Illinois Emergency Medical Services for Children

Pediatric Prehospital Protocols

2016 Edition

Illinois Emergency Medical Services for Children is a collaborative program between the Illinois Department of Public Health and Loyola University Chicago.
This manual was completed under the direction of the Illinois EMSC Advisory Board

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Acknowledgements

The Illinois EMSC Advisory Board gratefully acknowledges the commitment and dedication of the EMSC Pediatric Prehospital Committee in revising the guidelines and protocols that comprise this document. Their contributions of countless hours of work and collaboration have led to this valuable resource and assists Illinois EMS for Children in striving toward the goal of improving pediatric emergency care within our state.

This document contains protocols and related resources originally developed by Illinois EMSC in 1997. Since that time, this document has undergone multiple revisions. An extensive review and revision of this document was undertaken by the current EMSC Prehospital Committee, culminating in this 2016 Edition.

EMSC Pediatric Prehospital Committee
Susan Fuchs, MD, FAAP, FACEP, Committee Chair
Associate Director, Pediatric Emergency Medicine
Ann & Robert H. Lurie Children’s Hospital of Chicago

Evelyn Lyons, MPH, RN
EMSC Manager
Illinois Department of Public Health

John L. Beckman, AA, BS, FF/EMT-P
EMS Instructor
Addison Fire Protection District

Kevin Bernard, MOL, EMT-P, CHECIII
Director, Safety
Presence St. Joseph Medical Center

Dylan Ferguson, BS, EMT-P, LI
Director, EMS
McLean County Area EMS System

Mike Hansen, BA, EMT-P
Fire Chief
Lincolnwood Fire Department

Harriet Hawkins, RN, CCRN, CPN, CPEN, FAEN
Resuscitation Education Coordinator
Ann & Robert H. Lurie Children’s Hospital of Chicago

Michele McKee, MD, FAAP
Pediatric Emergency Medicine
The University of Chicago Medicine
Comer Children’s Hospital

Cassandra O’Brien, MSN, RN, CEN, CPEN
Pediatric EMS Coordinator
The University of Chicago Medicine
Comer Children’s Hospital

Teresa Riech, MD, MPH, FAAP, FACEP
Director, Pediatric Emergency Medicine
OSF Saint Francis Medical Center

Susan Siorek, BSN, RN, CEN, TNS
Assistant EMS Manager
Loyola University Medical Center

J. Thomas Willis, EMT-P
Associated Fire Fighters of Illinois

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ILLINOIS EMERGENCY MEDICAL SERVICES FOR CHILDREN
POSITION STATEMENT
PEDIATRIC PREHOSPITAL PROTOCOLS

Several key prehospital elements in local Emergency Medical Services systems facilitate the delivery of quality field care to children:

- Appropriate education of prehospital providers in the assessment and treatment of acute pediatric illness and injury.
- Standardized and appropriate equipment and medications for the delivery of care to the pediatric population.
- Uniform pediatric-specific treatment protocols.

Prehospital treatment protocols for adult patients are frequently used in EMS systems. Within the State of Illinois there exists considerable variation in treatment protocols based upon local EMT scope of practice, availability of regional resources and differences in medical opinion regarding the delivery of Emergency Medical Responder (EMR), BLS, ILS and ALS care in the prehospital environment. In 1997, the Emergency Medical Services and Trauma Center Code, adopted by the Illinois Department of Public Health, was revised to mandate pediatric specific treatment protocols.

Illinois EMSC strongly endorses the concept of standardized prehospital patient care for the pediatric population at the Emergency Medical Responder (EMR), BLS, ILS, and ALS levels. While most BLS and Emergency Medical Responder field interventions are considered relatively uncomplicated and straightforward, guidelines improve the continuity, quality and consistency of patient care.

Treatment Protocol Guidelines:

1. Within the context of all federally funded EMSC projects, the pediatric population is defined as inclusive of all patients up to the age of 21 years. In this document, pediatric patients are defined as age 15 years and younger, consistent with the Emergency Medical Services and Trauma Center Code adopted by the Illinois Department of Public Health. Other terms commonly applied to the pediatric population include: "newly born" (under 24 hours), "neonates" (1-28 days) and "infant" (1-12 months).

2. Emergency Medical Responder, BLS, ILS, and ALS interventions should be clearly identified within each protocol.

3. Special considerations for pediatric care should be identified within each protocol where appropriate.

4. Drug dosages should be weight-based and given per kilogram. Inconsistencies exist within the prehospital environment secondary to the relatively low volume and exposure to pediatric patients resulting in inaccuracies and possible under- or over-treatment. Therefore, a validated "length-based" or color coded resuscitation tool is highly recommended. Providers should ensure availability of precalculated drug dosing forms based on drug concentrations carried in the EMS system. Also, standardized weight charts should be readily available to the prehospital provider identifying age adjusted vital sign parameters and appropriate sizing of endotracheal tubes.

5. Intravenous fluids administered in the prehospital environment should be a balanced crystalloid solution.

6. A triage mechanism for the rapid and appropriate treatment and transport of "critical patients" (i.e., multiple trauma) to the "most" appropriate facility must be identified.

7. The Pediatric Glasgow Coma Scale should be utilized by all prehospital personnel.
Protocol Recommendations:

Protocols for the treatment and transport of the critically ill and/or injured child should exist in a "freestanding" format isolated from adult protocols or clearly identified in a general protocol, i.e., using the EMSC teddy bear logo to highlight pediatric considerations.

The following areas have been identified as requiring specific treatment protocols:

1. **PEDIATRIC INITIAL ASSESSMENT** - A foundation for all pediatric patient interactions, this guideline should reinforce the need for consistent, methodical patient assessment. The guideline should reinforce the following:
   - Importance of rapid BLS interventions such as airway support and high quality CPR.
   - Age appropriate signs and symptoms of pediatric respiratory distress.
   - Age appropriate airway interventions including the use of "blow-by" oxygen administration.
   - Indicators of adequate ventilation and perfusion.
   - Age appropriate immobilization of the pediatric trauma patient.
   - Recognition of and monitoring for imminent life-threats.
   - Unique assessment considerations and emergent care requirements of children with special health care needs (CSHCN), including those who are technologically dependent. Emphasize the appropriate inclusion of parents/primary caregivers.

2. **INITIAL MEDICAL CARE/ASSESSMENT** – Address the initial assessment and medical care provided to the pediatric patient, including an assessment of scene safety and ensuring body substance isolation. Commonly referred to as "routine medical care" in adult protocols.

3. **NEONATAL RESUSCITATION** - Must incorporate the specific heart rate parameters and requisite interventions according to the American Heart Association (AHA) and American Academy of Pediatrics (AAP) recommendations.

4. **PEDIATRIC AED** – Treatment must be in accordance with the Illinois Department of Public Health approved Pediatric AED protocol and in accordance with American Heart Association guidelines. AED’s can be used in any age infant or child. Use of pediatric pads and cables are preferable; however adult pads can be used in an anterior/posterior application.

5. **PEDIATRIC ALLERGIC REACTION/ANAPHYLAXIS** – Protocol should assure differentiation between local reaction (hives), respiratory distress and cardio-respiratory compromise.

6. **PEDIATRIC ALTERED MENTAL STATUS** - Emphasize the importance of recognizing etiology, aggressive airway maintenance, glucose monitoring and naloxone administration.

7. **PEDIATRIC APPARENT LIFE THREATENING EVENT (ALTE)** – The protocol should assist with the recognition of patient characteristics and symptoms consistent with an Apparent Life Threatening Event, and outline appropriate interventions and transport recommendations.

8. **PEDIATRIC BRADYCARDIA** - Treatment in accordance with the current American Heart Association recommendations.

9. **PEDIATRIC BURNS** - Special emphasis on the pediatric "rule of nines" for burn size estimation, aggressive airway management and triage to the appropriate facility. Differentiation should be made between thermal, chemical and electrical injuries.

11. **PEDIATRIC ENVIRONMENTAL HYPERTHERMIA** – Emphasize appropriate assessment, cooling techniques and fluid replacement considerations of children presenting with environmental hyperthermia.

12. **PEDIATRIC HYPOTHERMIA** - Emphasize the pediatric population at highest risk for hypothermia: neonates and infants. Address aggressive airway management, warming techniques and recognition of frostbite injury. Interventions for arrhythmias in accordance with the American Heart Association recommendations.

13. **PEDIATRIC NERVE AGENT/ORGANOPHOSPHATE ANTIDOTE GUIDELINES** – Define specific antidote dosing based on mild, moderate or severe exposure and patient age/weight.

14. **PEDIATRIC PULSELESS ARREST** – Treatment modalities/algorithms should be consistent with the current guidelines set forth by the current American Heart Association “Pediatric Advanced Life Support” algorithms. Include specific pathway management for VF/VT and Asystole/PEA.

15. **PEDIATRIC RESPIRATORY DISTRESS** - Differentiation should be made between “upper airway obstruction” (i.e., croup, epiglottitis and foreign body) and lower airway disease (i.e., asthma, bronchiolitis, pneumonia). The potential for invasive airway interventions must also be identified.

16. **PEDIATRIC RESPIRATORY DISTRESS WITH A TRACHEOSTOMY TUBE** – Differentiate between an obstructed and patent tracheostomy tube. Identify appropriate assessment and management of the child presenting with respiratory distress with a tracheostomy tube.

17. **PEDIATRIC RESPIRATORY DISTRESS WITH A VENTILATOR** – Address steps in managing a pediatric patient that requires ventilator support. Emphasize to utilize the parents, caregivers and home health nurses as medical resources, and arrange to bring the ventilator to the hospital.

18. **PEDIATRIC RESPIRATORY FAILURE** - Treatment must be in accordance with the current American Heart Association "Pediatric Advanced Life Support" guidelines.

19. **PEDIATRIC SEIZURES** - Must include the identification of rapid blood glucose monitoring in the field, considerations for febrile seizures and administration of intranasal/rectal benzodiazepines.

20. **PEDIATRIC SHOCK** - Differentiation should be made between "hypovolemic" (dehydration, hemorrhagic), cardiogenic, “distributive” (sepsis) and obstructive shock.

21. **PEDIATRIC TACHYCARDIA** - Interventions for both wide and narrow complex tachycardias must be in accordance with the American Heart Association recommendations.

22. **PEDIATRIC TOXIC EXPOSURES/INGESTIONS** - Incorporate accidental/environmental toxic exposure or ingestion events commonly encountered in the pediatric population.

23. **PEDIATRIC TRAUMA** - Emphasis should be made on mechanism of injury, limited on-scene time, aggressive airway maintenance, field triage to the appropriate facility and addressing the unique needs of the head-injured child. Additional information or an addendum specific to initial assessment and management of head trauma should also be included.

24. **SUSPECTED CHILD ABUSE AND NEGLECT** - Special emphasis should be made on careful documentation of physical findings, discrepancy between history of injury and physical findings, interaction between child and parent/caregiver, and characteristics of the environment. Discuss the prehospital provider's responsibility as a mandated reporter, and to report suspicions to the emergency room staff. Include directions for responding to parent/caregiver refusal to allow transport.
ILLINOIS EMERGENCY MEDICAL SERVICES FOR CHILDREN
PEDIATRIC INITIAL ASSESSMENT
ALS/ILS/BLS/EMR GUIDELINE

I. Scene size up

- Identify possible hazards.
- Assure safety for patient and responder.
- Observe for mechanism of injury/nature of illness.
- Note anything suspicious at the scene, i.e., medications, household chemicals, other ill family members.
- Assess any discrepancies between the history and the patient presentation, i.e., infant fell on hardwood floor; however floor is carpeted.
- Initiate appropriate body substance isolation (BSI) precautions.
- Determine the number of patients.

II. General Approach to the Stable/Conscious Pediatric Patient

A. Assessments and interventions must be tailored to each child in terms of age, size and development.
   - Make eye contact and smile at the child.
   - Keep voice at even quiet tone, don't yell.
   - Speak slowly; use simple, age appropriate terms.
   - Use toys or penlight as distractors; make a game of assessment.
   - Keep small children with their caregiver(s); encourage assessment while caregiver is holding child.
   - Kneel down to the level of the child if possible.
   - Be cautious in use of touch. In the stable child, make as many observations as possible before touching (and potentially upsetting) the child.
   - Adolescents may need to be interviewed without their caregivers present if accurate information is to be obtained regarding drug use, alcohol use, LMP, sexual activity, child abuse.

B. While walking up to the patient, observe/inspect the following:
   - General appearance, age appropriate behavior. Does child have a malnourished appearance? Is child looking around, responding with curiosity or fear, playing, sucking on a pacifier or bottle, quiet, eyes open but not moving much or uninterested in environment?
   - Obvious respiratory distress/increased work of breathing: retractions, nasal flaring, accessory muscle use, head bobbing, grunting.
   - Color: pink, pale, flushed, cyanotic, mottled.
   - Position of the child. Are the head, neck or arms being held in a position suggestive of spinal injury? Is the patient sitting up or tripoding?
   - Level of consciousness, i.e., awake vs asleep or unresponsive.
   - Muscle tone: good vs limp.
   - Movement: spontaneous, purposeful, symmetrical.
   - Obvious injuries, bleeding, bruising, impaled objects or gross deformities.
   - Assess for pain.
   - Determine weight - ask child or caretakers or use length/weight tape.

III. Initial Assessment

A. Airway Assessment and Maintenance with Spinal Motion Restriction
   - Maintainable with assistance: positioning.
   - Maintainable with adjuncts: oral airway, nasal airway.
   - Maintainable with endotracheal tube.
   - Listen for any audible airway noises, i.e., stridor, snoring, gurgling, wheezing.
   - Patency: suction secretions as necessary.

B. Breathing
   - Rate and rhythm of respirations. Compare to normal rate for age and situation.
   - Chest expansion: symmetrical.
   - Breath sounds: compare both sides and listen for sounds (present, absent, normal, abnormal).
- Positioning: sniffing position, tripod position.
- Work of breathing: retractions, nasal flaring, accessory muscle use, head bobbing, grunting.

C. Circulation
- Heart rate: compare to normal rate for age and situation.
- Central/truncal pulses (brachial, femoral, carotid): strong, weak or absent.
- Distal/peripheral pulses: present/absent, thready, weak, strong.
- Color: pink, pale, flushed, cyanotic, mottled.
- Skin temperature: hot, warm, cool.
- Blood pressure: compare to normal for age of child. Must use appropriately sized cuff.
- Hydration status: anterior fontanel in infants, mucous membranes, skin turgor, crying tears, urine output history.

D. Disability - Brief Neuro Examination
- Assess Responsiveness
  A Alert
  V Responds to verbal stimuli
  P Responds to painful stimuli
  U Unresponsive
- Assess pupils.
- Assess for transient numbness/tingling.

E. Expose and Examine
- Expose the patient as appropriate based on age and severity of illness.
- Initiate measures to prevent heat loss and keep the child from becoming hypothermic.

IV. Focused History/Physical Assessment

Tailor assessment to the needs of the patient. Rapidly examine areas specific to the chief complaint.

A. Patient History - Acquire during/incorporate into physical exam.
  S Signs & Symptoms as they relate to the chief complaint.
  A Allergies to medications, foods, environment
  M Medications: prescribed, over-the-counter; compliance with prescribed dosing regimen; time, date and amount of last dose
  P Past Pertinent Medical History
    o Pertinent medical or surgical problems
    o Preexisting diseases/chronic illness
    o Previous hospitalizations
    o Currently under medical care
    o For infants, obtain a neonatal history (gestation, prematurity, congenital anomalies, was infant discharged home at the same time as the mother)
  L Last oral intake of liquid/food ingested.
  E Events surrounding current problem
    o Onset, duration and precipitating factors
    o Associated factors such as toxic inhalants, drugs, alcohol
    o Injury scenario and mechanism of injury
    o Treatment given by caregiver

B. Responsive Medical Patients
- Perform rapid assessment based on chief complaint. A full review of systems may not be necessary. If chief complaint is vague, examine all systems.

C. Unresponsive Medical Patients
- Perform rapid assessment: ABC's, quick head-to-toe exam.
- Emergency care is based on signs and symptoms, initial impressions and standard operating procedures.
D. Trauma patient with NO significant mechanism of injury.
   - Focused assessment is based on specific injury site.

E. Trauma patient WITH significant mechanism of injury
   - Perform rapid assessment of all body systems.

V. Detailed Assessment

A. Performed to detect non-life threatening conditions and to provide care for those conditions/injuries. Usually performed enroute. May be performed on scene if transport is delayed.
   - Inspect and palpate each of the major body systems for the following:
     - Deformities
     - Contusions
     - Abrasions
     - Penetrations/punctures
     - Burns
     - Lacerations
     - Swelling/edema
     - Tenderness
     - Instability
     - Crepitus
   - Auscultation of breath and heart sounds as well as blood pressure readings may be required in the field.

VI. Ongoing Assessment

To effectively maintain awareness of changes in the patient's condition, repeated assessments are essential and should be performed at least every 5 minutes on the unstable patient, and at least every 15 minutes on the stable patient.

VII. Considerations for Children with Special HealthCare Needs (CSHCN)

- Track CSHCN in your service community and become familiar with both the child as well as their anticipated emergency care needs.
- Refer to child's emergency care plan formulated by their medical providers, if available. Understanding the child's baseline will assist in determining the significance of altered physical findings. Parents/caregivers are the best source of information on: medications, baseline vitals, functional level/normal mentation, likely medical complications, equipment operation and troubleshooting, emergency procedures.
- Regardless of underlying condition, assess in a systematic and thorough manner.
- Use parents/caregivers/home health nurses as medical resources at home and enroute.
- Be prepared for differences in airway anatomy, physical development, cognitive development and possibly existing surgical alterations or mechanical adjuncts. Common home therapies include: respiratory support (oxygen, apnea monitors, pulse oximeters, tracheostomies, mechanical ventilators), nutrition therapy (nasogastric or gastrostomy feeding tubes), intravenous therapy (central venous catheters), urinary catheterization or dialysis (continuous ambulatory peritoneal dialysis), ostomy care, orthotic devices, communication or mobility devices, or hospice care.
- Communicate with the child in an age appropriate manner. Maintain communication with and remain sensitive to the parents/caregivers and the child.
- The most common emergency encountered with these patients is respiratory related and so familiarity with respiratory emergency interventions/adjuncts/treatment is appropriate.
Assess scene safety
Ensure Body Substance Isolation (BSI)
Assess and support Airway, Breathing, Circulation (ABC’s)
Assess mental status
Administer O₂ per appropriate method
Support with bag mask ventilation as indicated
Test blood glucose as indicated and if available
Apply Pulse oximetry as indicated and if available
Assess scene safety
Ensure Body Substance Isolation (BSI)
Assess Airway, Breathing, and Circulation (ABC’s)
Assess mental status
Administer \( \text{O}_2 \) per appropriate method
Support with bag mask ventilation as indicated
Test blood glucose as indicated
Apply Cardiac monitor as indicated
Apply Pulse oximetry as indicated

The Illinois EMSC Prehospital Committee has exercised extreme caution that all information and drug dosages presented are accurate and in accordance with professional standards in effect at the time of publication. This prehospital care guideline may be modified at the discretion of the EMS Medical Director. It is recommended that care must be based on the child’s clinical presentation, and on authorized policies and protocols.
INITIAL MEDICAL CARE/ASSESSMENT

- Deliver head and body
- Clamp/cut cord

- Provide warmth
- Position; clear airway as needed with a bulb syringe (suction nose before mouth)
- Dry, stimulate, reposition

NON-VIGOROUS, APNEIC, GASPING/LABORED BREATHING

- Initiate bag-mask ventilation on room air for 30 sec (clear airway as needed)

VIGOROUS, BREATHING, CRYING & GOOD TONE

- Heart Rate >100
- Continue ventilations

HEART RATE >100

- Administer chest compressions for 60 seconds, ratio of 3:1 compressions to ventilations
- Ventilation with 21-30% oxygen

HEART RATE <60

- BLS - Contact Medical Control (and consider ALS backup/intercept if available)
- EMR - Contact dispatch and request appropriate level of care
- Support ABCs
- Observe
- Keep warm
- Transport

SPECIAL CONSIDERATIONS:

- Focus should be on neonate appearance (tone, breathing, crying).
- Consider APGAR at 1 min, repeat every 5 mins. Do not interrupt resuscitation efforts to obtain APGAR.

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ILLINOIS EMSC
NEONATAL RESUSCITATION
ALS/ILS CARE GUIDELINE

Initial Medical Care/Assessment
- Deliver head and body
- Clamp/cut cord
- Provide warmth
- Position; clear airway as needed with a bulb syringe (suction nose before mouth)
- Dry, stimulate, reposition

Non-vigorous, apneic, gasping/labored breathing
- Initiate bag-mask ventilation on room air for 30 sec (clear airway as needed)
- Cardiac monitoring recommended
- Consider endotracheal intubation
- Ventilation with 21-30% oxygen
- Epinephrine 0.1 - 0.3 ml/kg (0.01 - 0.03 mg/kg) 1:10,000 ET
- Continue CPR
- Establish vascular access IV/IO NS/LR @ KVO Rate (maintain 10 mL/hour)
- Cardiac monitor

Heart Rate <60
- Administer chest compressions for 60 seconds, ratio of 3:1 compressions to ventilations
- Consider endotracheal intubation
- Ventilation with 21-30% oxygen
- Epinephrine 0.1 - 0.3 ml/kg (0.01 - 0.03 mg/kg) 1:10,000 ET
- Continue CPR
- Epinephrine:
  - IV/IO 0.1 - 0.3 ml/kg (0.01 - 0.03 mg/kg) 1:10,000
  - ET 0.3 ml/kg (may consider up to 1 ml/kg per dose) 1:10,000
  - May repeat every 3-5 min.

Heart Rate 60-100
- Continue ventilations
- Heart Rate >100
- Heart Rate 60-100
- Continue ventilations
- Heart Rate >60
- Continue ventilations

Vigorous, breathing, crying and good tone

Special Considerations:
- Focus should be on neonate appearance (tone, breathing, crying).
- Consider APGAR at 1 min, repeat every 5 mins. Do not interrupt resuscitation efforts to obtain APGAR.

Per Medical Control consider:
- D10% at 2 mL/kg; or D12.5% 1-2 mL/kg IV/IO (Dilute D25% 1:1 with sterile water to create D12.5%)
- Fluid Bolus 10 ml/kg NS/LR
- Naloxone 0.1 mg/kg IV/IO/ET
- Non-vigorous, apneic, gasping/labored breathing
- Vigorous, breathing, crying and good tone
- Contact Medical Control
- Support ABCs
- Observe
- Keep warm
- Transport

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ILLINOIS EMSC

PEDIATRIC AED PROTOCOL
ALS, ILS, BLS, EMR GUIDELINE

IS CPR IN PROGRESS?

NO

Establish unresponsiveness. Direct someone to obtain AED.

Check pulse (for no more than 10 seconds). If no pulse, start CPR
  • 30:2 ratio of compressions to breaths at a rate of
    100-120 compressions per minute, for one rescuer;
  • 15:2 ratio for 2 rescuers

YES

OBTAIN AED

Apply and use AED as soon as available

Turn AED ON and attach pads to bare dry skin in proper position. (NOTE: It is always desirable to utilize an AED with pediatric capabilities and pads. If unavailable, use of any AED is appropriate)
  • If PEDS pads available – apply as pictured on each of the AED electrodes with proper contact and no overlap of pads. If overlap of pads (or within one inch of each other) use anterior (front) and posterior (back) placement with cervical spine precautions if neck/back injury suspected.
  • If ADULT pads only – apply anterior (front) and posterior (back) with cervical -spine precautions if neck/back injury suspected.

Analyze Rhythm Step. Follow AED prompts and stand clear of patient.

SHOCK ADVISED

NO

Continue CPR for 2 minutes
  • After 2 minutes CPR, go back to Analyze Rhythm Step, see

YES

Ensure all are “clear” of patient and press SHOCK button.
  • Perform CPR for 2 min.
  • After 2 minutes, go back to Analyze Rhythm Step, see

Special Considerations:
  • If injury or neck/back trauma suspected, maintain spinal motion restriction.
  • Remove patient from hazardous environment or standing water prior to use of AED.
  • If AED in place, EMS personnel should let AED complete rhythm analysis prior to switching to manual defibrillator.

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ILLINOIS EMSC
PEDIATRIC ALLERGIC REACTION/ANAPHYLAXIS
BLS/EMR CARE GUIDELINE

Initial Medical Care/Assessment

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Anaphylaxis

- **BLS**
  - Administer epinephrine autoinjector
  - Per Medical Control, as indicated: Assist with prescribed Beta-agonist inhaler if available.
- **EMR** – Assist with prescribed epinephrine autoinjector if available
- Reassess

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Local Reaction
(Urticaria, hives or edema not involving mouth, lips or airway)

- Apply ice/cold pack to site

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Special Considerations:

- **Epinephrine autoinjector** (i.e. Epi-Pen/Epi-Pen Jr/Auvi-Q) – use a 0.3mg auto-injector for children over 30kg and 0.15mg auto-injector for children less than 30kg.
- Consider use of patient’s personal epinephrine autoinjector if additional doses needed.
- **Beta-agonist MDI** inhalers include, among others, Albuterol (Proventil, Ventolin) and Levalbuterol (Xopenex). An inhaler should be administered through a holding chamber or spacer device if available.
- Combination Beta-agonist/corticosteroid inhaler can be used per medical direction.

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Anaphylaxis Symptoms
- Hypotension
- Two or more of the following:
  - Skin or mucosal involvement
  - Respiratory signs & symptoms
  - Gastrointestinal symptoms (nausea, vomiting, diarrhea)
  - Hypotension

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Epinephrine IM 0.01 mL/kg (0.01mg/kg) 1:1000 as indicated. Maximum 0.3 mL per single dose. May be repeated every 15 mins.
- Nebulized Beta-agonist (if wheezing/respiratory distress)
- Consider vascular access IV/IO
- Consider Diphenhydramine 1 mg/kg IM/IV/IO (max dose 50mg)

Apply ice/cold pack to site. If prolonged transport, per Medical Control consider Diphenhydramine 1mg/kg IM (Max dose 50 mg)

Establish vascular access IV/IO
- Administer fluid bolus 20 mL/kg. Repeat as indicated to maximum 60 mL/kg.
- Reassess
- Epinephrine IV/IO 1:10,000 0.1 mL/kg (0.01 mg/kg). Repeat every 5 minutes as indicated.
- Administer continuous Nebulized Beta-agonist for severe wheezing.

Contact Medical Control
- Support ABCs
- Observe
- Keep warm
- Transport

Special Considerations:
- Epinephrine autoinjector (i.e. Epi-Pen/Epi-Pen Jr/Auvi-Q) – use a 0.3mg auto-injector for children over 30kg and 0.15mg auto-injector for children less than 30kg.
- Consider use of patient's personal epinephrine autoinjector if additional doses needed.
- Beta-agonist MDI inhalers include, among others, Albuterol (Proventil, Ventolin) and Levalbuterol (Xopenex). An inhaler should be administered through a holding chamber or spacer device if available.
- Combination Beta-agonist/corticosteroid inhaler can be used per medical direction.
- Consider IV steroids per Medical Control if available.

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ILLINOIS EMSC
PEDIATRIC ALTERED MENTAL STATUS
BLS/EMR CARE GUIDELINE

Initial Medical Care/Assessment

- Spinal motion restriction, as indicated
- Consider other causes of altered mental status and refer to indicated protocol(s)
- Test blood glucose, if available. If blood glucose <60, and if gag reflex intact, treat as available*

Reassess respiratory effort

Inadequate respiratory effort

- Initiate bag mask ventilation
- If opioid overdose suspected, consider opioid antagonist as per medical direction:
  - **Naloxone** (maximum dose 2 mg)
    - Weight ≤ 20 kg, Naloxone Auto-injector IM
    - Weight > 20 kg, Naloxone 2.0 mg/dose IN**
      or Naloxone Auto-injector IM

Adequate respiratory effort

- BLS - Contact Medical Control (and consider ALS backup/intercept if available)
- EMR – Contact dispatch and request appropriate level of care
- Support ABCs
- Observe
- Keep warm
- Transport

Special Considerations:
Consider causes:

- A Alcohol, abuse
- E Epilepsy, electrolytes, encephalopathy
- I Insulin
- O Opiates, overdose
- U Uremia
- T Trauma, temperature
- I Infection, intussusception, inborn errors
- P Psychogenic
- P Poison
- S Shock, seizures, stroke, space-occupying lesion, subarachnoid hemorrhage, shunt

*Examples of treatment for hypoglycemia if gag reflex intact: glucose paste, sugar, cake icing.

**For intranasal administration, use nasal atomizer and administer no more than 1 mL per nostril.

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ILLINOIS EMSC
PEDIATRIC ALTERED MENTAL STATUS
ALS/ILS CARE GUIDELINE

Initial Medical Care/Assessment

- Spinal motion restriction as indicated
- Consider other causes of altered mental status and refer to appropriate protocol(s).

Glucose ≤ 60

- Establish vascular access IV/IO NS/LR @ TKO
- Administer:
  Dextrose (0.5-1.0 g/kg):
  - <1 yr.
    - D12.5%* 4mL/kg IV/IO; or
    - D10% 5mL/kg
  - 1-8 yrs. D25% 2-4 mL/kg IV/IO
  - > 8 yrs. D50% 1-2 mL/kg IV/IO
- OR
- Glucagon:
  - ≤ 8 yrs. 0.5mg IM/IN**
  - > 8 yrs. 1mg IM/IN**
  - OR
- Consider Glucose Paste to gums if venous access unavailable and gag reflex intact***

Glucose > 60

Reassess respiratory effort

No improvement

- Contact Medical Control
- Support ABCs
- Observe
- Keep warm
- Transport

Improved mental status

Adequate respiratory effort

- Secure airway as appropriate
- Naloxone (maximum dose 2 mg.)
  - ≤ 20 kg 0.1 mg/kg IV/IO/IM/IN** or 0.2mg/kg ET
  - >20 kg 2 mg/dose
- Reassess patient

Inadequate respiratory effort

- If evidence of SHOCK, administer fluid bolus 20 mL/kg. Repeat as indicated to a maximum of 60 mL/kg.

Special Considerations:
Consider causes:

<table>
<thead>
<tr>
<th>A</th>
<th>Alcohol, abuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Epilepsy, electrolytes, encephalopathy</td>
</tr>
<tr>
<td>I</td>
<td>Insulin</td>
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<td>O</td>
<td>Opiates, overdose</td>
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<td>U</td>
<td>Uremia</td>
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<tr>
<td>T</td>
<td>Trauma, temperature</td>
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<tr>
<td>I</td>
<td>Infection, intussusception, inborn errors</td>
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<tr>
<td>P</td>
<td>Psychogenic</td>
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<tr>
<td>P</td>
<td>Poison</td>
</tr>
<tr>
<td>S</td>
<td>Shock, seizures, stroke, space-occupying lesion, subarachnoid hemorrhage, shunt</td>
</tr>
</tbody>
</table>

* To make D12.5% dilute D25% 1:1 with sterile water.
** For intranasal administration use nasal atomizer, and administer no more than 1 mL per nostril.
*** Examples of treatment for hypoglycemia if gag reflex intact: glucose paste, sugar, cake icing.

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Glucose check (if available); if unavailable, proceed to disposition section of protocol

**Blood Glucose ≤ 60**

Refer to **Pediatric Altered Mental Status** protocol

**Blood Glucose > 60**

- **ALS/ILS** – Contact Medical Control
- **BLS** - Contact Medical Control (and consider ALS backup/intercept if available)
- **EMR** – Contact dispatch and request appropriate level of care
- Support ABC’s
- Observe
- Transport
- Document all findings

**SPECIAL CONSIDERATIONS:**

- **All ALTE patients should be transported for medical evaluation, even the well appearing child.**
- Assume the history given is accurate.

**DEFINITION:** An Apparent Life-Threatening Event (ALTE) is an episode that is frightening to the observer and involves some combination of apnea, color change, marked change in tone, choking or gagging. It may be a presentation for a variety of different pediatric conditions including seizures, upper airway obstruction, gastroesophageal reflux, metabolic problems, anemia and cardiac disease. ALTEs usually occur in infants under 12 months however any child less than 2 years of age who exhibits any of the above symptoms should be considered an ALTE.

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Complete initial assessment. Assess for:
- Weak, thready, or absent peripheral pulses
- Decreasing consciousness
- Tachypnea/respiratory difficulty
- Central cyanosis and coolness
- Hypotension (late sign)

YES → Cardiopulmonary Compromise Present

- Support with bag mask ventilation

NO

- Perform CPR if despite oxygen and ventilation heart rate <60/min. in infant or child with hypoperfusion. Continue CPR as indicated.
- Refer to Pediatric AED or Pulseless Arrest Protocol as indicated

- BLS - Contact Medical Control (and consider ALS backup/intercept if available)
- EMR – Contact dispatch and request appropriate level of care
- Support ABCs
- Observe
- Keep warm
- Transport

Special Considerations:
- Hypoglycemia has been known to cause bradycardia in infants and children.
- Special conditions may apply in the presence of severe hypothermia. Refer to Hypothermia Protocol as indicated.
- If toxins suspected or known, contact Poison Control 1-800-222-1222

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Perform CPR if despite oxygen and ventilation, heart rate <60/min. with poor perfusion. Continue CPR as indicated.

Contact Medical Control
Support ABCs
Observe
Keep warm
Transport

REVERSIBLE CAUSES
Search for and treat possible reversible cause(s) in the prehospital setting:
- Hypovolemia
- Hypoxia or ventilation problems
- Hypoglycemia
- Hypothermia
- Toxins
- Tamponade, cardiac
- Tension pneumothorax

Establish vascular access IV/IO NS/LR
Epinephrine
- IV/IO 0.1 mL/kg (0.01mg/kg) 1:10,000
- Repeat every 3-5 min. if no response
If increased vagal tone or primary AV block:
Atropine 0.02 mg/kg
- Minimum dose: 0.1mg
- Maximum single dose: 0.5 mg for child;
  1 mg for adolescent
- May be repeated once
If hypotensive:
- Administer 20mL/kg bolus x1 and then KVO rate (maintain 10-20 mL/hour)

Epinephrine
- IV/IO 0.1mL/kg (0.1mg/kg) 1:10,000
- Repeat every 3-5 min. if no response
If increased vagal tone or primary AV block:
Atropine 0.02 mg/kg
- Minimum dose: 0.1mg
- Maximum single dose: 0.5 mg for child;
  1 mg for adolescent
- May be repeated once
If hypotensive:
- Administer 20mL/kg bolus x1 and then KVO rate (maintain 10-20 mL/hour)

Continued Cardiopulmonary Compromise
Per medical orders, consider external pacing if available
Treat reversible cause(s) (refer to Reversible Causes box)
Refer to Pulseless Arrest Protocol as indicated

Special Considerations:
- Special conditions may apply in the presence of severe hypothermia. Refer to Hypothermia Protocol as indicated.
- If IV/IO access not available, consider ET drug administration (Epinephrine 0.1mL/kg (0.1mg/kg) 1:1000)
- Monitor I/O fluid administration closely when using pressure bag or manual pressure
- If toxins suspected or known, contact Poison Control at 1-800-222-1222

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IILLINOIS EMSC
PEDiatric BURNS (THERMAL, ELECTRICAL, CHEMICAL)
BLS/EMR CARE GUIDELINE

Assess scene safety. As indicated:
  o Remove patient to safety
  o Appropriate body substance isolation

Initial Medical Care/Assessment

- Complete initial assessment. Assess for:
  o Stridor
  o Carbonaceous sputum
  o Wheezing
  o Grunting
  o Decreased respirations or apnea
  o Retractions
  o Tachypnea
  o Decreasing mental status
- Refer to Pediatric Initial Trauma Care Protocol as indicated
- Assess percentage and depth of burn *(see back)
- Remove constricting jewelry and clothing.

RESpiratory Compromise

- Secure airway as appropriate
- Administer 100% O₂
- Refer to Respiratory Distress Protocol

THERMAL BURNS
- Calculate TBSA (do not include 1st degree burns in calculation)
- Cover burn wound with DRY dressings or clean sheets
- Obtain glucose and treat accordingly. Refer to Altered Mental Status Protocol.
- Place patient on clean sheet on stretcher and cover patient with dry clean sheets and blanket to maintain body temperature.
- Refer to Shock Protocol as indicated.

ELECTRICAL BURNS
- Immobilize as indicated
- Identify and document any entrance and exit wounds
- Assess neurovascular status of affected part
- Cover wounds with dry dressings

CHEMICAL BURNS
- Refer to EMS System Haz/Mat Protocol
- If powdered chemical, brush away excess
- Remove clothing if possible
- Flush burn area with copious amounts of sterile water or saline ASAP and during transport

IF EYE INVOLVEMENT
- Rapid visual acuity
- Remove contact lens and irrigate with saline or sterile water continuously.
  DO NOT CONTAMINATE THE UNINJURED EYE WITH EYE IRRIGATION

SPECIAL CONSIDERATIONS:
- Assess for potential child abuse and follow appropriate reporting mechanism
- Keep the child warm and protect from hypothermia. Be cautious with cool dressings.
- Consider transport to a Burn Center *(see back)

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Burn Center Referral Criteria

Any patient with a life threatening condition should be treated until stable at the nearest appropriate facility before being transferred to a burn center. According to the American Burn Association, burn injuries that should be referred to a burn center include:

1. Partial thickness burns greater than 10% total body surface area (TBSA)
2. Burns that involve the face, hands, feet, genitalia, perineum, or major joints
3. Third-degree burns in any age group
4. Electrical burns, including lightning injury
5. Chemical burns
6. Inhalation injury
7. Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality
8. Any patients with burns and concomitant trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality. In such cases, if the trauma poses the greater immediate risk, the patient may be initially stabilized in a trauma center before being transferred to a burn unit. Physician judgment will be necessary in such situations and should be in concert with the regional medical control plan and triage protocols
9. Burned children in hospitals without qualified personnel or equipment for the care of children
10. Burn injury in patients who will require special social, emotional, or rehabilitative intervention

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%BSA by anatomical area

RULE OF NINES

% Partial Thickness + % Full Thickness
= % Total Burn Surface Area (TBSA)

Palm-and-hand calculation

a Palm of hand (including fingers) of infant or child
= 1% of the total body surface
ILLINOIS EMSC
PEDIATRIC BURNS (THERMAL, ELECTRICAL, CHEMICAL)
ALS/ILS CARE GUIDELINE

Complete initial assessment. Assess for:
- Stridor
- Wheezing
- Grunting
- Decreased respirations or apnea
- Assess percentage/depth of burn * (see back)
- Refer to Pediatric Initial Trauma Care Protocol as indicated

THERMAL BURNS
- Establish vascular access
  o LR preferred or 0.9% NS
  o <5 y/o: @ 125mL/hr
  o 6-13 y/o: @ 250mL/hr
  o >14 y/o: @ 500mL/hr
- Calculate TBSA (do not include 1st degree burns in calculation)
- Cover burn wound with DRY dressings or clean sheets
- Obtain glucose and treat accordingly. Refer to Altered Mental Status Protocol.
- Place patient on clean sheet on stretcher and cover patient with dry clean sheets and blanket to maintain body temperature.
- Refer to Shock Protocol as indicated.

ELECTRICAL BURNS
- Immobilize as indicated
- Assess cardiac monitor for dysrhythmia and treat according to appropriate protocol
- Identify and document any entrance and exit wounds
- Assess neurovascular status of affected part
- Establish vascular access
  o LR preferred or 0.9% NS
  o Follow Thermal Burns fluid volume administration
- Cover wounds with dry dressings

CHEMICAL BURNS
- Refer to EMS System Haz/Mat Protocol
- If powdered chemical, brush away excess
- Remove clothing if possible
- Flush burn area with copious amounts of sterile water or saline ASAP and during transport

IF EYE INVOLVEMENT
- Rapid visual acuity
- Remove contact lens and irrigate with saline or sterile water continuously. DO NOT CONTAMINATE THE UNINJURED EYE WITH EYE IRRIGATION

SPECIAL CONSIDERATIONS:
- Assess for potential child abuse and follow appropriate reporting mechanism
- Keep the child warm and protect from hypothermia. Be cautious with cool dressings.
- Consider pain management
- Consider transport to a Burn Center* (see back)

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%BSA by anatomical area

**Palm-and-hand calculation**

### RULE OF NINES

\[
\text{% Partial Thickness + % Full Thickness} = \text{% Total Burn Surface Area (TBSA)}
\]

- Palm of hand (including fingers) of infant or child = 1% of the total body surface

### Burn Center Referral Criteria

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4. Electrical burns, including lightning injury
5. Chemical burns
6. Inhalation injury
7. Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality
8. Any patients with burns and concomitant trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality. In such cases, if the trauma poses the greater immediate risk, the patient may be initially stabilized in a trauma center before being transferred to a burn unit. Physician judgment will be necessary in such situations and should be in concert with the regional medical control plan and triage protocols
9. Burned children in hospitals without qualified personnel or equipment for the care of children
10. Burn injury in patients who will require special social, emotional, or rehabilitative intervention
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<thead>
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<th>Initial Medical Care/Assessment</th>
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<tbody>
<tr>
<td>Spinal motion restriction as indicated</td>
</tr>
</tbody>
</table>

**Inadequate Ventilation and Respiratory Effort**
- In water, start rescue breathing
- When out of water, begin CPR
  - Initiate chest compressions 15:2 ratio if two rescuers
  - 30:2 if single rescuer
- Attach AED/defibrillator, as available
  - Follow Pediatric AED protocol as applicable

**Adequate Ventilation and Respiratory Effort**
- Complete initial assessment
- Remove wet clothing
- Prevent further heat loss
- Provide O₂ as indicated
- Refer to Hypothermia protocol as indicated

**Breathing resumes**
- YES
  - ALS/ILS - Refer to Pulseless Arrest (Asystole/PEA or VF/VT pathways) protocols as indicated.
  - BLS/EMR - Continue CPR
- NO
  - ALS/ILS - Contact Medical Control
  - BLS - Contact Medical Control (and consider ALS backup/intercept if available)
  - EMR - Contact dispatch and request appropriate level of care
  - Support ABC's
  - Observe
  - Transport

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Complete initial assessment. Assess for:
- Hot, dry, flushed or ashen skin
- Tachycardia
- Tachypnea
- Diaphoresis
- Decreasing consciousness
- Weak, thready or absent peripheral pulse
- Hypotension
- Profound weakness /fatigue
- Vomiting
- Muscle cramps
- Headache

Assess scene for environmental risks

Place in cool environment. Remove clothing as appropriate. Apply cool packs to axilla (armpits) and groin.

Decreased Consciousness
Treat hypoglycemia or glucose ≤ 60 as available if gag reflex intact

Normal Level of Consciousness

Continue cooling
- Apply cool pack to side of neck, axilla (armpits) and groin.
- Tepid water per sponge/spray
- Manually fan body to evaporate and cool.

Stop cooling if shivering occurs.
Refer to Seizure Protocol as indicated.

BLS - Contact Medical Control (and consider ALS backup/intercept if available)
EMR – Contact dispatch and request appropriate level of care
- Support ABCs
- Give cool liquids if no nausea/vomiting
- Observe
- Transport

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Illinois Emsc
Pediatric Environmental Hypothermia
AlS/ILS Care Guideline

Initial Medical Care/Assessment

- Complete initial assessment. Assess for:
  - Hot, dry, flushed or ashen skin
  - Tachycardia
  - Tachypnea
  - Diaphoresis
  - Decreasing consciousness
- Assess scene for environmental risks

Place in cool environment. Remove clothing as appropriate. Apply cool packs to axilla and groin.

Decreased Consciousness
(If glucose < 60, refer to Pediatric Altered Mental Status protocol for glucose dose)

- Inadequate Respiratory Effort
  - Secure airway as appropriate
  - Support with bag mask ventilation

- Adequate Respiratory Effort
  - Establish vascular access IV/IO NS/LR
  - Fluid bolus with 20 mL/kg
  - Repeat if no improvement to maximum of 60 mL/kg

- Continue cooling
  - Apply cool pack to side of neck, axilla and groin.
  - Tepid water per sponge/spray
  - Manually fan body to evaporate and cool
- Stop cooling if shivering occurs
- For shivering, per Medical Control, consider
  - Midazolam 0.1 mg/kg IV or 0.2 mg/kg IN/IM (max dose 1 mg); OR
  - Diazepam 0.2 mg/kg IV over 2-3 minutes (max dose 2 mg)

Normal Level of Consciousness

- Nausea/Vomiting Present
- Nausea/Vomiting Present
  - Give cool liquids PO

- No Nausea/Vomiting
  - Contact Medical Control
  - Support ABCs
  - Observe
  - Transport

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ILLINOIS EMSC
PEDIATRIC HYPOTHERMIA
ALS/ILS CARE GUIDELINE

Complete initial assessment. Assess for:

**Hypothermia Signs & Symptoms**
- Complains of cold
- Shivering (+/-)
- Decreased respiratory rate
- Dysrhythmias
- Dilated, sluggish pupils
- Decreased reflexes
- May mimic death

**Signs of Cardiopulmonary Compromise**
- Weak, thready, absent peripheral pulses
- Decreasing consciousness
- Tachypnea/respiratory difficulty
- Central cyanosis and coolness
- Hypotension (late sign)

Initial Medical Care/Assessment

Place in warm environment. Remove wet clothing. Prevent further heat loss.

Cardiopulmonary Compromise

- Secure airway as appropriate
- Avoid unnecessary manipulation and rough handling
- **Perform chest compressions for no pulse**
  - For VF or pulseless VT consider defibrillation 2 J/kg
    - Give one shock only, then resume CPR
  - Refer to appropriate protocol as indicated
  - Establish vascular access IV/IO NS/LR @ TKO
  - Warm trunk. Place heat packs to axilla and groin, taking care to avoid direct skin contact.

No Cardiopulmonary Compromise

- Warm trunk
- Place heat packs to axilla and groin, taking care to avoid direct skin contact.

- Contact Medical Control
- Support ABCs
- Observe
- Keep warm
- Transport

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SPECIAL CONSIDERATIONS:
- Repeat Atropine at 5-10 minute intervals to control excess secretions.

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# PEDIATRIC NERVE AGENT/ORGANOPHOSPHATE ANTIDOTE GUIDELINE

## Mild Exposure
- SOB, Wheezing, Runny Nose

## Moderate Exposure
- Vomiting, Drooling, Pinpoint Pupils

## Severe Exposure
- Unconscious, cyanosis, seizures

### PATIENT AGE

<table>
<thead>
<tr>
<th>Patient Age</th>
<th>Antidotes (IM)</th>
<th>Mild/Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infant</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-6 months (&lt; 7 kg)</td>
<td>Atropine 0.25mg</td>
<td>2 PAM† 15 mg/kg</td>
<td>Atropine† 0.5mg</td>
</tr>
<tr>
<td></td>
<td>Atropine* 0.5mg</td>
<td>2 PAM† 15 mg/kg</td>
<td>Atropine† 1mg</td>
</tr>
<tr>
<td>7 months-2 years (7-13 kg)</td>
<td>Atropine* 0.5mg</td>
<td>2 PAM† 15 mg/kg</td>
<td>Atropine† 300 mg</td>
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<tr>
<td><strong>Child</strong></td>
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<td></td>
</tr>
<tr>
<td>3-7 yrs (14-25 kg)</td>
<td>Atropine* 1mg</td>
<td>2 PAM† 300 mg</td>
<td>Atropine 2mg</td>
</tr>
<tr>
<td></td>
<td>Atropine 2mg</td>
<td>2 PAM† 600 mg</td>
<td>2 PAM† 1200 mg</td>
</tr>
<tr>
<td><strong>Child</strong></td>
<td></td>
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</tr>
<tr>
<td>8-14 yrs (26-50 kg)</td>
<td>Atropine 2mg</td>
<td>2 PAM† 600 mg</td>
<td>Atropine 2mg</td>
</tr>
<tr>
<td></td>
<td>Atropine 4mg</td>
<td>2 PAM† 1200 mg</td>
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<tr>
<td><strong>Adolescent</strong></td>
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<tr>
<td>&gt; 14 yrs (&gt; 51 kg)</td>
<td>Atropine 2mg</td>
<td>2 PAM† 600 mg</td>
<td>Atropine 4mg</td>
</tr>
<tr>
<td></td>
<td>Atropine 4mg</td>
<td>2 PAM† 1200 mg</td>
<td></td>
</tr>
</tbody>
</table>

* Appropriate dose atropine auto injector can be used *if available*

† 2 PAM=Pralidoxime

### NOTES:

For nerve agents the doses are:
- Atropine dose 0.05 mg/kg
- 2 PAM† dose 25 mg/kg

For children > 3 yrs with severe symptoms:
- 1 Mark I Kit will give Atropine 0.08 — 0.13 mg/kg
- 2 PAM† 24-46 mg/kg

2 PAM† solution can be prepared from the vial containing 1 gram of dessicated 2 PAM†. Inject 3 mL of NS or sterile water into the vial and shake well. This results in 3.3 mL (1 mL = 300 mg 2 PAM).
**ILLINOIS EMSC**
**PULSELESS ARREST**
**BLS/EMR CARE GUIDELINE**

**Initial Medical Care/Assessment**

**Initiate CPR**

**Apply AED (as soon as available)**

**Rhythm Shockable?**

**NOT SHOCKABLE**

**Continue CPR**

**RATIO**
- 15:2 2 rescuers
- 30:2 1 rescuer

**SHOCKABLE**

**Go to AED Protocol**

**REVERSIBLE CAUSES**
Search for and treat possible reversible cause(s) in the prehospital setting:
- Hypoxia or ventilation problems
- Hypoglycemia
- Hypothermia
- Toxins

- **BLS** - Contact Medical Control (and consider ALS backup/intercept if available)
- **EMR** – Contact dispatch and request appropriate level of care
- Support ABC’s
- Keep warm
- Transport

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ILLINOIS EMSC
PULSELESS ARREST (ASYSTOLE/PEA PATHWAY)
ALS/ILS CARE GUIDELINE

Check Rhythm
Shockable Rhythm?

NO

Asystole/PEA

YES

VF/VT

Refer to VF/VT protocol

Initiate CPR

VF/VT

YES

Resume CPR immediately for 2 minutes
Establish vascular access IV/IO
Give Epinephrine
- IV/IO: 0.1 mL/kg (0.01 mg/kg) 1:10,000
- Repeat every 3 to 5 minutes
Consider advanced airway *

NO

Check Rhythm
Shockable Rhythm?

Resume CPR for 2 min.
Treat Reversible Causes

Check Rhythm
Shockable Rhythm?

NO

If Organized Rhythm

YES

REVERSIBLE CAUSES
Search for and treat possible reversible cause(s) in the prehospital setting:
- Hypovolemia
- Hypoxia or ventilation problems
- Hypoglycemia
- Hypothermia
- Toxins
- Tamponade, cardiac
- Tension pneumothorax

Initial Medical Care/Assessment

Special Considerations:
* If advanced airway is placed, give continuous chest compressions without pauses for breaths per current AHA/ARC guidelines. Check rhythm every 2 minutes.
- Contact medical control or refer to system protocol for termination of resuscitation
- If IV/IO access not available consider ET drug administration (Epinephrine 0.1 mL/kg (0.1mg/kg) 1:1000)
- Refer to length/weight based tool to identify specific dosages (if available)

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ILLINOIS EMSC
PEDIATRIC RESPIRATORY DISTRESS
BLS/EMR CARE GUIDELINE

Initial Medical Care/Assessment

- Complete initial assessment. Assess for:
  - **Airway Obstruction**
    - Suspected foreign body
    - Epiglottitis
    - Anaphylaxis
  - **Upper Airway Disease**
    - Croup
    - Suspected foreign body
    - Epiglottitis
    - Anaphylaxis
      - Stridor
      - History of choking episode
      - Drooling
      - Hoarseness
      - Retractions
      - Tripod position
  - **Lower Airway Disease**
    - Asthma
    - Bronchiolitis
    - Pneumonia
      - Wheezing
      - Grunting
      - Retractions
      - Tachypnea
      - Decreased respiratory rate, effort, aeration or breath sounds
      - Tripod position

- Refer to **Respiratory Distress with a Tracheostomy Protocol** as indicated.

**Airway Obstruction**
- If foreign body suspected, open mouth and remove foreign body if visible
- Reposition airway
- Consider back slaps, chest/abdominal thrusts (age dependent)

**Upper Airway Disease**
- Avoid any agitation
- Position of comfort
- Consider alternate $O_2$ methods, i.e. blow by $O_2$
- Per Medical Control, consider assist of patient with prescribed Beta-agonist MDI* if available
- For Suspected Epiglottitis, DO NOT attempt invasive airway maneuvers
- For Anaphylaxis, see Anaphylaxis/Allergic Reaction protocol

**Lower Airway Disease**
- Position of comfort
- For wheezing, per Medical Control, assist with prescribed Beta-agonist MDI inhaler* if available
- Reassess. If still in distress repeat Beta-agonist
- If in severe distress, BLS: IM epinephrine autoinjector, if available

If condition worsens (altered mental status, bradycardia) see **Respiratory Failure Protocol or Bradycardia Protocol** as indicated

**Special Considerations:**
* Per Medical Control, severe upper airway obstruction secondary to croup may be relieved with Beta-agonists.
* Beta-agonist MDI inhalers include, among others, Albuterol (Proventil, Ventolin) and Levalbuterol (Xopenex).
* An inhaler should be administered through a holding chamber or spacer device, if available.

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ILLINOIS EMSC
PEDIATRIC RESPIRATORY DISTRESS
ALS/ILS CARE GUIDELINE

Initial Medical Care/Assessment

- Complete initial assessment. Assess for:
  
  **Airway Obstruction**
  - Suspected foreign body
  - Epiglottitis
  - Anaphylaxis

  **Upper Airway Disease**
  - Croup
  - Suspected foreign body
  - Epiglottitis
  - Anaphylaxis
    - Stridor
    - History of choking episode
    - Drooling
    - Hoarseness
    - Retractions
    - Tripod position

  **Lower Airway Disease**
  - Asthma
  - Bronchiolitis
  - Pneumonia
    - Wheezing
    - Grunting
    - Retractions
    - Tachypnea
    - Decreased respiratory rate, effort, aeration or breath sounds
    - Tripod position

- Refer to Respiratory Distress with a Tracheostomy Protocol as indicated.

**Airway Obstruction**

- If foreign body suspected, open mouth and remove foreign body if visible
- Reposition airway
- Consider back slaps, chest/abdominal thrusts (age dependent)
- Direct laryngoscopy, foreign body removal with Magill forceps if indicated
- Secure airway as appropriate
- Consider needle cricothyrotomy

**Upper Airway Disease**

- Avoid any agitation
- Position of comfort
- Consider alternate O₂ methods, i.e. blow by O₂
- Per Medical Control, consider nebulized Racemic Epinephrine* or short-acting Beta-agonist (nebulized or MDI)*
- For Anaphylaxis, see Anaphylaxis/Allergic Reaction protocol

**Lower Airway Disease**

- Position of comfort
- For wheezing, short-acting Beta-agonist (nebulized or MDI)*
- Reassess. If still in distress repeat Beta-agonist with Ipratropium.
- If in severe distress, consider IM Epinephrine
- Consider CPAP, as available

If condition worsens (altered mental status, bradycardia) see Respiratory Failure Protocol or Bradycardia Protocol as indicated

**Special Considerations:**

- For Suspected Epiglottitis, DO NOT attempt intubation, invasive glottic visualization, or IV access

*If Racemic Epinephrine is not available, consider: Epinephrine (1:1000) 0.25 – 0.5 mg/kg in 3 mL Normal Saline and administer by inhalation (max 5mL/dose)

* Beta-agonist MDI inhalers include, among others, Albuterol (Proventil, Ventolin) and Levalbuterol (Xopenex).

* An inhaler should be administered through a holding chamber or spacer device, if available.

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Initial Medical Care/Assessment

- Administer 100% O₂ per tracheostomy collar
- Suction
- Reassess airway patency*

Obstructed

- Repeat suction, after removing inner cannula if present
- Have caregiver change trach tube
- Reassess patency

Patent

- Do not change trach tube
- Complete initial assessment
- Perform frequent reassessments

Are any of the following present?

- Retractions
- Grunting/wheezing/stridor
- Tachypnea
- Decreasing mental status
- Apnea
- Cyanosis

**Continued Obstruction**

- Ventilate with 100% O₂ bag mask to trach tube.
- If trach tube not patent even after changing, ventilate with bag mask to mouth (cover stoma). If no chest rise, ventilate with infant mask to stoma.
- Must have rise and fall of chest with each ventilation
- Refer to Respiratory Failure, Pulseless Arrest or Bradycardia protocols as indicated

**Patent**

**BLS** - Contact Medical Control (and consider ALS backup/intercept if available)
**EMR** - Contact dispatch and request appropriate level of care
- Support ABCs
- Observe
- Keep warm
- Transport in position of comfort

Special Considerations:

*If chest rise inadequate:
- Reposition the airway.
- If using mask to stoma, consider inadequate volume delivered. Compress bag further and/or depress pop-off valve.
Consider allowing caregiver to remain with child regardless of child’s level of responsiveness.
Initial Medical Care/Assessment

- Administer 100% O₂ per tracheostomy collar
- Suction
- Reassess airway patency*

Obstructed

- Repeat suction, after removing inner cannula if present
- Have caregiver change trach tube, or EMS insert appropriately sized ET tube into stoma.
- Reassess patency

Continued Obstruction

- Ventilate with 100% O₂ using bag mask to trach tube.
- If trach tube not patent even after changing, ventilate with bag mask to mouth (cover stoma). If no chest rise, ventilate with infant mask to stoma.
- Must have rise and fall of chest with each ventilation
- Consider nebulized **Beta-agonist**
- Refer to Respiratory Failure, Pulseless Arrest or Bradycardia protocols as indicated

Patent

- Do not change trach tube
- Complete initial assessment
- Perform frequent reassessments

Are any of the following present?

- Retractions
- Grunting/wheezing/stridor
- Tachypnea
- Decreasing mental status
- Apnea
- Cyanosis

NO

- Contact Medical Control
- Support ABCs
- Observe
- Keep warm
- Transport in position of comfort

YES

Special Considerations:

* If chest rise inadequate:
  - Reposition the airway.
  - If using mask to stoma, consider inadequate volume delivered. Compress bag further and/or depress pop-off valve.

** Only nebulized bronchodilator (Beta-agonist) should be administered. Beta-agonists include, among others: Albuterol (Proventil, Ventolin) and Levalbuterol (Xopenex).

Consider allowing caregiver to remain with child regardless of child’s level of responsiveness.

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Open airway
- Remove patient from ventilator and support with bag mask ventilation as indicated via tracheostomy tube

UNABLE TO VENTILATE
- Suction tracheostomy tube

ABLE TO VENTILATE
- ALS/ILS - Contact Medical Control
- BLS – Contact Medical Control (and consider ALS backup/intercept if available)
- Support ABCs
- Observe
- Keep warm
- Transport

UNABLE TO VENTILATE
- Go to Pediatric Respiratory Distress with a Tracheostomy Tube Protocol for obstructed airway guidelines

Special Considerations:
- Consider using parents/caregivers/home health nurses as medical resources at home and enroute.
- Consider alerting Medical Control of parent/caregiver participation in care.
- Consider allowing caregiver to remain with child regardless of child’s level of responsiveness.
- Bring ventilator to the hospital or have parents/caregivers bring the ventilator to the hospital.
Special Considerations:
- Respiratory failure may be a presenting sign of a toxic ingestion, metabolic disorder or anaphylaxis.
- Refer to Respiratory Distress Protocol as appropriate.

*Refer to Vital Signs and Cardiopulmonary Compromise Resource for signs and symptoms of decreased perfusion in children.

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ILLINOIS EMSC
PEDiatric Respiratory Failure
ALS/ILS Care Guideline

Initial Medical Care/Assessment

Assess Airway

- Spinal motion restriction, as indicated
- Open airway
  - Jaw thrust or chin lift/head tilt
- Suction, as indicated
- Oropharyngeal airway, as indicated
- If foreign body suspected, open mouth and remove foreign body if visible

Inadequate respiratory effort

- Administer 100% O₂
- Support ventilation with bag mask at age appropriate rate
- Secure airway as appropriate

Adequate respiratory effort

- Assess lung sounds
- Administer 100% O₂
- Support ventilation with bag mask as indicated
- Secure airway as appropriate

Chest Rise

Inadequate

- Reposition airway
- Begin CPR if no pulse or HR <60
- If indicated, direct laryngoscopy, foreign body removal with Magill forceps if indicated
- Consider intubation/advanced airway
- Consider needle cricothyotomy

Chest Rise Adequate

- Assess ABC’s and mental status
- Consider causes and refer to appropriate protocol

Cardiopulmonary Compromise*

NO

- Contact Medical Control
- Support ABCs
- Complete initial assessment
- Cardiac monitor
- Pulse oximetry if available
- Observe
- Keep warm
- Transport

YES

- Establish vascular access IV/IO NS/LR @ TKO
- Refer to Shock or Pulseless Arrest protocols as appropriate
- If heart rate < 60, begin CPR and refer to Bradycardia Protocol

Special Considerations:

- Respiratory failure may be a presenting sign of a toxic ingestion, metabolic disorder or anaphylaxis.
- Consider naloxone, flumazenil or glucose per Medical Control.

*Refer to Vital Signs and Cardiopulmonary Compromise Resource for signs and symptoms of decreased perfusion in children.

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ILLINOIS EMSC

PEDIATRIC SEIZURES

BLS/EMR CARE GUIDELINE

Special Considerations:

*Examples of treatment for hypoglycemia if gag reflex intact: glucose paste, sugar, cake icing.

- Refer to Respiratory Failure Protocol as indicated.
- Parents may have given medication prior to EMS arrival, so watch for respiratory depression.
- Document medications administered prior to transport.

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The Illinois EMSC Prehospital Committee has exercised extreme caution that all information and drug dosages presented are accurate and in accordance with professional standards in effect at the time of publication. This prehospital care guideline may be modified at the discretion of the EMS Medical Director. It is recommended that care must be based on the child’s clinical presentation, and on authorized policies and protocols.
**ILLINOIS EMSC**
**PEDIATRIC SEIZURES**
**ALS/ILS CARE GUIDELINE**

**Glucose < 60**
- Establish vascular access IV/IO NS/LR @ TKO
- Administer:
  - Dextrose (0.5-1.0 g/kg):
    - > 8 yrs. D50% 1-2mL/kg IV/IO
    - 1-8 yrs. D25% 2-4 mL/kg IV/IO or
    - D10% 5mL/kg IV/IO
    - <1yr D10% 5mL/kg IV/IO
  - Glucagon:
    - ≤ 8 y/o 0.5mg IM/IN*
    - > 8 y/o 1mg IM/IN*
  - Consider Glucose Paste to gums if venous access unavailable and gag reflex intact**

**Glucose > 60**
- Actively Seizing
- No Seizure Activity
  - Administer 100% O₂
  - Administer:
    - Midazolam 0.2 mg/kg IM/IN* (Max dose 5.0 mg);
      - OR
    - Midazolam 0.1 mg/kg IV/IO (Max dose ≤5 yrs = 6 mg; ≥6 yrs = 10 mg)
      - OR
    - Diazepam 0.5 mg/kg PR (Max dose 20mg)
      - If parents have gel formulation, use per medical direction.
      - OR
    - Diazepam 0.1mg/kg IV/IO over 30 sec., every 15 mins.
      - <5 yrs. maximum total dose 5mg
      - ≥5 yrs. maximum total dose 10mg

- Contact Medical Control
- Support ABCs
- Continue to assess for seizure activity
- Observe
- Keep warm
- Transport

**Special Considerations:**
- Anticipate respiratory depression if Diazepam or Midazolam are administered
- Refer to Respiratory Failure Protocol as indicated
- Parents may have given medication prior to EMS arrival, so watch for respiratory depression.

* For intranasal administration use nasal atomizer, and administer no more than 1 mL per nostril.
**Examples of treatment for Hypoglycemia if gag reflex intact: glucose paste, sugar, cake icing.

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Initial Medical Care/Assessment

- Supine or shock position
- Control bleeding as appropriate
- Administer 100% \( O_2 \)

- **BLS** - Contact Medical Control (and consider ALS backup/intercept if available)
- **EMR** – Contact dispatch and request appropriate level of care
- Support ABC’s
- Observe
- Keep warm
- Transport

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Initial Medical Care/Assessment

Secure airway as appropriate

DETERMINE ETIOLOGY OF SHOCK

OBSTRUCTIVE SHOCK
(Tension Pneumothorax)
- Needle thoracostomy (per system protocol)

DISTRIBUTIVE SHOCK
(Suspected sepsis, anaphylaxis, neurogenic)
- Establish vascular access IV/I NS/LR
- Administer fluid bolus 20 ml/kg
- If suspected allergic reaction, refer to Allergic Reaction/Anaphylaxis Protocol
- If no response to initial fluid bolus and history of fever/infection, repeat fluid boluses of 20 ml/kg as indicated to a maximum of 60 ml/kg. Assess respiratory status prior to each bolus.

CARDIOGENIC SHOCK
(History congenital heart disease, cardiac surgery, rhythm disturbance, post-cardiac arrest)
- Establish vascular access IV/I NS/LR @ KVO rate (maintain 10-20 mL/hour)
- Identify any cardiac rhythm disturbance and refer to appropriate Cardiac/Dysrhythmia Protocol
- Per Medical Control, consider fluid bolus and/or Dopamine 5-20 mcg/kg/min

HYPOVOLEMIC SHOCK
(Suspected dehydration, volume loss, hemorrhagic shock)
- Establish vascular access IV/I NS/LR
- Administer fluid bolus 20 ml/kg
- If no response to initial fluid bolus, repeat at 20 ml/kg as indicated to maximum of 60 ml/kg. Assess respiratory status prior to each bolus.
- Control bleeding as appropriate

Contact Medical Control
- Support ABC's
- Observe
- Keep warm
- Transport

Special Considerations:
Caution - fluids may need to be restricted in Cardiogenic shock.
*Dopamine must be administered per system protocol.

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ILLINOIS EMSC
TACHYCARDIA PROTOCOL
BLS/EMR CARE GUIDELINE

Initial Medical Care/Assessment

Complete initial assessment. Assess for Cardiopulmonary Compromise:
- Weak, thready, or absent peripheral pulses
- Decreasing consciousness
- Tachypnea/Respiratory difficulty
- Central cyanosis and coolness
- Hypotension (late sign)
- Bradycardia and/or no palpable BP (ominous sign)

IF ANY OF ABOVE PRESENT
- BLS - Contact Medical Control (and consider ALS backup/intercept if available)
- EMR – Contact dispatch and request appropriate level of care
- Support with bag mask ventilation as indicated
- Consider shock position

IF NONE OF ABOVE PRESENT
- BLS - Contact Medical Control (and consider ALS backup/intercept if available)
- EMR – Contact dispatch and request appropriate level of care
- Support ABC’s
- Observe
- Keep warm
- Transport

REVERSIBLE CAUSES
Search for and treat possible reversible cause(s) in the prehospital setting:
- Hypoxia or ventilation problems
- Hypoglycemia
- Hypothermia
- Hypovolemia
- Toxins

Special Considerations:
Be prepared for respiratory or cardiac arrest. Consider AED, Pulseless Arrest or Respiratory Arrest protocols.

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Initial Medical Care/Assessment

PULSE PRESENT

Evaluate QRS duration

WIDE QRS
(>0.09 sec)

NARROW QRS
(<0.09 sec)

NO PULSE PRESENT
(If no pulse, refer to Pulseless Arrest/VT Protocol)

Assess for Cardiopulmonary Compromise:
- Weak, thready, or absent peripheral pulses
- Decreasing consciousness
- Tachypnea/Respiratory difficulty
- Central cyanosis and coolness
- Hypotension (late sign)

Go to Tachycardia Wide QRS Pathway

Possible Causes
- Hypovolemia
- Hypoxia or ventilation problems
- Hypoglycemia
- Hypothermia
- Toxins
- Tamponade, cardiac
- Tension pneumothorax

Probable Supraventricular Tachycardia
- Compatible history (vague, nonspecific)
- Previous history of SVT
- P waves absent/abnormal
- Heart rate not variable
- History of abrupt rate changes
- Infants: rate usually >220 bpm
- Children: rate usually >180 bpm

Probable Sinus Tachycardia
- History consistent with known cause (blood/volume loss)
- P waves present/normal
- Heart rate variable
- Infants: rate usually <220 bpm
- Children: rate usually <180 bpm

Consider Reversible Causes and treat according to appropriate protocol.

NO CARDIOPULMONARY COMPROMISE
Attempt vagal maneuvers (No delays)
- If IV/IO access present: Give adenosine 0.1 mg/kg
  (maximum first dose 6 mg) by rapid bolus. May double first
dose and give once (maximum second dose 12 mg)

CARDIOPULMONARY COMPROMISE PRESENT
- Synchronized cardioversion:
  0.5 to 1 J/kg; if not effective, increase to 2 J/kg.

- Contact Medical Control
- Support ABC’s
- Keep warm
- Transport

Special Considerations:
Attempt vagal maneuvers first unless cardiopulmonary compromise present and it does not delay chemical or electrical cardioversion. In infants and young children, apply ice to the face without occluding the airway. In older children, valsalva maneuvers are acceptable.

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Special Considerations:
Attempt vagal stimulation first unless cardiopulmonary compromise present and it does not delay chemical or electrical cardioversion. In infants and young children, apply ice to the face without occluding the airway. In older children, valsala maneuvers are acceptable.

The Illinois EMSC Prehospital Committee has exercised extreme caution that all information and drug dosages presented are accurate and in accordance with professional standards in effect at the time of publication. This prehospital care guideline may be modified at the discretion of the EMS Medical Director. It is recommended that care must be based on the child’s clinical presentation, and on authorized policies and protocols.
Assess scene safety as indicated:
- Appropriate body substance isolation
- Refer to System/Department Haz/Mat Protocol
- Stop exposure

Initial Medical Care/Assessment

- **BLS** - Contact Medical Control (and consider ALS backup/intercept if available)
- **EMR** – Contact dispatch and request appropriate level of care
- Initial interventions per Medical Control as indicated for identified exposure*
- For altered mental status or seizures, refer to appropriate protocol**
- Support ABCs
- Keep warm
- Observe
- Bring container(s) of drug or substance to the ED
- Transport

Special Considerations:
- Do not induce vomiting, especially in cases where caustic substance ingestion is suspected.
- Consider DCFS methamphetamine protocol.
- Poison Center phone # 1-800-222-1222

*REFER TO BACK OF PAGE FOR LIST OF POTENTIAL ANTIDOTES, INGESTIONS AND EXPOSURES.
**Anticipate vomiting, respiratory arrest, seizure, dysrhythmias and refer to indicated protocols.

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EXPOSURE TO OR INGESTION OF NARCOTICS OR UNKNOWN SUBSTANCES FOR BLS/EMR

POTENTIAL TREATMENT

- Contact direct medical oversight for specific information about individual toxic exposures and treatments.

- **DO NOT INDUCE VOMITING, ESPECIALLY IN CASES WHERE CAUSTIC SUBSTANCE INGESTION IS SUSPECTED.**

- Use of an opioid antagonist in the treatment of a suspected or known opioid overdose (with altered mental status and/or respiratory depression) as directed per EMS Medical Control:
  - Weight < 20 kg, administer Naloxone Auto-injector IM
  - Weight > 20kg, administer Naloxone 2.0mg /dose IN via nasal atomizer
    - Or Naloxone Auto-injector IM

**NOTE:** For intranasal administration, use a nasal atomizer and administer no more than 1 mL per nostril.

POTENTIAL EXPOSURES

- Burning overstuffed furniture = Cyanide
- Old burning buildings = Lead fumes and Carbon Monoxide
- Bismuth subsalicylate (e.g. Pepto-Bismol™)* = Aspirin
- Pesticides = Organophosphates & Carbamates
- Topical benzocaine for dental/gum pain (e.g. Orajel™) = Methemoglobinemia
- Common Plants = Treat symptoms and bring plant/flowers to ED

*Pepto-Bismol™ children's formulation is aspirin-free

SMELLS

- Almond = Cyanide
- Fruit = Alcohol
- Garlic = Arsenic, parathion, DMSO
- Mothballs = Camphor
- Natural gas = Carbon monoxide
- Rotten eggs = Hydrogen sulfide
- Silver polish = Cyanide
- Stove gas = Think CO (CO and methane are odorless)
- Wintergreen = Methyl salicylate
ILLINOIS EMSC
PEDIATRIC TOXIC EXPOSURES/INGESTIONS
ALS/ILS CARE GUIDELINE

Assess scene safety as indicated:
▪ Appropriate body substance isolation
▪ Refer to System/Department Haz/Mat Protocol
▪ Stop exposure

Initial Medical Care/Assessment

Establish vascular access IV/IO NS/LR @ KVO (maintain 10-20 mL/hour)

▪ Contact Medical Control
▪ Initial interventions per Medical Control as indicated for identified exposure*
▪ For altered mental status or seizures, refer to appropriate protocol**
▪ Support ABCs
▪ Keep warm
▪ Observe
▪ Bring container(s) of drug or substance to the ED
▪ Transport

Special Considerations:
▪ Secure airway per protocol for GCS <8
▪ Do not induce vomiting, especially in cases where caustic substance ingestion is suspected.
▪ Consider DCFS methamphetamine protocol.
▪ Poison Center phone # 1-800-222-1222

*REFER TO BACK OF PAGE FOR LIST OF POTENTIAL ANTIDOTES, INGESTIONS AND EXPOSURES.
** Anticipate vomiting, respiratory arrest, seizure, dysrhythmias and refer to indicated protocols.

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EXPOSURE TO OR INGESTION OF NARCOTICS OR UNKNOWN SUBSTANCES FOR ALS/ILS

POTENTIAL TREATMENT

- Contact direct medical oversight for specific information about individual toxic exposures and treatments.

- **DO NOT INDUCE VOMITING, ESPECIALLY IN CASES WHERE CAUSTIC SUBSTANCE INGESTION IS SUSPECTED.**

- Use of an opioid antagonist in the treatment of a suspected or known opioid overdose (with altered mental status and/or respiratory depression) as per EMS medical direction:
  - Weight \( \leq 20 \text{ kg} \), administer Naloxone 0.1 mg/kg, IV/IO/SQ/IM/IN, or 0.2 mg/kg ET
  - Weight \( > 20 \text{ kg} \), administer Naloxone 2.0mg/dose

**NOTE:** For intranasal administration, use a nasal atomizer and administer no more than 1 mL per nostril.

- Treatment for toxic exposures may be instituted as permitted by medical direction, including the following:
  - High-dose atropine for organophosphates
  - Sodium bicarbonate for tricyclic antidepressants
  - Glucagon for calcium channel blockers or beta-blockers
  - Diphenhydramine for dystonic reactions
  - Dextrose for insulin overdose

POTENTIAL EXPOSURES

- Burning over stuffed furniture = Cyanide
- Old burning buildings = Lead fumes and Carbon Monoxide
- Bismuth subsalicylate (e.g. Pepto-Bismol™)* = Aspirin
- Pesticides = Organophosphates & Carbamates
- Topical benzocaine for dental/gum pain (e.g. Orajel™) = Methemoglobinemia
- Common Plants = Treat symptoms and bring plant/flowers to ED

*Pepto-Bismol™ children’s formulation is aspirin-free

SMELLS

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- Wintergreen = Methyl salicylate
Inadequate ventilation, respiratory effort

- Jaw thrust
- Relieve upper airway obstruction as indicated
- Support ventilation with bag mask as indicated

Adequate ventilation, respiratory effort

- Control hemorrhage [consider use of tourniquet(s)] as per protocol
- Reassess perfusion

CARDIOPULMONARY COMPROMISE**

**Assess for signs of Cardiopulmonary Compromise:
- Weak, thready, or absent peripheral pulses
- Decreasing consciousness
- Tachypnea/Respiratory difficulty
- Central cyanosis and coolness
- Hypotension (late sign)

YES

- Refer to Shock or Pulseless Arrest protocols
- BLS - Contact Medical Control (and consider ALS backup/intercept if available)
- EMR – Contact dispatch and request appropriate level of care
- Support ABCs
- Keep warm
- Observe
- Transport

NO

- Splint/immobilize fracture(s) as indicated
- Refer to Head Trauma Addendum as indicated

*Refer to back of protocol for Pediatric Head Trauma Addendum and for Pediatric Glasgow Coma Scale.

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**ILLINOIS EMSC**  
**PEDIATRIC HEAD TRAUMA ADDENDUM**  
**BLS/EMR CARE GUIDELINE**

---

### Initial Medical Care/Assessment

- Maintain supine position
- Provide spinal motion restriction as indicated
- Assess Pediatric Glasgow Coma Scale (PGCS)

---

**PGCS**

- **PGCS ≤ 8 (Severe)**
  - Contact Medical Control (and consider ALS backup/intercept if available)
  - Administer 100% O₂
  - Support ventilation with bag mask
  - Control hemorrhage
  - Reassess PGCS
  - Observe
  - Refer to Seizure Protocol as indicated
  - Transport

- **PGCS 9-12 (Moderate)**
  - Contact Medical Control (and consider ALS backup/intercept if available)
  - Administer 100% O₂
  - Support ventilation with bag mask as indicated
  - Control hemorrhage
  - Reassess PGCS
  - Observe

- **PGCS 13-15 (Mild)**
  - Contact Medical Control (and consider ALS backup/intercept if available)
  - Administer 100% O₂
  - Control hemorrhage
  - Reassess PGCS
  - Observe
  - Transport

---

### PEDIATRIC GLASGOW COMA SCALE (PGCS)

<table>
<thead>
<tr>
<th>Eye Opening</th>
<th>&lt; 2 Years</th>
<th>&gt; 2 Years</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>Spontaneous</td>
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<tr>
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</table>

<table>
<thead>
<tr>
<th>Verbal Response</th>
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<tbody>
<tr>
<td>Coos, babbles, appropriate words</td>
<td>Oriented/appropriate words</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Irritable, cries but consolable</td>
<td>Confused</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Cries to pain, inconsolable</td>
<td>Inappropriate words/persistent cry</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Moans to pain</td>
<td>Incomprehensible sounds</td>
<td>2</td>
<td></td>
</tr>
<tr>
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<td>No response</td>
<td>1</td>
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</table>

<table>
<thead>
<tr>
<th>Motor Response</th>
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<th>&gt; 2 Years</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal spontaneous movements</td>
<td>Obey commands</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Withdraws from touch</td>
<td>Localizes to pain</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Withdraws from pain</td>
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<td></td>
</tr>
<tr>
<td>Abnormal extension (decerebrate)</td>
<td>Abnormal extension (decerebrate)</td>
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<tr>
<td>No response</td>
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<td>1</td>
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</table>

**TOTAL PEDIATRIC GLASGOW COMA SCORE:**

(3-15)

---

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Initial Medical Care/Assessment

- Provide spinal motion restriction as indicated
- Complete initial assessment, including Pediatric Glasgow Coma Scale

Refer to Head Trauma Addendum as indicated

Inadequate ventilation, respiratory effort
- Jaw thrust
- Relieve upper airway obstruction as indicated
- Support ventilation with bag mask as indicated
- Secure airway as appropriate

Adequate ventilation, respiratory effort
- Control hemorrhage [consider use of tourniquet(s)] as per protocol
- Establish vascular access IV/IO NS/LR
- Fluid bolus 20 mL/kg

- Reassess perfusion
- Repeat IV fluid bolus of 20 mL/kg as indicated to a maximum of 60mL/kg

CARDIOPULMONARY COMPROMISE**

**Assess for signs of Cardiopulmonary Compromise:
- Weak, thready, or absent peripheral pulses
- Decreasing consciousness
- Tachypnea/Respiratory difficulty
- Central cyanosis and coolness
- Hypotension (late sign)

YES
- Refer to Shock or Pulseless Arrest protocols

NO
- Splint/immobilize fracture(s) as indicated
- Contact Medical Control
- Support ABCs
- Keep warm
- Observe
- Transport

*Refer to back of protocol for Pediatric Head Trauma Addendum and for the Pediatric Glasgow Coma Scale.

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ILLINOIS EMSC
PEDIATRIC HEAD TRAUMA ADDENDUM
ALS/ILS CARE GUIDELINE

Initial Medical Care/Assessment

- Maintain supine position
- Provide spinal motion restriction as indicated
- Assess Pediatric Glasgow Coma Scale (PGCS)
- Contact Medical Control

**PGCS ≤ 8 (Severe)**

- Administer 100% O₂
- Support ventilation with bag mask
- Provide hyperventilation only for impending herniation (non-reactive/unequal pupils or posturing)*
- Intubate orally as indicated
- Control hemorrhage
- Reassess PGCS
- Observe
- Refer to Seizure Protocol as indicated
- Transport

**PGCS 9-12 (Moderate)**

- Administer 100% O₂
- Support ventilation with bag mask as indicated*
- Control hemorrhage
- Reassess PGCS
- Observe
- Transport

**PGCS 13-15 (Mild)**

- Administer 100% O₂
- Control hemorrhage
- Reassess PGCS
- Observe
- Transport

**Special Consideration:**
* Consider performing hyperventilation ONLY IF suspected impending herniation (non-reactive/unequal pupils or posturing), and must be guided by capnography (aim for PaCO₂ of 35 when there is a perfusing rhythm).

**PEDIATRIC GLASGOW COMA SCALE (PGCS)**

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**TOTAL PEDIATRIC GLASGOW COMA SCORE:** (3-15)

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Initial Medical Care/Assessment

- Treat obvious injuries
- Refer to appropriate protocol

Note:*  
- Environmental surroundings
- Child’s interaction with parents/caregivers
- Physical assessment findings
- Discrepancies in child and parent history and injuries

Transport, regardless of extent of injuries.

Transport Refused  
By Parent/Caregiver

- Assess scene safety
- If possible, remain at site
- Do not confront caregivers
- Call dispatch for law enforcement response for protective custody
- Call Medical Control
- Discuss with law enforcement and Medical Control the need for protective custody

Transport Agreed Upon  
By Parent/Caregiver

- ALS/ILS – Contact Medical Control
- BLS - Contact Medical Control (and consider ALS backup/intercept if available)
- EMR – Contact dispatch and request appropriate level of care
- Support ABC’s
- Observe
- Transport
- Document all findings*

REPORT TO ED PHYSICIAN, ED CHARGE NURSE AND DCFS (1-800-25-ABUSE). WHEN CONTACTING DCFS, IDENTIFY SELF AS A STATE MANDATED REPORTER TO EXPEDITE PROCESS.

*Refer to next page for special considerations.

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SPECIAL CONSIDERATIONS:

1. You are required by law to report your suspicions.

2. Document findings objectively:
   - Body location of the injury
   - Severity of the injury
   - Patterns of similar injury over time
   - Include verbatim statements offered by the child
   - Note verbatim statements from the parent/caregiver

3. Suspect battered or abused child if any of the following is found:
   - A discrepancy exists between history of injury and physical exam.
   - Caregiver provides a changing or inconsistent history.
   - There is a prolonged interval between injury and the seeking of medical help.
   - Child has a history of repeated trauma.
   - Caregiver responds inappropriately or does not comply with medical advice.
   - Suspicious injuries are present, such as:
     - injuries of soft tissue areas, including the face, neck and abdomen,
     - injuries of body areas that are normally shielded, including the back and chest,
     - fractures of long bones in children under 3 years of age,
     - old scars, or injuries in different stages of healing,
     - bizarre injuries, such as bites, cigarette burns, rope marks, imprint of belt or other object,
     - trauma of genital or perianal areas,
     - sharply demarcated burns in unusual areas,
     - scalds that suggest child was dipped into hot water.

4. The following are some common forms of neglect:
   - Environment is dangerous to the child (e.g., weapons within reach, playing near open windows without screen/guards, perilously unsanitary conditions, etc.).
   - Caretaker has not provided, or refuses to permit medical treatment of child’s acute or chronic life-threatening illness, or of chronic illness, or fails to seek necessary and timely medical care for child.
   - Child under the age of 10 has been left unattended or unsupervised. (Although in some situations children under 10 years of age may be left alone without endangerment, EMS personnel cannot make such determinations.) All instances should be reported for DCFS investigation.
   - Abandonment
   - Caretaker appears to be incapacitated (e.g., extreme drug/alcohol intoxication, disabling psychiatric symptoms, severe illness) and cannot meet child’s care requirements.
   - Child appears inadequately fed (e.g., seriously underweight, emaciated, or dehydrated) inadequately clothed, or inadequately sheltered.
   - Child is found to be intoxicated or under the influence of an illicit substance(s).
Resources
Burn Center Referral Criteria

Any patient with a life threatening condition should be treated until stable at the nearest appropriate facility before being transferred to a burn center. According to the American Burn Association, burn injuries that should be referred to a burn center include:

1. Partial thickness burns greater than 10% total body surface area (TBSA)
2. Burns that involve the face, hands, feet, genitalia, perineum, or major joints
3. Third-degree burns in any age group
4. Electrical burns, including lightning injury
5. Chemical burns
6. Inhalation injury
7. Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality
8. Any patients with burns and concomitant trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality. In such cases, if the trauma poses the greater immediate risk, the patient may be initially stabilized in a trauma center before being transferred to a burn unit. Physician judgment will be necessary in such situations and should be in concert with the regional medical control plan and triage protocols
9. Burned children in hospitals without qualified personnel or equipment for the care of children
10. Burn injury in patients who will require special social, emotional, or rehabilitative intervention
EXPOSURE TO OR INGESTION OF NARCOTICS OR UNKNOWN SUBSTANCES

POTENTIAL TREATMENT

- Contact direct medical oversight for specific information about individual toxic exposures and treatments.

- **DO NOT INDUCE VOMITING, ESPECIALLY IN CASES WHERE CAUSTIC SUBSTANCE INGESTION IS SUSPECTED.**

- Use of an opioid antagonist in the treatment of a suspected or known opioid overdose (with altered mental status and/or respiratory depression) as directed per EMS Medical Control:
  
  **BLS/EMR**
  - Weight ≤ 20 kg, administer Naloxone Auto-injector IM
  - Weight > 20kg, administer Naloxone 2.0mg /dose IN via nasal atomizer
    - Or Naloxone Auto-injector IM
  
  **ALS/ILS**
  - Weight ≤ 20 kg, administer Naloxone 0.1 mg/kg, IV/IO/SQ/IM/IN, or 0.2 mg/kg ET
  - Weight > 20kg, administer Naloxone 2.0mg /dose

  **NOTE:** For intranasal administration, use a nasal atomizer and administer no more than 1 mL per nostril.

- Treatment for toxic exposures may be instituted as permitted by medical direction, including the following:
  - High-dose atropine for organophosphates
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  - Diphenhydramine for dystonic reactions
  - Dextrose for insulin overdose

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VITAL SIGNS AND CARDIOPULMONARY COMPROMISE RESOURCE

Vital Sign/Age Parameters

<table>
<thead>
<tr>
<th>Age</th>
<th>Pulse</th>
<th>Systolic Blood Pressure</th>
<th>Respiratory Rate</th>
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<tbody>
<tr>
<td>Newborn</td>
<td>100 - 180</td>
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<tr>
<td>12 years</td>
<td>60 - 110</td>
<td>&gt;90</td>
<td>12 - 16</td>
</tr>
</tbody>
</table>

Indicators of Cardiopulmonary Compromise in Children

- Weak, thready, or absent peripheral pulses
- Decreasing consciousness
- Tachypnea/Respiratory difficulty
- Central cyanosis and coolness
- Hypotension (late sign)
REFERENCES/RESOURCES


