This is an abbreviated reference tool.
Please refer to your full Standard Operating Procedures/Medical Orders for more detail.
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**Effective 2017**

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Scene Size Up: Situational awareness; dynamic risk assessment — Assess/Intervene as needed.

Primary Assessment: General Impression
Level of consciousness — AVPU or GCS
Airway
Breathing — Correct Hypoxia/assure adequate ventilations
Circulation - Pulse, Perfusion, ECG, Vascular access, Disability
Expose

Secondary Assessment: Vital signs — BP MAP if able
Chief Complaint: history of present illness; SAMPLE History
Review of Systems: Head, Chest, Abdomen, Extremeties, Back, Neuro, Skin
Position
Nausea

ONDANSETRON 4 mg oral dissolve tablet [BLS] or slow IVP over no less than 30 sec [ALS]
May repeat once in 10 min to total of 8 mg

Secondary Assessment Continued: Pain

FENTANYL: 1 mcg/kg (max single dose 100 mcg) IVP/IN/IM/IO.
May repeat once in 5 min: 0.5 mcg/kg (max dose 50 mcg). Max total dose per SOP: 150 mcg (1.5 mcg/kg)
Elderly (≥ 65) / debilitated: 0.5 mcg/kg (max single dose 50 mcg) IVP/IN/IM/IO
Additional doses require OLMC: 0.5 mcg/kg q. 5 min up to a total of 3 mcg/kg (300 mcg) if indicated & available

Secondary Assessment Continued: Pain
Ongoing assessment — Stable vs Unstable
Patient Disposition

Target SpO2: 94%-98% (92% COPD) unless hyperoxia contraindicated*
O₂ 1-6 L/NC: Adequate rate/depth; minimal distress; SpO₂ 92%-94% (88%-91% COPD)
O₂ 12-15 L/NRM: Adequate rate/depth; mod/severe distress; SpO₂ < 92%; (<88% COPD)
O₂ 15 L/ BVM: Apnea and/or shallow/inadequate rate/depth with moderate/severe distress; unstable
Adults: 1 breath every 6 sec (10 breaths/minute) (Asthma: 6-8 BPM)
CPAP: Per appropriate SOP

Ref page 3-4 in SOP
Establish OLMC via radio, landline or cellular phone as soon as practical
*Notify OLMC ASAP regarding critical (time sensitive patients)*

**GENERAL FORMAT**
- Identification
- Age-Gender of patient
- LOC and Orientation
- Chief Complaint (OPQRST)
- History (SAMPLE)
- Assessment findings: Physical exam, Vitals, Skin, $\text{SpO}_2$, $\text{EtCO}_2$, ECG, BG, GCS.
- Treatment initiated
- Destination facility and ETA

**ABREVIATED REPORT**
- Indications: Multiple patient incidents; BLS transports with normal assessment findings; CRITICAL patients where priorities rest with patient care and # of EMS responders is limited to give a radio report.

**REPORT FORMAT**
- ID Information: Hospital contacted, EMS agency, receiving hospital and ETA
- Identify the nature of the situation and how it meets the criteria for an abbreviated report
- Patient age, gender, level of consciousness and orientation
- Chief complaint and brief history of present illness: Initial impression including perceived acuity/severity; apparent life-threats; degree of distress
- Vital signs and major interventions/resuscitation provided

An EMS “time-out” to allow for an uninterrupted **handover report** after hospital arrival is useful in ensuring continuity of care especially if a complete written/electronic EHRs are not left/downloaded at the time of pt handoff.
Withholding or Withdrawing Resuscitative Efforts

Use of this SOP MUST be guided by a physician. Contact OLMC via UHF radio or cellular phone. Note: MERCI radio or private phone may be used in rare circumstances per policy. Provide emotional support to patient and significant others. Patient disposition according to local and county requirements. **Patients may be pronounced dead in the field per individual System policy.** Document date and time of pronouncement and the physician’s name in the PCR/EHR. Document thoroughly all circumstances surrounding use of this protocol.

EMS personnel may withhold or cease resuscitative efforts in the following circumstances:

- There is a risk to the health and safety of EMS personnel
- Resources are inadequate to treat all patients (i.e., medium to large scale multiple patient incident)
- Death has been declared by a physician, Medical Examiner or coroner
- A child (< 18 years), where a Court Order is provided to EMS personnel indicating that CPR is not to be commenced
- Patient w/ blunt trauma who is found apneic, pulseless, and asystolic upon arrival of EMS at the scene

ADVANCED DIRECTIVES

IDPH POLST form: Components of a valid POLST form/DNR Order

Patients name

Resuscitation orders (Section A)

If “Attempt Resuscitation” box is checked, start full resuscitation per SOP
If “Do Not Attempt Resuscitation/DNR is checked, do not begin CPR

Date

3 Signatures: Patient or legal representative, Witness, Authorized practitioner name and signature

Termination of Resuscitation (TOR)

A physician’s order is required to stop resuscitation

Provide care per SOP based on patient's condition.

Contact OLMC physician and explain events. Report any response to EMS treatment.

Criteria to consider:

- Adult is normothermic and experienced an arrest unwitnessed by bystanders or EMS;
- No bystander CPR was provided;
- The patient has remained in continuous monitored asystole or cardiac arrest with a non-shockable rhythm with no ROSC after full ALS resuscitation in the field for at least 30 minutes;
- No AED or defibrillator shocks have been delivered for at least 30 minutes;
- Capnography (if available) has remained ≤ 10 for 20 minutes
- There are no reversible causes of cardiac arrest identified.

The physician may give the order to discontinue medical treatment if determined to be appropriate.

Note the time resuscitation was terminated. Follow System policy for patient disposition.

Please see Full SOP’s for information and guidance for:
Injuries/presentations Incompatible with life “Triple Zero”
Power of Attorney for Healthcare and Living Wills and Hospice Patients

Ref page 7-8 in SOP
Aging reflects natural loss of function and reserve capacity as one gets older. Everyone ages differently at different rates – can look older or younger than chronological age - evaluate individually. Frail elderly may have impairments with mobility, nutrition, disability, and/or cognition; evaluate for possible abuse/neglect. Advanced age alone is NOT predictive of poor outcomes & should NOT be used as sole criterion for denying/limiting care. Elderly pts can experience significant injury despite a relatively minor mechanism. Advanced age should lower threshold for field triage directly to a trauma center if injured.

**IMC/ITC Special Considerations:** Rapid airway control; adequate oxygenation, ventilatory support. Assess: Pulmonary system, need for CPAP, Blunt thoracic trauma, Chronic hypercarbic state. **Generally Hypertensive:** Concern if HR >90 and SBP<110 in trauma. IV NS up to 1 liter. **Changes in mentation** can be due to many factors. Neuro exam may be unreliable. Keep them warm! PMH; ask about medications and compliance. **Accommodate** for hearing, visual, cognitive, memory, perception, communication and motor deficits. **Handle gently:** Carefully assess and provide selective spine precautions for falls. **Pain management:** Reduce doses of FENTANYL. All refusals must have OLMC contact from scene prior to releasing the patient per system policy/procedure.

**Circulatory**↓ total body water; ↓ vascular compliance, ↑ resistance, ↑ BP, ↓ circulating volume and blood flow to lower legs. Cardiac output does not elevate to compensate for increased O$_2$ needs. Oxygenation almost totally dependent on hemoglobin levels. Hypotension carries higher mortality and is a late & unreliable sign of hemorrhage.

**Cardiac**↑ afterload leads to ↑ LV wall stress, LV hypertrophy and ↓ LV compliance. Cardiac output ↑ from an ↑ in LV end diastolic volume, not from ↑ in contractile force. Meds (digoxin, beta or Ca blockers) may limit compensatory tachycardia and vasoconstriction normally seen in shock. Reduced heart function increases risk of pump failure in response to physiologic stress, shock and trauma.

**Pulmonary**Stiffer chest wall; ↓ total lung capacity, ↓ lung elastic recoil. Weaker muscles cause less efficient inhalation. Gas diffusion diminishes d/t loss of alveolar-capillary membrane surface area thus reducing pO$_2$ but no changes in pCO$_2$ if healthy. Impaired ventilatory effort related to inadequate pain relief. Decreased gag and cough reflexes. Pneumonia/pulm contusion risk.

**Renal** Fewer cortical nephrons, ↓ renal function; impairs metabolism and excretion of meds.

**Nervous**↓ brain mass; eye disease; ↓ depth perception; ↓ pupillary response; ↓ hearing & sense of smell; ↓ responsiveness to ANS & β agonists, ↓ pain perception. Prone to subdural hematomas; brain atrophy may delay S&S; high c-spine inj (C-2 fx) most common; Central cord syndrome more freq d/t hyperextension; nerve damage – peripheral neuropathy.
Extremely Obese Patients

**IMC/ITC special considerations**

**Positioning:** Consider airway risks. Head of stretcher 30-45 degree’s

**Airway Management:** Alternate Airways or 2 person BVM

**Breathing:** Assessment of lung sounds may be difficult. Listen over back first.

**Circulation:** Standard IV caths may not work. ECG; decreased amplitude (leads farther from the heart) flattening of T waves in II, III, AVF, V5, V6 & T flattening or inversion in I and AVL.

**Disability:** Decreased range of motion if supine.

**Exposure:** Difficult to examine Pannus (abd skin), back, buttocks, perineum.

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**Secondary Assessment:** Use right sized BP Cuff, consider forearm location

**Medications:** Consider using weight adjusted dose to avoid sub therapeutic levels. Contact OLMC for orders.

**Transport considerations:** Stretcher/spine board weight limits. Request a bariatric equipped vehicle if available.

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### Pulmonary

- Reduced pulmonary compliance
- ↑ Chest wall resistance
- ↑ Airway soft tissue/resistance
- Abnormal diaphragmatic position
- ↓ Diameter of trachea
- ↓ Reserve volumes
- ↑ O₂ consumption & CO₂ production
- Obesity hypoventilation syndrome

### GI

- ↑ intraabdominal pressure
- ↑ volume of gastric fluid
- ↑ incidence of GERD and hiatal hernia

### Cardiovascular

- ↑ blood volume, but as a % of body wt, may be as low as 45 mL/kg
- ↑ stroke volume and stroke work index in proportion to body wt
- ↑ cardiac output and metabolic demand
- ↑ LV volume, which can lead to dilation and hypertrophy
- Atherosclerosis
- ↓ myocardial compliance up to 35% of normal
- HTN augments pathophysiologic cardiac changes
- Obesity cardiomyopathy syndrome; HF w/ pronounced hemodynamic changes

### Musculoskeletal

- Limited mouth opening capacity; short neck with limited mobility
- ↓ ROM; osteoarthritis, chronic pain
**Begin BLS IMC:**
Determine responsiveness and ability to speak or cough
If conscious: Allow to assume preferred position
If unconscious: position appropriately to open the airway
- No trauma: Head tilt/chin lift
- Possible C-Spine injury: modified jaw thrust
- Maintain in line spine stabilization/immobilization
Check for breathing; assess degree of airway impairment
Monitor for cardiac dysrythmias and/or arrest

**Conscious**

**ABLE TO SPEAK or COUGH**
Complete IMC: Do not interfere with patients attempts to clear airway

**CANNOT SPEAK or COUGH**
5 abdominal thrusts with victim standing or sitting
**REPEAT IF NO RESPONSE**
If successful: complete IMC
If still obstructed: Continue until expelled or pt. becomes unconscious.

**Unconscious**

**Note:** Any time efforts to clear the airway are successful complete IMC

If no effective breathing: Attempt to ventilate. If obstructed: reposition head, reattempt to ventilate.

If unsuccessful: Begin CPR
- look into mouth when opening the airway to begin CPR
- use finger sweep to remove visible foreign body

**ALS**
As soon as equipment is available: attempt to visualize and clear with forceps or suction
If still obstructed: transport, attempt to ventilate with 15L O₂/BVM

Ref page 11 in SOP
**IMC Special Considerations**
- Repeat assessments for patent airway, airway edema; wheezing, respiratory effort & adequacy of perfusion
- Ask about a history of allergies vs. asthma; determine if EpiPen used
- Apply venous constricting band proximal to bite or injection site if swelling is rapidly
- Attempt to identify and/or remove inciting cause: scrape away stinger
- Apply ice/cold pack to bite or injection site unless contraindicated

Do NOT start IV, give meds, or take BP in same extremity as a bite or injection site.

**LOWER ACUITY:**
Local Reaction
Observe for progression and transport

**EMERGENT:**
Moderate Systemic Reaction

- **EPINEPHRINE (1mg/1ml) 0.3mg (ml) IM** *(BLS)*
  - May repeat in 5 min

- **DIPHENHYDRAMINE 50mg/kg IVP** *(ALS)/IM *(BLS)*

  If wheezing: **ALBUTEROL 2.5mg & IPRATROPIUM 0.5mg**
  via HHN/mask/BVM; May repeat x 1 enroute *(BLS)*

**LOWER ACUITY:**
Systemic Reaction

- **DIPHENHYDRAMINE 1mg/kg (max 50)PO/IM** *(BLS)*

**CRITICAL:**
Severe Systemic Reaction
Anaphylactic Shock

- **EPI (1mg/1ml) 0.5 mg IM** *(BLS)* while attempting airway and vascular access
  - IV NS consecutive 200 ml IVF challenges; Goal SBP >90

  As soon as vascular access is successful:
  - **EPINEPHRINE (1mg/10ml) titrate in 0.1 mg IVP/IO** doses q 1 min to a max dose of 2 mg *(IM/IV/IO)* if needed.
  - If no IV/IO repeat EPI *(1mg/1ml) 0.5 mg IM* in 5 min *(BLS)*

  If on beta blockers and not responding to EPI:
  - **GLUCAGON 1mg IVP/IN/IO/IM** *(BLS)* IN/IM

  **DIPHENHYDRAMINE 50mg/kg IVP** *(ALS)/IM *(BLS)*

  If wheezing: **ALBUTEROL 2.5mg & IPRATROPIUM 0.5mg**
  via HHN/mask/BVM; May repeat x 1 enroute *(BLS)*

  If cardiac arrest occurs: Begin quality CPR
  - Start 2nd vascular access: give IVF as rapidly as possible *(up to 8 L)
  - **EPINEPHRINE (1mg/10ml) 1mg IVP/IO q 2 min** *(high dose)*

Ref page 13 in SOP
IMC Special Considerations:
Ventilation and Oxygenation: WOB, accessory muscles.
Current Meds
Wheezing without Hx of COPD/Asthma?
Pulmonary Edema/Pneumonia/Tension Pneumothorax
Airway/Oxygen: assess need for airway support
Target SpO2 : 92% (COPD)
Monitor ECG : Bradycardia signals deterioration

LOWER ACUITY to EMERGENT:
Mild to Moderate distress

ALBUTEROL 2.5 mg & IPRATROPIUM 0.5 mg via HHN, mask or BVM; Begin transport as soon as neb is started. (BLS) May repeat X1

CRITICAL
Severe Distress

IMC Special Consideration:
Prepare resuscitation equipment and anticipate rapid deterioration
O2/C-PAP 5-10cm PEEP
If SBP falls < 90: Titrate PEEP values down to 5 cm. Remove if it persists.

History of Asthma

EPINEPHRINE (1mg/1mL) 0.3 mg IM (BLS)
Follow immediately with
ALBUTEROL 2.5 mg & IPRATROPIUM 0.5 mg via HHN, mask or BVM; Begin transport as soon as neb is started. (BLS) May repeat X1

History of COPD

ALBUTEROL 2.5 mg & IPRATROPIUM 0.5 mg via HHN, mask or BVM; Begin transport as soon as neb is started. (BLS) May repeat X1

If severe distress persists:
MAGNESIUM (50%) 2 Gm in 16 mL NS (slow IVP/IO) or 40 mL NS IVPB over 5-10 min. Max 1 Gm / minute.

Ref page 14 in SOP
Patients with Tracheostomy

**IMC special considerations:** Assess the following:
- Airway patency & lung sounds; RR; WOB; oxygenation by skin color & temp, SpO₂, ETCO₂ (if available)
- Ineffective airway clearance as evidenced by crackles and wheezes; need to suction
- Tube position.
- Tracheostomy cuff to ensure that it is deflated unless pt is on a ventilator or if pt has excessive secretions
- Tracheostomy site
  - Redness, swelling; character & amount of secretions
  - Tracheostomy ties - should be secure but not too tight
  - Subcutaneous emphysema around site
- Stoma for presence of purulence or bleeding
- Need of tracheostomy care
- ECG

**If airway patent and respiratory effort/ventilation adequate:**
- Support ABCs, complete IMC; suction as needed to clear secretions
- Maintain adequate humidity to prevent thick, viscous secretions (if available)
- Position head of stretcher up 45 degrees or sitting position as patient tolerates
- Remove oral secretions if necessary.

**Report to OLMC:**
- Significant respiratory distress
- S&S of local inflammation/infection (redness, swelling, purulent drainage)
- Changes in character and amount of secretions
- Dislodgement of tracheostomy tube
- Damage to tracheostomy cuff line
- Subcutaneous emphysema

**Respiratory distress:**
- Have disposable inner cannula available at all times. Suction after removing inner cannula if present
- Place inner cannula back in tracheostomy to allow attachment of BVM
- O₂ per tracheostomy collar or blow by & initiate supportive ventilation via BVM prn using 15 L O₂
- Maintain head position to open airway maximally
- Have second tracheostomy tube available if possible

**Dislodgement of trach tube:** In an emergency, insert the replacement trach tube reassess patency

**If continued obstruction and/or ventilation/effort inadequate:**
- If trach not patent after changing; ventilate mask to mouth
- If no chest rise, ventilate with infant mask to stoma
- If chest rise inadequate: reposition airway, compress bag further and/or depress pop-off valve
- Transport ASAP to the nearest hospital
- Refer to respiratory arrest or cardiac arrest protocols as indicated

Ref page 15 in SOP
Acute Coronary Syndrome

Begin immediate IMC
Perform brief targeted history and physical exam.
Identify STEMI quickly
Determine time of onset
Assess for rate, rhythm, pump, volume problem
Decrease O₂ demand – limit activity, do not allow to walk, sit up loosen tight clothing
If dyspnea, hypoxemia, or obvious signs of HF, titrate O₂ to achieve SpO₂ of 94%

ASPIRIN 324 mg (4 tabs 81 mg) chewed and swallowed while prepping for 12 Lead ECG (BLS)

12 Lead ECG. Perform early (preferably w/ 1st set of VS) and within 5 min of pt contact
If 12 Lead ECG indicates AMI (STEMI) Contact OLMC with STEMI Alert ASAP
Communicate ECG findings and transmit to ED. Consider 2nd 12 Lead in 10 min of initial tracing
Observe for clinical deterioration: dysrhythmias, chest pain, SOB, decreased LOC/syncope, shock/hypotension
Be prepared to provide CPR and defibrillation if needed

NONE to MILD
cardio respiratory compromise
+ pain/discomfort present
SBP >100

NITROGLYCERIN (NTG) 0.4mg SL (BLS)
Unless contraindicated
Complete IMC: IV NS TKO

EMERGENT
Moderate cardio respiratory compromise + pain/discomfort present
SBP 90-100

Complete IMC
IV NS 200 ml fluid challenges if lungs clear
NITROGLYCERIN (NTG) 0.4mg SL (BLS)
Unless contraindicated

CRITICAL
Severe cardio respiratory compromise
SBP < 90

If HR is less than 60: Treat per Bradycardia SOP
If HR is 60 or above: Treat per Cardiogenic Shock SOP

If ICD is firing repeatedly and hemodynamically stable: Sedation if SBP > 90

MIDAZOLAM 2mg increments slow IVP q 2 min (0.2 mg/kg IN)
up to 10 mg IVP/IN/IO
If IV/IO unable; IM 5-10 mg max of 10 mg

FENTANYL 1mcg/kg (max single dose 100 mcg) IVP/IN/IM/IO
May repeat once in 5 min: 0.5 mcg/kg (max dose 50 mcg) Max total dose per SOP: 150 mcg. Additional doses require OLMC

Ref page 16 in SOP 10
Goal: Maintain adequate perfusion; treat underlying cause per appropriate SOP
If hypotensive & bradycardic: Correct rate problem first unless VT / VF (see those SOPs)

IMC: Support ABCs; determine need for airway mgt; O₂ as needed to maintain SpO₂ at 94% [BLS]
ECG monitoring; obtain, review, and transmit 12Lead ECG per ACS SOP (don’t delay therapy)
If AMS: Assess blood glucose; treat hypoglycemia per SOP

IV/IO access, consider IVF challenges if hypotensive and lungs clear
Treat via the least invasive manner possible; escalating care as needed.

Lower Acuity
None to mild cardio respiratory/perfusion compromise
SBP > 90

Place TCP pads in anticipation of clinical deterioration

Emergent to Critical
Moderate to Severe cardio respiratory compromise
SBP <90

ATROPINE 0.5 mg rapid IVP/IO q 3-5 min (max 3 mg)

DOPAMINE IVPB: 5 mcg/kg/min; may titrate up to 20 mcg/kg/min to maintain SBP >90 (MAP ≥65)

Transcutaneous external cardiac pacing TCP
Select rate of 60. May adjust to 70 based on clinical response
Increase mA until mechanical capture in confirmed with palpable pulse
Evaluate B/P once capture is achieved. If >90 consider sedation and pain management

MIDAZOLAM 2mg increments slow IVP q 2 min (0.2 mg/kg IN)
up to 10 mg IVP/IN/IO
If IV/IO unable; IM 5-10 mg max of 10 mg

FENTANYL 1mcg/kg (max single dose 100 mcg) IVP/IN/IM/IO
May repeat once in 5 min: 0.5 mcg/kg (max dose 50 mcg) Max total dose per SOP: 150 mcg. Additional doses require OLMC

If on beta blockers & unresponsive to Atropine, Norepinephrine and pacing:

GLUCAGON: 1 mg IVP/IN/IO/IM

Ref page 17 in SOP
Consider/treat for possible underlying causes

**Rate problem:** Tachycardia w or w/o coordination between atria & ventricles is reducing CO - use this SOP

**Pump problem:** HR > 100 & LV failure: see HF/Pulmonary Edema/Cardiogenic Shock

**Volume/vessel problem:** See Hypovolemic, anaphylactic, septic shocks

**Metabolic problem:** See Glucose Emergencies, Drug OD, & Renal emergencies

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**IMC: Support ABCs as needed**

- Identify rhythm; obtain, review and transmit 12-lead ECG per ACS SOP if available
- IV NS TKO in proximal vein (AC/external jugular); assess blood glucose – treat hypoglycemia per SOP
- If unconscious: defer vascular access until after cardioversion

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**Lower Acuity**

NO cardio respiratory/perfusion compromise

SBP > 90

- **Sinus Tachycardia**
  - Treat underlying cause

**Lower Acuity to Emergent**

Mild to Moderate cardio respiratory/perfusion compromise

HR > 150 SBP > 90

- **Vagal Maneuver unless contraindicated**

**Critical**

Severe cardio respiratory/perfusion compromise

HR > 150 SBP < 90

- **IMC Special considerations in conscious patient:**
  - Lungs clear + SBP < 90 consider NS at 200 ml increments
  - May try meds while prepping for cardioversion.

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**Regular R-R**

PSVT, reentry SVT, AT, JT

**Irregular R-R**

AF, A Flutter or PSVT that recurs despite Adenosine.

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**ADENOSINE 6 mg rapid IVP**

+20 ml NS flush

- SVT Persists or recurs w/in 1-2 min

**ADENOSINE 12 mg rapid IVP**

+20 ml NS flush

- SVT Persists go to irregular R-R

**VERAPAMIL 5 mg SLOW**

IVP over 2 min (over 3 min on older patients) May repeat 5 mg in 15 min

- **SYNC Cardioversion**
  - At device specific settings

**SYNC Cardioversion**

Support ABC’s: ongoing assessment of cardio respiratory status en-route

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Ref page 18 in SOP
Wide Complex Tachycardia

Assess for hypoperfusion, cardiorespiratory compromise, acidosis
IMC: Support ABCs as needed
Obtain, review and transmit 12-lead ECG per ACS SOP if available; determine rhythm & stability ASAP
If unconscious: defer vascular access until after cardioversion
If possible ACS & alert with gag reflex: ASPIRIN per ACS SOP

Lower Acuity to Emergent
None to Moderate cardiorespiratory/perfusion compromise
HR >150 SBP > 90

Regular Monomorphic VT:
Polymorphic VT w/normal QT interval; WPW; Irregular wide complex tachycardia; AF w/ aberrancy; AF w/ WPW (short PR, delta wave).

Polymorphic VT w/prolonged QT
(Torsades de points)

Critical
Severe cardiorespiratory/perfusion compromise (unstable)
HR > 150 SBP< 90

IMC Special considerations in conscious patient:
Altered sensorium, shock, pulmonary edema, HF or ACS.

If responsive & SBP >90
MIDAZOLAM 5 mg IVP/IN
May repeat X 1 up to 10 mg if needed

All but torsades
SYNC Cardioversion
Starting at 70-100 J
Torsades DEFIBRILLATE at device specific energy setting
Assess ECG and pulse after each shock delivery
If VT persists:

AMIODARONE 150 mg mixed in 7 ml or 100 ml NS slow IVP or IVPB over 10 min
Complete dose even if rhythm converts

AMIODARONE 150 mg mixed in 7 ml or 100 ml NS slow IVP or IVPB over 10 min
Complete dose even if rhythm converts

OLMC may consider

ADENOSINE 6 mg rapid IVP
+20 ml NS flush

If patient has Chest Pain and HR drops <100 or less

NITROGLYCERINE 0.4 mg SL

FENTANYL 1mcg/kg (max single dose 100 mcg) IVP/IN/IM/IO
May repeat once in 5 min: 0.5 mcg/kg (max dose 50 mcg) Max total dose per SOP: 150 mcg. Additional doses require OLMC

MAGNESIUM (50%) 2 Gm in 16 ml NS (slow IVP) in 40 ml IVPB over 5-10 min. Max 1 Gm / min.

If patient has Chest Pain and HR drops <100 or less

Ref page 19 in SOP
**Ventricular Fibrillation**

**Guideline:**
Use “Pit crew” or “Team” approach to cardiac arrest management per local policy/procedure.
Do not move while CPR is in progress unless in a dangerous environment/adverse climate or pt is in need of intervention not immediately available (trauma).
CPR is better and has fewer interruptions when resuscitation is conducted where the pt. is found.
Continue resuscitation for at least 30 minutes (non-trauma) before moving.

**Witnessed arrest; shockable rhythm:**
- Delayed PPV; do 3 cycles (200) compressions before ventilating; O₂/NRM

**Multiple steps may be done simultaneously.**
- Begin quality CPR
- Apply defib pads
- Check rhythm
- Airway/Ventilations

**Unwitnessed arrest:**
BLS airways; ventilate with BVM; CPR at 30:2 ratio (5 cycles = 2 min); give 15 L O₂ when available

**After each 2 min cycle of CPR**
(Using real-time CPR feedback device if available):
- Check rhythm & ETCO₂ – as above
- Shockable? Resume compressions and deliver shocks as above; resume compressions immediately
- Not shockable? Asystole/PEA: resume compressions
- Organized rhythm? palpable pulse → ROSC
- Switch compressors during rhythm
  - NO rhythm/pulse check until after 2 min of CPR unless pt wakes or move extremities
  - Repeat pattern as long as CPR continues

**If persistent/refractory VF:**
- change pad location to A-P
- If 2 monitors available: consider dual sequential defibrillation at device-specific joule settings

**ALS interventions with no interruption to CPR**
- Establish vascular access (IV/IO): NS TKO
- When IV/IO available, give meds during CPR

**EPINEPHRINE** (1 mg/10ml)
- 1 mg IV/IO
- Repeat every 3-5 min as long as CPR continues

**AMIODARONE 300 mg IVP/IO**
- After 5 min
- Amiodarone 150 mg IVP/IO

**Advanced airway if needed:**
- 10 BPM (NO Hyperventilation) After advanced airway: no compression pause for breaths

**As time allows:**
- check H’s and T’s (treat appropriately)

**If possible opioid OD:**
- NARCAN 1 mg. May repeat q. 30 sec until breathing resumes up to 4 mg. All additional doses require OLMC

**SODIUM BICARBANATE 1 mEq/KG IVP/IO:**
- only of arrest is caused by a bicarb-responsive acidosis (DKA/tricyclic antidepressants or ASA OD, cocaine or diphenhydramine) or known hyperkalemia

If patient develops ROSC, please refer to the ROSC-TOR Guideline

Ref page 20 in SOP
Asystole - PEA

**Guideline:**
Use “Pit crew” or “Team” approach to cardiac arrest management per local policy/procedure.
Do not move while CPR is in progress unless in a dangerous environment/adverse climate or pt is in need of intervention not immediately available (trauma).
CPR is better and has fewer interruptions when resuscitation is conducted where the pt. is found.
Continue resuscitation for at least 30 minutes (non-trauma) before moving.

**Search for and treat possible contributing factors (Hs & Ts):**
- Hypoxia (ventilate/O₂)
- Hypovolemia ([IV] boluses)
- H ion (acidosis; NaHCO₃)
- Hypothermia (core rewarm)
- Hypo/hyperkalemia (NaHCO₃)
- Hypoglycemia (glucose)
- Toxins (Opiate? Naloxone; TCA? NaHCO₃)
- Tamponade, cardiac ([IV]F)
- Thrombosis (coronary/pulmonary)
- Tension pneumothorax (lung sounds; pleural decompression)

**Witnessed arrest:**
- Shockable rhythm: Delayed PPV; do 3 cycles (200) compressions before ventilating; O₂/NRM

**Multiple steps may be done simultaneously:**
- Begin quality CPR
- Apply defib pads
- Check rhythm
- Airway/Ventilations

**Unwitnessed arrest:**
- BLS airways; ventilate with BVM; CPR at 30:2 ratio (5 cycles = 2 min); give 15 L O₂ when available

**Do the following simultaneously in separate time cycles**
- After each 2 min cycle of CPR
  - (using real-time CPR feedback device if available):
    - Check rhythm & ETCO₂ – as above
    - Shockable? Resume compressions and deliver shocks as above; resume compressions immediately
    - Not shockable? Asystole/PEA: resume compressions
    - Organized rhythm? palpable pulse → ROSC
    - Switch compressors during rhythm
    - NO rhythm/pulse check until after 2 min of CPR unless pt wakes or move extremities
    - Repeat pattern as long as CPR continues

**ALS interventions with no interruption to CPR**
- Establish vascular access ([IV]/IO): NS TKO
- When [IV]/IO available, give meds during CPR

**EPINEPHRINE** (1 mg/10ml) 1 mg [IV]/IO
- Repeat every 3-5 min as long as CPR continues

**Advanced airway if needed:**
- 10 BPM (NO Hyperventilation) After advanced airway: no compression pause for breaths

**As time allows:**
- check H’s and T’s (treat appropriately)

**SODIUM BICARBANATE 1 mEq/KG [IV]/IO:** only of arrest is caused by a bicarb-responsive acidosis (DKA/tricyclic antidepressants or ASA OD, cocaine or diphenhydramine) or known hyperkalemia

If patient develops ROSC, please refer to the ROSC-TOR Guideline
If patient develops ROSC:
Watch for rise in Capnography
Assess all vital signs q 5 min
Remove impedance threshold device
12 Lead ECG ASAP
BP support is high priority

DOPAMINE IVPB: 5 mcg/kg/min; may titrate up to 20 mcg/kg/min to maintain SBP ≥ 90 (MAP ≥ 65)

If patient remains unresponsive to verbal commands w/no contraindications:
Cold packs to cheeks, palms and soles of feet

TERMINATION OF RESUSCITATION – See SOP p. 8. If normothermic pt remains in persistent monitored asystole or no shock advised rhythm for 30 minutes or longer despite steps above, and if capnography (if available) remains ≤ 10 for 20 min & no reversible causes of arrest are identified, seek OLMC physician’s approval to terminate resuscitation.
Assess for hypoperfusion and cardiorespiratory compromise. **12 Lead ECG obtained and transmitted**
Differentiate HF from COPD/asthma by PMH, meds, S & S, capnography if available (See appendix p. 106).
**Consider cause:** rate, rhythm, volume, or pump problem; treat per appropriate SOP based on etiology.
Auscultate lung sounds all lobes, front & back; report timing/location of wheezes/crackles

**Low Acuity to Emergent**
Mild to Moderate cardio respiratory/perfusion compromise
SBP > 90 and DBP >60

**IMC (BLS)**
Position patient sitting upright at 90° (if tolerated);
dangle legs over sides of stretcher
C-PAP: 5-10 cm PEEP; if SBP falls < 90 (MAP < 65):
Titrate PEEP down to 5 cm; remove if hypotension persists
If respiratory distress and CPAP contraindicated, not tolerated, or unavailable:
Assess need for advanced airway

**ASPIRIN 324 mg (4 tabs 81 mg) PO**
per ACS SOP unless contraindicated (BLS)

**NITROGLYCERIN 0.4 mg SL**
If SBP remains >90
Repeat NTG q 3-5 min -no dose limit
HR >100 in Pulmonary Edema (BLS)

Severe anxiety and SBP > 90

**MIDAZOLAM 2mg increments slow IVP q 2 min**
(0.2 mg/kg IN) up to 10 mg IVP/IN

**Cardiogenic Shock**
Pump failure due to AMI, dysrhythmia, HF, obstructive shock or drugs.
SBP < 90 S&S of Hypoperfusion

**IMC special considerations:**
Assess need for advanced airway to decrease work of breathing, protect airway, or ventilate patient
Assess for hypovolemia/dehydration

If hypovolemic and/or dehydrated - lungs clear and ventilations unlabored:
NS IVF in 200 mL increments up to 1 L; attempt to achieve SBP ≥ 90 (MAP ≥ 65). Frequently reassess lung sounds.

**DOPAMINE IVPB:** 5 mcg/kg/min; may titrate up to 20 mcg/kg/min to maintain SBP 90 (MAP ≥65)

If possible ACS

**ASPIRIN 324 mg (4 tabs 81 mg) PO**
per ACS SOP unless contraindicated (BLS)

Ref page 22 in SOP
CALL LVAD Coordinator listed on patient information sheet for instructions

EMS personnel are authorized to follow directions of the LVAD Coordinator

Patient may or may not have a peripheral pulse or normal BP at any time; SpO₂ registers if perfusion is present

Evaluate perfusion based on mental status, skin signs

CHEST COMPRESSIONS ARE ALLOWED if patient is unconscious and non-breathing.- see below.

  Follow all other BLS and ALS protocols.

Patient may be defibrillated, as necessary for V-fib with loss of consciousness, without disconnecting the pump.

Do not defibrillate over the pump; defibrillate at nipple line or above. Anterior-posterior pad placement preferred.

ECG waveforms may have a lot of artifact due to the device.

Patients will often have pacemakers and/or Internal Cardioverter Devices (ICDs).

Waveforms may be flat; without amplitude in spite of accurate readings – i.e. pulse ox.

Patient should have a binder with record of daily VAD parameters.

Patients will be on anticoagulation medications

NO MRIs - CT Scans are ok; avoid water submersion; avoid contact with strong magnets or magnetic fields

  Never remove both sources of power (batteries) at the same time!
Inspect, auscultate, palpate abdomen in all quadrants
Compare pulses in upper vs. lower extremities
Note and record nature & amount of vomiting/diarrhea, jaundice; vomiting precautions
Adjust IV rate to maintain hemodynamic stability
Document OPQRST of the pain; menstrual history in females of childbearing age; last BM; orthostatic VS; travel history
Pain mgmt: FENTANYL

Fentanyl 1mcg/kg (max single dose 100 mcg) IVP/IN/IM/IO
May repeat once in 5 min: 0.5 mcg/kg (max dose 50 mcg) Max total dose per SOP: 150 mcg. Additional doses require OLMC

Lower Acuity
None to mild cardio respiratory/ perfusion compromise
SBP > 90

Transport in the position of comfort

Emergent to Critical
Moderate to Severe cardio respiratory/ compromise. AMS, signs of hypoperfusion

Consider need for NS IVF challenges if pt severely dehydrated/ hypovolemic: (Ex: appendicitis, cholecystitis, pancreatitis, hepatitis, cirrhosis, upper/lower GI bleed, bowel obstruction, sepsis)

If suspected AAA: Do not give IV fluid challenges unless SBP <80

Ref page 24 in SOP
BPs, venipunctures, and IVs should **NOT** be performed on an extremity with a shunt
If patient unresponsive: Vascular access by IO
When emergencies occur during dialysis, the staff may leave access needles in place, clamping the tubing.
If this is the only site, request their assistance to connect IV tubing.

### Hypotensive (Critical)
SBP < 90 & S&S hypoperfusion

Supine position with legs elevated unless contraindicated
If lungs clear: treat per Hypovolemic Shock SOP: **IV/IO NS fluid boluses in 200 mL increments** up to 1 L
If unresponsive to IVF or pulmonary edema is present: Rx per HF/Pulmonary edema/Cardiogenic Shock SOP

### Suspected significant Hyperkalemia with cardiotoxicity or cardiac arrest (critical)
Wide QRS w/ tall, peaked T wave, flattened or absent P waves, prolonged PRI, sine-wave pattern, IVR, asystolic cardiac arrest; high index of suspicion if patient is on lisinopril (retains K)
Treat dysrhythmias per appropriate SOP with the following additions

SODIUM BICARBANATE 50 mEq/KG slow IVP over 5 min followed by 20 ml NS flush

No IV: In-Line ALBUTEROL 5 mg continuous neb up to 20 mg (throughout transport) (BLS)

OLMC may order the use of both.
Do not assume that the smell of alcohol automatically means intoxication; consider alternative causes of impaired behavior/motor incoordination.

Assess mental status and cognitive functioning per AMS SOP.

Assess hydration status: If dehydrated: sequential IV NS 200 mL fluid challenges.

Assess for hallucinations, delusions, tremors.

Ask patient about time and amount of last alcohol ingestion.

If combative or uncooperative, attempt verbal means to calm patient; seek law enforcement assistance and/or use restraints per System policy.

Evaluate for evidence of motor impairment and deficits in coordination (ataxia); nystagmus.

---

**If generalized tonic/clonic seizure activity**

**MIDAZOLAM 2mg increments slow IVP/IO q 30-60 sec (0.2 mg/kg IN) up to 10 mg IVP/IN/IO**

---

**If AMS, seizure activity or focal neurologic deficit**

Obtain bG level (BLS)

---

If <60 or low

**DEXTROSE 10% (25 g/250 mL) IVPB rapidly (wide open) - infuse 25 grams (250 mL or entire IV bag)**

---

If unable to start IV

**GLUCAGON 1 gm IM/IN (BLS)**

---

If borderline (60-70)

**DEXTROSE 10% (25 g/250 mL) IVPB rapidly (wide open) - infuse 12.5 grams (125 mL or ½ IV bag)**

---

**Tremors or Delirium tremens** (mental confusion, constant tremors, fever, dehydration, P > 100, hallucinations).

If SBP ≥ 90 (MAP ≥ 65):

**MIDAZOLAM 2mg increments slow IVP/IO q 2 min (0.2 mg/kg IN) up to 10 mg IVP/IN titrated to patient response**

---

Observe for improvement while infusion is being given.

If S&S of hypoglycemia fully reverse and pt becomes decisional after partial dose, reassess bG.

If >70: slow D10% to TKO. Once full dose given, close clamp to D10% IV and open 0.9 NS TKO.

---

Ref page 25 in SOP
Altered Mental Status / Syncope

Scene size up:
Inspect environment for bottles, meds/drugs, letters/notes, sources of toxins suggesting cause
Ask bystanders/patient about symptoms immediately prior to change in mentation; S&S during event; duration of event, resolution of event (spontaneous, after interventions)

Secondary assessment: Special considerations
Affect; Behavior: consolable or non-consolable agitation
Cognitive function (ability to answer simple questions); hallucinations/delusions
Memory deficits; speech patterns
Inspect for Medic alert jewelry, tags, body art
General appearance; odors on breath; evidence of alcohol/drug abuse; trauma
VS: observe for abnormal respiratory patterns; or T; orthostatic changes
Skin: Lesions that may be diagnostic of the etiology
Neuro exam: Pupils/EOMs; visual deficits; motor/sensory exam; for nuchal rigidity; EMS stroke screen

IMC special considerations:
Suction pm; seizure/vomiting/aspiration precautions
If GCS 8 or less: Assess need for intubation (DAI) or alternate advanced airway per local policy/procedure
If SBP < 90 (MAP < 65) & lungs clear: NS IVF challenges in consecutive 200 mL increments; monitor lung sounds
Position patient on side unless contraindicated
If supine: maintain head and neck in neutral alignment; do not flex the neck
Consider need for 12 L ECG if Hx of presyncope or syncope; monitor ECG rhythm; Rx dysrhythmias per SOP
Monitor for S&S of increased ICP: reduce environmental stimuli
Document changes in GCS & VS

Obtain bG level

If <60 or low
DEXTROSE 10% (25 g/250 mL) IVPB rapidly (wide open) - infuse 25 grams (250 mL or entire IV bag)
Observe for improvement while infusion is being given.
If S&S of hypoglycemia fully reverse and pt becomes decisional after partial dose, reassess bG
If >70: slow D10% to TKO. Once full dose given, close clamp to D10% IV and open 0.9 NS TKO

If unable to start IV
GLUCAGON 1 gm IM/IN (BLS)

If borderline (60-70)
DEXTROSE 10% (25 g/250 mL) IVPB rapidly (wide open) - infuse 12.5 grams (125 mL or ½ IV bag)

If possible opiate toxicity w/ AMS & respiratory depression/arrest:
NALOXONE IVP/IO (ALS) IN/IM (EMR/BLS)
If breathing 0.4 mg repeat q 30 sec until ventilations increase up to 4 mg
If apneic 1 mg. May repeat q 30 sec until breathing resumes up to 4 mg.
Additional doses require OLMC

Ref page 26 in SOP
**GENERAL APPROACH**

**History:** Determine method of injury: ingestion, injected, absorbed, or inhaled; pts often unreliable historians.

**IMC** special considerations:
- Uncooperative behavior may be due to intoxication/poisoning; do not get distracted from assessment of underlying pathology
- Anticipate hypoxia, respiratory arrest, seizure activity, dysrhythmias, and/or vomiting
- Assess need for advanced airway if GCS < 8, aspiration risk, or airway compromised unless otherwise specified
- Support ventilations w/ 15L O₂/BVM if respiratory depression, hypercarbic ventilatory failure
- Large bore IV/IO NS titrated to adequate perfusion (SBP ≥90; MAP ≥ 65); monitor ECG
- Impaired patients may not refuse treatment/transport

If AMS, seizure activity, or focal neurologic deficits:
**Assess bG:** If <70: treat per Hypoglycemia guideline

If possible opiate toxicity w/ AMS & respiratory depression/arrest:

**NALOXONE** IVP/IO *(ALS)* IN/IM *(BLS)*
- If breathing 0.4 mg repeat q 30 sec until ventilations increase up to 4 mg
- If apneic 1 mg. May repeat q 30 sec until breathing resumes up to 4 mg.
- **Additional doses require OLMC**

If anxiety/serotonin syndrome:

**MIDAZOLAM** 2mg increments slow IVP q 2 min (0.2 mg/kg IN) up to 10 mg IVP/IN

Tonic clonic seizures:

**MIDAZOLAM** 2mg increments slow IVP q 30-60 sec (0.2 mg/kg IN) up to 10 mg IVP/IN/IO

Please refer to SOP for specific drug treatments such as Beta Blockers, Cyclic Antidepressants, Depressants, Dextromethorphan, Hallucinogens, Inhalants, Opiates, Organophosphates or Stimulants

Illinois Poison Center # 1-800-222-1222
www.illinoispoisoncenter.org

Ref page 27 in SOP
**Carbon Monoxide**

**IMC special considerations:**
- Use appropriate Haz-mat precautions & PPE; remove patient from CO environment as soon as possible.
- O₂ 12-15 L/NRM or BVM; ensure tight seal of mask to face; SpO₂ UNRELIABLE to indicate degree of hypoxemia.
- Vomiting precautions; ready suction; monitor ECG.
- Keep patient as quiet as possible to minimize tissue oxygen demands.
- CO screening per System policy if available. If using CO-oximeter >12% abnormal, (<3% CO normal, smokers may have as high as 10%); use manufacturer standard levels if given; carefully assess for clinical correlation due to questionable device sensitivity.
- Transport lower acuity/stable patients to nearest hospital.
- Severely confused/hemodynamically stable: Consider transporting directly to a facility w/ a hyperbaric chamber (OLMC order).
- CRITICAL: If in respiratory/cardiac arrest or airway unsecured, transport to nearest hospital.

**Hyperbaric oxygen chambers**
- Advocate Lutheran General Hospital 847/ 723-5155 24/7
- St. Luke’s Medical Center (Milwaukee) 414/ 649-6577 24/7

**Cyanide Exposure**

**PPE including SCBA; evacuate danger area**
- **IMC** per Drug OD/Poisoning SOP; decontaminate as necessary. Do NOT direct water jet on liquid.
- Absorb liquid in sand or inert absorbent and remove to a safe place. Remove vapor cloud w/ fine water spray.
- Remove contaminated clothing and wash skin with soap and water for 2-3 min.
- Establish OLMC ASAP so receiving hospital is prepared for your arrival.
- If hypotensive or pulseless: IV/IO NS wide open. CPR as indicated.

**Illinois Poison Center # 1-800-222-1222**
www.illinoispoisoncenter.org

Ref page 28 in SOP 24
Cold Emergencies

Mild: Core temp 90.6-95° F (32-35° C):
Confusion, tachycardia, shivering

Moderate: Core temp 82.4-90.6° F (28-32° C):
Lethargy, bradycardia, arrhythmias, shivering ceases <31°C (87.8°F); heat production falls, slowed speech/ataxia (mimics stroke) replaced by muscle rigidity, slowed reflexes, slow RR, CO2 retention, pupils dilated & minimally responsive

Passive rewarming generally adequate for pts w/ T > 93.2° F: Cover with blankets; protect head from heat loss.

Active external rewarming (T 82°- 93.2° F): Continue passive + apply surface warming devices (wrapped hot packs to axillae, groin, neck, & thorax; warming mattress if available). Passive rewarming alone inadequate for these pts.

Warm NS IVF challenges in 200 mL increments to maintain hemodynamic stability

Frostbite

Hypothermia

Severe Hypothermia

Mild: Core temp 90.6-95° F (32-35° C); Confusion, tachycardia, shivering
Moderate: Core temp 82.4-90.6° F (28-32° C); Lethargy, bradycardia, arrhythmias, shivering ceases <31°C (87.8°F); heat production falls, slowed speech/ataxia (mimics stroke) replaced by muscle rigidity, slowed reflexes, slow RR, CO2 retention, pupils dilated & minimally responsive

Passive rewarming generally adequate for pts w/ T > 93.2° F: Cover with blankets; protect head from heat loss.
Active external rewarming (T 82°- 93.2° F): Continue passive + apply surface warming devices (wrapped hot packs to axillae, groin, neck, & thorax; warming mattress if available). Passive rewarming alone inadequate for these pts.
Warm NS IVF challenges in 200 mL increments to maintain hemodynamic stability

ITC:
Move to a warm environment as soon as possible. Remove wet/constrictive clothing/jewelry.
Rapidly rewarm frozen areas. Do NOT thaw if chance of refreezing.
Immerse in warm water (90°-105 F) if available
May use hands/hot packs wrapped in a towel. Use warming mattress if available.
HANDLE SKIN GENTLY like a burn. Do NOT rub. Do not break blisters.
Protect with light, dry, sterile dressings; cover with warm blankets and prevent re-exposure
Anticipate severe pain when rewarming

Mild to Moderate Hypothermia

ITC
Prevent further heat loss & begin rewarming immediately: place in warm environment, remove wet clothing; dry patient; insulate from further environmental exposures
Position supine; handle gently when checking responsiveness, breathing and pulse
Assess breathing and pulse for 30-45 sec. Pulse & RR may be slow and difficult to detect
IV NS. Warm IVF up to 43° C (109° F); coil tubing if possible; do not infuse cold fluids
Monitor ECG & GCS continuously; may observe Osborn or J wave in leads II and V6
Obtain core temperature if possible; assess for local thermal injury (frostnip, frostbite)
Minimize movement to decrease myocardial demand; prevent translocation of cold blood from periphery to the core and decrease severe muscle cramping

Severe Hypothermia
(Core temp < 28 C or 82.4 F)

ITC
Core rewarming (not generally available in field). Rewarm trunk only with hot packs; avoid rewarming extremities.
Consider need for airway support: If KING Tube indicated; use gentle technique to prevent vagal stimulus and VF
O₂ 12-15 L/NRM or BVM (warm to 42° C / 107.6° F if possible); do NOT hyperventilate - chest will be stiff
Vascular access: Warm NS 200 mL IVP/I0 fluid challenges up to 1 L
Will require large volume replacement due to leaky capillaries, fluid shift, and vasodilation as rewarming occurs
If unresponsive with no breathing or no normal breathing (only gasping) check for a pulse.
Pulse is not definitely felt in 30 seconds: Start CPR - TRIPLE ZERO CANNOT BE CONFIRMED on these patients
Rhythm shockable: Defibrillate per VF SOP
Treat patient per VF or Asystole/PEA SOP concurrent with rewarming
ROSC: Support CV status per VF / Asystole SOPs; look for & treat causes of severe hypothermia
If induced hypothermia indicated: Continue to warm to goal temp of 34° C / 93.2° F
If hypothermia contraindicated (trauma patient); continue rewarming to normal temp
Transport very gently to avoid precipitating VF

Ref page 29 in SOP
Submersion Incident

All victims of submersion who require any form of resuscitation (including rescue breathing alone) should be transported to the hospital for evaluation and monitoring, even if they appear to be alert and demonstrate effective cardiorespiratory function at the scene (Class I, LOE C).
All persons submerged 1 hour should be resuscitated unless there are signs of obvious death.

**ITC (BLS)**

**Rescue and removal:** Ensure EMS safety during the rescue process; only rescuers with appropriate training and equipment should enter moving or deep water to attempt rescue.

- Rescue personnel should wear protective garments if water temp is < 70°F.
- A safety line should be attached to the rescue swimmer.

Patient should be kept in a horizontal position if at all possible. Cold-induced hypovolemia, cold myocardium, and impaired reflexes may result in significant hypotension. If hypothermic, appropriate rewarming should be done concurrent with resuscitation.

**Selective spine precautions** only if circumstances suggest a spine injury.

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**Emergent**

Awake with good respiratory effort, yet congested with increased work of breathing

- C-PAP mask to deliver 5-10 cm PEEP.
- If SBP falls < 90 (MAP < 65) Titrate down to 5 cm, remove C-PAP if hypotension persists

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**Critical**

Unresponsive and ineffective ventilations with a pulse

- Ventilate using BLS Airways and BVM
- Consider need for advanced airway

---

**Critical**

Unresponsive, apneic and pulseless

- CPR using traditional ABC approach due to hypoxic nature of arrest
- Vomiting is common in those who require compressions & ventilations; prepare suction
- Remove wet clothing; dry patient as possible – especially the chest before applying pads and defibrillating pt
- If pt is cold: refer to HYPOTHERMIA SOP
- Evaluate for increased ICP- If present treat per Head Trauma SOP
- Enroute complete ITC and start IV NS TKO

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For Diving Related Emergencies please refer to your full SOP

Ref page 30 in SOP
Heat Emergencies

Heat Cramps or Tetany
Lower acuity
(BLS)

IMC:
IV may not be necessary; if cramps severe/vomiting and/or oral electrolyte replacement unavailable; IV NS
Move patient to a cool environment, remove excess clothing, and transport
Do NOT massage cramped muscles

Heat Exhaustion
Emergent to Critical

Heavy sweating; weakness; cool, pale, moist skin; fast, weak pulse; N/V, syncope (If AMS, see Heat Stroke below)

IMC: NS IVF challenge in consecutive 200 mL increments to maintain SBP ≥ 90 (MAP ≥ 65)
Vomiting precautions; ready suction; consider need for ondansetron (standard dosing per IMC SOP)
Monitor ECG
Monitor and record mental status; seizure precautions
Move patient to a cool environment. Remove as much clothing as possible. [BLS]

Heat Stroke
Critical

High body temperature (above 103°F); hot, red, dry or moist skin; rapid pulse; AMS, possible unconsciousness

IMC
Anticipate ↑ ICP; check for hypoglycemia
If SBP 110 or above: IV NS TKO (may use cold NS); elevate head of stretcher 10°-15°
If signs of hypoperfusion:
Place supine with feet elevated (do NOT place in Trendelenburg position) [BLS]
NS IVF challenge in consecutive 200 mL increments to maintain SBP ≥ 90 (MAP ≥ 65)
Caution: Patient at risk for pulmonary and cerebral edema
Monitor ECG

Move to a cool environment. Initiate rapid cooling: [BLS]
Remove as much clothing as possible
Chemical cold packs (CCP) to cheeks, palms, soles of feet
If additional CCP available, apply to neck, lateral chest, groin, axillae, temples, and/or behind knees
Sponge or mist with cool water and fan

If seizure activity

MIDAZOLAM 2mg increments slow IVP q 30-60 sec
(0.2 mg/kg IN) up to 10 mg IVP/IN

Ref page 31 in SOP
**Glucose / Diabetic Emergencies**

**IMC:** Obtain PMH; type of diabetes (1, 2, gestational, other specific types); assess for presence of insulin pump
Determine time and amount of last dose of diabetic medication/insulin and last oral intake
Vomiting and seizure precautions: prepare suction
Obtain/record **blood glucose (bG)** level (capillary and/or venous sample) on all pts with AMS or neuro deficits
Elderly patients who are hypoglycemic may present with S&S of a stroke

**Blood glucose 70 or less or S & S of hypoglycemia**

- **GCS 14-15 and able to swallow**
  - **ORAL GLUCOSE** in the form of paste, gel or sugar containing liquid (BLS)

- **If borderline (60-70)**
  - **DEXTROSE 10%** (25 g/250 mL) IVPB rapidly (wide open) - infuse **12.5 grams (125 mL) or ½ IV bag**

- **If <60 or low**
  - **DEXTROSE 10%** (25 g/250 mL) IVPB rapidly (wide open) - infuse **25 grams (250 mL or entire IV bag)**

- **If unable to start IV**
  - **GLUCAGON 1 gm IM/IN** (BLS)

**Assess patient response 5 min after dextrose administration:** Mental status, GCS, bG level

- **If bG 70 or greater**
  - Ongoing assessment

- **If bG less than 70**
  - Repeat **DEXTROSE 10% in 5 gram (50 ml)** increments at 5-10 min interval.
    Reassess bG and and mental status every 5 min after each increment

- If a decisional patient refuses transportation after bG has normalized, they must be advised to eat and OLMC must be contacted before EMS leaves the scene

**DKA or HHNS:** must present with S&S of dehydration and hyperglycemia.
Dehydration, Acidosis and Hyperglycemia (DKA presents with all 3 S&S)
Monitor ECG for T wave changes, NS wide open up to 1 L reassess after each 200 ml.
Attempt to maintain SBP > 90

Ref page 32 in SOP
Hypertension

IMC: Maintain head and neck in neutral alignment; do not flex neck or knees
Assess and record GCS and neuro signs as a baseline
Assess for history of HTN, CVD, ACS, renal disease, diabetes, pregnancy, or adrenal tumorion

None to Mild cardiorespiratory compromise (no focal neuro deficits)
BP >140/90

Assess and treat for chest pain and or pulmonary edema per appropriate SOP

If hypertensive but without chest pain or neuro compromise: Transport

If severe headache:

Fentanyl 1mcg/kg (max single dose 100 mcg) IVP/IN/IM/O
May repeat once in 5 min: 0.5 mcg/kg (max dose 50 mcg) Max total dose per SOP: 150 mcg.
Elderly (>65) or debilitated: 0.5 mcg/kg (max single dose 50 mcg) IVP/IN/IM/O
Additional doses require OLMC

Hypertensive Crisis
SBP > 220 and DBP >130

Assess for S&S of end organ dysfunction
Stroke scale
Do not use drug therapy solely to lower B/P

Keep patient as quiet as possible; reduce environmental stimuli
If GCS  8: Assess need for airway support
Elevate head of stretcher 10°-15° with head/neck in neutral alignment
Seizure/vomiting precautions; suction only as needed
Repeat VS before and after each intervention

If chest pain or pulmonary edema:
NITROGLYCERIN 0.4 mg (BLS) x1
Contact OLMC for repeat doses

If seizure activity:
MIDAZOLAM 2 mg increments IVP/O
q 30-60 sec (0.2 mg/kg IN) up to 10 mg
IVP/O/IN

Ref page 33 in SOP
Assess SCENE AND PERSONAL SAFETY. Call law enforcement personnel to scene, if needed. (BLS)
DO NOT JEOPARDIZE YOUR OWN SAFETY; always position self for a safe exit.

Assess patient’s decisional capacity
- Consciousness/arousal using GCS (see ITC for chart), attention span
- Activity: restlessness, agitation (consolable or non-consolable), compulsions
- Speech: rate, volume, articulation, content
- Thinking/thought processes: delusions, flight of ideas, obsessions, phobias; thoughts of suicide/harm to others
- Affect and mood: appropriate or inappropriate
- Memory: immediate, recent, remote
- Orientation X 4, understands and complies with instructions
- Perception: delusions, hallucinations (auditory, visual, tactile)

IMC: Limit stimuli and the personnel treating the patient as much as possible.
Do not touch patient without telling them your intent in advance.
Provide emotional reassurance. Verbally attempt to calm and reorient the patient as able.
Do not reinforce a patient's delusions or hallucinations.
Avoid threatening or advanced interventions unless necessary for patient safety.
Protect patient from harm to self or others. Do not leave the patient alone.

If combative and/or uncooperative: Attempt verbal reassurance to calm pt. If unsuccessful:
- Provide chemical and/or physical restraint per procedure.
  Use only to protect the patient and/or EMS personnel.
  They should not be unnecessarily harsh or punitive. Document reasons for use.
  In an emergency, apply restraints; then confirm necessity with OLMC.
  Ensure an adequate airway, ventilations, and peripheral perfusion distal to restraint after application.
  Monitor patient’s respiratory and circulatory status.

Consider medical etiologies: Hypoxia; substance abuse/overdose; alcohol intoxication
Neurologic disease: stroke, seizure, intracerebral bleed, Alzheimer’s, etc.
Metabolic disorders: hypoglycemia (glucose), acidosis, electrolyte imbalance, thyroid/liver/renal disease etc.
Evidence of traumatic injuries

If patient is non-decisional and/or a treat to self or others and/or is unable to care for themselves.
Complete Petition Form for all adults who meet above criteria: Persons who witnessed statements or behaviors should sign the form.
Make every effort to gain the patient’s consent for transport.
Refusing transport: Call OLMC from the scene. Pt must be transported against their will if necessary.
Ask police for assistance with transport if needed.

Severe Anxiety and SBP > 90 (ALS)
MIDAZOLAM 2mg increments slow IVP q 2 min (0.2 mg/kg IN)
up to 10 mg IVP/IN
If IV/IO unable; IM 5-10 mg max of 10 mg

Please see the SOP for the Northwestern Psychiatric Emergency Services (PES) Diversion Decision Matrix
**IMC:** Support ABCs as needed; \( O_2 \) if \( SpO_2 < 94\% \) or \( O_2 \) sat unknown; avoid hypoxia and hyperoxia

Seizure/vomiting precautions; suction only as needed

Maintain head/neck in neutral alignment; do not use pillows. If SBP > 100: Elevate head of bed 10°-15°

Monitor ECG; acquire 12L if possible

**IV not necessary at scene** unless hypoglycemia or need for DAI. Avoid multiple IV attempts/excess fluid loading.

If IV started, insert 18 g antecubital line to facilitate time to CT at hospital.

Repeat VS frequently & after each intervention. Anticipate hypertension & bradycardia due to ICP.

Do NOT Rx hypertension or give atropine for bradycardia if SBP > 90 (MAP > 65)

Provide comfort and reassurance; establish means of communicating with aphasic patients

Limit activity; do not allow pt to walk; protect limbs from injury

---

**If generalized tonic/clonic seizure activity:** (ALS)

**MIDAZOLAM** 2mg increments slow IVP q 2 min (0.2 mg/kg IN)

up to 10 mg IVP/IN/IO

If IV/IO unable; IM 5-10 mg max of 10 mg

---

**If AMS, seizure activity, or neuro deficit:** Assess bG per SOP.

If <70 or low reading: **Dextrose** per SOP

---

**Determine time last known well (last seen normal for patient) (not when pt woke w/ S&S present)**

Obtain and document history; stroke screen; and other physical exam findings as above

Minimize scene time delays (< 10 minutes) - transport to the nearest PSC/CSC

**Pre-notify receiving hospital with Stroke Alert:** Contact OLMC ASAP: Age; c/o sudden, severe HA; PMH (Meds – anticoagulants within past 48 hrs), PMH previous TIA/stroke, intracranial hemorrhage/aneurysm; S&S (Last seen normal for them), stroke screen findings, blood glucose; VS; Rx given

**Obtain call back number** from reliable historian; provide to receiving staff if not accompanying pt to hospital

---

<table>
<thead>
<tr>
<th>Patient history</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
</tr>
<tr>
<td><strong>Onset:</strong> Abrupt or gradual</td>
</tr>
<tr>
<td><strong>Time last seen normal for them</strong></td>
</tr>
<tr>
<td><strong>Duration of acute S&amp;S</strong></td>
</tr>
<tr>
<td><strong>Medications</strong> (blood thinners)</td>
</tr>
<tr>
<td><strong>Heart/vascular disease</strong></td>
</tr>
<tr>
<td><strong>Intracranial or intraspinal surgery, serious head trauma or previous stroke/TIA</strong></td>
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<tr>
<td><strong>AV malformation, tumor or aneurysm</strong></td>
</tr>
<tr>
<td><strong>Active bleeding or acute trauma</strong></td>
</tr>
<tr>
<td><strong>A-fib/flutter, HTN; diabetes, smoking</strong></td>
</tr>
<tr>
<td><strong>High cholesterol, obesity</strong></td>
</tr>
<tr>
<td><strong>C/O new onset severe headache; stiff neck; seizure</strong></td>
</tr>
<tr>
<td><strong>Bleeding disorder: Sickle cell disease, hemophilia</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S&amp;S: (Prehospital Stroke Screen) Acute onset...</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mental status</strong></td>
</tr>
<tr>
<td><strong>Level of consciousness; GCS</strong></td>
</tr>
<tr>
<td><strong>Speech:</strong> You can’t teach an old dog new tricks.*</td>
</tr>
<tr>
<td><strong>Slurred? Uses wrong words? Mutel?</strong></td>
</tr>
<tr>
<td><strong>Questions; Age; month (orientation)</strong></td>
</tr>
<tr>
<td><strong>Commands:</strong> Open/close eyes</td>
</tr>
</tbody>
</table>

| **Grinal nerves** |
| **Facial asymmetry/drop: smile; show teeth** |
| **Vision deficits: loss of visual fields; diplopia** |
| **Horizontal gaze abnormalities: dysconjugate gaze, forced or crossed gaze** |
| **Other deficits: pupil changes; light sensitivity; deviation; uvula, hoarse voice; vertigo/dizziness; sound sensitivity** |

| **Limbs** |
| **Unilateral weakness or paralysis (arm drift) – Close eyes, hold both arms out for 10 sec. Assess if arm drifts down compared to other side or is fascicled** |
| **Leg drift:** Open eyes; lift each leg separately |
| **Sensory:** Arm leg (close eyes, touch/hip/chk); note paralysis, numbness |
| **Coordination – arm/leg (finger-nose; heel-shin) Note loss of balance, coordination(axtasia), gait disturbance** |

| **See Altered Mental Status SOP** |
| **Hypoglycemia (esp. elderly)** |
| **Brain tumor** |
| **Cardiac disease: dysrhythmia** |
| **Drug OD** |
| **Encephalitis** |
| **I. Na** |
| **Infection/sepsis** |
| **Seizures, syncope** |
| **Trauma** |
| **Isolated nerve dysfunction (facial nerve palsy or Bell’s palsy)** |
Seizures

History:
History/frequency/type of seizures
Prescribed meds and patient compliance; amount and time of last dose
Recent or past head trauma; fall, predisposing illness/disease; recent fever, headache, or stiff neck
History of ingestion/drug or alcohol abuse; time last used

Consider possible etiologies:
- Anoxia/hypoxia
- Anticonvulsant withdrawal/noncompliance
- Cerebral palsy or other disabilities
- Infection (fever, meningitis)
- Eclampsia
- Metabolic (glucose, electrolytes, acidosis)
- Stroke/cerebral hemorrhage
- Toxins/intoxication; OD; DTs
- Trauma/child abuse
- Tumor

Secondary assessment
Observe and record the following
- Presence of an aura
- Focus of origin: one limb or whole body
- Simple or complex (conscious or loss of consciousness)
  - Partial/generalized
- Progression and duration of seizure activity
- Eye deviation prior to or during seizure
- Abnormal behaviors (lip smacking)
- Incontinence or oral trauma
- Duration and degree of postictal coma, confusion

IMC: No bite block. Vomiting/aspiration precautions; suction prn
Protect patient from injury; do not restrain during tonic/clonic movements
Position on side during postictal phase unless contraindicated

If generalized tonic/clonic seizure activity:
MIDAZOLAM 2mg increments slow IVP q 2 min (0.2 mg/kg IN)
up to 10 mg IVP/IN/IO
If IV/IO unable; IM 5-10 mg max of 10 mg

Identify and attempt to correct reversible precipitating causes:
Benzodiazepine administration takes precedence over bG determination in pts who are actively seizing
Obtain and record blood glucose level per System procedure (capillary and/or venous sample)
If < 70: DEXTROSE or GLUCAGON per Hypoglycemia SOP [BLS/ALS]

Ref page 38 in SOP
Shock Differential / Hypovolemia - Sepsis

### Hypovolemic Shock

<table>
<thead>
<tr>
<th>S&amp;S Progressive</th>
<th>Compensated</th>
<th>Uncompensated (Progressive)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I</strong></td>
<td>15-30% (750-1500 mL)</td>
<td>30-40% (1500-2000 mL)</td>
</tr>
<tr>
<td>Blood loss</td>
<td>40-50% (&gt;2000 mL)</td>
<td></td>
</tr>
<tr>
<td>Mental status</td>
<td>Up to 15% (750 mL)</td>
<td></td>
</tr>
<tr>
<td>Skin</td>
<td>Pale, diaphoretic</td>
<td>Pale, diaphoretic, cool</td>
</tr>
<tr>
<td>HR</td>
<td>WNL, slight increase</td>
<td>120</td>
</tr>
<tr>
<td>RR</td>
<td>WNL</td>
<td>(&gt;140)</td>
</tr>
<tr>
<td>Pulse pressure</td>
<td>WNL</td>
<td>30-40</td>
</tr>
<tr>
<td>SBP</td>
<td>WNL</td>
<td>&lt;70</td>
</tr>
</tbody>
</table>

**ITC**: Use central sensor for SpO2 (if available) if pt has poor peripheral perfusion (cold hands)

**Trend serial ETCO2 readings** (if available); low levels (<31) suggest hyperventilation + poor perfusion to lungs and metabolic acidosis. Good correlation between ETCO2 and venous lactate levels. See appendix

**Trend pulse pressures** (normal 30-50) and **mean arterial pressure** (MAP = DBP + 1/3 PP) (normal 70-110)

Pt who are older, hypertensive, or with head injury cannot tolerate hypotension for even a short time.

**Vascular access & IVF** per ITC SOP or below with suspected sepsis or septic shock.

Assess and treat specific condition/injuries per appropriate SOP.

### Sepsis & Septic Shock

- **Life-threatening dysfunction due to suspected infection**: lung, urinary tract, gut & skin (adults). Most frequent in those ≥65 or <1 yr, or w/ weakened immune systems or chronic medical conditions (cancer, diabetes, kidney disease or catheter use)

**Septic shock**: Suspect if ETCO2 < 25 (correlates to lactate reading ≥4 mM/L (↑ mortality) and ≥2 qSOFA (Quick Sequential [Sepsis-related] Organ Failure Assessment) criteria: AMS (GCS <15); RR ≥22; SBP ≤100

Call OLMC with a **Sepsis alert** per local policy/procedure.

NS 200 mL IV boluses in rapid succession (max 30 mL/kg) to SBP ≥90 (MAP ≥65; reassess after each bolus.

If hypotension persists after 500 ml IVF:

**DOPAMINE IVPB**: 5 mcg/kg/min; may titrate up to 20 mcg/kg/min to maintain SBP 90 (MAP ≥65)

Also consider: Anaphylactic Shock, Cardiogenic Shock, Neurogenic Shock, Obstructive Shock.

Ref page 39 in SOP
Initial Trauma Care

Primary Assessment: (BLS)
1. General Impression
2. Determine if immediate life threats
3. Level of consciousness
4. Airway/C-Spine – Open and maintain
5. Breathing/gas exchange/adequacy of ventilations: Assess and intervene as needed
6. Circulation/perfusion
7. Vascular access- Penetrating Trauma to torso : target SBP 80 Blunt Trauma : SBP 90 Trauma with head injury: SBP 110
8. Disability
9. Pain management if SBP > 90

SCENE SIZE UP:
Situational awareness; dynamic risk assessment – Assess/intervene as needed:
Scene safety: control and correct hazards/threats; (gas, powerlines, animals, people); form plan of approach; remove pt/responders from unsafe environment ASAP; attempt to preserve integrity of possible crime scene evidence
Mechanism of injury (MOI): anticipate type/severity of injury
Universal blood/body secretion & sharps precautions; use appropriate personal protective equipment prn
Number of pts; triage/request additional resources if needed. Weigh risk of waiting for resources against benefit of rapid transport to definitive care. Consider if medium or large scale MPI declaration is needed.
Take essential supplies/equipment to pt: hemorrhage control; airway & O2 equipment; spine splinting devices; vascular access/IVF; pain mgmt

FENTANYL 1mcg/kg (max single dose 100 mcg) IVP/IN/IM/IO
May repeat once in 5 min: 0.5 mcg/kg (max dose 50 mcg) Max total dose per SOP: 150 mcg. Additional doses require OLMC

ONDANESTRON 4 mg oral dissolve tablet (BLS)
or slow IVP over no less than 30 sec (ALS)

Secondary Assessment:
1. Obtain full set of vital signs, Sample history, allergies, meds, PMH, last oral intake, events
2. Review of systems: Head, face, eyes, ears, nose mouth, Neck, Chest, Abdomen, Pelvis/GU, Extremities, Back/Flank, Neuro, Skin/soft tissue
3. Ongoing assessment
4. Report
5. Document

Please see full SOP for Trauma Triage and Transport Criteria
Ref pages 40-41-42 in SOP
Cardiac Arrest due to Trauma

**ITC:** Scene size up; ensure EMS and patient safety; CPR and cardiac arrest management per appropriate SOP. Primary assessment to find possible reversible cause(s) of arrest, e.g., hypoxia, hypovolemia, decreased cardiac output secondary to tension pneumothorax, pericardial tamponade, or hypothermia.

If multi-system trauma or trauma to head and neck: Selective spine motion restriction; BLS airway maneuvers

Stop visible hemorrhage with direct pressure and appropriate dressings

**ALS:** If advanced airway is impossible and ventilation inadequate – consider cricothyrotomy per local policy/procedures

- Unilateral decrease in lung sounds during PPV: suspect pneumothorax, hemothorax, or ruptured diaphragm
- Unilateral absence of lung sounds – pleural decompression affected side
- Bilateral absence of lung sounds – pleural decompression both sides

**Vascular access:** Lg bore (14/16 gauge) IV or IO. Do not delay transport attempting to start IV on scene.

**If volume losses appear to be significant:** Consecutive 200 mL fluid challenges up to 1 L NS

Cardiac arrest survival is unlikely if uncorrected severe hypovolemia exists.

Penetrating trauma is time sensitive and should be transported to nearest hospital ASAP with CPR in progress.

Patients with blunt trauma found in cardiac arrest with a transport time to an ED of >30 minutes after the arrest is identified may be considered nonsalvageable, and termination of resuscitation should be considered.

**Complete ITC enroute** as time and number of EMS personnel permits

Victims of submersion, lightning strike and hypothermia deserve special consideration as they may have an altered prognosis

Post Taser Care

**Scene size up:** confer with police; determine pt's condition before, during & after taser discharge

12 Lead ECG If pt has S&S that could be cardiac in nature, is elderly, or has hx of CVD or drug use

VS; Assess for hyperthermia; volume depletion; tachycardia (hypersympathetic state); metabolic acidosis

IV NS to correct volume depletion if present

**SAMPLE Hx:** Date of last tetanus prophylaxis; cardiac hx; ingestion of mind altering stimulants (PCP, cocaine)

Rapid secondary assessment: Tased individuals can have injury or illness that occurs before taser event and/or injury when they are tased and fall

Assess for excited delirium: agitation, excitability, paranoia, aggression; great strength; numbness to pain; violent behavior. Apply/maintain restraints if needed

**Severe anxiety and SBP > 90**

MIDAZOLAM 2mg increments slow IVP q 2 min (0.2 mg/kg IN)

up to 10 mg IVP/IN/IO

If IV/IO unable; IM 5-10 mg max of 10 mg

Identify location of and care for PROBES per local procedure

If probe becomes disengaged: Handle as a sharp; check with local law enforcement to see if they require that probes be kept as evidence; if no place directly in a designated sharps container

Cleanse puncture sites and bandage as appropriate

Transport for further evaluation

Ref page 43 in SOP
Burns

Stop burning process/further injury: Remove pt from source.
Cool per thermal wound care
Remove clothing, constricting jewelry; belts, suspenders, steel toed shoes (retain heat)
Do not pull away clothing stuck to skin (cut around).
Keep burn as clean as possible; wear gloves/mask until burns covered
Quantify oxygenation (SpO₂), ventilation, perfusion, shock (ETCO₂ if available)

Airway: compromise, hoarseness, wheezing?
Indications for IV/IO: % TBSA: Adult > 20% Children > 15% need for IV meds
If not in shock: Initial NS IVF
<5 yrs: 125 ml/hr
6-13 yrs: 250 ml/hr
>14 yrs: 500 ml/hr
Mental status
If in pain:

FENTANYL 1mcg/kg (max single dose 100 mcg) IVP/IN/IM/O
May repeat once in 5 min: 0.5 mcg/kg (max dose 50 mcg) Max total dose per SOP: 150 mcg. Additional doses require OLMC

For nausea:
ONDANESTRON 4 mg oral dissolve tablet (BLS)
or slow IVP over no less than 30 sec (ALS)

Assess burn depth
Calculate % TBSA burned using Rule of 9’s or Rule of Palms
History, allergies, meds, PMH
Vital signs on unburned skin if possible
Assess for multi-system trauma

Please see full SOP for Burn Center Referral Criteria

Please see full SOP for treatment specific treatment of Thermal, Inhalation, Electrical/Lightning and Chemical burns

Ref pages 44-45 in SOP
Chest Trauma

ITC: high index of suspicion for "deadly dozen": airway obstruction, tension pneumothorax, open pneumothorax, flail chest, pulmonary contusion, massive hemothorax, cardiac tamponade, blunt cardiac injury, thoracic aortic injury, tracheal or bronchial tree injury, diaphragmatic tears, blast injuries

**Level I trauma center if transport time 30 minutes or less:**
- All penetrating chest trauma or blunt trauma with hemodynamic instability
- Tension pneumothorax; chest wall instability or deformity (flail chest)

**Nearest Level I or II trauma center:** Blunt chest trauma & hemodynamically stable

---

**Tension Pneumothorax**

- Extreme dyspnea, unilateral absence of lung sounds, SBP < 90
- Resistance to BVM ventilations, airway resistance, subcutaneous emphysema
- **Needle pleural decompression** on affected side while on scene) with OLMC contact
- Frequently reassess catheter patency. May need to repeat procedure with additional needle.

---

**Open Pneumothorax**

- Sucking chest wound
- **Ask a cooperative patient to maximally exhale or cough**
- **Wound covering options:** gloved hand, followed by vented commercial device (preferred); Vaseline gauze, defib pad
- **Monitor VS, ventilatory/circulatory status.** If S&S tension pneumothorax after closing wound: Temporarily lift side of dressing to allow air release; recover wound; assess need for needle pleural decompression if no improvement following removal of dressing

---

**Flail Chest**

- (+/- paradoxical chest movement; anticipate pulmonary contusion – SpO₂ < 90%)
- If ventilatory distress; adequate ventilatory effort; no S&S pneumothorax: consider early trial of C-PAP Peep 5-10 cm to achieve SpO₂ of at least 94%
- If ventilatory failure or persistent hypoxia, ventilate with BVM at 15L
- Assess need for pain management

---

**Pericardial Tamponade**

- SBP < 90 (narrowed pulse pressure)
- JVD; muffled heart tones. Lung sounds are usually present bilaterally.
- Permissive hypotension NS IV WO while enroute just to achieve SBP 80.
- Additional IVF per OLMC.

---

**Blunt Aortic and Cardiovascular Injury**

- Aorta: may have no external S&S of chest trauma Suspect in rapid deceleration
- **Blunt Cardiac injury:** Chest wall bruising, sternal, clavicular or rib fx.
- **NS titrated just to achieve SBP 90.** Monitor for pericardial tamponade

---

**Continue ITC enroute to Trauma Center.**
- Implement other protocols as required
- Monitor for PEA and treat per SOP

Ref page 46 in SOP
**Eye Emergencies**

**ITC:** Quickly obtain gross visual acuity in each eye: light perception/motion/read name badge
Assess pain on scale of 0-10
Assess cornea, conjunctiva, sclera for injury, tearing, foreign body, spasm of lids
Discourage patient from sneezing, coughing, straining, or bending at waist; vomiting precautions (Ondansetron)
Remove and secure contact lenses for transport with patient

**Severe pain** unrelieved by Tetracaine or Tetracaine contraindicated
**FENTANYL 1mcg/kg (max single dose 100 mcg) IVP/IN/IM/IO**
May repeat once in 5 min: 0.5 mcg/kg (max dose 50 mcg) Max total dose per SOP: 150 mcg. **Additional doses require OLMC**

**Chemical Splash/Burn**
Acids, alkali, irritant, detergent

**TETRACAINE 0.5% 1 gtt each affected eye. Repeat prn**

Irrigate affected eye(s) using copious amounts of NS. Do not contaminate uninjured eye during irrigation.

**Corneal Abrasions**
Profuse tearing, severe pain, redness, spasm of the eye lid

**TETRACAINE 0.5% 1 gtt each affected eye. Repeat prn**

**Facial Trauma**
Assess need for selective spine precautions; PMH for blood thinners; control exterior bleeding.
Clear oral cavity of F/B and gross debris. Allow pt to assume position that allows for patent airway (sitting or side lying so blood/secretions drain from nose & mouth); avoid aspiration/swallowing blood; suction prn; no nasal airways; O₂ to SpO₂ ≥ 94% unless contraindicated
Control epistaxis (squeeze nostrils 10-15 min); do not pack nose if rhinorrhea. Collect blood on rolled 4X4 under nose.

Assess for stable midface, mandible, dentition; tissue/dental avulsions: collect/preserve tissue per Musculoskeletal SOP (if possible)
Apply cold packs for pain

For severe pain:
**FENTANYL 1mcg/kg (max single dose 100 mcg) IVP/IN/IM/IO**
May repeat once in 5 min: 0.5 mcg/kg (max dose 50 mcg) Max total dose per SOP: 150 mcg. **Additional doses require OLMC**

**Avulsed tooth:** Avoid touching root, pick up by crown; do not wipe off, if dirty rinse under cold water for 10 sec.
Place in milk, saline, or commercial tooth preservative solution.
Unrecovered teeth may be aspirated.
If GCS 15, may hold tooth in mouth for transport.
**Head Trauma**

**Traumatic Brain Injury**

**Level 1 TC:** GCS: 13 or less associated w/ head trauma; penetrating head or neck trauma; open or depressed skull fx

**Nearest TC:** GCS 14-15; blunt head injury; hemodynamically stable

---

**ITC**

- Selective Spine Precautions if indicated
- DO NOT OVERVENTILATE: assist/ventilate at 10 BPM. maintain ETCO2
- Vomiting precautions: Ondansetron as below
- Scalp wounds: No unstable fx-direct pressure. Unstable fx- hemostatic dressings avoid direct pressure
- 12 lead ECG
- Avoid/correct all hypotension ASAP: if GCS <8 keep head of bed flat.
- NS IVF boluses (200 ml increments up to 1 L) Target SBP 110-120
- If seizure activity: Midazalam as below
- AMS: Obtain bG level: if < 70 treat per Hypoglycemia SOP

---

**Vomiting precautions:**

- **ONDANESTRON 4 mg oral** dissolve tablet (BLS)
- or slow IVP over no less than 30 sec (ALS)

**Seizure precautions:**

- **MIDAZOLAM 2mg increments slow IVP q 2 min (0.2 mg/kg IN)** up to 10 mg IVP/IN/IO
- If IV/IO unable; IM 5-10 mg max of 10 mg

---

**Increased Intracranial Pressure**

AMS/GCS drops by 2 or more points < 8 ↑ SBP, bradycardia, resp varies

**Basilar Skull Fracture**

- Maintain supine position with head in axial alignment
- Assess SpO2: 02 12-15 L NRM or BVM at 10 BPM. Monitor Capnography
- Assess for signs of brain shift: Coma, dilated, nonreactive pupils, motor deficits, GCS drops by 2 or more points. If present: Seek OLMC order for limited hyperventilation. Adult 17-20 BPM (ETCO2 30-35)
- No Atropine if bradycardic and SBP > 90

---

**Patient must appear calm, cooperative, alert, and perform cognitive functions appropriately with NO AMS, acute stress reaction, brain injury, chemical impairment causing altered decisional capacity, distracting painful injuries, and language or communication barriers. Reassess at least q. 15 minutes; more frequently as able:**

- Mental status [arousal, orientation, memory (amnesia), affect, behavior, cognition]; GCS
- Early S&S deterioration: confusion, agitation, drowsiness, vomiting, severe headache
- Pupil size, shape, equality, reactivity; gaze palsy; visual changes/disturbances; light sensitivity, hearing deficits
- BP (MAP); pulse pressure; HR; respiratory rate/pattern/depth; SpO2, ETCO2 if available
- Pain (headache), dizziness, motor/sensory integrity/deficits; coordination & balance

---

**If nonresponsive to verbal efforts to calm them or uncooperative:**

- **MIDAZOLAM 2mg increments slow IVP q 2 min (0.2 mg/kg IN)** up to 10 mg IVP/IN/IO
- If IV/IO unable; IM 5-10 mg max of 10 mg

---

**Maintain supine position with head in axial alignment**

- Do not place anything into the nose if possible anterior fracture; do not let patient blow nose
- CSF rhinorrhea or otorrhea: Apply 4x4 to collect drainage; do not attempt to stop drainage

---

**Ref page 48 in SOP**
Muscle Skeletal

Assess pain, paralysis/paresis, paresthesias, pulses, pressure & pallor before & after splinting.
Evaluate for obvious deformity, shortening, rotation, or instability.

Analgesia before moving/splinting:
Hemodynamically stable, isolated MS trauma, no contraindications (drug allergy, AMS):
Patients meeting TC I or II criteria: On scene care restricted to hemorrhage control, airway access, selective spine precautions if needed, & \( O_2 \) delivery. Attempt all other interventions enroute.

For moderate to severe pain:
FENTANYL 1mcg/kg (max single dose 100 mcg) IVP/IN/IM/IO
May repeat once in 5 min: 0.5 mcg/kg (max dose 50 mcg) Max total dose per SOP: 150 mcg. Additional doses require OLMC

Severe muscle spasm:
MIDAZOLAM 2mg increments slow IVP q 2 min (0.2 mg/kg IN)
up to 10 mg IVP/IN/IO
If IV/IO unable; IM 5-10 mg max of 10 mg

Amputation / Degloving
Incomplete or uncontrolled bleeding:
Hemorrhage control per ITC; splint as necessary.

Care of amputated parts:
* Attempt to locate all severed parts.
* Gently remove gross debris
* Do not irrigate.
* Wrap in saline-moistened (not wet) gauze, towel, or sheet.
* Do NOT immerse directly in water or saline.
* Place in water-proof container and seal.
* Surround w/ cold packs or place in second container filled w/ ice/cold water.
* Avoid overcooling or freezing the tissue.
* Note time cooling of part began.

Impaled Oblects
Never remove an impaled object unless it is through the cheek and poses an airway impairment, and/or it would interfere with (assisted) ventilations, chest compressions, or transport.
Stabilize object with bulky dressings; insert gauze rolls into the mouth to absorb excess blood.
Elevate extremity with impaled object if possible.

 Crush Syndrome
Obtain baseline ECG before release if possible; continue ECG monitoring after release.
Start IV NS TKO prior to compression release. Run wide open after release.
Give 200 mL IVF challenges in elderly – monitor for fluid overload.
Assess for hyperkalemia w/ cardiotoxicity:

If signs of Hyperkalemia:
SODIUM BICARBANATE 50 mEq slow IVP over 5 min followed by 20 ml NS IV flush

If no IV:
ALBUTEROL 5 mg continuous neb up 20 mg (BLS)

Suspension Injury
Observe for signs of Hyperkalemia:
Prior to rescue; Lift legs into sitting position if at all possible
Obtain baseline ECG before release
Start IV NS TKO prior to suspension release if possible. Run wide open after release up to 1 L.
Once released from suspension, Do not allow pt to stand or lie flat.
Treat dysrhythmias per appropriate SOP.

Ref page 49 in SOP 40
Spine Trauma

ITC: Assess pt in position found.
Frequently reassess airway/ventilations (ETCO₂)
Prepare to support ventilations
Monitor for airway compromise
Treat hypotension: IVF per ITC
Prevent hypothermia
Avoid resp. depression; preserve neuro function

If aspiration risk or N/V
ONDANESTRON 4 mg oral dissolve tablet (BLS)
or slow IVP over no less than 30 sec (ALS)

If pain: reduce standard dose by half:
FENTANYL 0.5 mcg/kg (max single dose 50 mcg) IVP/IN/IM/IO
May repeat once in 5 min: 0.25 mcg/kg (max dose 25 mcg) Max total
dose per SOP: 75 mcg. Additional doses require OLMC

Assess scene/MOI to determine risk of injury; MOI alone does not determine need for spine precautions
Establish reliability
Rapid neuro exam for evidence suggesting spine injury
Selective spine precaution guidelines
Penetrating trauma to head, neck, or torso: No spine precautions
Ambulatory at scene or long transport time: apply c-collar and secure to firm padded surface (stretcher) w/o scoop or board
Stable pt/scenes; in vehicle and no injury: apply c-collar; adult/child in booster seat may self- extricate onto stretcher.
Extricate smaller child while strapped in car seat.
Stable pts/scene; in vehicle with injury: KED (vest-type device) or short board to remove
Unstable location or pt; in vehicle: Rapid extrication (lift & slide onto long board); move to cot for evaluation
Children are abdominal breathers, place straps over chest/pelvis, not across abdomen.
If nonresponsive to verbal efforts to calm them or uncooperative in remaining still:
Restrain prn per system policy/procedure. Document reasons for use
Assess need for sedation: If no loss of consciousness or resp depression; SBP ≥ 90 (MAP ≥ 65):
MIDAZOLAM 2 mg increments slow IVP q 2 min (0.2 mg/kg IN)
up to 10 mg IVP/IN/IO
If IV/IO unable; IM 5-10 mg max of 10 mg

Ref pages 50-51 in SOP
Multiple Patient Incidents

**Small scale incident**

- # of pts, nature of injuries, and resources that can arrive at scene within 15 minutes (secondary response time) make normal level of EMS care achievable for most seriously injured.
- All time-sensitive patients can be transported within a 10 min scene time.
- “Business as usual” - within scope of normal operation.

<table>
<thead>
<tr>
<th>Triage required</th>
<th>YES – all persons on scene; using START/JUMPstart</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triage tags</td>
<td>Optional</td>
</tr>
<tr>
<td>PCR/EHRs</td>
<td>Mandatory</td>
</tr>
<tr>
<td>Pt distribution, usual transport patterns</td>
<td>Apply</td>
</tr>
<tr>
<td>Trauma Center criteria</td>
<td>Apply</td>
</tr>
<tr>
<td>OLMC when transporting</td>
<td>Mandatory</td>
</tr>
<tr>
<td># in pt compartment + EMS responder</td>
<td>1ALS + 1BLS or 2BLS if no HIPAA violation</td>
</tr>
<tr>
<td>Refusal process</td>
<td>Applies</td>
</tr>
</tbody>
</table>

**Medium to large scale incident**

- # of pts and/or nature of injuries make normal level of EMS stabilization and care unachievable, and/or
- # responders/ambulances that can be brought to site within secondary response times is INSUFFICIENT to manage scene and provide normal levels of care and transport under normal operating procedures and/or
- Stabilization capabilities of hospitals that can be reached within ground transport time of 30 min are INSUFFICIENT to handle all pts. May need to activate disaster plans.

- Transport up to 2 of the most critical patients to each hospital that can be reached in 30 min.
- **If small scale:** Contact hospital to distribute remaining patients.
- **If med – large scale:** Contact Resource Hospital to establish loading area accessible to treatment area.

**Scene size up;** Determine if additional help is needed. Establish the following:

**Triage**

- Primary Triage done using the START or Jump START method. Control bleeding, manually open the airway.

**Treatment**

- Establish and manage R-Y-G treatment areas. Ensure ongoing secondary triage is performed and provide Rx as able per SOP.

**Transportation**

- Transport up to 2 of the most critical patients to each hospital that can be reached in 30 min.

Depending on nature and magnitude of incident, EMS MD (designee) or State Medical Director may suspend normal EMS operations and direct that all care be conducted by SOP and/or using personnel and resources available.

Ref page 52 in SOP
START TRIAGE: For Primary triage only

Red - Priority 1
- Respirations >30
- Resp resume after head tilt
- Delayed capillary refill (> 2 sec)
- Pulse: radial absent/carotid present
- AMS; cannot follow commands
- Uncontrolled bleeding

Yellow - Priority 2
Non-ambulatory: all others:
RR <30; + radial pulse; can follow commands

Green - Priority 3
Can walk; Direct to a specific location

Deceased - Priority 0
No respirations after opening airway

Secondary Triage: Uses the Revised Trauma Score (RTS) to determine triage priority: GCS, RR, & SBP. See SOP p. 40
Scores range from 0-12
12: Priority 3 (green)
11: Priority 2 (yellow)
10 or less: Priority 1 (red)

JUMP START

Red - Priority 1
- Respirations < 15 or >45
- Apneic & breathes after opening airway
- Breaths after 5 rescue breaths
- No pulse w/ RR 15-45
- Unresponsive / Inap. pain response
- Uncontrolled bleeding

Yellow - Priority 2
Can’t walk, RR 15-45; + pulse; “A”, “V” or appropriate “P” pain response

Green - Priority 3
- Can walk
- Infants may appear to have no major injuries
- Direct to a specific location for secondary triage

Deceased - Priority 0
- No breathing after airway opened and 5 rescue breaths given
- No respiration & no palpable pulse

ALL patients MUST be re-evaluated for the acuity of their injuries using Secondary triage.

Ref page 53 in SOP
Haz-Mat Incidents

Scene safety:
If hazard is suspected, approach site w/ extreme caution, position personnel, vehicles, and command post at a safe distance (200-300 ft) upwind of the site. If agent is unknown: www.atdrc.cdc.gov/MHM/mmg170.html

Scene size up
Send info

Use National Incident Management System (NIMS): Set up the medical group
Initiate Start (JumpSTART) triage
Treatment
Contact OLMC
Confine contamination for transport
Decontamination at hospital

If assistance is needed, 24 hour hot line numbers for radiologic exposures:
Radiation Emergency Assistance Center/Training Site (REACT/TS) in Oak Ridge, TN (615) 576-3131 or Illinois Dept. of Nuclear Safety: (217) 785-0600

Chemical Agents

Chemical agents are released into the air as a vapor or in liquid form

Nerve agents: Highly poisonous chemicals that disrupt the nervous system
Cholinergic S&S: SLUDGE; salivation, lacrimation, urination, defecation, gastrointestinal distress, emesis.
S&S of blistering agents: Garlic odor, reddened skin, blistering within 2 hours of vapor exposure, tearing, itching, CNS effects (lethargy, sluggishness, and apathy) respiratory failure.


PPE: All those entering a hot zone or working a decon station must wear full protection: body & respiratory Suction, O₂ 15 L/NRM; support ventilations with BVM prn. As soon as adequate equipment and personnel allow: monitor quantitative waveform capnography (if available), SpO₂ & ECG, & obtain vascular access as able.

Counter Poison: Give antidotes for Nerve Agent exposure

Each Mark I kit [BLS] consists of 2 autoinjectors and the DuoDote kit [BLS] consists of 1 autoinjector containing Atropine sulfate (Atropine) 2 mg in 0.7 mL + Pralidoxime chloride (2 PAM) 600 mg in 2 mL

For further guidance on Hazardous Materials Incidents and Chemical Agents
Please see the Full version of the SOP

Ref pages 54-55 in SOP
Active Shooter Response

**Purpose:** Describe the roles and responsibilities of EMS when working with law enforcement personnel at or near an incident of mass violence. In all cases, law enforcement is considered the lead agency on these incidents and EMS personnel shall follow PD instructions as appropriate.

**Definitions:**

**Active shooter event** - an event involving one or more individuals actively engaged in causing death and/or great bodily harm using firearms in a confined and/or populated area.

**Ballistic Protective Equipment** - Protective vest, helmet, and eyewear that are made to protect the wearer from ballistic threats such as gunfire, shrapnel, or sharp objects meant to do bodily harm.

**Patient Collection Point** – The physical location used for the assembly, triage, medical stabilization and subsequent evacuation of casualties. The PCP may be located in a secured area within the Warm Zone. The scene size or layout will dictate the need and location of a PCP. If used, the PCP is most beneficial when it is located in an area that is near an exit that is easily accessible to a drive or parking lot for patient evacuation via an ambulance or other transport vehicle. The PCP shall be force protected by PD at all times. Depending on the size of a building campus, etc., there may be multiple PCPs established.

**Clear** – Indicates an area has been checked by law enforcement personnel and no threats were identified.

**Cold zone** – An area where there is little or no threat, due to the geographic distance from the threat or the area has been secured by PD.

**Concealment** – A location that hides an individual from view but does not provide ballistic protection.

**Contact team** – The initial team of police officers who form at the scene and deploy to the shooter’s location, make contact with and eliminate the threat to prevent further injury and/or loss of life.

**Cover** – A location that hides an individual from view and provides ballistic protection (metal door, brick or concrete wall).

**Hard lockdown** – Specific to schools and is used when a serious/volatile situation exists that could jeopardize the physical safety of the students and staff. When in effect, occupants of the building will ignore all bells and fire alarms unless they receive verbal instructions from local emergency responders or the conditions warrant the evacuation of the area (fire, structural damage). No one is allowed to enter or exit the building. On-duty Shift Commanders shall be notified by dispatch if any hard lockdowns occur within their response areas.

**Hot zone** – Scene of a dynamic environment where a current, active threat is known or believed to be present. This area is typically occupied by law enforcement Contact Teams only.

**Level-2 staging** – Used when Incident Command (IC) identifies the need to maintain a reserve of resources near the scene. Places all reserve resources in a central location and requires implementation of a Staging Officer.

**Rescue Group Supervisor (RGS)** – A FD member whose job is to coordinate the RFT teams and the PCP. The PCP shall be created by the RGS in coordination with the PD members assigned to the Rescue Task Force (RTF). The RGS will oversee triage and treatment of the patients. The RGS will communicate with the Transportation Officer to coordinate transport of patients from the PCP to a healthcare facility/hospital.

**Rescue Task Force** – A coordinated group of Police and Fire/EMS personnel whose responsibilities are to provide initial basic trauma care to the critically injured and to extract them from the Warm Zone to an area where they can receive definitive care and/or transportation to the hospital. These RTF teams treat, stabilize, and remove the injured while in a rapid manner under the force protection of PD personnel. They shall wear BFE. It is recommended that a RTF consist of 2 or 3 medically trained responders (paramedics preferred) and 2 or 3 armed law enforcement personnel. Multiple RTFs can be formed based on the needs of the incident and shall be designated as RTF1, RTF2, etc.

**Safe Corridor/Pathway** – A route identified and secured by law enforcement personnel and designated for the safe ingress and egress of first responders, victims, and evacuees. May also be used after the incident is stabilized to prevent the accidental spillation of evidence by first responders.

**Secured** – Indicates that an area has been completely checked by law enforcement, no threats exist, and entry points to the area are actively protected by armed PD personnel.

**Soft lockdown** – Procedure specific to schools used when conditions outside of the school building could potentially pose a threat to the safety of students and staff. Second, a situation in the building where the school or local emergency responders need to keep students and staff in their classrooms and away from an incident or activity. During soft lockdowns, student and staff can continue normal classroom activities, but shall not leave the classroom or offices until advised to do so. No one may enter or leave the building until ended. The on-duty Shift Commander shall be notified by dispatch of any Soft Lockdowns within their response areas.

**Warm Zone** – Area of indirect threat (law enforcement may have cleared or isolated the threat to a level of minimal or mitigated risk). Considered cleared, but not secured. A RTF entry team can deploy in this area with PD protection, to treat and/or evacuate victims.

**GUIDELINES**

1. **Response and staging** – Initial responding EMS teams shall stage at safe locations out of the line-of-sight and away from the scene. Non-transport vehicles (not being used as RTFs) should block roads leading to the scene when PD or Public Works (PW) vehicles are not available. Drivers of these vehicles shall remain with their vehicles and watch for responding emergency personnel and move the vehicles as needed.

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For further direction in regards to Communications, School Access, Explosive Devices, Patient transport, Incident Command, EMS Group, Rescue Task Force (RTF) Transport of injured Police Officer or Tactical EMS please see the full version of your SOP.
Difficult to detect due to their latent effects. Biological threat, e.g. Anthrax, Botulism, Bubonic/Pneumonic Plague, Cholera, Diphtheria, Ebola, Smallpox, staphylococcal Enterotoxin B, Tularemia, Viral Hemorrhagic Fever, bio-engineered agents, and ricin (seed from the castor plant, extreme pulmonary toxicity w/ inhalation).

**S&S: Early surveillance critical:** Because of the long incubation period, the ability to recognize biological attack is difficult. Detection will most likely occur by an increase in calls of similar symptoms:
- Fever, chills, Jaundice, skin lesion that look like small pox, diarrhea, respiratory insufficiency or distress, malaise, pharyngitis (sore throat), swollen lymph nodes, cough, blurred or double vision, muscle paralysis.

For all possible exposures to biological agents apply appropriate PPE; and ask about travel history.
- If patient is coughing, place an N-95 mask on all rescuers and a surgical mask on the patient.
- Cover all lesions with dressings. If copious diarrhea, consider use of fluid repellant sheets and gowns.
- Consult recommendations from CDC relative to post-exposure treatment and/or vaccination for rescuers.

*CDC website:* [www.CDC.gov](http://www.CDC.gov)  
800-CDC-INFO (800-232-4636)  
TTY: (888) 232-6348

Initiate System-wide Crisis Response policy/procedures as appropriate. Notify Resource Hospital of trends. Depending on the nature and magnitude of an incident, the System EMS MD or designee or State Medical Director may suspend EMS operations as usual and direct that all care be conducted by SOP and/or using personnel and resources as available. Expanded scope of practice may be authorized by EMS MD or Medical Director of Public Health including assessment, distribution of prophylaxis, altered transport parameters.

**IEMA phone contacts**
- Director  
  (217) 782-2700  
- Coordinator, Region 9  
  (618) 662-4474  
- 24 hour dispatch number  
  (217) 782-7860
Abuse & Maltreatment
Domestic, Sexual, Elder

Persons protected by the Illinois Domestic Violence Act of 1986 include:
- Person abused by a family or household member
- High-risk adult w/ disabilities who is abused, neglected, or exploited by a family or household member
- Minor child or dependent adult in the care of such person
- Person residing or employed at a private home or public shelter which is sheltering an abused family or household member

EMS personnel shall provide immediate, effective assistance and support for victims and witnesses of domestic or personal violence. Dispatchers should use utmost discretion prior to canceling a call for service, if based solely on a request for cancellation by a person other than the original complainant.

If any form of abuse, maltreatment, harassment, intimidation, or willful deprivation are suspected
Assure scene safety. If offender is present; weapons are involved; the offender is under the influence of drugs and/or alcohol; and/or there are children present: call for police backup.

- Provide psychological support
- Discourage patients from changing clothes, urinating, or washing away signs of abuse
- Treat obvious injuries per appropriate SOP
- Cooperate with police to use all reasonable means to prevent further abuse or neglect

Illinois law requires EMS to give suspected abuse victims information on services available to them
Report your suspicions to the receiving hospital
If patient is < 18 years old; see Suspected Child Abuse or Neglect SOP

National Domestic Violence Hotline at 1-800-799-7233
National Sexual Assault Hotline at 1-800-656-HOPE (4673)

Elder Abuse/Neglect Hot Line Number:
EMS personnel are mandatory reporters of suspected elder abuse. Call the following:

IDPH ABUSE HOTLINE: 1-800-252-4343
Department of Aging: 866-800-1409
ICU special considerations: Same immediate priorities. Pregnancy does not limit or restrict any resuscitative Rx.

Stabilize mom first as fetus’s life depends on the mother’s. Mom may compensate at the expense of the fetus. Baby may be in jeopardy while mom appears stable. Upper airways are congested due to increased blood and swollen capillaries. Support airway as needed.

- **O₂**: 12-15 L by tight fitting mask even w/o respiratory distress until SpO₂ 96%; SpO₂ must be > 94% for adequate fetal oxygenation.
- **Hypotension**: SBP < 90 (MAP 65) or < 80% of baseline. Warm NS IVF challenges in consecutive 200 mL increments.
- **SpO₂**: Must be > 94% for adequate fetal oxygenation.

If spine precautions indicated and gestational age > 20 weeks:

- **Tilt patient to either side** by raising the side of the board and supporting board with blanket rolls.
- Manually displace uterus to side. Avoid Trendelenburg position.
- Take BP while mother is seated or tilted towards side if gestational age > 20 wks.

**Pain management – Fentanyl**: Category C – Consult with OLMC. The potential benefits to the mother must be balanced against possible hazard to the fetus.

**Serial abdominal exams**: Note abdominal shape & contour. Inspect for deformity, contusions, abrasions, punctures, and wounds. Attempt to auscultate fetal heart tones (FHTs) or assess fetal activity per policy if > 20 wks - Ave. 120-160/min. Palpate abdomen to determine uterine tenderness/irritability & fundal height. Fundus is level w/ navel at 20 wks with one baby.

- Assess rigidity of uterus vs. abdominal wall, leakage of amniotic fluid (presence of meconium/blood), presence/absence of fetal movements.

**If contractions present**: Assess duration, frequency, strength; pain scale; check for imminent delivery.

**Vaginal bleeding**: May be earliest sign of placental separation, abortion or preterm labor; May indicate injury to GU tract. Note presence, amount, color, consistency of blood. Do not pack vagina.

**If bag of waters ruptures** in your presence: evaluate color, consistency, odor, quantity of fluid. Port wine: abruptio placenta; green: meconium; foul smelling: infection; assess for prolapsed cord. Prepare to deliver if signs of imminent birth are present.

Pregnancy influences patterns of injury/clinical presentations following trauma. Highest risk in moms with injuries to thorax, abdomen, and pelvis. Prime causes of fetal death d/t trauma: placental abruption (50-80%); maternal death (~10%); maternal hypovolemic shock (<5%).

- **60% - 70% of fetal deaths occur following minor maternal injuries.**
- **Risk for fetal injury highest in 3rd trimester when head is engaged, torso exposed, & ratio between fetus & amniotic fluid is lowest.**
- **Peripheral vasodilation causes ↑ peripheral circulation in 1st & 2nd trimesters. Pt in shock may be warm and dry.**
- **Maternal shock causes uterine vasoconstriction that ↓ blood flow to fetus by 20% - 30% before BP changes in mom.**

- **Stretched abd wall masks guarding, rigidity, & rebound tenderness.** Palpation exam unreliable in trauma. Less able to detect abdominal bleeding clinically.
- **Bladder vulnerable to rupture w/ direct trauma to suprapubic area.**

Appendix in RUQ in late pregnancy due to upward shifting of abdominal organs.

Ref page 60 in SOP

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Normal</th>
<th>Changes in pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood volume</td>
<td>4.5 L</td>
<td>Increased 40-50%; May NOT show S&amp;S of shock (VS changes until ≥ 30% blood loss)</td>
</tr>
<tr>
<td>HR</td>
<td>70</td>
<td>Increased 10-15 BPM higher than prepregnant state</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>110-120/70</td>
<td>Decreased 10-15 mmHg in 2nd trimester; returns to nml 3rd trimester Beware supine hypotensive syndrome &gt; 20 wks Vena caval &amp; aortic compression when supine ↓ RV preload &amp; CO by 30-40%</td>
</tr>
<tr>
<td>Cardiac output</td>
<td>4.5 L/min</td>
<td>Increased 20-30%</td>
</tr>
<tr>
<td>Hematocrit/hemoglobin</td>
<td>13-15 / 40</td>
<td>Decreased due to plasma dilution (physiologic anemia)</td>
</tr>
<tr>
<td>ETCO₂</td>
<td>35-45</td>
<td>25-32 &gt; 10 wks gestation Maternal hyperventilation mnl (gradient for gas exchange w/ fetus)</td>
</tr>
<tr>
<td>Gastric motility</td>
<td>Normal</td>
<td>Decreased; prone to vomiting &amp; aspiration. Last meal unreliable indicator of gastric contents. Decreased motility mimics silent abdomen.</td>
</tr>
</tbody>
</table>

**Note**: Pregnancy influences patterns of injury/clinical presentations following trauma. Highest risk in moms with injuries to thorax, abdomen, and pelvis. Prime causes of fetal death d/t trauma: placental abruption (50-80%); maternal death (~10%); maternal hypovolemic shock (<5%).

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Stretched abd wall masks guarding, rigidity, & rebound tenderness. Palpation exam unreliable in trauma. Less able to detect abdominal bleeding clinically.

Bladder vulnerable to rupture w/ direct trauma to suprapubic area.

Appendix in RUQ in late pregnancy due to upward shifting of abdominal organs.
**PHASE I: LABOR**

Obtain history and determine if there is adequate time to transport to hospital with OB services

- Gravida (# of pregnancies); para (# of live births)
- Number of miscarriages, stillbirths, abortions or multiple births
- Gestational age in weeks: Due date (EDC) or last menstrual period (LMP)
- Onset, strength, duration & frequency of contractions (time from beginning of one to the beginning of the next)
- Length of previous labors in hours
- Status of membranes ("bag of waters") - intact or ruptured
  If ruptured, inspect for prolapsed cord & evidence of meconium. Note time since rupture.
- Presence of vaginal bleeding/discharge ("bloody show")

**High-risk concerns:** Lack of prenatal care, drug abuse, teenage pregnancy, mom 35 yrs & older; history of diabetes, HTN, CV and other pre-existing diseases that may compromise mother and/or fetus, pre-term labor (< 37 wks), previous breech or C-section, or multiple fetuses.

**IMC**

Maintain eye contact; coach her to pant or blow during contractions.

If mother becomes hypotensive or lightheaded: turn on her side; O₂ 12-15 L/NRM; NS IVF challenges in 200 mL increments, if indicated.

Inspect for S&S imminent delivery: bulging/crowning during contraction, involuntary pushing, urgency to move her bowels

**IF DELIVERY NOT IMMINENT:** Allow pt. to assume most comfortable position; transport to hospital w/ OB services

**IF DELIVERY IS IMMINENT:** (contractions 2 min apart or less, or any of the above are present)

- Do not attempt to restrain or delay delivery unless prolapsed cord is present.
  - Provide emotional support; mom is in pain and may not cooperate
  - Position semi-sitting (head up 30) w/ knees bent or on side on a firm surface, if possible.
  - Wash hands w/ waterless cleaner. Put on FULL BSI. Remove clothing below her waist if able.
  - Open OB pack; maintain cleanliness of contents; place absorbent materials beneath perineum and drapes over abdomen, each leg, & beneath perineum. Prepare bulb syringe, cord clamps, scalpel, and chux to dry and warm infant.

Ready neonatal BVM, NRM, resuscitation equipment, and O₂ supply. Prepare neonatal warmer if available.

**PHASE II: DELIVERY**

1. **HEAD:** Allow head to deliver passively.

- Control rate of descent by placing palm of one hand gently over occiput.
- Protect perineum with pressure from other hand.
- If amniotic sac still intact, gently twist or tear the membrane.

2. **After head is delivered:**

- **No meconium:** Do not suction during delivery to avoid Vagal stimulation and fetal bradycardia.
- **Meconium present:** Gently suction mouth then nose w/ bulb syringe. Anticipate need for resuscitation of a nonvigorous infant after delivery.

  - Feel around neck for the umbilical cord (nuchal cord). If present, attempt to gently lift it over baby's head. If unsuccessful, double clamp and cut cord between the clamps.
  - Support head while it passively turns to one side in preparation for shoulders to deliver.

3. **SHOULDERS:**

- Gently guide head downwards to deliver upper shoulder first
- Support and lift the head and neck slightly to deliver lower shoulder.

  - **If shoulder dystocia:** Gently flex mother's knees alongside her abdomen. Attempt to rotate anterior shoulder under symphysis pubis.

4. The rest of the infant should deliver quickly with next contraction.

- Firmly grasp infant as it emerges. Baby will be wet and slippery.

5. Note date and time of delivery. Proceed to POST-PARTUM CARE

Ref page 61 in SOP
**NEWBORN**

1. Assess newborn's ABCs. If distressed: Newborn Resuscitation SOP
2. Care immediately after delivery:
   - Keep infant level with uterus or place on mom's abdomen in a 15˚ head-down position (unless preterm, then keep horizontal) until cord stops pulsating.
   - Suction mouth, then nose using bulb syringe; repeat as necessary.
   - Ventilations should begin in 30 sec. Gently rub back or flick soles of feet. If no ventilations Newborn resuscitation
   - Dry and warm infant, wrap in blanket or chux. Cover head with stockinet cap.
3. When cord pulsations stop: Clamp cord at 6” and 8” from infant's body; cut between clamps with sterile scalpel
   - If no sterile implement available, clamp cord but do not cut; safely secure infant for transport.
   - Check cord ends for bleeding.
4. Obtain 1 minute APGAR score. If 6 or less: Newborn Resuscitation SOP
   - If RR < 40: assist with neonatal BVM; Newborn Resuscitation SOP
   - If dusky but breathing spontaneously at a rate of 40/min:
     - Place neonatal NRM 1” from the baby's face with blow-by oxygen at 10 L/min.
5. Place ID tags on the mother and infant with mother's name, delivery date and time, infant gender
6. Obtain 5 minute APGAR score.
7. Transport considerations: Transport baby in an infant car seat secured so the infant rides facing backwards.
   - Pad around infant prn. Do NOT carry infant to ED or OB unit in rescuer's arms due to risk of infection & trauma.
   - Transport mom & baby to a hospital with OB services (keep together if safe transport possible).
   - Do not separate in two different ambulances unless absolutely necessary.

---

**APGAR Assessment**

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance (color)</td>
<td>Blue or pale</td>
<td>Blue hands or feet</td>
<td>Entirely pink</td>
</tr>
<tr>
<td>Pulse (heart rate)</td>
<td>Absent</td>
<td>≤ 100</td>
<td>≥ 100</td>
</tr>
<tr>
<td>Grimace (reflex irritability)</td>
<td>Absent</td>
<td>Grinace</td>
<td>Cough or sneeze</td>
</tr>
<tr>
<td>Activity (muscle tone)</td>
<td>Limp</td>
<td>Some extremity flexion</td>
<td>Active motion</td>
</tr>
<tr>
<td>Respirations (effort)</td>
<td>Absent</td>
<td>Weak cry, &lt; 40</td>
<td>Strong cry</td>
</tr>
</tbody>
</table>

---

**Infant's patient care report - Document the following:**

- Date and time of delivery
- Presence/absence of nuchal cord. If present, how many times.
- Appearance of amniotic fluid, if known; especially if green, brown, or tinged with blood
- APGAR scores at 1 minute and 5 minutes
- Time placenta delivered and whether or not it appeared intact (if applicable)
- Any infant resuscitation initiated and response

---

**MOTHER**

Placenta should deliver in 20-30 minutes. If delivered, collect in bag from OB kit and transport for inspection.

Do NOT pull on cord to facilitate delivery of the placenta.

**DO NOT DELAY TRANSPORT waiting for PLACENTA to deliver**

Mother may be shivering; cover with a blanket

If perineum is torn and/or bleeding, apply direct pressure with sanitary pads and have patient bring her legs together.

Apply cold pack (ice bag) to perineum (over pad) for comfort and to reduce swelling.

- If blood loss > 500 mL: or S&S of shock/hypoperfusion:
  - IV NS fluid challenges in 200 mL increments titrated to patient response
  - Massage top of uterus (fundus) until firm
- Breast feeding may increase uterine tone. (Do not transport with baby breastfeeding)

If blood loss continues despite above with SBP < 90 (MAP < 65); transport ASAP; alert OLMC
**Delivery Complications**

A footling/frank breech generally delivers in 3 stages: legs abdomen; abdomen shoulders, and head.

- Two of the most dangerous times for the infant (risk of hypoxia) are after delivery to the abdomen (cord can become compressed against the pelvic inlet as the head descends) and after delivery of the torso and shoulders, awaiting delivery of the head.

**IMC**

- IV NS; anticipate need for pressure infusers
- Obtain a quick pregnancy history per the Emergency Childbirth SOP
- Prepare for delivery per Emergency Childbirth SOP if birth is imminent

Prepare to transport with care enroute if only the buttocks or lower extremities are delivered.

Stay on scene for ONE contraction if the baby is delivered to the shoulders, while attempting delivery of the head.

If enroute, stop the vehicle to attempt delivery of the head.

### Delivery Procedure

**Legs delivered:** Support baby's body wrapped in a towel/chux.

- If cord is accessible, gently palpate for pulsations. Do not manipulate cord more than necessary.
- Attempt to loosen the cord to create slack for delivery of the head.

**After torso and shoulders are delivered:** Gently sweep down the arms.

- If face down may need to lower body to help deliver head. **Do not hyperextend the neck.**
- Apply firm pressure over mother's fundus to facilitate delivery of the head.

**NEVER ATTEMPT TO PULL THE INFANT BY THE LEGS OR TRUNK FROM THE VAGINA.**

May precipitate an entrapped head in an incompletely dilated cervix or it may precipitate nuchal arms

**The head should deliver in 30 seconds** (with the next contraction).

- If NOT, reach 2 gloved fingers into vagina to locate baby's mouth and pull chin down.
- Push vaginal wall away from baby's mouth to form an airway.
- Keep your fingers in place and transport immediately, alerting the receiving hospital of the baby's position.

Keep delivered portion of baby's body warm and dry.

If head delivers: anticipate neonatal distress. Refer to Newborn Resuscitation SOP as necessary.

Anticipate maternal hemorrhage after the birth of the infant. Refer to Post-Partum Care of Mother.

**Note:** Single limb presentation (arm, leg) or other abnormal presentations may require C-section.

**DO NOT** attempt field delivery.

### Prolapsed Cord

**PROLAPSED CORD**

Check for prolapsed cord whenever a patient claims her bag of water has ruptured.

**IMC**

O₂ 12-15 L/NRM

- Elevate the mother's hips. Instruct the patient to pant during contractions.
- Place gloved hand into vagina and place fingers between pubic bone and presenting part, with cord between fingers. Apply continuous steady upward pressure on the presenting part.
- Avoid cord manipulation as much as possible. Cover with a moist dressing and keep warm.
- Transport with hand pressure in place.

### Uterine Inversion

**UTERINE INVERSION**

**IMC**

O₂ 12-15 L/NRM; IV NS titrated to patient response

Anticipate significant hemorrhage

**If only partially extruded:** **ONE** attempt to replace uterus per protocol. Push fundus toward vagina with palm of hand.

Apply saline moistened sterile towels or dressings around uterus.
Newborn Resuscitation
(APGAR) = 6 or less

Majority of newborns require no resuscitation beyond drying, warming, mild stimulation, and airway suctioning. Those that do may be critically ill and need expedient transport to a hospital with OB capabilities. Acrocyanosis, blue discoloration of the distal extremities, is a common finding in the newly born infant. Differentiate from central cyanosis.

Perivable birth (Delivery between 20 - 26 wks of gestation): Factors that influence survivability: gestational age; birth weight; gender (female), singleton birth, use of antenatal steroids.

If there is any possibility that the baby may be >20 weeks gestation and has any of these: cyanosis with spontaneous ventilations, a detectable slow heart beat by auscultation, or spontaneous movements: keep warm; begin chest compressions; and transport immediately to a center with advanced levels of neonatal (Level II or III Nursery) unless NICU is within service area

This does not mean that resuscitation should always be started on an extremely preterm lifeless baby or that every possible intervention needs to be offered. Consider parental wishes and call OLMC if any doubt as to the best course of action.

| First assessments: Term gestation? Good tone? Breathing or crying? Note APGAR scores at 1 & 5 minutes. Do not wait for APGAR score to begin resuscitating an infant in obvious distress. If 5 min APGAR 6 or less: obtain additional scores q. 5 min until arrival at hospital. Warm and dry the baby. Wrap in linens, infant warming swaddler if available, and cover the head. Stimulate by flicking the soles of the feet and/or rubbing the back. If weak cry, signs of respiratory distress, poor tone, or preterm gestation: Position supine with 1” pad under back/shoulders to align head & neck in neutral position. Clear airway as needed. Suction mouth then nose with a bulb syringe. Monitor HR. If HR > 100 & adequate resp effort; monitor for central cyanosis: provide blow-by oxygen as needed HR > 100; apneic or significant respiratory distress: Ventilate with neonatal BVM at 40-60 BPM on ROOM AIR Use only enough volume to see chest rise First breath will require a little more pressure (30-40 cm H2O) to begin lung inflation Suction the nose/oropharynx with bulb syringe to remove secretions Apply peds SpO2 to right upper extremity (wrist or medial aspect of palm) |

BRADYCARDIA (HR < 100 beats per minute)

If apneic/gasping respirations, RR < 40 or central cyanosis Continue to ventilate at 40-60/neonatal BPM, add 15 L O2 If HR remains < 60 beats/minute despite adequate assisted ventilations for 30 seconds:
• Continue assisted ventilations with 15 L O2/neonatal BVM (avoid pressure over eyes), and
• Begin chest compressions over lower ¼ of sternum; approx. ¼ the depth of the chest; using two thumbs-encircling hands for 2 rescuers or 2 fingers at a rate in a 3:1 ratio: 90 compressions & 30 breaths/minute. If adequate ventilations cannot be achieved by BVM: Go to Peds Airway Adjuncts SOP Continue to attempt ventilations with neonatal BVM and transport. If HR remains < 60/min despite warming, stimulation, 15 L O2/neonatal BVM and chest compressions: Assess ECG using peds pads/paddles. EPINEPHRINE (1 mg/10 mL) 0.01 mg/kg (0.1 mL/kg) IVP/IO. If arrest: immediate IO if no other IV access in place. Assess heel-stick glucose: Neonatal hypoglycemia - glucose level < 30 mg/dL in first 24 hours of life. Rx as above. Once ventilations and HR adequate: Provide warm environment; continue to support ABCs; O2 neonatal NRM prn

### Epinephrine dosing

<table>
<thead>
<tr>
<th>Wt.</th>
<th>Total drug volume</th>
<th>Wt.</th>
<th>Total drug volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 kg (2.2 lbs)</td>
<td>0.1 mL</td>
<td>3 kg (6.6 lbs)</td>
<td>0.3 mL</td>
</tr>
<tr>
<td>2 kg (4.4 lbs)</td>
<td>0.2 mL</td>
<td>4 kg (8.8 lbs)</td>
<td>0.4 mL</td>
</tr>
</tbody>
</table>

If hypoglycemic: DqW 0.5 m/kg (5 mL/kg)

2 kg = 10 mL 3 kg = 15 mL 4 kg = 20 mL 5 kg = 25 mL

### Targeted SpO2 after birth

<table>
<thead>
<tr>
<th>Time</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 min</td>
<td>60%-65%</td>
</tr>
<tr>
<td>2 min</td>
<td>65%-70%</td>
</tr>
<tr>
<td>3 min</td>
<td>70%-75%</td>
</tr>
<tr>
<td>4 min</td>
<td>75%-80%</td>
</tr>
<tr>
<td>5 min</td>
<td>80%-85%</td>
</tr>
<tr>
<td>10 min</td>
<td>85%-95%</td>
</tr>
</tbody>
</table>

Ref page 64 in SOP 52
**BLEEDING IN PREGNANCY**

Threatened miscarriage / Ectopic pregnancy / Placenta previa / Abruptio placenta

**IMC**
- Position patient on side if > 20 wks gestation
- Raise either side of backboard if spine motion restriction is necessary; manually displace uterus to side
- Obtain BP while patient is positioned on side
- O₂ 12-15 L by tight fitting mask even w/o respiratory distress until SpO₂ 96%; SpO₂ must be > 94% for adequate fetal oxygenation.
- Anticipate significant bleeding/shock. If AMS or signs of hypoperfusion:
  - Warm NS IV fluid challenges in 200 mL increments titrated to patient response. Repeat as necessary.
  - Permissive hypotension is contraindicated in pregnant women. Maintain SBP ≥ 90 (MAP ≥ 65).
- Obtain pregnancy history per Emergency Childbirth SOP
- Ask about the onset, provocation, quality, region, radiation, severity, and duration of abdominal pain
- Complete serial abdominal exams per OB Trauma SOP
- Note type, color, amount, and nature of vaginal bleeding or discharge
- If tissue is passed, collect and transport to hospital with patient
- See notes on bleeding/shock in OB Trauma SOP

**PRE-ECLAMPSIA OR HYPERTENSION OF PREGNANCY**

Diastolic BP > 90 with additional signs that include, but are not limited to, moderate to severe fluid retention/edema, rapid weight gain (>10 lbs in one week), headache, diplopia or blurred vision, photophobia, confusion, irritability, AMS, epigastric distress; nausea/vomiting; claims to be spilling protein in urine.

**IMC** special considerations:
- GENTLE HANDLING, quiet environment
- Position patient on side if > 20 wks gestation. Manually displace uterus to the side
- Obtain pregnancy history per Emergency Childbirth SOP; monitor FHTs if possible
- Obtain BP while patient is positioned on side
- Anticipate seizures; prepare suction, MAGNESIUM, MIDAZOLAM
- If AMS: Assess glucose level. Rx per hypoglycemia SOP
- Minimal CNS stimulation. Do NOT check pupil light reflex
- Lights and sirens may be contraindicated. Contact OLMC for orders

**Preeclampsia**

MAGNESIUM (50%) 2 Gm in 16 ml NS (slow IVP) or in 40 ml NS IVPB over 5-10 min. Max 1 Gm / minute.

**If generalized tonic clonic seizure activity:ECLAMPSIA**

MAGNESIUM (50%) 2 Gm in 16 ml NS (slow IVP) or in 40 ml NS IVPB over 5-10 min. Max 1 Gm / minute.

If patient received 2 Gm for preeclampsia prior to experiencing a seizure, may give an additional 2 Gm to Rx seizure

**MIDAZOLAM** 2mg increments IVP/IO q 30-60sec (0.2 mg/kg IN) up to 10 mg IVP/IN/IO titrated to stop seizure

If IV/IO unable; IM 5-10 mg max of 10 mg
All routes: may repeat to total dose of 20 mg prn if SBP >90 unless contraindicated

Ref page 65 in SOP
Scene Size Up: Situational awareness; dynamic risk assessment – Assess/Intervene as needed.

Primary Assessment:
- General Impression
- Level of consciousness – AVPU or GCS
- Airway
  - Breathing – Correct Hypoxia/assure adequate ventilations
- Circulation - Pulse, Perfusion, ECG, Vascular access, Disability
  - Expose

Secondary Assessment:
- Vital signs – BP MAP if able
- Chief Complaint: history of present illness; SAMPLE History
- Review of Systems: Head, Chest, Abdomen, Extremeties, Back, Neuro, Skin
  - Position
  - Nausea

ONDANSETRON 0.15 mg/kg (max 4 mg) oral dissolve tablet [BLS]
  or slow IVP over no less than 30 sec [ALS]
  May repeat once in 10 min to total of 8 mg

Secondary Assessment Continued: Pain

FENTANYL: if > 2 yrs 1 mcg/kg (rounded to closest 5 mcg max is 100mcg) IVP/IN/IM/IO.
  May repeat once in 5 min: 0.5 mcg/kg (max dose 50 mcg). Max total dose per SOP: 150 mcg (1.5 mcg/kg)
  Additional doses require OLMC: 0.5 mcg/kg q. 5 min up to a total of 3 mcg/kg (300 mcg) if indicated & available

Secondary Assessment Continued: Pain

Ongoing assessment – Stable vs Unstable

Patient Disposition

Target SpO2: 94%-98%

O2 1-6 L/Peds NC: Adequate rate/depth; minimal distress; SpO2 92%-94% (92%-94%)

O2 12-15 L/Peds NRM: Adequate rate/depth: mod/severe distress; SpO2 < 92%;

O2 15 L/ Peds BVM: Apnea and/or shallow/inadequate rate/depth with moderate/severe distress; unstable
ventilate 1 breath every 3-5 sec just to cause chest rise

Age Definitions
Newborn: Neonate in first minutes to hours following birth
Neonate: Infants in the first 28 days of life
Infant: Neonates to 12 months
Child: 1 to 12 years

Ref pages 66-67-68 in SOP
Conditions requiring rapid cardiopulmonary assessment and/or potential cardiopulmonary support

- Respiratory rate > 60 breaths/min
- Cyanosis or a decreased SpO2 despite administration of O2
- Increased work of breathing (retractions, nasal flaring, grunting), respiratory fatigue and/or failure
- Heart rates: (Weak, thready, or absent peripheral pulses) Child ≤ 8 years: < 80 BPM or > 180 BPM
- Child > 8 years: < 60 BPM or > 160 BPM
- Poor perfusion, dysrhythmias; chest pain
- Altered LOC (syncope, unusual irritability or lethargy or failure to respond to parents or painful procedures)
- Seizures
- Trauma
- Burns involving > 10% BSA
- Hypoglycemia

### PEDIATRIC GLASGOW COMA SCORE

<table>
<thead>
<tr>
<th>Eye Opening</th>
<th>Best Verbal Response</th>
<th>Best Motor Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneously 4</td>
<td>&gt; 5 years Oriented/converses</td>
<td>Moves spontaneously</td>
</tr>
<tr>
<td>To speech 3</td>
<td>2-5 years Oriented, appropriate words/phrases</td>
<td>and purposefully;</td>
</tr>
<tr>
<td>To pain 2</td>
<td>Inappropriate words/</td>
<td>Localizes pain/</td>
</tr>
<tr>
<td>None 1</td>
<td>Incomp. sounds</td>
<td>Withdraws from pain</td>
</tr>
</tbody>
</table>

### Normal Systolic BP

<table>
<thead>
<tr>
<th>Age</th>
<th>Weight kg</th>
<th>Normal Systolic BP Ages 1-10 90 + (2 X age in yrs)</th>
<th>SBP minimums 70 + (2 X age in yrs)</th>
<th>Heart rate</th>
<th>Resp rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neonate (0-28 days)</td>
<td>3</td>
<td>&gt;80 mmHg</td>
<td>&gt;60 mmHg</td>
<td>100-180</td>
<td>30-60</td>
</tr>
<tr>
<td>Infant 1-12 mos</td>
<td>4-10</td>
<td>&gt;90 mmHg</td>
<td>&gt;70</td>
<td>110-160</td>
<td>30-60</td>
</tr>
<tr>
<td>2 yr</td>
<td>12</td>
<td>&gt;64</td>
<td>&gt;70</td>
<td>90-150</td>
<td>24-40</td>
</tr>
<tr>
<td>4 yr</td>
<td>16</td>
<td>&gt;88</td>
<td>&gt;75</td>
<td>90-150</td>
<td>22-34</td>
</tr>
<tr>
<td>6 yr</td>
<td>20</td>
<td>&gt;102</td>
<td>&gt;80</td>
<td>70-120</td>
<td>18-30</td>
</tr>
<tr>
<td>8 yr</td>
<td>28</td>
<td>&gt;108</td>
<td>&gt;80</td>
<td>70-120</td>
<td>18-30</td>
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<tr>
<td>10 yr</td>
<td>32</td>
<td>&gt;110</td>
<td>&gt;90</td>
<td>70-120</td>
<td>18-30</td>
</tr>
<tr>
<td>12 yr</td>
<td>41</td>
<td>&gt;110</td>
<td>&gt;90</td>
<td>80-110</td>
<td>12-16</td>
</tr>
</tbody>
</table>
Children with Special Healthcare Needs

- Track CSHN in your service area; become familiar with the child and their anticipated emergency care needs.
- Refer to child’s emergency care plan, if available. Is current presentation significantly worse than their baseline?
- Caregivers are best source of info on meds, normal baselines, functional levels, usual color, RA SpO2 readings, likely complications, equipment operation and troubleshooting, and emergency procedures.

Assess in a systematic and thorough manner. Observe for ↑ or ↓ RR, use of accessory muscles, retractions, cyanosis, extremity edema, hydration status; palpate for ↑ or ↓ HR, decreased peripheral pulses, cool extremities, poor cap refill; listen carefully for crackles or wheezes. If child has known paralysis carefully examine extremities for injury.

- Anticipate differences in anatomy, physical & cognitive development, possible surgical alterations or mechanical adjuncts.

Common home therapies: respiratory support (O2, apnea monitors, pulse oximeters, BiPAP/CPAP, mechanical ventilators, chest physical therapy vest), IV therapy (central venous catheters), multiple meds, nebulizer machines, feeding tubes and pumps, urinary catheters or dialysis (continuous ambulatory peritoneal dialysis), biotelemetry, ostomy care, orthotic devices, communication or mobility devices, or hospice care.

- Maintain appropriate age/developmental level communication and remain sensitive to parents/caregivers & child.
- Ask parents for child’s daily medical record notebook or medical information form to take to hospital.
  - Ask caregiver to accompany EMS to hospital to continue assisting w/ child’s care if possible.

BLS Interventions:

Assess and support ABCDs: Closely monitor airway, RR, HR & mental status. Support airway of those who have difficulty handling oral secretions (severe cerebral palsy, mental retardation). Provide O2 (or manual resuscitation) when indicated. If child normally has a bluish color or SpO2 <90%, use extreme caution in giving O2. Give just enough to return to normal baseline.

Positioning: place in position of comfort. If "tet spell" from tetralogy of Fallot, position on side with knees pulled to chest to ↑ systemic resistance.

- If shunt failure; sit up if possible to ↓ ICP. Protect weak or paralyzed limbs. Do not attempt to straighten contracted extremities.
- Support with pillows/towels in a position of comfort. Most respond best to slower movements & secure contact.
- If "flash" of ambulance strobe lights can trigger a seizure in a child w/ known seizure disorder. Cover their eyes or turn off lights, if safety allows, when moving child in and out of the ambulance.

Technology-assisted children may experience an emergency if equipment fails to function. Use EMS equipment to support child.

ALS Interventions

Consider need for airway support if in respiratory failure

Vascular access if IV meds or fluids needed. If chronic cardiac condition: IVF only per OLMC. NS 20 mL/kg IVF bolus if hypoperfused.

If on anticoagulant like Coumadin (warfarin), use caution when starting IV or when handling child. They bruise easily and may have difficulty clotting.

- Avoid placing defib pads over internal pacemaker generator (usually found in upper chest).
- Consider use of inotropes (epinephrine) w/ severe hypotension unresolved with fluid boluses.
- Rx seizures per SOP; monitor ECG as arrhythmias may be present in CSF shunt failure.
- Decompress stomach by venting (opening) feeding tube if abdomen is distended.

Chronic respiratory or cardiac problem notes:

- If > 6 yrs and has a peak flow meter at home, ask child to blow into monitor to determine current reading. If < 50% “personal best” or unable to blow into the meter, child is in severe distress (red zone).
- Ask caregiver if any meds have been given in last 2 hrs to reverse respiratory distress. If yes, monitor for med effects.
- Base further management on therapies already given at home.
- If infant receives home O2 therapy of 2 L or less by NC and presents in respiratory distress, do not give more than 2 L/NC. Increase O2 delivery with blow-by O2 or placing a facemask at no less than 6 L/min over child’s nose & mouth.
- Take appropriate steps so child does not inhale noxious fumes from running ambulance.

For further information, please see the full version of the SOP

Ref page 70 in SOP
CHILDREN < 12 years of age shall have airways secured using BLS adjuncts & interventions

ADOLESCENTS > 12 yrs: Manage airways per adult SOPs

Possible indications for advanced airway support in children

- Persistent airway impairment, ventilatory failure (apnea, RR <10 or >40; shallow/labored effort; SpO₂ < 92; increased WOB (retractions, nasal flaring, grunting) fatigue
- Inability to ventilate/oxygenate adequately after insertion of OP/NP airway and/or via BVM
- Need for inspiratory or positive end expiratory pressures to maintain gas exchange or sedation to control ventilations.

Consider and Rx causes of obstruction; position, suction, manual maneuvers, medications if an allergic reaction, consider need for direct laryngoscopy and removal of FB; attempt to ventilate w/ peds BVM

AMS & airway patent: Gag reflex present: > 4 yrs: NPA; No gag reflex: OPA

Airway remains impaired: <12 years of age: Consider need for advanced airway: Contact OLMC

Asses SpO₂, evaluate before & after airway intervention; confirm patent IV; ECG monitor

Position: Age < 8; pad under torso; Age ≥ 8: Sniffing position with pad under occiput

Preoxygenate: O₂ 12-15 L/NRM or BVM every 3 to 5 sec. for 3 min. just to see the chest rise

Prepare equipment and place airway

- Check suction source; attach rigid tip (Yankauer/tonsillar); prepare advanced airway
- Select appropriate King Airway based on child's size, not chronological age;
- Measure w/ Broselow tape up to 35 kg
- Insert King Airway device and assess lung sounds and airway compliance

If successful:

- O₂ 15 L/peds BVM ventilate every 3 to 5 seconds just to see chest rise
- Note King Airway depth at teeth or gums Secure with commercial device. Reassess ETCO₂ & lung sounds.
- Apply lateral head immobilization.
- Continue to monitor ETCO₂ or capnography to confirm placement and effective airway managment.

If unsuccessful: Ventilate with O₂ 15 L/peds BVM. May repeat attempt X 1.

If advanced airway unsuccessful and good air exchange w/ peds BVM: Continue ventilations/BVM.

If patient deteriorates with an advanced airway in place: Consider DOPE:

- Displacement of tube, Obstruction of tube, Pneumothorax, Equipment failure

Ref page 71 in SOP
S&$ of a partial airway obstruction:

<table>
<thead>
<tr>
<th>Stridor</th>
<th>Wheezing</th>
<th>Diminished/absent lung sounds</th>
<th>Hoarseness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choking</td>
<td>Grunting</td>
<td>Altered mental status</td>
<td>Drooling</td>
</tr>
<tr>
<td>Tachypnea</td>
<td>Tripod position</td>
<td>Retractions</td>
<td>Accessory muscle use</td>
</tr>
</tbody>
</table>

Begin BLS IMC:
- Assess degree of airway impairment
- Confirm severe airway obstruction: Determine responsiveness and sudden breathing difficulty, ineffective or silent cough, weak or silent cry
- Position patient to open airway
- Suction as necessary
- Monitor for cardiac dysrhythmias (if able) and/or arrest

Conscious

ABLE TO SPEAK, COUGH, or CRY:
Complete IMC: Do not interfere with patient's own attempts to clear airway by coughing or sneezing

CANNOT SPEAK, COUGH, or CRY:
Child 1-12 yrs.: 5 Abdominal thrusts with patient standing or sitting
Infant < 1 yr: Up to 5 back slaps and up to 5 chest thrusts
If successful: Complete Initial Medical Care and transport
If still obstructed:
Repeat step 3 while enroute until effective or patient becomes unresponsive (see unconscious).
Monitor for cardiac dysrhythmias and/or arrest.

Unconscious

Open airway using chin lift & look for foreign body in the mouth/pharynx.
If visible, remove it w/ a finger sweep or suction. Do not perform a blind finger sweep.
Attempt to ventilate.

If still obstructed: Begin CPR
If still obstructed and unable to ventilate: Treat per Peds Airway Adjuncts SOP

Ref page 72 in SOP
SIDS

Confirm the absence of VS.
In most cases the baby is not discovered until there are long-term indications of death.

- If child meets criteria for triple zero, do not move the body, notify police.
- If the child does not meet criteria for triple zero, begin resuscitation per appropriate SOP.

Document the time, location, and circumstances in which the child was found.
Treat the body with gentleness and dignity. Assist the caretaker/parent(s) in coping with their initial grief reactions.

Be prepared for disbelief, denial, anger, guilt, confusion, anxiety, terror, sadness, crying, and/or hysteria.
Be extremely cautious about what you tell the parents. In their grief, they will not remember instructions and may be very sensitive to any statements that may imply that they should or should not have acted differently before your arrival. Give them one clear instruction at a time; keep your words simple.

Brief Resolved Unexplained Events (BRUE)

An event in an infant <1 yr when observer reports a sudden, brief, and now resolved episode of ≥1 of the following:

1. cyanosis or pallor;
2. absent, decreased, or irregular breathing;
3. marked change in muscle tone (hyper- or hypotonia);
4. altered level of responsiveness.

Diagnosed only when there is no explanation for a qualifying event after an appropriate history and physical examination.

- Obtain complete history/circumstances associated with event or symptoms: Severity, duration and nature of event
- Assess for concurrent S&S: fever, cough, runny nose, vomiting, diarrhea, rash, labored breathing.
  Prior history of BRUE event in last 24 hrs; family Hx of SIDS.
- Treatment/interventions performed prior to EMS arrival
- Hx premature birth before 37 wks gestation. PMH of cardiac, neurologic, respiratory or chromosomal anomalies; Hx of GERD
- Complete VS; observe for S&S resp distress (grunting, nasal flaring, retractions); color (pallor, cyanosis, normal)
- Mental status exam: alert, tired, lethargic, unresponsive, irritable.
- Physical exam for external S&S of trauma
- ECG, SpO₂, glucose monitoring; support ABCs per peds IMC. All should be transported to EDAP/PCCC.
**Peds Allergic Reactions - Anaphylactic Shock**

**IMC Special Considerations**
- Repeat assessments for patent airway, airway edema; wheezing, respiratory effort & adequacy of perfusion
- Ask about a history of allergies vs. asthma; determine if EpiPen used
- Apply venous constricting band proximal to bite or injection site if swelling is rapidly
- Attempt to identify and/or remove inciting cause: scrape away stinger
- Apply ice/cold pack to bite or injection site unless contraindicated

Do NOT start IV, give meds, or take BP in same extremity as a bite or injection site.

**LOWER ACUITY:**

**Local Reaction**
- Observe for progression and transport

**LOWER ACUITY:**

**Systemic Reaction**
- SBP > 70+(2 x age) or > 90 if 10-12 yrs

**EMERGENT:**

**Moderate Systemic Reaction**
- SBP > 70+(2 x age) or >90 if 10-12 yrs

**CRITICAL:**

**Severe Systemic Reaction**
- Anaphylactic Shock

**DIPHENHYDRAMINE 1mg/kg (max 50 mg) PO/IM (BLS)**
- IVP (ALS)

**EPINEPHRINE (1mg/1ml) 0.01mg/kg (max single dose 0.3) IM (BLS)**
- May repeat in 5 -10 min

**DIPHENHYDRAMINE 1mg/kg (max 50 mg) IVP (ALS) IM (BLS)**

If wheezing:
- **ALBUTEROL 2.5mg & IPRATROPIUM 0.5mg**
  - via HHN/mask/BVM; May repeat x 1 enroute (BLS)

As soon as vascular access is successful:
- **EPINEPHRINE (1mg/10ml) titrate in 0.01 mg/kg (0.1 ml/kg) doses q 1 min to a max total 1 mg (IM/IVP/IO).** Reassess after each 0.01mg/kg
  - If no IV/IO repeat **EPI (1mg/1ml) 0.15 mg -0.3 mg IM** in 5 min (BLS)

**DIPHENHYDRAMINE 1mg/kg (max 50 mg) IVP/IO (ALS) IM (BLS)**

If wheezing:
- **ALBUTEROL 2.5mg & IPRATROPIUM 0.5mg**
  - via HHN/mask/BVM; May repeat x 1 enroute (BLS)

If cardiac arrest occurs: Begin quality CPR
- Start 2nd vascular access: give IVF as rapidly as possible (up to 8 L)
- **EPINEPHRINE (1mg/10ml) 0.01mg up to 1 mg IVP/IO q 2 min (high dose)**

Ref page 74 in SOP
IMC
Evaluate ventilation/oxygenation (SpO₂), WOB, accessory muscle use, degree of airway obstruction/ resistance, speech/cry, cough, lung sounds, mental status, fatigue, hypoxia, CO₂ narcosis and cardiac status.

Obtain SAMPLE Hx: triggers for attacks; usual severity of attacks; current asthma meds; time and amount of last dose; duration of this attack.

If wheezing w/o Hx of asthma: Consider FB aspiration, respiratory infection, cardiac cause
Assess for pneumonia, atelectasis, pneumothorax or tension pneumothorax

If tension pneumothorax (BP, absent lung sounds affected side): Needle pleural decompression

Airway/Oxygen per Peds Airway Adjuncts SOPs if near apnea, AMS, fatigue, hypoxia, or failure to improve with maximal initial therapy

IV access:
- Mild distress: No IV usually necessary
- Moderate to severe distress: IV NS titrated to maintain hemodynamic stability
  Monitor ECG. Bradycardia signals deterioration of patient status

LOWER ACUITY to EMERGENT:
Mild to Moderate distress

ALBUTEROL 2.5 mg & IPRATROPIUM
0.5 mg via HHN or mask (BLS)
Begin transport – May repeat x1

CRITICAL
Severe Distress

IMC Special Consideration:
Severe SOB, orthopnea, use of accessory muscles, speaks in syllables, tachypnea, lung sounds diminished or absent; exhausted; HR & BP may be dropping; SpO₂ ≤ 94%.

EPINEPHRINE (1mg/1mL) 0.013 mg/kg (0.01 ml/kg) to a max of 0.3 mg (0.3 ml) IM (BLS)
Follow immediately with

ALBUTEROL 2.5 mg & IPRATROPIUM 0.5 mg via HHN, mask or BVM; Begin transport as soon as neb is started. (BLS) May repeat X1

If severe distress persists:
MAGNESIUM (50%) 25 mg/kg (max 2 Gm) mixed in NS to total volume of 20 ml.
in 16 mL NS (slow IVP/IO) or 40 mL NS IVPB over 5-10 min. Max 1 Gm / minute.

Cough Variant Asthma: Pediatric asthma may present differently from the adult form. Children may not wheeze, but may continuously cough for 20-30 min after excitement or exercise (cough variant asthma), or they may abruptly vomit. Even incremental edema/bronchoconstriction may cause severe air exchange problems due to the small diameter of their airways.
The inability of peds patients to increase their tidal volumes often results in markedly RR which rapidly dehydrates the airways and accelerates the development of mucous plugs. Hypoxemia & hypercarbia lead to acidosis and bradycardia. Treat aggressively.

Ref page 75 in SOP
**Peds Croup-Epiglottis**

**RSV-Bronchiolitis**

**IMC**

**Asses level of consciousness:** alert, tired, restless to lethargic, unresponsive

**Assess air entry** (normal, mild delay, diminished); **lung sounds** (clear, wheezes, crackles, diminished)

**Signs of distress:** (grunting, nasal flaring, retracting, stridor); weak cry or inability to speak full sentences

**Color** (pallor, cyanosis, normal)

**Hydration status** (+/- sunken eyes, delayed cap refill, moisture of mucus membranes, fontanelles)

**If airway/ventilatory distress:** Prepare airway/suction equipment; O₂ 15 L/peds NRM; assess tolerance to O₂ administration; if inadequate ventilations: O₂ per Peds BVM

**Avoid agitation.** Allow adult to hold upright in position of comfort until transport. Transport in sitting position if possible.

**Monitor SpO₂** for hypoxia and ETCO₂ for ventilatory, perfusion, & metabolic deficits if sensors available

**Monitor ECG** for changes in heart rate. Bradycardia signals deterioration.

---

**Croup**

**Lower acuity** None to Mild cardiorespiratory compromise

Peds IMC and transport

**Epiglottitis**

**Emergent** None to Mild cardiorespiratory compromise

Peds IMC, sit up, anticipate rapid deterioration of condition and be prepared for below

**RSV/Bronchiolitis**

**Emergent** None to Mild cardiorespiratory compromise

Peds IMC, sit up, anticipate rapid deterioration of condition and be prepared for below

---

**Croup**

**Emergent to Critical** Moderate to Severe cardiorespiratory compromise

**Epiglottitis**

**Critical** Moderate to Severe cardiorespiratory compromise

**RSV/Bronchiolitis**

**Critical** Moderate to Severe cardiorespiratory compromise

---

**Nebulize EPINEPHRINE** (1 mg/10mL) 0.5 mg (5 mL) w/ 6 L O₂/HHN/mask (aim mist at child's face), or /BVM.

Do not delay transport setting up medication

---

**If continued inadequate ventilations/oxygenation:** Position supine in sniffing position; O₂/high flow NC/mask

**If ventilatory failure:** 15L O₂/Peds BVM at age-appropriate rate using slow compressions of bag.

**If unable to ventilate:** Temporarily stop ambulance; provide airway per Peds Airway Adjuncts SOP: Least invasive way possible Be prepared for airway status to worsen with airway manipulations.

---

Ref page 76 in SOP
Search for possible contributing factors:
- Hypoxia and ventilation problems
- Toxins
- Hydrogen Ion (acidosis)
- Tamponade, cardiac
- Hyper/Hypokalemia and metabolic disorders
- Tension Pnuemothorax
- Hypoglycemia
- Trauma (hypovolemia, increased ICP)
- Hypothermia
- Excessive vagal stimulation
- Hx of heart surgery
- Excessive vagal stimulation

Lower Acuity
None to mild cardio respiratory/perfusion compromise
SBP normal for age

Assess and support ABC’s as needed

Emergent to Critical
Moderate to Severe cardio respiratory compromise
SBP <90

If unconscious and unresponsive to pain: Airway/ventilations using Peds IMC and Peds Airway Adjuncts SOP
- Initiate CPR if HR < 60 in infant/child and poor systemic perfusion despite O₂ and ventilation: Compression to ventilation ratio 15:2 (30:2 if single provider)
- IV/IO NS TKO: If S&S of hypovolemia: NS 20 mL/kg IVP/IO; may repeat X 2 if necessary
- ECG monitoring; 12-lead ECG
- Assess glucose: treat hypoglycemia per Peds Glucose Emergencies SOP
- Check for pulse and rhythm changes after each fluid bolus or drug
- Proceed to Epi only if bradycardia and hypoperfusion persist

**EPINEPHRINE (1mg/10mL)** 0.01 mg/kg (0.1 mL/kg) up to 1 mg IVP/IO every 3-5 minutes as needed.

If brady persists after Epi

**ATROPINE 0.02 mg/kg rapid IVP/IO**
Minimum dose: 0.1 mg Max single doses - Child: 0.5 mg; Adolescent (13-17 yrs): 1 mg
May repeat X 1 in 5 min up to a max total dose of 1 mg in a child; 2 mg in an adolescent.

If Epinephrine, Atropine ineffective or no vascular access

Transcutaneous external cardiac pacing TCP
- Initiate external pacing if available at age-appropriate rate and lowest mA that achieves electrical and mechanical capture unless contraindicated
- Consider sedation and pain management

If SBP > 70 + (2x age) or if 10-12 yrs > 90
**MIDAZOLAM 0.1mg/kg IVP** q 2 min (0.2 mg/kg IN/IM) (max single dose 5 mg)
May repeat prn to total of 10 mg based on size, BP and pt response

Moderate to severe pain, 2 yrs or older and not contraindicated
**FENTANYL 1mcg/kg** (round to closest 5 mcg-max 100 mcg) IVP/IN/IM/IO
May repeat once in 5 min: 0.5 mcg/kg (max dose 50 mcg) Max total dose per SOP: 1.5 mcg/kg. Additional doses require OLMC

Ref page 77 in SOP
**Peds Narrow Complex Tachycardia**

**Search for possible contributing factors:**
- Hypoxemia
- Hydrogen Ion (acidosis)
- Hyper/Hypokalemia
- Hypovolemia/dehydration
- Hyperthermia
- Toxins
- Tamponade, cardiac
- Tension Pneumothorax
- Thromosis (coronary or pulmonary)
- Pain/Infection

**IMC:** Support ABCs as needed
- NO cardiorespiratory compromise: Assess and support ABC’s
- Obtain, review and transmit 12 lead ECG if practical and available
- Establish NS TKO in proximal vein (AC) protect with arm board
- Defer vascular access until after cardioversion if unconscious
- If hypovolemic: NS Fluid bolus 20 ml/kg IVP followed by re-evaluation

**Lower Acuity to Emergent**
- Mild to Moderate cardio respiratory/perfusion compromise
- HR >150 SBP > 70 + (2x age) or > 90 if 10-12

**If probable SVT - Vagal Manuever**

1. **ADENOSINE 0.1 mg/kg** (maximum 6 mg) rapid IVP
   - Follow with 5-10 ml NS flush

2. SVT Persists or recurs w/in 1-2 min

3. **ADENOSINE 0.2 mg/kg** (maximum 12 mg) rapid IVP
   - Follow with 5-10 ml NS flush

   - If rhythm improves but continued hypoperfusion: Refer to shock SOP

**Critical**
- Severe Cardiorespiratory compromise
- HR > 200 - 230

**IMC Special considerations in conscious patient:**
- If IV/IO in place: May give brief trial of meds while preparing for cardioversion.
- If SBP > 70 +(2x age): Sedate prior to cardioversion:

**If SBP > 70 +(2x age):**
- Sedate prior to cardioversion:
  - MIDAZOLAM 0.1 mg/kg IVP/IO (0.2 mg/kg IN)
  - max single dose 5 mg.
  - May repeat X 1 up to 10 mg if needed

**SYNC Cardioversion**
- 0.5-1 J/kg

**Cardioversion unsuccessful:**
**SYNC Cardioversion**
- 2 J/kg

**Cardioversion successful:**
- Once they convert: Support ABC’s: ongoing assessment of cardio respiratory status en-route

Ref page 78 in SOP
Assess for H’s and T’s as defined in SOP

**IMC:** Support ABCs as needed
Obtain, review and transmit 12-lead ECG per ACS SOP if available; determine rhythm & stability ASAP
If unconscious: defer vascular access until after cardioversion
Apply peds pads if available. Assess cardiac rhythm in more than one lead
Confirm wide QRS (>0.08 in infants and >0.09 in children >3)

### Emergent
None to Moderate cardio respiratory/perfusion compromise
HR >150 SBP > 70 + (2x age) or >90 if 10-12

### Critical
Severe cardio respiratory/perfusion compromise (unstable)

#### Regular Monomorphic VT:
Polymorphic VT w/normal QT interval; WPW; Irregular wide complex tachycardia; AF w/ aberrancy; AF w/ WPW (short PR, delta wave).

#### Irregular Polymorphic VT w/ prolonged QT
(Torsades de points)

MAGNESIUM (50%) 25 mg/kg (max 2 Gm) in NS to total volume of 20 ml (slow IVP) in 40 ml IVPB over 10 min. Max 1 Gm / 5 min.

If responsive & SBP > 70 + (2x age)
MIDAZOLAM 0.1 mg IVP (0.2 mg/kg IN) (Max single dose 5 mg) repeat X 1 up to 10 mg if needed

All but torsades
SYNC Cardioversion
Starting at 0.5-1 J/kg
Torsades DEFIBRILLATE 0.5 – 1 J/kg

Cardioversion successful
Complete ALS IMC: Support ABC’s, observe, keep warm, transport

Cardioversion unsuccessful
Assess ECG and pulse after each shock delivery
If VT persists:

AMIODARONE 5 mg/kg (max 150 mg) mixed NS to total volume of 20 ml IVP or in 40 ml IVPB over 20 min
Complete dose even if rhythm converts

All but torsades
SYNC Cardioversion
At 2 J/kg after ½ of the dose of the Amiodarone

Contact OLMC first

Ref page 79 in SOP
Peds Ventricular Fibrillation

**Guideline:**
Use "Pit crew" or "Team" approach to cardiac arrest management per local policy/procedure.
Do not move while CPR is in progress unless in a dangerous environment/adverse climate or pt is in need of intervention not immediately available (trauma).
CPR is better and has fewer interruptions when resuscitation is conducted where the pt. is found.
Continue resuscitation for at least 30 minutes (non-trauma) before moving.

**Witnessed arrest; shockable rhythm:**
Delayed PPV; do 3 cycles (200) compressions before ventilating; O₂/NRM

**Unwitnessed arrest:**
BLS airways; ventilate with BVM; CPR at 30:2 ratio (5 cycles = 2 min); give 15 L O₂ when available

**Multiple steps may be done simultaneously.**
Begin quality CPR
Apply defib pads
Check rhythm
Airway/Ventilations

**Do the following simultaneously in separate time cycles**

**After each 2 min cycle of CPR**
(using real-time CPR feedback device if available):
*Check rhythm & ETCO₂ – as above*
*Shockable? Resume compressions and deliver shocks as above; resume compressions immediately
Not shockable? Asystole/PEA: resume compressions immediately
Organized rhythm? palpable pulse → ROSC
Switch compressors during rhythm
NO rhythm/pulse check until after 2 min of CPR unless pt wakes or move extremities
Repeat pattern as long as CPR continues

**If persistent/refractory VF:**
change pad location to A-P
If 2 monitors available: consider dual sequential defibrillation at device-specific joule settings

**If patient develops ROSC, please refer to the ROSC-TOR Guideline**

**Unwitnessed arrest:**
Establish vascular access (IV/IO): NS TKO
When IV/IO available, give meds during CPR

**Advanced airway per Peds Airway SOP**
1 breath every 3-5 sec. No hyperventilation, no compression pause for breaths.

**AMIODARONE 5 mg/kg mg IVP/IO(max 300 mg)**
After 5 min Amiodarone 2.5/kg mg IVP/IO

**As time allows: check H’s and T’s**
(treat appropriately)

**If possible opioid OD:**
NARCAN 1 mg. May repeat q. 30 sec until breathing resumes up to 4 mg. All additional doses require OLMC

**SODIUM BICARBANATE 1 mEq/KG IVP/IO:** only of arrest is caused by a bicarb-responsive acidosis (DKA/tricyclic antidepressants or ASA OD, cocaine or diphenhydramine) or known hyperkalemia

**Ref page 80 in SOP**
Guideline:
Use “Pit crew” or “Team” approach to cardiac arrest management per local policy/procedure.
Do not move while CPR is in progress unless in a dangerous environment/adverse climate or pt is in need of intervention not immediately available (trauma).
CPR is better and has fewer interruptions when resuscitation is conducted where the pt. is found.
Continue resuscitation for at least 30 minutes (non-trauma) before moving.

Search for and treat possible contributing factors (Hs & Ts):
- Hypoxia (ventilate/O₂)
- Hypothermia (core rewarm)
- Hypovolemia (IVF boluses)
- Hypo/hyperkalemia (NaHCO₃ or glucose)
- Hypoglycemia (glucose)
- Toxins (opiate? Naloxone; TCA? NaHCO₃)
- Tamponade, cardiac (IVF)
- Thrombosis (coronary/pulmonary)
- Tension pneumothorax (lung sounds; pleural decompression)

Witnessed arrest; shockable rhythm:
- Delayed PPV; do 3 cycles (200) compressions before ventilating; O₂/NRM

Unwitnessed arrest: BLS airways; ventilate with BVM; CPR at 30:2 ratio (5 cycles = 2 min); give 15 L O₂ when available

Do the following simultaneously in separate time cycles

After each 2 min cycle of CPR (using real-time CPR feedback device if available):
- Check rhythm & ETCO₂ – as above
- Shockable? Resume compressions and deliver shocks as above; resume compressions immediately
- Not shockable? Asystole/PEA: resume compressions
- Organized rhythm? palpable pulse → ROSC
- Switch compressors during rhythm
- NO rhythm/pulse check until after 2 min of CPR unless pt wakes or move extremities
- Repeat pattern as long as CPR continues

If persistent/refractory VF: change pad location to A-P
- If 2 monitors available: consider dual sequential defibrillation at device-specific joule settings

ALS interventions with no interruption to CPR
- Establish vascular access (IV/Io): NS 20 ml/kg IVP
- When IV/Io available, give meds during CPR

EPINEPHRINE (1 mg/10ml) 0.1 mg/kg up to 1 mg IV/Io
- Repeat every 3-5 min as long as CPR continues

Peds airway if needed: 1 breath every 3-5 sec no hyperventilation no compression pause for breaths

As time allows: check H’s and T’s (treat appropriately)

SODIUM BICARBANATE 1 mEq/KG IVP/Io: only of arrest is caused by a bicarb-responsive acidosis (DKA/tricyclic antidepressants or ASA OD, cocaine or diphenhydramine) or known hyperkalemia

If patient develops ROSC, please refer to the ROSC-TOR Guideline

Ref page 81 in SOP
Scene size up:
Inspect environment for bottles, meds/drugs, letters/notes, sources of toxins suggesting cause
Ask bystanders/patient about symptoms immediately prior to change in mentation; S&S during event; duration of event, resolution of event (spontaneous, after interventions)

Secondary assessment: Special considerations
Affect: Behavior: consolable or non-consolable agitation
Cognitive function (ability to answer simple questions); hallucinations/delusions
Memory deficits; speech patterns
Inspect for Medic alert jewelry, tags, body art
General appearance; odors on breath; evidence of alcohol/drug abuse; trauma
VS: observe for abnormal respiratory patterns; or T; orthostatic changes
Skin: Lesions that may be diagnostic of the etiology
Neuro exam: Pupils/EOMs; visual deficits; motor/sensory exam; for nuchal rigidity; EMS stroke screen

IMC special considerations:
Suction pm; seizure/vomiting/aspiration precautions
If GCS 8 or less: Assess need for intubation (DAI) or alternate advanced airway per local policy/procedure
If SBP < 70 + (2x age): NS IV challenges in consecutive 20 mL/kg may repeat x 2 if indicated
Position patient on side unless contraindicated
If supine: maintain head and neck in neutral alignment; do not flex the neck
Consider need for 12 L ECG if Hx of presyncope or syncope; monitor ECG rhythm; Rx dysrhythmias per SOP
Monitor for S&S of increased ICP: reduce environmental stimuli
Document changes in GCS & VS

Obtain bG level

If < 70
Treat per Peds Hypoglycemia SOP

If > 70
Observe and continue to reassess

If possible opiate toxicity w/ AMS & respiratory depression/arrest:
NALOXONE 0.1 mg/kg (max single dose 0.4 mg) IVP/IN/IO/IM w/ repeat doses q’ 30 sec until ventilations increase up to 4 mg. [BLS: IN and IM]

Refer to SOP for list of possible causes of AMD and the list of Syncope Differentials

Ref page 82 in SOP
Peds Glucose / Diabetic Emergencies

Peds patients have high glucose requirements and low glycogen stores. During periods of energy requirements, such as shock, they may become hypoglycemic.

**IMC:** Obtain PMH; type of diabetes (1, 2, gestational, other specific types); assess for presence of insulin pump
Determine time and amount of last dose of diabetic medication/insulin and last oral intake
Vomiting and seizure precautions: prepare suction
Obtain/record **blood glucose (bG)** level (capillary and/or venous sample) on all peds pts with AMS, shock, or resp failure. Use heel-stick to obtain blood sample in infant 12 mo or less

**Blood glucose 70 or less or S & S of hypoglycemia**

- **GCS 14-15 and able to swallow**
  - **ORAL GLUCOSE** in the form of paste, gel or sugar containing liquid (BLS)

- **If borderline (60-70)**
  - Children and infants up to 50 kg
  - **DEXTROSE 10%** (25 g/250 mL) **0.25g/kg** (2.5 ml/kg)
    - See dosing chart on page 104 in SOP
    - This is ½ of the below dose

- **If <60 or low**
  - Children and infants up to 50 kg
  - **DEXTROSE 10%** (25 g/250 mL) **0.5g/kg** (5ml/kg)
    - See dosing chart on page 104 in SOP

- **If unable to start IV**
  - **GLUCAGON 1 gm IM/IN** (BLS)

Assess patient response 5 min after dextrose administration: Mental status, GCS, bG level

- If bG 70 or greater
  - Ongoing assessment

- If bG less than 70
  - Repeat **DEXTROSE 10%** (25 g/250 mL) **0.5g/kg** (5ml/kg) IVPB 5 min after initial dose followed by reassessment
    - See dosing chart on page 104 in SOP

  If parent or guardian refuses transport, they must be advised to feed the child before EMS leaves the scene.

**DKA or HHNS:** must present with S&S of dehydration and hyperglycemia.
Dehydration, Acidosis and Hyperglycemia (DKA presents with all 3 S&S)
Monitor ECG for T wave changes, NS 10ml/kg over 1 hour. If signs of hypovolemic shock or instructed by OLMC may increase the volume to 20ml/kg.

Ref page 83 in SOP
Peds Drug Overdose / Poisoning

GENERAL APPROACH

**History:** Determine method of injury: ingestion, injected, absorbed, or inhaled; pts often unreliable historians.

**IMC** special considerations:
- Uncooperative behavior may be due to intoxication/poisoning; do not get distracted from assessment of underlying pathology
- Anticipate hypoxia, respiratory arrest, seizure activity, dysrhythmias, and/or vomiting
- Assess need for advanced airway if GCS \( \leq 8 \), aspiration risk, or airway compromised unless otherwise specified
- Support ventilations w/ 15L O\(_2\)/BVM if respiratory depression, hypercarbic ventilatory failure
- Large bore IV/IO NS titrated to adequate perfusion (SBP \( \geq 90 \); MAP \( \geq 65 \)); monitor ECG
- Impaired patients may not refuse treatment/transport

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If AMS, seizure activity, or focal neurologic deficits:

Assess bG; If <70: treat per Peds Hypoglycemia guideline

---

If possible opiate toxicity w/ AMS & respiratory depression/arrest:

**NALOXONE** 0.1 mg/kg (2mg/2mL)(max single dose 0.4 mg) IVP/IN/IO/IM w/ repeat doses q/30 sec until ventilations increase up to 4 mg. [**BLS:** EMTs: IN and IM]

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If anxiety/seratonin syndrome:

**MIDAZOLAM** 0.1 mg/kg slow IVP (0.2 mg/kg IN/IM) (Max single dose 5 mg) q. 2 min up to 10 mg based on size, BP

---

Tonic clonic seizures:

**MIDAZOLAM** 0.1 mg/kg IVP/IO q. 30-60 sec (0.2 mg/kg IN/IM) (Max single dose 5 mg) up to 10 mg IVP/IN/IO/IM

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Please refer to SOP for specific drug treatments such as Beta Blockers, Cyclic Antidepressants, Depressants, Dextromethorphan, Hallucinogens, Inhalants, Opiates, Organophosphates or Stimulants

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Illinois Poison Center # 1-800-222-1222
www.illinoispoisoncenter.org

Ref pages 84-85 in SOP
Peds Seizures

History:
History/frequency/type of seizures
Prescribed meds and patient compliance; amount and time of last dose
Recent or past head trauma; fall, predisposing illness/disease; recent fever, headache, or stiff neck
History of ingestion/drug or alcohol abuse; time last used

Consider possible etiologies:
- Anoxia/hypoxia
- Anticonvulsant withdrawal/noncompliance
- Cerebral palsy or other disabilities
- Infection (fever, meningitis)
- Eclampsia
- Metabolic (glucose, electrolytes, acidosis)
- Stroke/cerebral hemorrhage
- Toxins/intoxication; OD; DTs
- Trauma/child abuse
- Tumor

Secondary assessment
Observe and record the following
- Presence of an aura
- Focus of origin: one limb or whole body
- Simple or complex (conscious or loss of consciousness)
- Partial/generalized
- Progression and duration of seizure activity
- Eye deviation prior to or during seizure
- Abnormal behaviors (lip smacking)
- Incontinence or oral trauma
- Duration and degree of postictal coma, confusion

IMC:
- No bite block. Vomiting/aspiration precautions; suction prn
- Protect patient from injury; do not restrain during tonic/clonic movements
- Position on side during postictal phase unless contraindicated
- If history of generalized tonic/clonic seizure activity: consider need for IV NS TKO

If generalized tonic/clonic seizure activity:
- MIDAZOLAM 0.1 mg/kg IVP/IO q 30-60 sec (0.2 mg/kg IN/IM)
  (Max single dose 5 mg) up to 10 mg IVP/IN/IO/IM to stop seizure.

Identify and attempt to correct reversible precipitating causes:
Obtain and record blood glucose level per System procedure (capillary and/or venous sample)
If < 70: DEXTROSE or GLUCAGON per Peds Hypoglycemia SOP [BLS/ALS]

If persistent seizures or status epilepticus when no IV/IO is placed and IN contraindicated or not advised:
- Intrarectal (IR) Diastat (diazepam) if available on scene:
  - Dose: 0.5 mg/kg (max. 20 mg)
  - Lubricate tip with water-soluble jelly.
  - Insert syringe 2 in into rectum. Instill medication.
  - Hold buttocks together to avoid leakage after instillation of medication.
If already given by parent: Monitor for resp depression. Call OLMC before giving additional anticonvulsant meds.

Ref page 86 in SOP
Primary Assessment: (BLS)
1. General Impression
2. Determine if immediate life threats
3. Level of consciousness
4. Airway/C-Spine – Open and maintain
5. Breathing/gas exchange/adequacy of ventilations: Assess and intervene as needed
6. Circulation/perfusion: No pulse of HR < 60 - Begin CPR
7. Disability: Rapid neuro assessment
8. Pain mgt If > 2 yrs & SBP ≥ minimum for age

SCENE SIZE UP:
- Situational awareness; dynamic risk assessment – Assess/intervene as needed:
  - Scene safety: control and correct hazards/threats: (gas, powerlines, animals, people); form plan of approach; remove pt/responders from unsafe environment ASAP; attempt to preserve integrity of possible crime scene evidence
  - Mechanism of injury (MOI): anticipate type/severity of injury
  - Universal blood/body secretion & sharps precautions; use appropriate personal protective equipment prn

Number of pts; triage/request additional resources if needed. Weigh risk of waiting for resources against benefit of rapid transport to definitive care. Consider if medium or large scale MPI declaration is needed.

Take essential supplies/equipment to pt: hemorrhage control; airway & O₂ equipment; spine splinting devices; vascular access/IVF; pain mgt

FENTANYL 1mcg/kg (round to the closest 5 mcg -max single dose 100 mcg) IVP/IN/IM/IO
May repeat once in 5 min: 0.5 mcg/kg (max dose 50 mcg) Max total dose per SOP: 150 mcg.
Additional doses require OLMC

ONDANESTRON 0.15 mg/kg oral dissolve tablet (BLS) or slow IVP over no less than 30 sec (ALS)

Secondary Assessment:
1. Obtain full set of vital signs, Sample history, allergies, meds, PMH, last oral intake, events
2. Review of systems: Head, face, eyes, ears, nose mouth, Neck, Chest, Abdomen, Pelvis/GU, Extremities, Back/Flank, Neuro, Skin/soft tissue
3. Ongoing assessment
4. Report
5. Document

PEDIATRIC TRAUMA SCORE: Age 12 and under

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<th>+1</th>
<th>-1</th>
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<td>Size</td>
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<td>11-20 kg (1-5 yrs)</td>
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<td>Maintainable using position/chin lift</td>
<td>Unmaintainable or intubated</td>
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<td>SBP or pulse palpable</td>
<td>&gt; 90 mmHg; at wrist</td>
<td>50-60 mmHg; at groin</td>
<td>&lt; 50 mmHg; no pulse palpable</td>
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<td>Awake</td>
<td>Lost consciousness / Obtunded</td>
<td>Coma: unresponsive</td>
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<tr>
<td>Skeletal injury</td>
<td>None</td>
<td>Closed fracture</td>
<td>Open/multiple fractures</td>
</tr>
<tr>
<td>Open wounds</td>
<td>None</td>
<td>Minor</td>
<td>Major or penetrating</td>
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Scores range from -6 to +12
A PTS of < 8 usually indicates the need for evaluation at a Trauma Center.

Please see full Peds Initial Trauma Care SOP for further guidance

Ref pages 87-88 in SOP
Suspected Child Abuse or Neglect

ITC special considerations:

- Recognize any act or series of acts of commission or omission by a caregiver or person in a position or power over the patient that results in harm, potential for harm, or threat of harm.
- These situations may involve safety issues for responding providers, so take appropriate steps to protect the safety of responders as well as bystanders.
- Assess environmental factors that could adversely affect a child’s welfare: get the patient out of immediate danger.
  - Observe child’s interactions with parents/guardians.
- Assess for injuries that may be the result of acute or chronic events: Injury patterns that do not correlate with the Hx or anticipated motor skills based on child’s growth and developmental stage; and/or
  - Discrepancies in the history obtained from the child and care-givers.
  - Attempt to preserve evidence whenever possible.

- Do not confront suspected perpetrators of abuse/maltreatment. Treat obvious injuries per appropriate SOP.
- Prepare to transport. If parent/guardian refuses to allow removal of the child, remain at the scene. Contact police and request that the child be placed in temporary protective custody pending medical evaluation.
- If police refuse to assume temporary protective custody, request that they remain at the scene. Contact OLMC; ask an on-line physician to place the child under temporary protective custody.

Temporary Protective Custody: A physician is authorized to take temporary protective custody if circumstances of the child are such that in his/her judgment continued stay or return to the custody of the parent, guardian, or custodian, presents an environment dangerous to the child’s life or health. (325 ILCS 5/5) (from Ch. 23, par. 2055)
- If protective custody is secured, transport the child against the parent/guardian wishes.
- If the parent/guardian physically restrains your efforts to transport the child, inform the police. Request their support in transporting the child.

Children suffering from suspected abuse or neglect shall not remain in an environment of suspected abuse unless points 3, 4 and 5 of this SOP have been pursued in vain to remove the child.

Notify the receiving physician or nurse of the suspected abuse upon arrival.

EMS personnel are mandated reporters under the Illinois Child Abuse and Neglect Act.
- Report suspicions of child abuse or neglect to the Department of Children and Family Services per System Policy
- Reports must be filed, even if the hospital will also be reporting the incident.
- This includes both living and deceased children encountered by EMS personnel.
- File a written report with DCFS within 24 hours of filing a verbal report.
- Thoroughly document the child’s history and physical exam findings on the ePCR/EHR.

Note relevant environmental/circumstantial data in the comments section of the run sheet or supplemental reports.

DCFS 24 hour hotline number: 1 - 800 - 25 - ABUSE

Ref page 89 in SOP