residents and interns, firefighter or EMT among others.

Procedure:

A. It is the policy of the State of Florida and all Marion County EMS Agencies to require mandatory reporting of suspected child abuse.
B. DUTY TO REPORT CHILD ABUSE
    1. Public or private officials have a duty to report child abuse. Such an official who has reasonable cause to believe that a child has been abused, or who comes into contact with someone who has abused a child, shall report the contact to the Abuse Hotline (1-800-96 ABUSE) and law enforcement agency, i.e., any city or municipal police department, any county sheriff's office.
C. CONTENT OF REPORT
    1. Reports must be made immediately to the local CSD office or law enforcement agency in the county where the reporting person is located. Paramedic must also file an Incident Report with their appropriate supervisor. The report must contain, if known, the following information:
        a. The names and addresses of the child and parents/person responsible for the child's care.
        b. The child's age.
        c. The nature and extent of abuse (including any evidence of previous abuse)
        d. The explanation given for the abuse
        e. Any information the official believes may be helpful in establishing the cause of abuse or the perpetrator's identity.

Immunity of Persons Making Reports:

Persons who acting in good faith and upon reasonable grounds, report child abuse are immune from civil and criminal liability.

REPORTING SUSPECTED ELDER ABUSE

Purpose:

A. To establish guidelines for the reporting of suspected elder abuses or abuse of a resident in a long term care facility.
B. It is the policy of the State of Florida and all Marion County EMS Agencies to require mandatory reporting of suspected elder abuse. Abuse Hotline 1-800-96 ABUSE.

Definitions:

A. Abuse: The non-accidental physical injury to an elderly person or patient of a long term cares facility. Abuse also includes:
   1. Outside long-term care facilities:
      a. Neglect means the withholding of services necessary to maintain health and well-being. Treatment solely by spiritual means is not neglect; however, the person must be voluntarily under the care of an accredited practitioner or in accordance with the practices of a recognized church or religion.
      b. Abandonment, including desertion or willful forsaking of an elderly person or withdrawal or neglect of duties and obligations owed an elderly person by a caregiver.
      c. Willful infliction of physical pain or injury.
   2. Inside long-term care facilities:
      a. Illegal or improper use of the patient's financial resources for personal profit or gain.
      b. Sexual contacts by force, threat, duress or coercion by an employee, agent or other resident.
      c. Use of derogatory names, phrases, harassment, intimidation, punishment or involuntary seclusion.
      d. Elderly person - Any person 65 years of age or over.
      e. Long-term care facility - Any licensed skilled nursing facility or intermediate care facility.

Procedure:

A. DUTY TO REPORT ELDER ABUSE
   1. It is the policy of the State of Florida and all Marion County EMS Agencies to require mandatory of suspected elder abuse to the Abuse Hotline and local law enforcement.

B. CONTENT OF REPORT
   1. The elder abuse report must contain, if known, the following information:
      a. The names and addresses of both the elderly person and anyone responsible for his/her care.
      b. The nature and extent of abuse including any evidence of previous abuse.
      c. The explanation given for the abuse
      d. Any information the official believes may be helpful in establishing the cause of abuse.

C. IMMUNITY OF PERSONS MAKING REPORTS
   1. Persons participating in good faith in making a report of elder abuse and who have reasonable grounds for making it are immune from civil and criminal liability including participation in any judicial proceeding resulting from their report. Persons making such a report of abuse of a patient in a long-term care facility in addition have immunity from any criminal liability that might otherwise be incurred or imposed with respect to making such a report.

STAGING FOR HIGH RISK RESPONSE

Purpose:

The purpose of this protocol is to establish guidelines for medical responders who are en-route to incidents involving violence, or are anticipated to be potentially violent in nature.

Policy:

A. Medical units shall stage on the following:
   1. Any time dispatch directs them to do so.
   2. Any time a violent incident might expose medical responders to danger.
   3. On any call at the medical unit's discretion.
   4. If the scene you are responding to is a known or suspected (based on information from dispatch) hazardous materials situation, stage and wait for the HazMat Team.
   5. As directed by first unit on-scene or incident commander.

Procedure:

A. Stage approximately two blocks from the incident address and out of the line of sight.
B. Transmit your location when staged.
C. Additional responding units will respond to the same staging location if possible (avoid traveling past incident address).
D. Unless traffic hazard, turn off headlights and warning lights. Turn on four-way flashers.
E. Once staged, units will not enter the scene until it is declared secure by police.
F. NOTE: It shall not be assumed that the mere presence of police on scene means that medical responders may now proceed safely into the call location. If police are on scene, call Dispatch to request verification that medical units may proceed into the scene or stage.

NORTH CENTRAL FLORIDA TRAUMA AGENCY
Uniform Trauma Transport Protocols

System Participants Trauma Service Area 4

Alachua County Fire Rescue
Gainesville Fire Rescue
Bradford County EMS
Columbia County EMS
Dixie County EMS
Century Ambulance
Gilchrist County EMS
Hamilton County EMS
Lafayette County EMS
Levy County EMS
Putnam County EMS
ShandsCair Flight Program
Suwannee County EMS
Trauma One Lake City
Union County EMS

System Participants Trauma Service Area 6

Citrus County (Nature Coast EMS)
Hernando County EMS
Aeromed III
Marion County Fire Rescue

Table of Contents

Section I – Dispatch Requirements

A. COMMUNICATION CENTER
   1. Marion County Fire Rescue provides all emergency and non-emergency call taking and dispatch for Marion County, Florida. MCFR dispatch uses the enhanced "911" system and the Emergency Medical Dispatch (EMD) Protocol through Medical Priority Dispatch©. MCFR Dispatch is integrated with the Marion County Sheriff's Office (MCSO) Dispatch and Ocala Fire-Rescue Dispatch in one multi-agency Dispatch Center. All calls received from unincorporated Marion County are received by MCSO and transferred to MCFR Dispatch. All calls originating in the City of Ocala are received by Ocala Police Department and transferred to MCFR Dispatch. Call-takers follow EMD protocol to obtain information from the caller, determine response needed and give pre-arrival instructions for dispatch life support.

B. LIST OF INFORMATION TO BE OBTAINED FROM CALLER:
   1. location of the patient
   2. type of trauma (circumstances)
   3. number of trauma victims
   4. extent and severity of trauma injury
   5. scene security/safety
   6. name of caller
   7. callback number

C. METHOD USED TO IDENTIFY AND DISPATCH THE MOST READILY AVAILABLE UNIT:
   1. MCFR Dispatch, through the use of Tritech© Computer aided dispatch (CAD) system and Trimble© global positioning satellite system, locates the appropriate unit for response and dispatch by voice radio with information sent by CAD within one minute of dispatch to the Trimble© status head located in the unit responding and to the responding EMT and Paramedic personal pagers.

D. PROCESS USED TO REQUEST ASSISTANCE FROM EMERGENCY RESPONSE AGENCY:
   1. Mutual aid requests to appropriate agencies are made by MCFR dispatch through the CAD system with a confirmation of receipt by local telephone Vesta© "hot line" system for local and non-local allied agencies.
   2. Law enforcement response is requested to all vehicle accidents, violent or potential violent crimes.

3. Air support is requested by the Paramedic or on scene Fire Department personnel when the MCFR paramedic is not yet on scene. In addition, the Communications Supervisor or Field Supervisor can request air support prior to an EMS unit's arrival based on information received from the caller(s). The closest available helicopter will be dispatched to the scene in accordance with established dispatch protocols. See attached helo-zone map.
4. Public utility agencies are requested when a need for them is identified.
5. OLMC of the EMS provider issuing the trauma alert, or the physician at the receiving SATC, SAPTRC, or hospital, are the only people authorized to change the trauma alert status.

Section II – Requirement for Adult Assessment

A. The adult and pediatric scorecard assessment shall be documented in accordance with the requirements of Sections 64E-2.017 and 64E-2.0715, FAC.
B. Upon arrival at an accident scene, the EMT, paramedic or flight team will assess the condition of each adult trauma patient using the adult trauma scorecard methodology to determine if the patient meets criteria to be a trauma alert. Evaluation of the following components will determine if the patient meets the requirements of a trauma alert utilizing the Adult Scorecard Methodology (attachment one):
    1. Airway
    2. Circulation
    3. Best Motor Response
    4. Cutaneous
    5. Long Bone Fracture
    6. Patient's Age
    7. Mechanism of Injury
C. All adult patients that meet the requirement as a trauma alert will be transported to the trauma center nearest to the scene of the incident.

Adult Trauma Triage Criteria and Methodology (see next page)

The EMT or paramedic shall assess the condition of those injured persons with anatomical and physiological characteristics of a person sixteen (16) years of age or older for the presence of at least one of the following four (4) criteria to determine whether to transport as a trauma alert. These four criteria are to be applied in the order listed, and once any one criterion is met that identifies the patient as a trauma alert; no further assessment is required to determine the transport destination.

TRAUMA ALERT

Criteria:

☐ Meets color-coded triage system (see below)
☐ GCS ≤ 12 (Patient must be evaluated via GCS if not identified as a trauma alert after application of criterion 1.)
Meets local criteria (specify)
☐ Patient does not meet any of the trauma criteria listed above but, in the judgment of the EMT or paramedic,
☐ should be transported as a trauma alert (document)

COMPONENT		
AIRWAY	RESPIRATORY RATE OF 30 OR GREATER ☐ B	ACTIVE AIRWAY ASSISTANCE1 ☐ R
CIRCULATION	SUSTAINED HR OF 120 BEATS PER MINUTE OR GREATER ☐ B	LACK OF RADIAL PULSE WITH SUSTAINED HEART RATE (greater than120) OR BP less than90 mmHg ☐ R
BEST MOTOR RESPONSE	BMR=5 ☐ B	BMR=4 OR LESS OR PRESENCE OF PARALYSIS, OR SUSPICION OF SPINAL CORD INJURY OR LOSS OF SENSATION ☐ R
CUTANEOUS	SOFT TISSUE LOSS2 OR GSW TO THE EXTREMITIES ☐ B	2ND OR 3RDº BURNS TO 15% OR MORE TBSA OR AMPUTATION PROXIMAL TO THE WRWIST OR ANKLE OR ANY PENETRATING INJURY TO HEAD, NECK OR TORSO3 ☐ R
LONGBONE FRACTURE4	SINGLE FX SITE DUE TO MVA OR FALL 10' OR MORE ☐ B	FRACTURE OF TWO OR MORE LONGBONES ☐ R
AGE	55 YEARS OR OLDER ☐ B	
MECHANISM OF INJURY	EJECTION FROM A VEHICLE5 OR DEFORMED STEERING WHEEL6 ☐ B	

■ R = any one (1) – transport as a trauma alert ■ B = any two (2) – transport as a trauma alert

1. Airway assistance beyond administration of oxygen.
2. Major degloving injuries, or major flap avulsion (greater than5in).
3. Excluding superficial wounds in which the depth of the wound can be determined.
4. Longbone (including humerus, (radius, ulna), femur, (tibia, fibula).
5. Excluding motorcycle, moped, all terrain vehicle, bicycle, or open body of a pickup truck.
6. Only applies to driver of vehicle.
7. M:operations/jcruce/adulttrauma 12/4/2002

Section II – Requirement for Pediatric Assessment

1. Pediatric trauma patients are identified as those with the physical and anatomical characteristics of a person 15 years or less. All pediatric patients that meet the criteria of a pediatric trauma alert scorecard will be transported to the pediatric trauma referral center nearest to the scene of the incident.
2. Upon arrival at a scene, the EMT, paramedic or flight team shall assess the condition of each pediatric trauma victim using the pediatric trauma scorecard methodology to determine if the patient meets criteria to be a trauma alert. Evaluation of the following components will determine if the patient meets the requirements of a trauma alert utilizing the Pediatric Scorecard Methodology (attachment two):
    a. Airway
    b. Consciousness
    c. Circulation
    d. Fracture
    e. Cutaneous
    f. Patient's Size

Pediatric Trauma Scorecard Methodology (see next page)

The EMT or Paramedic shall assess the condition of those injured individuals with anatomical and physical characteristics of a person fifteen (15) years of age or younger for the presence of one or more of the following three (3) criteria to determine the transport destination per 64E-2.001, Florida Administrative Code, (F.A.C.):

1) Pediatric Trauma Triage Checklist: The individual is assessed based on each of the six (6) physiologic components listed below (left column). The single, most appropriate criterion for each component is selected (along the row to the right). Refer to the color coding of each criteria and legend below to determine the transport destination:

COMPONENT			
SIZE	greater than 20 Kg (44+ LBS.) □ G	greater than11-20 Kg (24-44 LBS.) □ G	WEIGHT ≤ 11 Kg OR LENGTH ≤ 33 INCHES ON A PEDIATRIC LENGTH AND WEIGHT EMERGENCY TAPE □ B
AIRWAY	NORMAL □ G	SUPPLEMENTED O2 □ G	ASSISTED OR INTUBATED (1) □ R
CONSCIOUSNESS	AWAKE □ G	AMNESIA OR LOSS OF CONSCIOUSNESS □ B	ALTERED MENTAL STATUS (2) OR COMA OR PRESENCE OF PARALYSIS OR SUSPICION OF SPINAL CORD INJURY OR LOSS OF SENSATION □ R
CIRCULATION	GOOD PERIPHERAL PULSES: SBP greater than 90 mmHg □ G	CAROTID OR FEMORAL PULSES PALPABLE, BUT THE RADIAL OR PEDAL PULSe NOT PALPABLE OR SBP less than 90 mmHg □ B	FAINT OR NON-PALPABLE CAROTID OR FEMORAL PULSE OR SBP less than 50 mmHg □ R
FRACTURE	NONE SEEN OR SUSPECTED □ G	SINGLE CLOSED LONG BONE (3) FRACTURE (4) □ B	OPEN LONG BONE (3) FRACTURE (5) OR MULTIPLE FRACTURE SITES OR MULTIPLE DISLOCATIONS (5) □ R
CUTANEOUS	NO VISIBLE INJURY □ G	CONTUSION OR ABRASION □ G	MAJOR SOFT TISSUE DISRUPTION (6) OR MAJOR FLAP AVULSION OR 2º OR 3º BURNS TO ≥ 10% tbsa OR AMPUTATION (7) OR ANY PENETRATING INJURY TO HEAD, NECK, OR TORSO (8) □ R

■ R = RED, any one (1) – transport as a trauma alert ■ B = BLUE, any two (2) – transport as a trauma alert
■ G = GREEN, follow local protocols

2) Meets local criteria (specify):

3) Patient does not meet any of the trauma criteria listed above, but the EMT or Paramedic can call a "Trauma Alert" if, in his or her judgment, the trauma patient's condition warrants such action. Must be documented on run reports pursuant to 64E-2.013, (F.A.C.)

1. Airway assistance includes manual jaw thrust, continuous suctioning, or use of other adjuncts to assist ventilatory efforts.
2. Altered mental states include drowsiness, lethargy, inability to follow commands, unresponsiveness to voice, totally unresponsive.
3. Long bones include the humerus, (radius, ulna), femur, (tibia, fibula).
4. Long bone fractures do not include isolated wrist or ankle fractures.
5. Long bone fractures do not include isolated wrist or ankle fractures or dislocations.
6. Includes major degloving injury.
7. Amputation proximal to wrist or ankle.
8. Excluding superficial wounds where the depth of the wound can be determined.

m:operations/jcruce 12/4/2002

Section III – Trauma Destination Requirements

A. All trauma alert patients must be transported to a State Approved Trauma Center (SATC) or State Approved Pediatric Trauma Referral Center (SAPTRC) nearest the location of the incident if the incident is within 30 minutes by ground or air transport or within 50 miles by air transport.

B. Situation where the EMS providers' and medical directors have determined it would be in the best medical interest of the trauma alert patient to be transported to a hospital other than those specified as trauma centers include the following situations:
   1. A mass casualty incident in which trauma centers are overwhelmed.
   2. Critical condition of a patient requiring immediate intervention of a physician such as airway control, tension pneumothorax or cardiac arrest in which the patient would benefit from stabilization at a closer receiving hospital.
   3. Distance to the nearest trauma center is so great that the extended time in the field is detrimental to the patients' outcome.
   4. Weather

C. Copies of these Uniform Trauma Transport Protocols have been provided and are on file at the following Trauma Centers and Initial Receiving Hospitals in Trauma Service Area 4 & 6.
   1. Shands at the University of Florida – Level One Trauma Center
   2. Shands Jacksonville – Level One Trauma Center
   3. Orlando Regional Medical Center – Level One Trauma Center
   4. Tampa General Hospital – Level One Trauma Center
   5. Shands at AGH – Initial Receiving Hospital
   6. North Florida Regional Medical Center – Initial Receiving Hospital
   7. Munroe Regional Medical Center – Initial Receiving Hospital
   8. Putnam Community Hospital – Initial Receiving Hospital
   9. Nature Coast Community Hospital – Initial Receiving Hospital
   10. Shands at Starke – Initial Receiving Hospital
   11. Shands at Lakeshore – Initial Receiving Hospital
   12. Shands and Live Oak – Initial Receiving Hospital
   13. Lake City Medical Center – Initial Receiving Hospital
   14. Lake Butler Hand Hospital – Initial Receiving Hospital
   15. Ocala Regional Medical Center – Initial Receiving Hospital
   16. Citrus Memorial Hospital – Initial Receiving Hospital
   17. Seven Rivers Community Hospital – Initial Receiving Hospital
   18. Oak Hill Hospital – Initial Receiving Hospital
   19. Springhill Hospital – Initial Receiving Hospital
   20. Brooksville Regional Hospital – Initial Receiving Hospital

D. Documentation that the listed initial receiving hospitals meeting the five requirements to accept trauma patients is maintained on file with the North Central Florida Trauma Agency and the Florida Department of Health.

E. Shands at the University of Florida is the closest SATC/SAPTRC for the following counties served by the North Central Florida Trauma Agency:
   1. Alachua
   2. Bradford
   3. Citrus (northern)
   4. Columbia
   5. Dixie
   6. Gilchrist
   7. Hamilton
   8. Lafayette
   9. Levy
   10. Marion
   11. Putnam
   12. Suwannee
   13. Union

F. Trauma Alert patients that are equidistant or closer to SATC/SAPTRC located in Jacksonville, Orlando or Tampa or within 30 minutes by ground or air transport or within 50 miles by air will be taken to the following facilities:
   1. Shands Jacksonville
   2. Orlando Regional Medical Center
   3. Tampa General Hospital

G. Shands Hospital at the University of Florida is the Regional Burn Center serving the North Central Florida area. Other Regional Burn Centers are located at Orlando Regional Medical Center and Tampa General Hospital.

Section IV – Transfer of Patient Care Information

A. Transporting agencies participating in the NCFTA Uniform Trauma Transport Protocols adhere to the requirements as defined under Section 64E-2.001(15), FAC and 64E-2.013, FAC and the trauma information as required under section 64E-2.015(5), FAC. Delivery of such information is made in writing with the trauma patient to the SATC, SAPTRC or hospital at the time the patient is presented for care.

B. Transporting vehicle personnel shall provide recorded information to the receiving hospital personnel at the time the patient is transferred that contains all known pertinent incident, patient identification and patient care information.
C. A complete patient care record will be provided within 24 hours.

Section V – Emergency Interfacility Transfer Procedures

A. Emergency interfacility transfers of trauma alert patients will be accomplished by the most expeditious method possible. Following the placement of the trauma alert patient by a physician to a SATC/SAPTRC, transport services will be provided by the following means:
B. Emergency Helicopter Services to include:
   1. ShandsCair Flight Program
   2. Trauma I Jacksonville
   3. Trauma I Lake City
   4. Aeromed III Inverness
   5. LifeNet Jacksonville
   6. AirMed I Perry
C. In the event that air transport is unavailable, prohibited by weather or inappropriate due to distance, the following means of transport will be available within 30 minutes:
   1. County Based Advanced Life Support Ambulance
   2. Private Advanced Life Support Ambulance
D. Emergent interfacility transports of trauma alert patients are not performed by the following counties:
   1. Dixie County EMS – No medical facility within the county.
   2. Gilchrist County – No medical facility within the county.
   3. Lafayette County EMS – No medical facility within the county.
   4. Columbia County EMS – Performed by Century Ambulance.

Section VI – Medical Director Approval

As the medical director of~~,~~ Marion County and Ocala, I have reviewed and adopted the North Central Florida Uniform Trauma Transport Protocols as presented in this document.

Frank Fraunfelter		November 1, 2009
Printed Name	Signature	Date

ME 91729
M.D./D.O. License Number

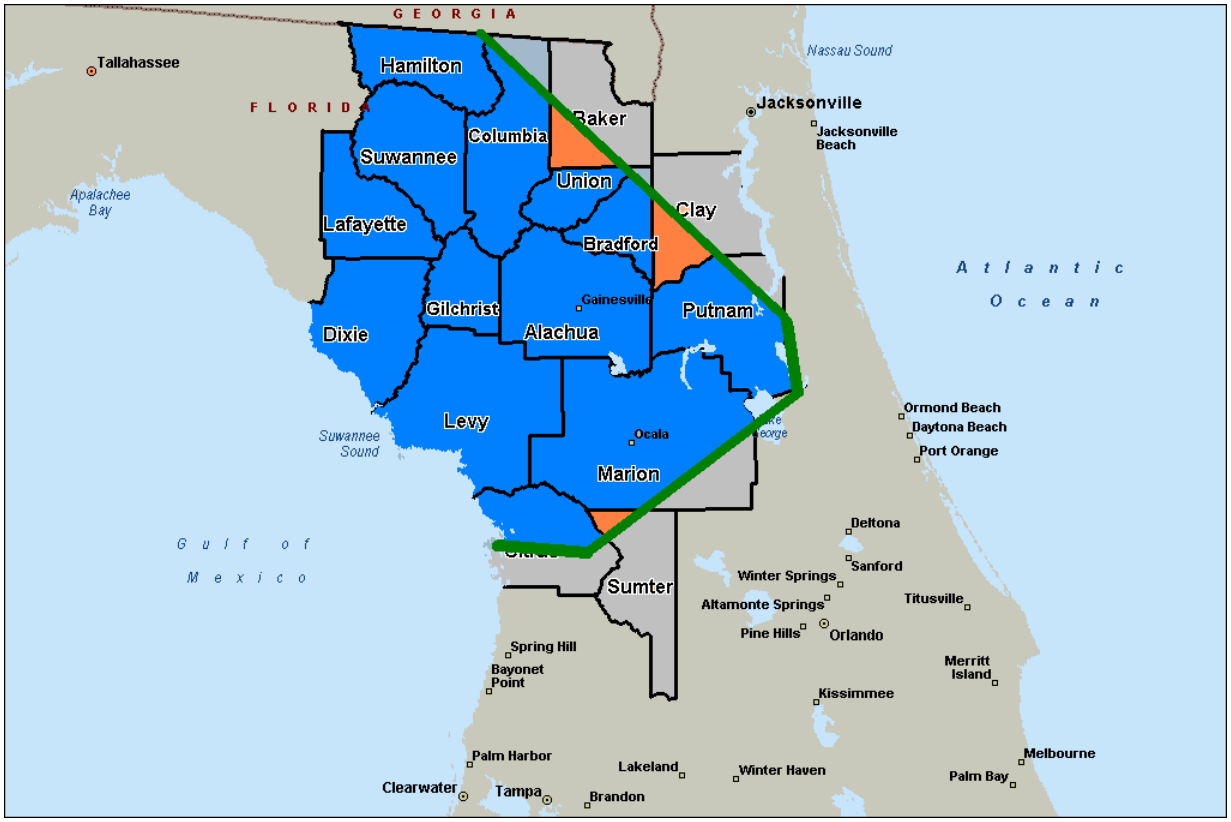
Section VIII – Trauma Patient Destination Guidelines

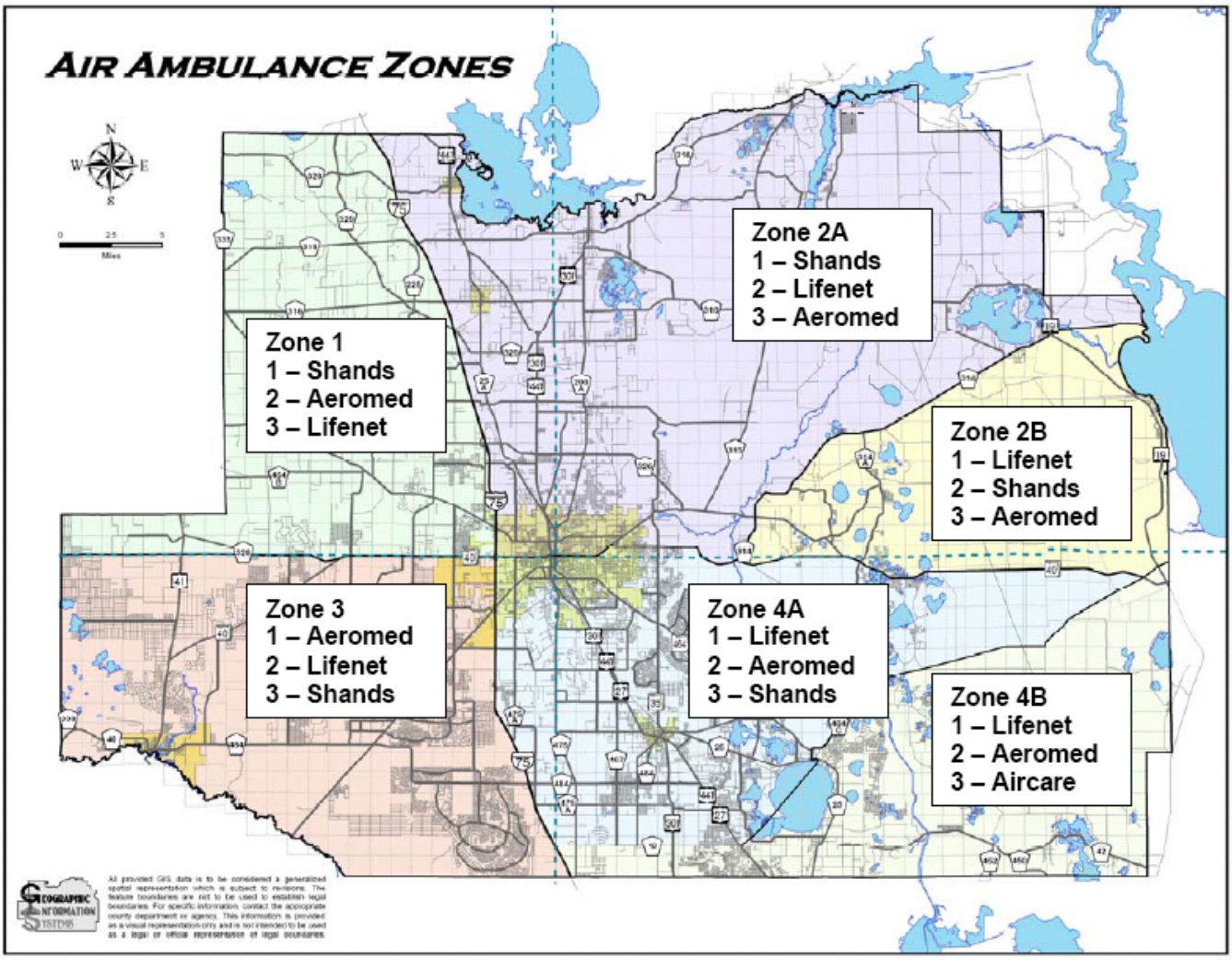
North Central Florida Trauma Agency
Trauma Patient Destination Guidelines by County

1. Alachua
    a. closest SATC — Shands UF
    b. next closest SATC — Shands Jax
    c. 1ST call helicopter — ShandsCair Flight Program
    d. 2nd call helicopter — Trauma I Lake City
2. Bradford
    a. closest SATC north of Lawtey — Shands Jax
    b. closest SATC south of Lawtey — Shands UF
    c. 1st call helicopter north of Lawtey — Trauma I Jax
    d. 2nd call helicopter south of Lawtey — ShandsCair Flight Program
    e. 3rd call helicopter — Trauma I Lake City
3. Columbia
    a. closest SATC north of I-10 — Shands Jax
    b. closest SATC south of I-10 — Shands UF
    c. closest helicopter — Trauma I Lake City
    d. 2nd closest helicopter — ShandsCair Flight Program
    e. 3rd call helicopter — Trauma I Jax
4. Dixie
    a. closest SATC — Shands UF
    b. next closest SATC — Shands Jax
    c. 1st call helicopter — ShandsCair Flight Program
    d. 2nd call helicopter — Air Medic One – Perry
    e. 3rd call helicopter — Trauma I Lake City
5. Gilchrist
    a. closest SATC — Shands UF
    b. next closest SATC — Shands Jax
    c. 1st call helicopter — ShandsCair Flight Program
    d. 2nd call helicopter — Trauma I Lake City
    e. 3rd call helicopter — Air Medic One
6. Hamilton
    a. closest SATC — Shands Jax
    b. next closest SATC — Shands UF
    c. 1st call helicopter — Trauma I Lake City
    d. 2nd call helicopter — Air Medic One
    e. 3rd call helicopter — ShandsCair Flight Program

7. Lafayette
    a. closest SATC — Shands UF
    b. next closest SATC — Shands Jax
    c. 1st call helicopter — Trauma I Lake City
    d. 2nd call helicopter — Air Medic One
    e. 3rd call helicopter — ShandsCair Flight Program
8. Levy
    a. closest SATC — Shands UF
    b. next closest SATC (southern) — Tampa General Hospital
    c. 1st call helicopter — ShandsCair Flight Program
    d. 2nd call helicopter — Aeromed III
9. Putnam
    a. closest SATC (south & west of SR100) — Shands UF
    b. next closest SATC (north & east of SR100) — Shands Jax
    c. 1st call helicopter (southwest of SR100) — ShandsCair Flight Program
    d. 1st call helicopter (northeast of SR100) — Trauma I Jax
10. Suwannee
    a. closest SATC — Shands UF
    b. next closest SATC — Shands Jax
    c. 1st call helicopter — Trauma I Lake City
    d. 2nd call helicopter — ShandsCair Flight Program
11. Union
    a. closest SATC — Shands UF
    b. next closest SATC — Shands Jax
    c. 1st call helicopter — ShandsCair Flight Program
    d. 2nd call helicopter — Trauma I Lake City
12. Citrus
    a. closest SATC (north of SR44) — Shands UF
    b. closest SATC (south of SR44) — Tampa General Hospital
    c. 1st call helicopter — Aeromed III
    d. 2nd call helicopter — ShandsCair Flight Program
13. Hernando
    a. closest SATC — Tampa General Hospital
    b. next closest SATC — Orlando Regional Medical Center
    c. 1st call helicopter — Bayflight IV
    d. 2nd call helicopter — Aeromed III
14. Marion (See Section 1 – Dispatch Requirements, and refer to helo-zone map)
    a. closest SATC (north of Belleview) — Shands UF
    b. next closest SATC (south) — Orlando Regional Medical Center
    c. 1st call helicopter — ShandsCair Flight Program
    d. 2nd call helicopter — Aeromed III

Section IX – Trauma Service Area Map




AIR AMBULANCE ZONES
N
W
E
S
0 2.5 5
Miles
Zone 1
1 – Shands
2 – Aeromed
3 – Lifenet
Zone 2A
1 – Shands
2 – Lifenet
3 – Aeromed
Zone 2B
1 – Lifenet
2 – Shands
3 – Aeromed
Zone 3
1 – Aeromed
2 – Lifenet
3 – Shands
Zone 4A
1 – Lifenet
2 – Aeromed
3 – Shands
Zone 4B
1 – Lifenet
2 – Aeromed
3 – Aircare
GEOGRAPHIC INFORMATION SYSTEMS

OCALA/MARION COUNTY EMERGENCY MEDICAL SERVICE

EMS MEDICATIONS

Originally Issued
January 1, 2002

Revised Edition Issued
July 16, 2007

QUICK REFERENCE CHART

Drug	Adult Dosage	Indications	Contraindications	Precautions/ Side Effects
Activated Charcoal Absorbs toxic substances in GI tract	1 gm/kg **Only under OLMC**	Poisoning/OD of many substances	Altered Mental Status	May be ineffective May cause aspiration
Adenosine Half-life less than 10 seconds. Slows conduction through AV node.	6mg initially No response 12mg in 1-2 minutes No response 12mg **All followed with 10cc flush of NaCl**	PSVT Narrow complex QRS greater than 150 BPM WPW (with narrow complex)	2nd or 3rd degree heart block, Sick sinus syndrome Known hypersensitivity	Facial flushing, dyspnea, chest pressure, nausea, headache **Not contraindicated in Pregnancy**
Albuterol $Beta_2$-adrenergic bronchodilator. Associated with smooth muscle relaxation.	2.5 mg in 3 cc NaCl Nebulized with Oxygen set @ 6LPM May be repeated with Ipratropium Hyperkalemia: 10mg	Bronchial spasms, COPD, Asthma, Hyperkalemia	None	Stop treatment if frequent PVCs develop or heart rate increases more than 20 BPM
Amiodarone Antiarrhythmic – class III ↓sinus rate, ↑ PR and QT intervals. Relaxes smooth muscles. Reduces PVR	**Cardiac Arrest:** 300 mg IV in 20-30ml NaCl May repeat 150 mg IV once in 3-5 minutes. Drip:150 mg in 100cc D_5W with 10 gtts set Run @ 7gtts/min **V-Tach with a Pulse:** 150 mg over 10 min. in 20-30ml NaCl to maximum dose of 2.2g/24 hours Drip: Mixed as above 3gtts/min	V-Fib Pulseless V-Tach Unstable V-Tach WPW with wide complex	Hypersensitivity to drug	Drug may be more sensitive in patients with thyroid dysfunction or left ventricular dysfunction. IV use may cause: Abnormal kidney function Stevens-Johnson syndrome Respiratory shock Shock and worsening of arrhythmias

Drug	Dosage	Indications	Contraindications	Precautions/ Side effects
Atropine Sulfate ↑HR and conduction through AV node Dilates pupils Blocks cholinergic influences.	**Cardiac Arrest:** 1 mg IV/IO every 3-5 minutes, to a max of 3 mg; rapid IVP **Bradycardia:** With inadequate perfusion 0.5 mg IVP may be repeated to max of 3 mg; rapid IVP **Poisoning:** 1-2 mg until symptoms improve call OLMC for frequency	2nd and 3rd degree heart block. Antidote for insecticide poisoning Counteract excessive vagal influences Premedication in RSI in patients less than 2 Premedication for adults prior to second dose of succinylcholine	Patients with atrial fibrillation or flutter Bradycardia in the setting of AMI	Slow push may cause paradoxical slowing of the heart 2nd and 3rd degree heart blocks may be chronic and without symptoms. They therefore do not need treatment.
Bumetanide (Bumex®) Loop diuretic with rapid onset and short duration 1 mg = 40 mg Lasix®	1 mg for patients less than 70 kg (154 lbs) 2 mg for patients over 70 kg (154 lbs) IVP	CHF	Anuria Hepatic coma Severe electrolyte depletion Hypersensitivity	May potentiate various antihypertensives Dizziness, hypotension, headache, nausea
Calcium Chloride Plays a role in release of hormones and neurotransmitters	**Hypokalemia:** 1gram Slow IVP (over 5-10 min) **OLMC option** **CCB overdose:** 1 g slow IVP **OLMC option**	Suspected calcium channel blocker OD Suspected hypocalcemia	Hyperkalemia Ventricular fibrillation Patients on digoxin	Extravasation leads to necrosis. Push slowly 2ml/min May precipitate if mixed with sodium bicarbonate
Dextrose 50 % **Body's basic fuel**	**Hypoglycemia:** 25 g D_{50} (50mL)	Hypoglycemia documented by glucose meter	None	Extravasation leads to necrosis

QUICK REFERENCE CHART

Drug	Dosage	Indications	Contrindications	Precautions/ Side effects
Diltiazem (Cardizem®) Calcium channel blocker, decreases SA & AV node conduction ↓ myocardial contractility & PVR	10 mg IV over 2 min. May repeat in 15 min. @ 15 mg over 2 min.	Control rate in atrial fib and flutter with RVR	Hypotension 2nd & 3rd degree HB Sick sinus syndrome AMI Pulmonary congestion Lactation	Use with caution in patients with hepatic disease. May cause CHF, AV block, bradycardia, syncope, SOB
Diphenhydramine (Benadryl®) Blocks histamine release, anticholinergic, antiparkinsons effect	**Allergic reaction:** 1 mg/kg to max of 50 mg deep IM/IVP **EPS:** 25-50 mg IV or IM	Dystonic reaction Allergic reaction	None	Not antidote for phenothiazine toxicity. May cause hypotension
Dopamine Stimulates both adrenergic and dopaminergic receptors	**Cardiogenic Shock**: 5mcg/kg/min ↑ 5mcg/kg every 5 min to max of 20 mcg/kg/min **Distributive or Obstructive shock:** **Contact OLMC**	Cardiogenic shock Other forms of shock **Except Hypovolemic**	Hypovolemic shock	Can precipitate hypertensive crisis May cause ectopic beats, n/v, & angina Inactivates in alkaline solutions.
Epinephrine Alpha and beta effects ↑HR, automaticity, systemic vascular resistance, B/P, and myocardial oxygen consumption	**Allergic reaction:** 0.3 mg SQ/IM 1:1000 0.3 mg 1:10000 IVP **Asthma :** 0.3 mg SQ 1:1000 **Cardiac Arrest:** 1 mg 1:10000 every 3-5 min	V-Fibrillation Asystole EMD/PEA Systemic allergic reactions. **Asthma patients under 40 YOA.**	None in emergency setting	Causes increase in heart work can precipitate angina, MI or ischemia. May cause HTN

QUICK REFERENCE CHART

Drug	Adult Dosage	Indications	Contraindications	Precautions/ Side Effects
Fentanyl	25 mcg IV up to maximum dose of 50 mcg	Pain management for burns, chest pain, crush injury, amputations, fractures, dislocations and tension pneumothorax	Allergy to fentanyl Hypotension Undiagnosed or suspected head or abdominal trauma.	May cause respiratory depression, reversible with narcan. n/v, hypotension may develop. fentanyl is a controlled substance
Glucagon Hormone which causes glucose mobilization in the body.	1 mg IM	Known hypoglycemia Altered mental status Possible beta blocker OD. **(OLMC)**	None	IV Glucose is treatment of choice May cause n/v Patients without liver stores may not be able to mobilize glucose
Hydroxocobalamin **(Cyanokit®)** Binds to cyanide ions to form cyanocobalamin which excreted in urine	Add 100 ml of D_5W to vial using transfer spike. Fill to line with vial in upright position. Rock or rotate vial for 30 sec. **DO NOT SHAKE.** **Infuse @ 266 gtts/min (4gtt/sec) with tubing supplied**	Known cyanide poisoning via good patient history or air monitoring **Must be given under OLMC**	None	Allergic reaction Increased blood pressure
Ipratropium Atropine derivative, given with albuterol can give greater bronchodilation.	0.5 mg in2.5mL NaCl Nebulized (mixed with albuterol)	Supplement to albuterol in patients with COPD and asthma	Patients with peanut allergy Severe wide angle glaucoma	Dry mouth Pharyngeal irritation Increased ocular pressure with glaucoma
Lidocaine	**Premedication in RSI:** 1.5 mg/kg IVP **Pain in IO therapy:** 20 mg IO repeat once	RSI for head injury patients Pain in IO infusion	None	Dizziness, disorientation, convulsions, hypotension. Caution in patients with hepatic disease

QUICK REFERENCE CHART

Drug	Adult Dosage	Indications	Contraindications	Precautions/ Side Effects
Magnesium Sulfate Cation that acts as an antiarrhythmic agent and may convert V-Tach/fib	**Eclampsia:** **Bolus:** 4g in 100cc of D_5W with 10gtts set run @ 100 – 200 gtts/min **Torsades de Pointes**: 1-2g in 10mL of D_5W over 5-20 min.	Eclampsia Torsades de Pointes		May cause hypermagnesia Flushing, hypotension, Depressed reflexes, circulatory collapse
Midazolam (Versed) Benzodiazepine with potent sedative effects. Has anxiolytic and anti-convulsant properties.	0.025 mg/kg to max single dose of 2 mg IV/IO/IM	Status epilepticus Discomfort during pacing and/or cardioversion. Pre-induction agent in RSI.	Hypotension	May cause respiratory depression and/or hypotension if administered rapidly. Used with caution with renal and hepatic disease patients.
Morphine Sulfate Narcotic Analgesic effects Peripheral venous pooling.	2 mg increments to maximum 10 mg. Consider ondansetron when administering more than 4 mg	Respiratory distress from pulmonary edema	Allergy to morphine Hypotension Undiagnosed or suspected head or abdominal trauma.	May cause respiratory depression, reversible with narcan. n/v, hypotension may develop. morphine is a controlled substance
Ondansetron Hcl (Zofran®) antiemetic	4 mg IVP may repeat in 2 min.	Control nausea/vomiting	Hypersensitivity Decreased liver function. Intestinal obstruction Cardiac arrhythmias	Constipation/diarrhea Dizziness/fatigue Headache Hypotension May prolong QT (rare)
Oral Glucose	15 g PO	Hypoglycemia	None	Must be able to protect airway (gag reflex)

QUICK REFERENCE CHART

Drug	Dosage	Indications	Contraindications	Precautions/ Side effects
Oxygen	Nasal Cannula 1-6 LPM NRM 10-15 LPM BVM 15 LPM	Hypoxemia/ respiratory distress Chest pain Shock and carbon monoxide poisoning	None	Inadequate breathing should be treated with BVM with O_2
Succinylcholine Motor nerve depolarizing agent/skeletal muscle relaxant Paralysis obtain within 1-2 min. lasts 5-10 min.	1.5 mg/kg IVP	RSI	Hypersensitivity, history of malignant hyperthermia, 7-10 days post burns Hyperkalemia Chronic paralysis Exposure to organophosphates Entrapment for 2 hours.	O_2, ventilation, and resuscitation drugs should be readily available Does not alter patient's LOC
Tetracaine	2 drops in eye	Chemical in eye	Hypersensitivity	Ophthalmic use only
Thiamine (B_1) Vitamin Deficient in alcoholics	100 mg IVP	Malnourished patient with administration of D50. Suspected Wernicke's or Korsakoff's syndromes	None	Allergic reactions rare Rapid IV administration can cause hypotension
Trandate (Labetolol®) Beta blocker	10 mg IVP may be repeated X3 every 10 minutes	Severe hypertension	Asthma, cardiac failure, 1st degree HB, Cardiogenic shock Severe bradycardia	Should not be used in patients with obstructive airway disease
Vecuronium Non-depolarizing muscular skeletal relaxant	0.05 – 0.1 mg/kg IVP **Address LOC – consider sedation**	RSI when succinylcholine starts to wear off	None	Continual evaluation of ETT required May cause prolonged paralysis in patients with renal or hepatic impairment.

ACTIVATED CHARCOAL

INSTA-CHAR®

PHARMACOLOGY AND ACTIONS:

Absorbs toxic substances ingested, and inhibits GI absorption by forming an effective barrier between remaining particulate material and the gastrointestinal mucosa.

INDICATIONS:

Effective in the management of poisoning or overdose of many substances.

CONTRAINDICATIONS:

A. Patient with altered mental status or inability to maintain own airway.
B. Patient with aspiration or impending aspiration.

PRECAUTIONS:

A. OLMC must be contacted before administering activated charcoal.
B. Activated charcoal may be ineffective in some ingestions.
C. Administration of activated charcoal can result in aspiration.

ADENOSINE

ADENOCARD®

PHARMACOLOGY AND ACTIONS:

Adenosine is a naturally occurring nucleoside that has the ability to slow conduction through the AV node. Since most cases of PSVT involve AV nodal re-entry, adenosine is capable of interrupting the AV nodal circuit and stopping the tachycardia, restoring normal sinus rhythm. It is not associated with hypotension. It is eliminated from the circulation rapidly, having a half-life in the blood of less than 10 seconds.

INDICATIONS:

To convert PSVT to normal sinus rhythm, including PSVT (PSVT is a regular, narrow complex tachycardia with a rate over 150) that is associated with accessory bypass tracts (e.g., Wolff-Parkinson-White Syndrome - WPW).

CONTRAINDICATIONS:

A. Second or third degree heart block, sick sinus syndrome.
B. Known hypersensitivity.

PRECAUTIONS:

A. When doses larger than 12 mg are given by infusion, there may be a decrease in blood pressure secondary to a decrease in the vascular resistance.
B. The effects of adenosine are antagonized by methylxanthines such as Theophylline, caffeine. Larger doses of Adenosine may be required.
C. Adenosine effects are potentiated by dipyridamole (Persantine®), resulting in prolonged asystole.
D. In the presence of carbamazepine (Tegretol®), high degree heart block may occur.
E. Adenosine is not effective in converting A-fib, A-flutter, or VT.

SIDE EFFECTS/SPECIAL NOTES:

A. The most common side effects include facial flushing, dyspnea, chest pressure, nausea, headache, and lightheadedness lasting less than 10 seconds.
B. Adenosine is not contraindicated in pregnancy.

ALBUTEROL

VENTOLIN®

PHARMACOLOGY AND ACTIONS:

A. Albuterol is a potent, relatively selective beta2-adrenergic bronchodilator and is associated with relaxation of bronchial smooth muscle and inhibition of release of mediators of immediate hypersensitivity from cells, especially mast cells. The onset of improvement in pulmonary function is within 2 to 15 minutes after the initiation of treatment and the duration of action is from 4-6 hours.
B. As a $beta_2$ agonist, albuterol induces bronchial dilation, but has occasional beta1 overlap with significant cardiac effects. Arrhythmias may occur especially in patients with underlying cardiovascular disorders such as coronary insufficiency and hypertension.

INDICATIONS:

A. Bronchial asthma and reversible bronchial spasm that occurs with COPD.
B. Hyperkalemia.

CONTRAINDICATIONS:

None.

PRECAUTIONS:

A. The patient's rhythm should be observed for arrhythmias. Stop treatment if frequent PVC's develop or any tachyarrhythmias other than sinus tachycardia appear or if heart rate increases more than 20 bpm.
B. Paradoxical bronchospasm may occur with excessive administration.

TECHNIQUE:

A. Oxygen flow should be set at 6 liters/minute.
B. Patients should be instructed to breathe as follows: Inhale slowly; hold breath; exhale passively through nose.

AMIODARONE HCL®

PHARMACOLOGY AND ACTIONS:

Antiarrhythmic, class III. Blocks sodium channels at rapid pacing frequencies, causing an increase in the duration of the myocardial cell action potential and refractory period, as well an alpha and beta adrenergic blockade. The drug decreases sinus rate, increases PR and QT intervals. Amiodarone relaxes vascular smooth muscle, reduces peripheral vascular resistance (afterload), and increases cardiac index slightly.

INDICATIONS:

A. Unstable V-tach with a pulse
B. V-Fib
C. Pulseless V-tach

CONTRAINDICATIONS:

Hypersensitivity to the drug.

SIDE EFFECT AND SPECIAL NOTES:

A. In geriatric clients, especially in thyroid dysfunction and severe left ventricular dysfunction, the drug may be more sensitive.
B. IV use may cause abnormal kidney function, Stevens-Johnson syndrome, respiratory syndrome, shock and worsening of arrhythmias.

Bolus Administration in Arrest or Unstable
Dilute appropriate dose in 20-30 cc of normal saline

Maintenance Drip V-Fib/Pulseless V-Tach
150 mg in 100 cc D5W
10 gtts/ml set – 7 gtts/min = 1.0 mg/min

Maintenance Drip for V-Tach
150 mg in 100 cc D5W
10 gtts/ml set – 3 gtts/min = 0.5 mg/min

Bolus Administration (Adult with a pulse)
150 mg in 100 cc D5W
10 gtts/ml set – 100 gtts/min = 150 mg/10 min

Bolus Administration (Pediatric with a pulse)
5 mg/kg in 100 cc D5W
10 gtts/ml set – 50 gtts/min = 5 mg/kg/20 min

AMMONIA INHALANTS

PHARMACOLOGY AND ACTIONS:

Ammonia inhalants (15% anhydrous ammonia and 35% alcohol) when broken, release ammonia as a colorless gas with a strong, pungent odor characteristic of drying urine. This gaseous ammonia reacts with moisture in mucosal surfaces (eyes, skin, and respiratory tract) to produce ammonia hydroxide causing irritation. This irritation functions as a highly effective noxious stimulus eliciting an immediate withdrawal response in all but deeply obtunded patients.

INDICATIONS:

For use as a non-injurious noxious stimulus, as an aid to assessment of neurological status in obtunded or comatose patients.

CONTRAINDICATIONS:

None.

PRECAUTIONS:

A. Do not automatically rule out potential medical or traumatic causes of coma, somnolence or extreme lethargy.
B. Ammonia inhalants should never be placed in nostrils or inside oxygen masks.

PHARMACOLOGY AND ACTIONS:

Aspirin inhibits prostaglandins and disrupts platelet function for the life of the platelet (10 days). It is also a mild analgesic and anti-inflammatory.

INDICATIONS:

In unstable angina and acute myocardial infarction, aspirin has been shown to lower mortality and is indicated in patients with suspected AMI.

CONTRAINDICATIONS:

A. Aspirin shall not be administered to:
   a. Any patient who has an allergy to aspirin.
   b. Any patient with a history of an active bleeding disorder.
   c. Any patient with suspected aortic dissection.

SIDE EFFECTS AND NOTES:

Patients with asthma may have an allergic reaction to aspirin.

ATROPINE SULFATE

PHARMACOLOGY AND ACTIONS:

A. Atropine is a muscarinic-cholinergic blocking agent. As such, it has the following effects:
   a. Increases heart rate (by blocking vagal influences).
   b. Increases conduction through A-V node.
   c. Reduces action and tone of the urinary bladder (may cause urinary retention).
   d. Dilates pupils.

B. This drug blocks cholinergic (vagal) influences already present. If there is little cholinergic stimulation present, effects will be minimal.

INDICATIONS:

A. To improve conduction in 2nd and 3rd Degree Heart Block.

B. As an antidote for some insecticide exposures (anti-cholinesterase, e.g., organophosphate) and nerve gases.

C. To counteract excessive vagal influences causing some bradysystolic and asystolic arrest.

D. As a premedication for patient less than 2 years of age prior to intubation using succinylcholine and for repeated dosing using succinylcholine.

CONTRAINDICATIONS:

A. Contraindicated in atrial fibrillation and atrial flutter because increased conduction may speed ventricular rate excessively.

B. Bradycardia in the setting of an acute MI is common and probably beneficial. Do not treat them unless there are signs of poor perfusion.

SIDE EFFECTS AND SPECIAL NOTES:

A. 2nd and 3rd degree block may be chronic and without symptoms. Symptoms occur mainly with acute change. Treat the patient, not the arrhythmia.

B. Atropine pushed slowly will cause a 6-8 B slowing in the heart rate. For patients with HR less than 40 this could be undesirable.

ATROPINE AND PRALIDOXIME CHLORIDE

DUODOTE™ AUTO-INJECTOR

Purpose:

The DuoDoteTM is used for the treatment of patients involved in instances of exposure to nerve agents and organophosphate insecticide poisoning ONLY. A DuoDoteTM is one auto-injector containing atropine (2.1 mg) and pralidoxime chloride (600 mg), and is to be used with OLMC authorization ONLY.

Mechanism of Action:

Atropine is the primary drug for treatment of nerve agent exposure and acts by blocking the effects of over-stimulation of the central nervous system. Pralidoxime chloride (2-PAM CL) is the companion drug to Atropine and to restore normal function at the nerve endings by removing the agent and the resulting toxicity.

Treatment:

A. OLMC AUTHORIZATION ONLY! Personnel should use appropriate personal protective equipment to protect themselves.

Caution:

A. DO NOT intubate using neuromuscular blocking agents (RSI) in these patients.
B. DO NOT administer more than three (3) DuoDote™
C. DO NOT administer DuoDote™ if patient is asymptomatic

Side Effects/Precautions:

A. Every exposed patient must be evaluated at a medical facility.
B. Delayed effects may occur at any time after exposure.
C. Auto-injectors should not be administered to children less than fourteen (14) years of age.
D. Auto-injectors will not protect responders from potential exposure.
E. DuoDote™ auto-injectors should be kept at room temperature, and should be kept from freezing.

BUMETANIDE

BUMEX®

PHARMACOLOGY AND ACTIONS:

Bumetanide is a loop diuretic with a rapid onset and short duration of action. Pharmacological and clinical studies have shown that 1 mg of bumetanide has a diuretic potency equivalent to approximately 40 mg furosemide. The major site of bumetanide action is the ascending limb of the loop of Henle.

INDICATIONS:

Bumetanide is indicated for the treatment of edema associated with congestive heart failure, hepatic and renal disease, including the nephritic syndrome.

CONTRAINDICATIONS:

A. Anuria
B. Hepatic coma
C. Severe electrolyte depletion
D. Hypersensitivity to bumetanide

PRECAUTIONS:

A. Should be avoided in patients taking aminoglycoside antibiotics except in life threatening conditions.
B. Bumetanide may potentiate the effect of various antihypertensive medications.

SIDE EFFECTS AND SPECIAL NOTES:

The most frequent clinical adverse reactions considered probably or possibly related to bumetanide are muscle cramps, dizziness, hypotension, headache, nausea, and encephalopathy.

CALCIUM CHLORIDE

PHARMACOLOGY AND ACTIONS:

Calcium is the most common cation in the human body and the majority of the body stores are located in bone. It plays an important role in many physiologic functions and is essential for proper nerve and muscle (skeletal, smooth and cardiac) functioning. It also has a regulatory role in the release and storage of neurotransmitters and hormones, in the uptake and binding of amino acids and in Vitamin B12 absorption and gastric secretion.

INDICATIONS:

A. Suspected Calcium Channel Blocker overdose.
B. Suspected Hyperkalemia with wide complex bradycardia and history of renal failure.

CONTRAINDICATIONS:

A. Hypercalcemia and hypercalciuria (hyperthyroidism, Vitamin D overdose, bone matastases).
B. Ventricular Fibrillation.

PRECAUTIONS:

A. Extravasation of Calcium salts will cause necrosis of tissue. IV should be secured, and free return of blood into the syringe or tubing should be checked 2-3 times during administration. If extravasation does occur, immediately stop administration.
B. Administer slowly (no faster than 2 ml/min) and stop if the patient complains of distress. Make sure the patient remains recumbent after administration. Inject using a small needle in a large vein.
C. Calcium gluconate will precipitate if mixed with sodium bicarbonate. Do not mix with sodium bicarbonate preparations. Slowly flush remaining calcium gluconate from the catheter prior to administering sodium bicarbonate.
D. Avoid use with patients who are on Digoxin since calcium can augment the positive inotropic and negative chronotropic effects of digitalis preparations. CALL OLMC PRIOR TO ADMINISTERING TO THESE PATIENTS.

SIDE EFFECTS AND SPECIAL NOTES:

Rapid injection of Calcium Gluconate may cause vasodilatation, decreased blood pressure, bradycardia, cardiac arrhythmias, syncope and cardiac arrest.

DEXTROSE 50%

PHARMACOLOGY AND ACTIONS:

Glucose is the body's basic fuel. It produces most of the body's quick energy. Its use is regulated by insulin, which stimulates storage of excess glucose outside the bloodstream, and glucagon, which mobilizes stored glucose into the bloodstream.

INDICATIONS:

Hypoglycemia documented by glucose meter.

CONTRAINDICATIONS:

None

PRECAUTIONS:

A. Recent research suggests that hyperglycemia may complicate or worsen a number of medical conditions (e.g., myocardial infarction and stroke).
B. Extravasation of 50% dextrose will cause necrosis of tissue. IV should be secured, and free return of blood into the syringe or tubing should be checked 2-3 times during administration. If extravasation does occur, immediately stop administration.

SIDE EFFECTS AND SPECIAL NOTES:

A. Dextrose may precipitate Wernicke's encephalopathy in patients who are malnourished (e.g., alcoholics, those on chemotherapy or significant diets). Thiamine should be administered after D50% administration.
B. To mix D25% solution:
   a. Expel half (25 cc) of the D50% syringe.
   b. Clean injection port on IV bag, insert needle, and withdraw same amount of fluid (25 cc) back into syringe. Mix well.
C. To mix D10%
   a. Expel 40 cc of the D50% syringe.
   b. Clean injection port on IV bag, insert needle and withdraw same amount of fluid (40 cc) back into syringe. Mix well.

DILTIAZEM HYDROCHLORIDE®

PHARMACOLOGY AND ACTIONS:

Calcium channel blocking agent. Decreases SA and AV conduction and prolongs AV node effective and functional refractory periods. Also decreases myocardial contractility and peripheral vascular resistance.

INDICATIONS:

To control rate in atrial fibrillation or flutter with a rapid ventricular response (RVR).

CONTRAINDICATIONS:

- Hypotension.
- Second or third degree AV block and sick sinus syndrome except in present of a functioning ventricular pacemaker.
- Acute MI, pulmonary congestion.
- Lactation.

SIDE EFFECT AND SPECIAL NOTES:

The half-life may be increased in geriatric clients. Use with caution in hepatic disease and in CHF. Abrupt withdrawal may cause an increase in the frequency and duration of chest pain.
Side effect include AV block, bradycardia, CHF, hypotension, syncope, palpitations, tachycardia, ventricular extrasystoles, N&V, diarrhea, weakness, tinnitus, double vision, photosensitivity, flushing, dyspnea, SOB

DIPHENHYDRAMINE

BENADRYL®

PHARMACOLOGY AND ACTIONS:

A. An antihistamine which blocks action of histamines released from cells during an allergic reaction.
B. Direct CNS effects, which may be stimulant, or more commonly depressant, depending on individual variation.
C. Anticholinergic, antiparkinsonism effect, which is used to treat acute dystonic reactions to antipsychotic drugs (e.g., Haldol®, Thorazine®, Compazine®, Inapsine®). These reactions include: oculogyric crisis, acute torticollis, and facial grimacing.

INDICATIONS:

A. The second-line drug in anaphylaxis and severe allergic reactions (after epi).
B. Used to help prevent dysphoric and dystonic reactions and to increase sedation.

PRECAUTIONS:

A. May have additive effect with alcohol or other CNS depressants.
B. Although useful in acute dystonic reactions it is not an antidote to phenothiazine toxicity or overdose.
C. May cause hypotension when given IV.

SIDE EFFECTS AND SPECIAL NOTES:

Diphenhydramine is rarely necessary in the field. It is not the first-line drug for allergic reactions, but may be useful for long transports. It may also be useful for acute dystonic reactions; but these, while emotionally and physically trying, are not life threatening and don't require treatment.

DOPAMINE

INTROPIN®

PHARMACOLOGY AND ACTIONS:

A. Chemical precursor of norepinephrine which occurs naturally in humans and which has both alpha and beta receptor stimulating actions. Its actions differ with dosage given:
B. 1-2mcg/kg/min - dilates renal/mesenteric blood vessels (no effect on heart rate or blood pressure).
C. 2-10mcg/kg/min - beta effects on heart which usually increase cardiac output without increasing heart rate or blood pressure.
D. 10-20mcg/kg/min – peripheral alpha effects cause peripheral vasoconstriction and increased blood pressure.
E. 20-40mcg/kg/min - alpha effects reverse dilatation of renal and mesenteric vessels with resultant decreased flow.

INDICATIONS:

A. Primary indication is cardiogenic shock.
B. May be useful for other forms of shock, except hypovolemic.

PRECAUTIONS:

A. May induce tachyarrhythmias, in which case infusion should be decreased or stopped.
B. High doses may cause extreme peripheral vasoconstriction. Conversely, low doses may cause a decreased blood pressure due to peripheral dilation.
C. Should not be added to sodium bicarbonate or other alkaline solutions since dopamine will be inactivated in alkaline solutions.

SIDE EFFECTS AND SPECIAL NOTES:

A. The most common side effects include ectopic beats, nausea, and vomiting. Angina has been reported following treatment. (Tachycardia and arrhythmias are less likely than with other catecholamines.)
B. Can precipitate hypertensive crisis in susceptible individuals, i.e. patients on MAO inhibitors (Parnate®, Nardil®, Marplan®).
C. Consider hypovolemia and treat this with appropriate fluids before administration of dopamine.
D. Dopamine is contraindicated for hypovolemic shock.

EPINEPHRINE

ADRENALIN®

PHARMACOLOGY AND ACTIONS:

A. Catecholamine with alpha and beta effects.
B. In general, the following cardiovascular responses can be expected:
   a. Increased heart rate
   b. Increased myocardial contractile force
   c. Increased systemic vascular resistance
   d. Increased arterial blood pressure
   e. Increased myocardial O2 consumption
   f. Increased automaticity

INDICATIONS:

A. Ventricular fibrillation.
B. Asystole.
C. Electromechanical dissociation.
D. Systemic allergic reactions.
E. Asthma in patients under 40.

PRECAUTIONS:

A. Epinephrine increases cardiac work and can precipitate angina, MI, or major dysrythmias in an individual with ischemic heart disease.
B. Consider wheezing in an elderly person as pulmonary edema in addition to COPD with bronchospasm.

SIDE EFFECTS AND SPECIAL NOTES:

A. Anxiety, tremor, headache.
B. Tachycardia, PVCs.
C. Angina, hypertension.
D. To reduce the fluid volume placed in the lungs when administering epinephrine through the ET tube, the following doses are recommended:
   a. In a 10 cc syringe, draw 2 mg (2 cc) from multi-dose vial (1:1,000 concentration) and then draw up 8 cc Normal Saline in same syringe. **OR**
   b. Draw up 1 mg (1 cc) from multi-dose vial (1:1,000 concentration) and administer with 1 dose of 1:10,000 concentration pre-filled syringe (11cc of fluid).

E. Drip for Bradycardia
   a. Inject 1 mg of epinephrine into 500 ml of normal saline. This provides a concentration of 2 µg/ml. Administer at a starting dose of 2 µg/ml and titrate to effect (maximum dose of 10 µg/ml).

FENTANYL

PHARMACOLOGY AND ACTIONS:

A. Fentanyl is a synthetic narcotic that has an analgesic effect approximately 50-100 times greater than that of morphine.
B. Peak analgesic effects last 30-60 minutes.

INDICATIONS:

A. Chest pain ischemia unresponsive to nitroglycerin.
B. Severe pain.

CONTRAINDICATIONS:

A. Known allergy to fentanyl.
B. Hypotension.
C. Undiagnosed head or abdominal pain or trauma or suspected trauma to abdomen or head.

PRECAUTIONS:

A. Use caution when administering fentanyl to patients who suffer from hepatic and/or renal impairment.
B. Muscular rigidity may occur which prevents adequate chest wall excursion and results in hypoventilation.
C. Not recommended for patients taking MAO inhibitors.

SIDE EFFECTS AND SPECIAL NOTES:

A. Respiratory depression and apnea may result. A high level of attentiveness to the patient's respiratory status and prevention of hypoventilation/hypoxia are required.
B. Hypotension may develop especially in older patients, volume depleted patients, or patients requiring elevated systemic vascular resistance for the maintenance of their blood pressure.
C. Hypotension is usually responsive to Narcan® and the Trendelenburg position.
D. Bradycardia is a rare side effect of fentanyl administration. Treat with atropine only after ensuring adequate ventilation and oxygenation.
E. Fentanyl has a high tendency for addiction and abuse and is classified as a Schedule II drug under the Controlled Substances Act of 1970. Follow your Controlled Substance protocol or procedure for documentation, wasting and replacement.

GLUCAGON

PHARMACOLOGY AND ACTIONS:

Glucagon is a hormone which causes glucose mobilization in the body. It works opposite to insulin, which causes glucose storage. It is released at times of insult or injury when glucose is needed and mobilizes glucose from body glycogen stores. Return to consciousness should be within 20 minutes of IM dose if patient is hypoglycemic.

INDICATIONS:

A. Known hypoglycemia (preferably demonstrated by blood glucose determination).
B. Altered mental status.
C. Possible Beta Blocker OD (Contact OLMC).

PRECAUTIONS:

IV glucose or dextrose is the treatment of choice for hypoglycemia. Use of Glucagon is restricted to patients who are seizing, comatose, combative, or with collapsed veins and in whom an IV cannot be started. In these rare situations, it may be invaluable.

SIDE EFFECTS AND SPECIAL NOTES:

A. Nausea and vomiting may occur.
B. Persons with no liver glycogen stores (malnutrition, alcoholism) may not be able to mobilize any glucose in response to Glucagon.

HYDROXOCOBALAMIN

CYANOKIT®

PHARMACOLOGY AND ACTIONS:

The action of the Cyanokit® in the treatment of cyanide poisoning is based on its ability to bind cyanide ions. Each hydroxocobalamin molecule can bind one cyanide ion by substituting it for the hydroxo ligand linked to the trivalent cobalt ion, to form cyanocobalamin, which is then excreted in the urine.

INDICATIONS:

A. Known cyanide poisoning
   1. Good patient history
      a. Exposure to hydrogen cyanide and its salts, cyanogenic plants, aliphatic nitriles and prolonged exposure to sodium nitroprusside.
      b. Signs/Symptoms
         1) Headache, confusion, dyspnea, chest tightness, nausea
         2) Altered mental status, seizures/coma, mydriasis, tachypnea/hyperpnea, bradypnea/apnea, hypertension/hypotension, cardiovascular collapse, vomiting
   2. Air monitoring
B. Administration authorized by OLMC

CONTRAINDICATIONS:

None.

SIDE EFFECT AND SPECIAL NOTES:

Serious adverse reactions include allergic reactions and increases in blood pressure.

ADMINISTRATION:

A. Add 100 mL of D5W to vial using transfer spike. Fill to line with vial in the upright position.
B. Rock or rotate the vial for 30 seconds to mix the solution. **DO NOT SHAKE**
C. Using the supplied vented IV tubing to piggyback onto established IV, infuse over 7.5 minutes (266 gtts/min – approximately 4 gtts/second).
D. Repeat steps A through C with second vial.

IPRATROPIUM

ATROVENT®

PHARMACOLOGY AND ACTIONS:

Ipratropium is an atropine derivative used for inhalation therapy. Recent studies have shown that for severe asthma, ipratropium taken in addition to a short-acting beta agonist (such as Albuterol) can provide greater bronchodilation and clinical benefit than the beta agonist alone.

INDICATIONS:

As a supplement to Albuterol in patients with asthma and COPD.

CONTRAINDICATIONS:

A. Patients with severe glaucoma.
B. Patients with peanut allergy

SIDE EFFECT AND SPECIAL NOTES:

A. Dry mouth.
B. Pharyngeal irritation.
C. Increased intra-ocular pressure in glaucoma patients.

LIDOCAINE

PHARMACOLOGY AND ACTIONS:

A. Decrease sympathetic mediated pressor response during intubation.
B. Localized anesthetic post IO insertion.

INDICATIONS:

A. As a premedication prior to intubation with Succinylcholine in patients with suspected increased intracranial pressure.
B. Administered to conscious patients who receive an IO.

SIDE EFFECTS AND SPECIAL NOTES:

A. Side Effects: Sleepiness, dizziness, disorientation, confusion, convulsions and hypotension.

MAGNESIUM SULFATE

PHARMACOLOGY AND ACTIONS:

Magnesium is a cation which is present in human cells and intercellular fluids. It acts as an antiarrhythmic agent and may convert ventricular fibrillation and tachycardia.

INDICATIONS:

A. Magnesium sulfate is used to treat and prevent seizures in women with preeclampsia/eclampsia. You may encounter a woman who is on a magnesium drip during an inter-hospital transfer.

PRECAUTIONS:

A. In the non-arrest patient, magnesium may cause hypotension, bradycardia or decreased reflexes and respiratory depression.
B. It is important to infuse this medication at a slow rate in order to decrease the chance of side effects.

Eclampsia/Pre-Eclampsia Bolus

4 grams in 100 cc

1. 10 gtts/ml set – 200 gtts/min = 4 gm/5 minutes
2. 10 gtts/ml set – 100 gtts/min = 4 gm/10 minutes

Cardiac Arrest (Torsades) Bolus

1 – 2 grams in 10 cc D5W over 5 – 20 minutes

MIDAZOLAM

VERSED®

PHARMACOLOGY AND ACTIONS:

Midazolam is a benzodiazepine with potent sedative, anxiolytic and anti-convulsant properties. Midazolam also causes significant antegrade amnesia when administered IV and it is well absorbed IM.

INDICATIONS:

A. Status Seizures. For the purposes of these protocols, this would be any seizure, which has lasted longer then 2 minutes, or two consecutive seizures without regaining consciousness. Do not give unless the patient is actively seizing.
B. To control pain and discomfort during cardioversion or pacing.
C. As a pre-induction agent prior to using paralytics.

PRECAUTIONS:

Midazolam causes respiratory depression and/or hypotension especially if administered rapidly. This occurs more commonly then with other benzodiazepines.

SIDE EFFECT AND SPECIAL NOTES:

A. Side effects include drowsiness, hypotension, respiratory depression and apnea. These are more likely to occur in the very young and in the elderly. Rarely, patients may experience paradoxical agitation.
B. More likely to cause respiratory depression in patients who have co-ingested other CNS depressant drugs such as opioids, alcohol and barbiturates.
C. Drug is metabolized in the liver and excreted by the kidney. Doses should be adjusted accordingly in patients with underlying hepatic or renal diseases and low flow states such as CHF.
D. When used for pacing and cardioversion, the drug should be given by slow IV push and the dose titrated to effect.

MORPHINE SULFATE

PHARMACOLOGY AND ACTIONS:

A. Morphine is a narcotic with analgesic and hemodynamic properties. It exerts its analgesic effects on the central nervous system, simultaneously inducing drowsiness, mental clouding and mood changes.
B. Morphine has several hemodynamic actions including increasing venous capacity, pools blood peripherally and decreases its return. This relieves pulmonary congestion and left ventricular end diastolic dimensions/myocardial wall stress. These all result in decreased myocardial oxygen demand.
C. Reduces systemic vascular resistance at the arteriolar level (reduced afterload), decrease myocardial oxygen requirements. Onset of action is in 2-3 minutes, peaks at 7-10 minutes, lasts 3-5 hours.

INDICATIONS:

A. Pulmonary edema in respiratory distress patient.

CONTRAINDICATIONS:

A. Known allergy to morphine.
B. Hypotension.
C. Undiagnosed head or abdominal pain or trauma or suspected trauma to abdomen or head.

PRECAUTIONS:

A. Morphine causes respiratory depression. This is reversible with Narcan®. Respiratory depression is more likely in patients with pre-existing respiratory insufficiency (e.g. COPD).
B. Narcan® and respiratory support should always be at hand when administering Morphine.

SIDE EFFECTS AND SPECIAL NOTES:

A. Nausea and vomiting are common side effects.
B. The analgesic effect of Morphine should not be gauged solely by the total elimination of pain. It reduces the perception of pain while the patient may still recognize the painful stimulus.
C. Hypotension may develop especially in older patients, volume depleted patients, or patients requiring elevated systemic vascular resistance for the maintenance of their blood pressure. Hypotension is usually responsive to Narcan® and the Trendelenburg position.
D. Morphine has a high tendency for addiction and abuse and is classified as a Schedule II drug under the Controlled Substances Act of 1970. Follow your Controlled Substance protocol or procedure for documentation, wasting and replacement.

NALOXONE

NARCAN®

PHARMACOLOGY AND ACTIONS:

Naloxone is a narcotic antagonist which competitively binds to narcotic sites but which exhibits almost no pharmacologic activity of its own. Duration of action: 1-4 hours.

INDICATIONS:

A. Reversal of narcotic effects, particularly respiratory depression, due to narcotic drugs either ingested, injected or administered in the course of treatment. Narcotic drugs include morphine, Demerol®, heroin, hydromorphone hydrochloride (Dilaudid®), Percodan®, codeine, Lomotil®, propoxyphene, (Darvon®); pentazocine (Talwin®).
B. Diagnostically in coma of unknown etiology.

PRECAUTIONS:

A. In patients physically dependent on narcotics, violent withdrawal symptoms may occur.
B. Be prepared to restrain the patient if violent withdrawal is expected.

SIDE EFFECTS AND SPECIAL NOTES:

A. This drug is safe and free from side effects. Do not hesitate to use it if indicated.
B. The duration of some narcotics is longer than naloxone and the patient must be monitored closely. Repeated doses of naloxone may be required. Patients who have received this drug must be transported to the hospital because coma may reoccur.
C. May need large doses to reverse propoxyphene, (Darvon®) overdose.

NITROGLYCERINE

NITROLINGUAL SPRAY®

PHARMACOLOGY AND ACTIONS:

A. Cardiovascular effects include:
   1. Reduced venous tone -- this causes pooling of blood in peripheral veins and decreased return of blood to the heart (reduced pre-load).
   2. Decreased peripheral resistance (reduced afterload).
   3. Dilatation of coronary arteries (if not already at maximum).

B. General smooth muscle relaxation.

INDICATIONS:

A. Angina.
B. Pulmonary edema.

PRECAUTIONS:

A. Generalized vasodilation may cause profound hypotension and reflex tachycardia.
B. NTG should be stored in a cool place.
C. Use with caution in hypotensive patients.
D. Do not shake canister prior to administration.

SIDE EFFECTS AND SPECIAL NOTES:

A. Common side effects are throbbing headache, flushing, and dizziness.
   1. NOTE: Therapeutic effect is enhanced, but adverse effects are increased when patient is upright.

B. Because nitroglycerin causes generalized smooth muscle relaxation, it may be effective in relieving chest pain caused by esophageal spasm.

ONDANSETRON HYDROCHLORIDE

ZOFRAN®

PHARMACOLOGY AND ACTIONS:

Ondansetron hydrochloride is an antiemetic.

INDICATIONS:

A. Prevention and control of nausea and vomiting.

CONTRAINDICATIONS:

A. Known hypersensitivity to Ondansetron hydrochloride or similar medications such as Anzemet or Kytril
B. Decreased liver function
C. Intestinal obstruction
D. Cardiac arrhythmias

SIDE EFFECT AND SPECIAL NOTES:

A. Constipation, diarrhea, dizziness, fatigue, headache, hypotension.
B. Rarely transient EKG changes to include prolonged QT interval.

ADMINISTRATION:

A. 4 mg IV/IM
B. May repeat with 4 mg IV after two minutes if patient still vomiting.

ORAL GLUCOSE

PHARMACOLOGY AND ACTIONS:

40 % glucose solution of complex carbohydrates useful in the management of hypoglycemic patients who are conscious.

INDICATIONS:

Conscious patients with hypoglycemia.

PRECAUTIONS:

Patient must have an intact gag reflex and the ability to maintain their own airway.

OXYGEN

PHARMACOLOGY AND ACTIONS:
Oxygen added to the inspired air raises the amount of oxygen in the blood and the amount delivered to the tissues. Breathing in most persons is regulated by small changes in acid/base balance and CO2 levels. It takes a large drop in blood oxygen concentration to stimulate respiration.

INDICATIONS:

A. Suspected hypoxemia or respiratory distress from any cause.
B. Acute chest pain in which cardiac ischemia or myocardial infarction is suspected.
C. Shock (decreased oxygenation of tissues) from any cause.
D. Carbon monoxide poisoning.

PRECAUTIONS:

A. If the patient is not breathing adequately on their own, the treatment of choice is ventilation with oxygen.
B. A small percentage of patients with COPD breathe because they are hypoxic. DO NOT WITHHOLD OXYGEN BECAUSE OF THIS POSSIBILITY.

SIDE EFFECTS AND SPECIAL NOTES:

A. Restlessness may be an important sign of hypoxia.
B. Oxygen supports combustion.
C. Nasal prongs work equally well on nose and mouth breathers.

SODIUM BICARBONATE

PHARMACOLOGY AND ACTIONS:

Sodium Bicarbonate is an alkalotic solution, which neutralizes acids found in the blood. Acids are increased in the blood when body tissues become hypoxic due to cardiac or respiratory arrest. Acidosis depresses cardiac contractility, the cardiac response to catecholamines and makes the heart more likely to fibrillate and less likely to be defibrillated. Unfortunately, in the non-perfusing patient, Sodium Bicarbonate has been shown to increase the intercellular acidosis and thus worsen the acid/base balance.

INDICATIONS:

A. To control arrhythmias in tricyclic antidepressant overdose or hyperkalemia.
B. Acidosis caused by cardiac arrest, entrapment, and other metabolic dysfunctions.

PRECAUTIONS:

A. Addition of too much Sodium Bicarbonate may result in alkalosis, which is difficult to reverse and can cause as many problems in resuscitation as acidosis.
B. May increase cerebral acidosis, especially in diabetics who are ketotic.
C. Do not mix sodium bicarbonate with calcium preparations. Slowly flush remaining calcium gluconate from the catheter prior to administering sodium bicarbonate.

SIDE EFFECTS AND SPECIAL NOTES:

A. Each amp of Bicarb contains 50mEq of sodium. This may increase intravascular volume and hyperosmolarity conditions, resulting in cerebral impairment.
B. Bicarbonate will probably be helpful, and should be used early in cardiac arrest of known cyclic antidepressant overdose or renal failure with possible hyperkalemia.

SUCCINYLCHOLINE

ANECTINE®

PHARMACOLOGY AND ACTIONS:

Succinylcholine is a short acting, motor nerve depolarizing, skeletal muscle relaxant. It competes with acetylcholine to combine with cholinergic receptors in the motor end plate causing depolarization inhibiting neuromuscular transmission. After IV injection, paralysis is obtained within one or two minutes and persists for approximately 5 to 10 minutes. Effects then start to fade and return to normal. Muscle relaxation begins in the eyelids and jaw, then progresses to the limbs, abdomen and finally the diaphragm and intercostal muscles. It has no effect on consciousness. Succinylcholine is hydrolyzed by plasma pseudocholinesterase and is excreted by the kidneys (10%).

INDICATIONS:

To achieve temporary paralysis where endotracheal intubation is indicated.

CONTRAINDICATIONS:

A. Succinylcholine may be contraindicated in patients with:
   1. A hypersensitivity to the drug.
   2. A family or personal history of malignant hyperthermia.
   3. Major trauma or burn patients, 7 to 10 days post burn.
   4. Known hyperkalemia.
   5. Chronic paralysis of a limb or limbs (extremity or extremities).
   6. Patients with acute exposures to organophosphate substances.
   7. Patients who have been entrapped for two hours or longer.

PRECAUTIONS:

A. Oxygen, ventilation equipment and resuscitation drugs should be readily available.
B. Succinylcholine produces paralysis, but does not alter the patient's level of consciousness. Paralysis in the conscious patient is very frightening, therefore sedation should be provided to the patient during the procedure - - even if you do not think the patient can hear you.
C. In rare individuals, because of a deficiency in pseudocholinesterase, paralysis may persist for a prolonged period of time. Be prepared to continue assisting ventilations for the entire period.

TETRACAINE

PONTOCAINE®

PHARMACOLOGY AND ACTIONS:

Topical anesthesia ointment for ophthalmic use.

INDICATIONS:

Effective in the management of patients who have had chemical exposures to the eyes.

CONTRAINDICATIONS:

A. Hypersensitivity to tetracaine/ester-type anesthetics
B. Severe hypersensitivity to sulfite
C. Drug interactions
    1. cisatracurium
    2. hyaluronidase
    3. sulfonamides

THIAMINE

VITAMIN B_1®

PHARMACOLOGY AND ACTIONS:

Thiamine is a B vitamin (B1) found in adequate amounts in the normal diet, but frequently deficient in alcoholics. In alcoholics the deficiency causes Wernicke's syndrome, an acute and reversible encephalopathy characterized by ataxia, eye muscle weakness (diplopia and nystagmus), and mental derangements. Of more serious concern is the memory disorder, Korsakoff's psychosis. Korsakoff's psychosis may be irreversible once it becomes established. For this reason, treatment with Thiamine is indicated if Wernicke's or Korsakoff's syndrome is recognized. Since Thiamine is utilized in carbohydrate metabolism, the syndromes may be precipitated by the administration of dextrose in the alcoholic, who often has depleted Thiamine stores. The onset of these syndromes is within hours after glucose administration if Thiamine is not given in the interim.

INDICATIONS:

A. In the severely malnourished prior to the administration of 50% dextrose.
B. In suspected Wernicke's or Korsakoff's syndrome.

PRECAUTIONS:

A. Allergic reactions occur but are extremely rare.
B. Rapid IV administration has been associated with hypotension.

TRANDATE

LABETOLOL®

PHARMACOLOGY AND ACTIONS:

Trandate injection is an adrenergic receptor blocking agent that has both selective alpha adrenergic and nonselective beta-adrenergic receptor blocking actions in a single substance.

INDICATIONS:

Trandate injection is indicated for control of blood presure in severe hypertension.

CONTRAINDICATIONS:

Trandate injection is contraindicated in bronchial asthma, overt cardiac failure, first degree heart block, cardiogenic shock, severe bradycardia

SIDE EFFECT AND SPECIAL NOTES: .

Beta-blockers even those with apparent cardioselectivity should not be used in patients with a history of obstructive airway disease, including asthma.

VECURONIUM

NORCURON®

PHARMACOLOGY AND ACTIONS:

Vecuronium Bromide is a long-acting non-depolarizing (competitive blocking) skeletal muscle relaxant. Vecuronium competes with acetylcholine at cholinergic receptor sites. Its maximal neuromuscular blockade occurs in five minutes and its duration of action is about 30 to 45 minutes. As with Succinylcholine, complete paralysis of all skeletal muscles occurs and there is no effect on consciousness at all.

INDICATIONS:

To maintain prolonged paralysis in the intubated patient. Vecuronium can be used when the effects of Succinylcholine start to wear off after the patient has been intubated.

CONTRAINDICATIONS:

None.

SIDE EFFECT AND SPECIAL NOTES:

A. Due to the prolonged duration of action, it is absolutely essential to constantly monitor endotracheal tube placement.
B. Patients with renal or hepatic failure may experience prolonged paralysis.
C. Vecuronium can be used to maintain paralysis even if intubation was performed without Succinylcholine.

OCALA/MARION COUNTY EMERGENCY MEDICAL SERVICE

APPENDIX B
REFERENCES

Originally Issued
February 1, 2009

Revised Edition Issued
February 1, 2009

APPROVED ABBREVIATION LIST

–	Negative	BLS	Basic Life Support
#	Number	BM	Bowel Movemnet
Δ	Change	B/P	Blood Pressure
2°	Secondary to	BPM	Beats per minute
♀	Female	BS	Blood Sugar
♂	Male	BSA	Body Surface Area (%)
↓	Decreased	BVM	Bag Valve Mask
=	Equal	$\overline{c}$	With
↑	Increased	c/o	Complains of
@	at	C°	Celsius
+	Positive	CABG	Coronary Artery Bypass Graft
$\overline{a}$	Before	CaCl	Calcium Chloride
A/O	Alert and Oriented	CAD	Coronary Artery Disease
AAA	Abdominal Aortic Aneurysm	CBC	Complete Blood Count
Abd	Abdomen	CC	Chief Complaint
ABG	Arterial Blood Gas	CCU	Coronary Care Unit
AC	Antecubital	CF	Cystic Fibrosis
ACL	Anterior Cruciate Ligament	CHF	Congestive Heart Failure
ACLS	Advanced Cardiac Life Support	CID	Cervical Immobilization Device
AED	Automated External Defibrillator	cm	Centimeter
A-Fib	Atrial Fibrillation	CNS	Central Nervous System
A-Flutter	Atrial Flutter	CO	Carbon Monoxide
AIDS	Acquired Immunodeficiency Syndrome	COPD	Chronic Obstructive Pulmonary Disease
AKA	Above Knee Amputation	CP	Chest Pain
ALF	Adult Living Facility	CPAP	Continuous Positive Airway Pressure
ALS	Advanced Life Support	CPR	Cardiorespiratory Resuscitation
AMA	Against Medical Advice	CSF	Cerebrospinal Fluid
AMI	Acute Myocardial Infarction	CSM	Circulation, Sensation, Movement
AMS	Altered Mental Status	C-spine	Cervical Spine
ARDS	Adult Respiratory Distress Syndrome	CT	Computerized Tomography
ASA	Aspirin	CVA	Cerebral Vascular Accident
ASHD	Atherosclerotic Heart Disease	D5W	5% Dextrose in Water
BBB	Bubdle Branch Block	D50	50% Dextrose in Water
BBS	Bilateral Breath Sounds	D/C	Discontinue
BKA	Below Knee Amputation	DCAP/BTLS	Deformities, Contusions, Abrasions, Penetrations, Burns, Tenderness, Lacerations, Swelling

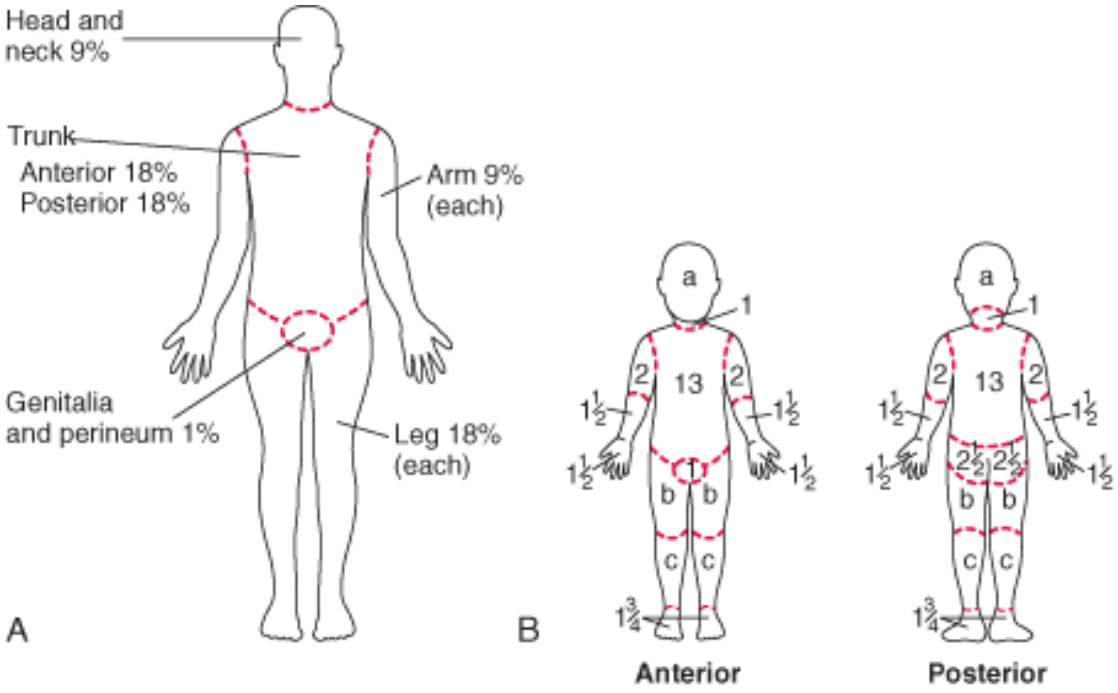
DD	Differential diagnosis	GSW	Gunshot Wound
defib	Defibrillate	gtt(s)	Drop(s)
Dig	Digoxin	gtts/min	Drops per Minute
DKA	Diabetic Ketoacidosis	GU	Genitourinary
dL	Deciliter	GYN	Gynecological
DM	Diabetes Mellitus	hr	Hour
DNR(O)	Do Not Resuscitate (Order)	H/A	Headache
DOA	Dead on Arrival	Haz Mat	Hazardous Materials
DOB	Date of Birth	HBV	Hepatitis B Virus
DPT	Diptheria-Pertussis-Tetanus	HCO3	Sodium Bicarbonate
DTs	Delirium Tremens	HCTZ	Hydrochlorothiazide
DVT	Deep Vein Thrombosis	HEENT	Head, Eyes, Ears, Nose, and Throat
Dx	Diagnosis	HgB	Hemoglobin
EEG	Electroencephalogram	HIV	Human Immunodeficiency Virus
EJ	External Juglar	HMP	Hazardous Materials Paramedic
EKG, ECG	Electrocardiogram	HPI	History of present illness
EMD	Electromechanical Dissociation	HR	Heart Rate
EMT	Emergency Medical Technician	HTN	Hypertension
ENT	Ear, Nose, and Throat	Hx	History
Epi	Epinepherine	ICD	Implanted Cardio-Defibrillator
EPS	Extra Pyramidal Syndrome	ICP	Intracranial Pressure
ER	Emergency Room	ICU	Intensive Care Unit
ETA	Estimated Time of Arrival	IDDM	Insulin-Dependent Diabetes Mellitus
ETCO2	End Tidal Carbon Dioxide	IM	Intramuscular
ETOH	Ethyl Alcohol	IO	Intraosseous
ETT	Endotracheal Tube	IV	Intravenous
F°	Fahrenheit	IVP	Intravenous Push
FA	Forearm	IVPB	Intravenous Piggyback
FBAO	Foreign Body Airway Obstruction	J	Joules
Fx	Fracture	JVD	Jugular Venous Distention
gm	Gram	K	Potassium
G	Gauge	KED	Kendrick Extrication Device
G/P	Gravida/Para (pregnancies/births)	kg	Kilogram
GCS	Glasgow Coma Scale	KVO	Keep Vein Open
GI	Gastrointestinal	(L)	Left

lac	Laceration	NC	Nasal Cannula
LBBB	Left Bundle Branch Block	Neb	Nebulizer
LLE	Left Lower Extremity	Neuro	Neurological
LLL	Left Lower Lobe	NG	Nasogastric
LLQ	Left Lower Quadrant	NGT	Nasogastric Tube
LMP	Last Menstrual Period	NICU	Neonate Intensive Care Unit
LOC	Level of Consciousness	NIDDM	Non-Insulin-Dependent Diabetes Mellitus
LPM	Liters per Minute	NK(D)A	No Known (Drug) Allergies
LPN	Licensed Practical Nurse	NPA	Nasopharyngeal Airway
LR	Lactated Ringer's	NPO	Nothing by Mouth
LSB	Long Spine Board	NRBM	Nonrebreather Mask
LUE	Left Upper Extremity	NS	Normal Saline
LUL	Left Upper Lobe	NSAID	Nonsteroidal anti-inflammatory agent
LUQ	Left Upper Quadrant	NS	Normal Saline
mcg	Microgram	NSR	Normal Sinus Rhythm
MCI	Mass Casualty Incident	NTG	Nitroglycerin
MCL1	Modified Chest Lead	Ø	No, Not, None
ME	Medical Examiner	O2	Oxygen
Meds	Medications	OB	Obsterical
Med Hx	Medical History	OD	Overdose
mEq	Milliequivalent	OLMC	Online Medical Control
mg	Milligram	OPA	Oropharyngeal Airway
MI	Myocardial Infarction	OR	Operating Room
min	Minute	oz	Ounce
ml	Milliliter	P	Pulse
mm	Millimeter	$\bar{p}$	After
mmHg	Millimeters of Mercury	PAC	Premature Atrial Contraction
MPIC	Medical Person in Charge	Palp	Palpation
Do NOT use MS or MSO4, write morphine sulphate		PCN	Penicillin
Do NOT use MgSO4, write magnesium sulphate		PEA	Pulseless Electrical Activity
MVC	Motor Vehicle Collision	PEARL	Pupils equal and reactive to light
n/a	Not Applicable	PEEP	Positive end-expiratory pressure
n/v	Nausea/Vomiting	PERRLA	Pupils equal, round, reactive to light with accommodation
NaCl	Sodium Chloride	PICU	Pediatric Intensive Care Unit
NaHCO3	Sodium Bicarbonate	PID	Pelvic Inflammatory Disease

PJC	Premature Junctional Contraction	S/S	Signs and Symptoms
PMD	Private Medical Doctor	sat, O2 sat	saturation, Oxygen saturation
PMHx	Past Medical History	SBP	Systolic Blood Pressure
PMS	Pulse, Motor, Sensation	SQ	Subcutaneous
PND	Paroxysmal Nocturnal Dyspnea	SIDS	Sudden Infant Death Syndrome
PNS	Peripheral Nervous System	SL	Sublingual
po	Orally	SNF	Skilled Nursing Facility
POA(HC)	Power of Attorney for Health Care	SOB	Shortness of Breath
prn	As Needed	STAT	immediately
PSVT	Paroxsysmal Supraventrical Tachycardia	STD	Sexually Transmitted Disease
Pt	Patient	SVT	Supraventricular Tachycardia
PTA	Prior to Arrival	Temp	Temperature
PVC	Premature Ventricular Contraction	TB	Tuberculosis
Do NOT use qd/QD write out daily		TCP	Transcutaneous Pacing
Do NOT use q.i.d. write out 4x a day		TIA	Transient Ischemic Attack
Do NOT use QOD, write out every other day		DO NOT USE	t.i.d. write out three times daily
R	Respirations	TKO	To Keep Open
®	Right	TMJ	Temporomandibular joint
RBBB	Right Bundle Branch Block	TOC	Transfer of Care
RBC	Red Blood Cell	Tx	Treatment
Resp	Respiratory	UA	Urinanalysis
RLE	Right Lower Extremity	UOA	Upon Our Arrival
RLL	Right Lower Lobe	URI	Upper Respiratory Infection
RLQ	Right Lower Quadrant	UTI	Urinary Tract Infection
RML	Right Middle Lobe	V-Fib	Ventricular Fibrillation
RN	Registered Nurse	vs.	versus
ROM	Range of Motion	V/S	Vital Signs
RR	Respiratory Rate	V-Tach	Ventricular Tachycardia
RSI	Rapid Sequence Intubation	WBC	White Blood Cell
RUE	Right Upper Extremity	W/D	Warm and Dry
RUL	Right Upper Lobe	WNL	Within Normal Limits
RUQ	Right Upper Quadrant	WPW	Wolff-Parkinson White syndrome
RVR	Rapid Ventricular Response	Wt.	Weight
Rx	Medications, prescriptions	X	Times
s	Without	y/o	Year Old

RULE OF NINES

BODY SURFACE AREA



Relative percentage of body surface area (% BSA) affected by growth

	Age				
Body Part	**0 yr**	**1 yr**	**5 yr**	**10 yr**	**15 yr**
a = 1/2 of head	9 1/2	8 1/2	6 1/2	5 1/2	4 1/2
b = 1/2 of 1 thigh	2 3/4	3 1/4	4	4 1/4	4 1/2
c = 1/2 of 1 lower leg	2 1/2	2 1/2	2 3/4	3	3 1/4

Tell Us If You Have Pain

10
9

Worst Possible Pain
(El peor dolor)

8
7

Very Severe Pain
(Un dolor muy fuerte)

6
5

Severe Pain
(Un dolor fuerte)

4
3

Moderate Pain
(Un dolor moderato)

2
1

Mild Pain
(Un dolor suave)

0

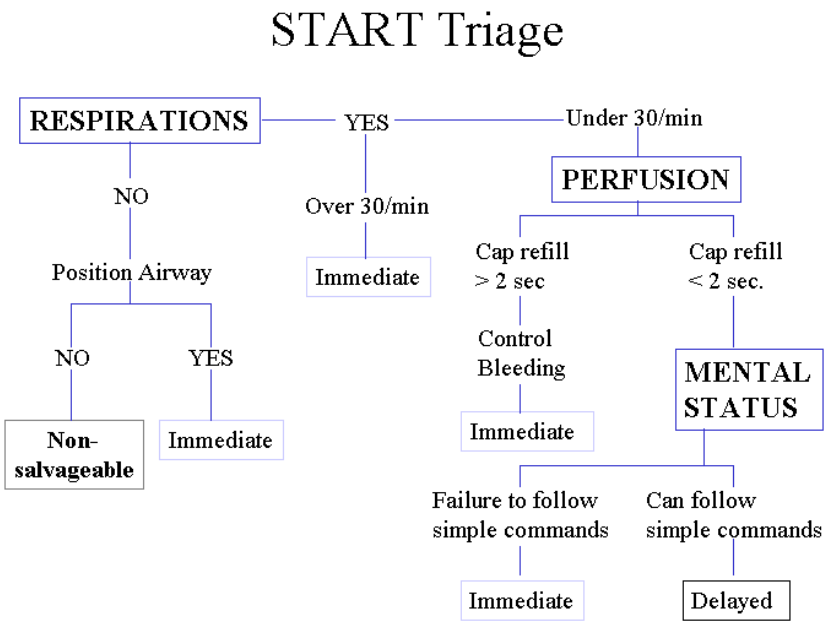
No Pain
(Sin dolor)

PEDIATRIC VITAL SIGNS

Age	Weight in kg	Minimum Systolic BP	Normal Heart Rate	Normal Respiratory Rate
Premature	Greater than 2.5	40	120-170	40-60
Term	3.5	60	100-170	40-60
3 months	6	60	100-170	30-50
6 months	8	60	100-170	30-50
1 year	10	72	100-170	30-40
2 years	13	74	100-160	20-30
4 years	15	78	80-130	20
6 years	20	82	70-115	16
8 years	25	86	70-110	16
10 years	30	90	60-105	16
12 years	40	94	60-100	16

START and JumpSTART are rapid assessments (less than 60 seconds) used to determine the severity of patients. This is based upon respiratory status, perfusion status and mental status. START is used for adult victims and JumpSTART is used for pediatric victims. Upon completion of the rapid assessment, patients are categorized into one of the conditions listed below. If at any point a category of Black or Red is determined, no further assessment is needed. The only treatment provided should be for life threatening injuries.

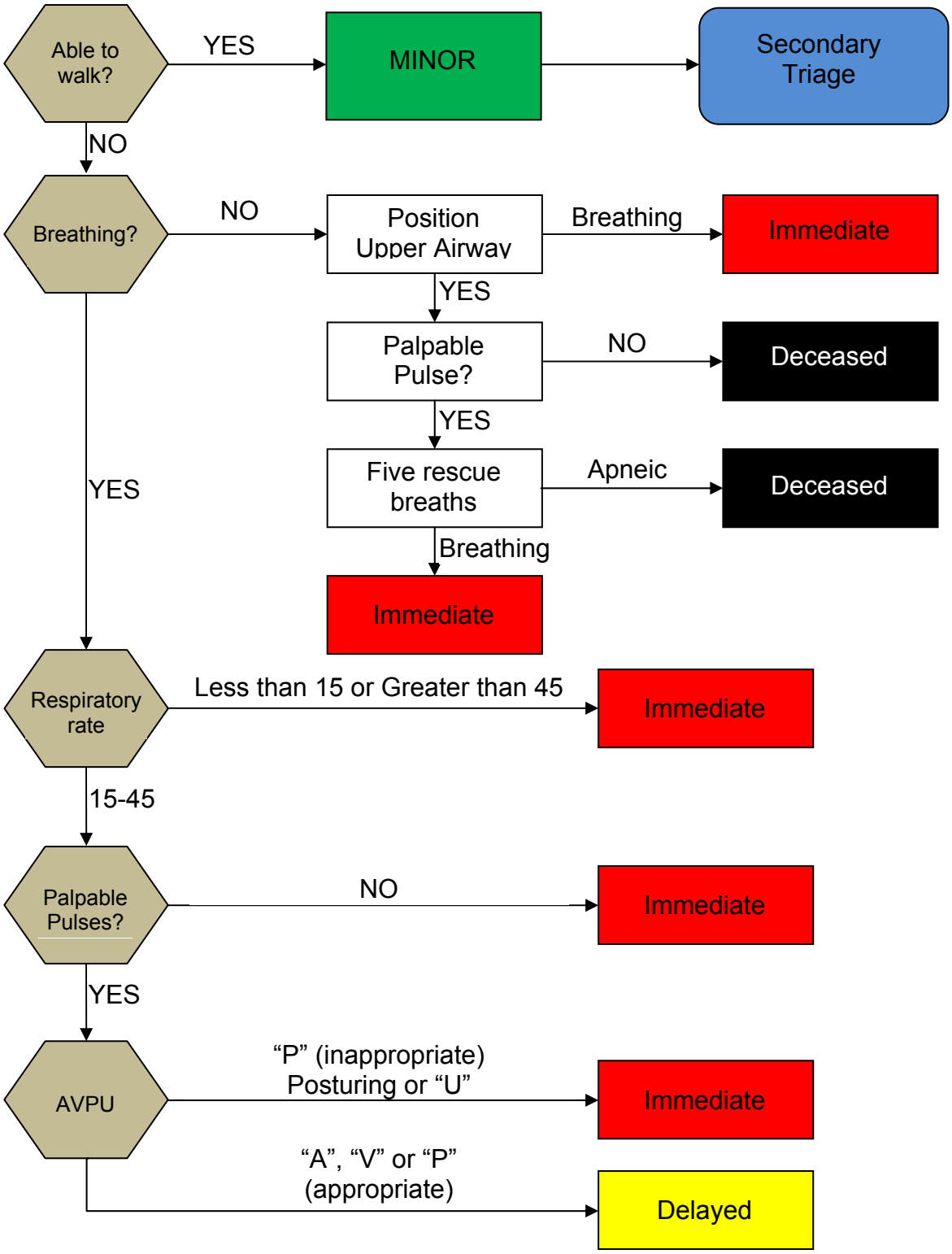
- Black – Deceased
- Red – Life threatening, immediate transport indicated
- Yellow – Serious, delayed transport indicated
- Green – Minor, walking wounded



START

Walking wounded	Minor (GREEN)
No respirations after head tilt	Deceased (BLACK)
Respirations over 30/minute	Immediate (RED)
Capillary refill over 2 seconds or no radial pulse	Immediate (RED)
Unable to follow commands	Immediate (RED)
Otherwise	Delayed (YELLOW)

JUMPSTART TRIAGE



Ocala/Marion County Emergency Medical Services (EMS) Pre-Hospital Guidelines	**Appendix B**	**Page 1 of 1**	**Issued November 1, 2009**	**Revised November 1, 2009**
	JumpSTART Triage		**Frank Fraunfelter Medical Director**	

AUTOVENT 4000 SETTINGS

Pounds	Kilograms	8ml/kg	9ml/kg	10ml/kg
80	36	288	324	360
90	**41**	**328**	**369**	**410**
100	45	360	405	450
110	**50**	**400**	**450**	**500**
120	55	440	495	550
130	**59**	**472**	**531**	**590**
140	64	512	576	640
150	**68**	**544**	**612**	**680**
160	73	584	657	730
170	**77**	**616**	**693**	**770**
180	82	656	738	820
190	**86**	**688**	**774**	**860**
200	91	728	819	910
210	**95**	**760**	**855**	**950**
220	100	800	900	1000
230	**105**	**840**	**945**	**1050**
240	109	872	981	1090
250	**114**	**912**	**1026**	**1140**
260	118	944	1062	1180
270	**123**	**984**	**1107**	**1200**
280	127	1016	1143	1200
290	**132**	**1056**	**1188**	**1200**