



LOYOLA
UNIVERSITY
HEALTH SYSTEM
Loyola University Chicago

Illinois Emergency Medical Services for Children



Initial Pediatric Assessment Teaching Tool

*Illinois Emergency Medical Services for Children
is a collaborative program between the
Illinois Department of Public Health and
Loyola University Medical Center*

www.luhs.org/emsc

April 4, 1999

Illinois Emergency Medical Services for Children Initial Pediatric Assessment Teaching Tool

Emergencies involving children comprise only a small percentage of ambulance runs, affording limited opportunities for prehospital personnel to develop and practice their skills in pediatric care. Prehospital personnel typically identify that the patients who generate the greatest level of anxiety for them in the field are children. This emphasizes the need for ongoing education in order to refresh one's knowledge and skill base as well as to ensure clinical consistency with current practice guidelines.

Children are not "small adults". There are a number of significant anatomic and physiological differences between children and adults which impact on assessment and management. The child is not only physically smaller but also has respiratory and cardiovascular systems that are immature with fewer reserves than those of the adult. Consequently, the child in respiratory or cardiac distress will likely decompensate more rapidly than the adult with a comparable illness or injury.

A child's psychosocial and communication skills are constantly changing. Therefore, the child may be unable to convey key information to assist the prehospital provider in their assessment. These differences, as well as numerous others, are why prehospital personnel must develop assessment skills that address the unique aspects and needs of the child. This prehospital pediatric initial assessment teaching tool provides a systematic and comprehensive approach to the initial assessment of the child. This document can be incorporated into prehospital primary and continuing education.

I. **Action Strategy Overview:**

- A. Action sequence is essential. Regardless of the diagnosis, follow a systematic approach in assessing all patients. Priorities and time frames may vary.
- B. While prioritized steps are sequenced in their order of importance for clarity, some are frequently accomplished simultaneously. Obtaining patient and event histories may account for 90% of the presumptive diagnosis.
- C. Consider and rule-out the worst possible scenario based on the patient's age and presenting complaint. Assume that all have a life-threatening event until it is ruled out.

II. **Review of dispatch information:** Anticipate and plan your needed equipment and actions. Scene location may give clues to the type of incident and its possible severity (Bledsoe, 167).

III. **General Approach to the Stable Pediatric Patient**

Assessments and interventions must be tailored to each child in terms of age, size, development and metabolic status.

- A. Smile if appropriate to the situation.
- B. Keep voice at an even quiet tone, don't yell.
- C. Speak slowly; use simple age-appropriate terms.
- D. Use toys or penlight as distractors; make a game of assessment.
- E. Keep children with their caregiver(s); encourage assessment while caregiver is holding child. Whenever appropriate, transport the child & caregiver together.
- F. Kneel down to the level of the child if possible.
- G. Be cautious in use of touch. In the stable child, make as many observations as possible before touching (and potentially upsetting) the child or inflicting pain.
- H. Estimate size: $2 \times \text{age in years} + 10 = \text{weight in kg}$. or use a length/weight based measuring tape.

IV. **Scene size up**

- A. Identify possible hazards.
- B. Assure safety for patient and responder. If scene is unsafe, **do not enter!** Call for police assistance.
- C. If a possible crime scene, make efforts to preserve integrity of evidence.
- D. Determine number of patients and locate all patients. If number or acuity exceeds responders' capability, call for assistance.
- E. Observe for mechanism of injury/nature of illness.
- F. Note anything suspicious at the scene, i.e., medications, household chemicals, other ill family members.
- G. Assess any discrepancies between the history and the patient presentation, ie infant fell on hardwood floor, however floor is carpeted.
- H. Initiate appropriate **body substance isolation (BSI)** precautions.

V. **Initial Inspection**

A. **While walking up to the child, observe/inspect the following:**

- 1. General appearance, age-appropriate behavior and level of consciousness, affect, restlessness. 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?
- 2. Obvious respiratory distress or extreme pain
- 3. Level of consciousness, ie awake versus asleep or unresponsive
- 4. Position. Are the head, neck or arms being held in a position suggestive of spinal injury? Is the patient sitting up or tripodding?
- 5. Unusual/significant odors
- 6. Muscle tone: good or limp
- 7. Movement: spontaneous, purposeful, symmetrical
- 8. Color: pink, pale, flushed, cyanotic, mottled
- 9. Obvious injuries, bleeding, bruising, impaled objects, or gross deformities

B. **General Impression of the Patient:** first impression which determines priorities of care.
Consider the following:

- 1. How ill or injured does the patient appear?
- 2. The environment
- 3. Patient's chief complaint
- 4. Associated complaints
- 5. **PQRST** of pain:

P: Provoke
Q: Quality
R: Radiation
S: Severity
T: Temporal

VI. **Initial Assessment:** assessment should take less than 2 minutes

A. **Purpose:** Detect and resuscitate all clinically evident, immediate life threats.

B. **A = Airway Access/Maintenance; C-Spine Control**

- 1. Obstruction may be acute, insidious, progressive or recurrent. Maintain high

index of suspicion.

2. **Expected outcome: patent airway**

- a. Ventilations are quiet without stridor or retractions.
- b. Patient speaks or makes appropriate sounds.
- c. Chest rises and falls easily with respirations/positive pressure ventilations.
- d. Foreign material not visible in upper airway.

3. **Inspect:** Look/listen for signs of airway obstruction.

- a. If patient is responsive: are they crying or talking without difficulty?
 (1) YES→→ assess breathing, quality of voice (hoarse or raspy?)
 (2) NO→→ feel for air movement
- b. If unresponsive: look, listen, feel for air movement
- c. Position; upright, tripodding?
- d. Face and neck: symmetry, wounds, edema, foreign body, secretions in mouth.
- e. Drooling
- f. Symmetry/ease of chest expansion and depth.
- g. Listen for audible sounds: snoring, stridor, gurgling, audible wheezes.

4. **Interventions for ineffective airway clearance/potential for aspiration:**

- a. Position patient appropriately for presumptive diagnosis and age.
- b. Manually remove gross debris that is visible.
- c. **Suction** to maintain patency; observe for bradycardia.
- d. Vomiting or seizure precautions when indicated.
- e. **Airway Adjuncts: per local protocols: If modified GCS ≤ 8, intubation should be attempted regardless of airway status.**
 - (1) Nasopharyngeal airways: based on available appropriate size
 - (2) Oropharyngeal airway: use when no presence of a gag reflex
 - (3) Endotracheal intubation
 - (4) In-Line intubation
 - (5) Conscious Sedation Intubation

Use size of child rather than age as a guide for airway equipment.

| Age | E-T Tube | Suction Catheter | Laryngoscope Blade |
|---------|--------------|------------------|---|
| Newborn | 3.0 Uncuffed | 6Fr. | No. 0 straight Miller |
| 18 mos | 4.0 Uncuffed | 8Fr. | No. 1 straight Miller |
| 3 Yrs. | 4.5 Uncuffed | 8Fr. | No. 2 straight Miller |
| 5 Yrs. | 5.0 Uncuffed | 10Fr. | No. 2 straight Miller |
| 8 Yrs. | 6.0 Cuffed | 10Fr. | No. 2 straight Miller or curved MacIntosh |
| 12 Yrs. | 6.5 Cuffed | 10Fr. | No. 3 curved MacIntosh |
| 16 Yrs. | 7.0 Cuffed | 12Fr. | No. 3 straight Miller or curved MacIntosh |

5. **Spinal Precautions**

- a. Establish and maintain axial alignment and manual immobilization unless contraindicated.

- b. Place appropriately sized C-Collar.
- c. Use tape, blanket roll, commercial device, or KED to provide lateral mechanical immobilization when time allows.

C. B = Breathing/Ventilatory Status/Adequacy of Gas Exchange:

1. Expected outcomes:

- a. Respirations are spontaneous, quiet, unlabored and normal rate for age.
- b. Chest expansion is equal bilaterally.
- c. Breath sounds are present and normal bilaterally.
- d. Speech pattern is normal.
- e. Gas exchange is adequate with no signs of hypoxia.

2. Inspect:

- a. **Ventilatory attempts:** If present: are they generally fast or slow?
- b. **Mechanics:** retractions, grunting, tracheal tugging, accessory muscle use, nasal flaring, head bobbing, work of breathing.
- c. **Air entry:** symmetry of chest expansion
- d. **Jugular veins:** If distended, immediately attempt to rule out tension pneumothorax and/or pericardial tamponade.
- e. **Abdominal contour:** distended?
- f. **Skin color:** signs of hypoxia

3. Palpation

- a. Amount of air movement
- b. Tracheal position in neck
- c. Tenderness, instability, crepitus (TIC)
- d. Chest wall expansion
- e. Skin temperature/moisture

4. Auscultate immediately if patient appears to be in ventilatory distress. Assess if breath sounds are present, diminished, or absent; compare equality; note adventitious sounds.

5. Life-Threatening Injuries to rule out: Intervene immediately

- a. Tension pneumothorax: needle decompression per local protocols
- b. Open pneumothorax: cover with occlusive dressing
- c. Flail chest: ventilate with BVM if paradoxical chest movement

6. General interventions for impaired gas exchange/ineffective breathing:

a. Oxygen/Ventilatory Therapy

- (1) If altered mental status, unstable, S&S hypoxemia, \uparrow or \downarrow RR, exhausted, \uparrow work of breathing or retracting:
- (2)
 - (a) **100% O₂ via an appropriately sized pediatric non rebreather mask at 12-15 L/min**
 - (b) Support ventilations as necessary with BVM at age-appropriate rate. Insert an oral or nasal airway and apply Sellick's maneuver prior to using BVM.

BVM Sizes

Birth to 3 years - 450-750cc bag

>3 years - 1000cc bag

(c) **Pulse oximetry** if available

D. **C = Adequacy of cardiac output and rhythm, fluid volume, central and peripheral perfusion**

1. **Pulse:** Presence/absence, location, general rate, volume/strength, rhythmicity
2. Inspect for uncontrolled **external bleeding**; note type and amount. Suspect **concealed internal bleeding** if shock is apparent without external hemorrhage.
3. **Skin color:** pink, pale, flushed, cyanotic, mottled
4. **Skin temperature:** hot, warm, cool
5. **Skin moisture:** dry, moist, diaphoretic
6. **Hydration status:** anterior fontanel in infants, mucous membranes, skin turgor, crying tears, urine output history.
7. **Cardiac rhythm:** if actual or potential cardiovascular or respiratory compromise. IF pulseless VT or VF: defibrillate at 2 J/kg as soon as defibrillator is available.
8. **Life-Threatening problems** to be diagnosed and treated at this stage:
 - a. Cardiac Tamponade
 - b. Myocardial contusion (dysrhythmias)
 - c. Shock: hemorrhagic, hypovolemic, neurogenic, anaphylactic, septic
9. **General Interventions for Hemodynamic Instability**
 - a. Initiate CPR as necessary
 - b. Control external bleeding with direct pressure
 - c. **Venous access:** Establish IV NS or LR on mini-drip tubing using a buretrol if available. **Suggested guidelines:**
 - (1) Cardiac arrest: Intubate as able, otherwise ventilate with BVM; start IV/IO as able. If no IV/IO, give drugs down ETT.
 - (2) Hemodynamically stable: one 20-24 gauge catheter (largest practical) run TKO.
 - (3) Shock and/or significant volume deficit: 16-18 gauge catheter (IV/IO). Attempt enroute.
 - d. **Initiate fluid resuscitation with NS.** Volume based on weight and clinical response. 20 ml/kg fluid boluses.
 - e. Administer drugs for dysrhythmias/hemodynamic instability per local protocols.

E. **D = Disability** - CNS perfusion/brief neurological evaluation.

1. **Responsiveness:**

| | |
|-----------|------------------------------|
| A: | Alert |
| V: | Responds to verbal stimulus |
| P: | Responds to painful stimulus |
| U: | Unresponsive |
2. Observe ability to follow simple commands; quality and rapidity of responses. Recognizes parents?

3. Altered Mental Status: Assess capillary glucose unless cause is known.
4. Briefly assess pupils for size, shape, equality, and reactivity to light. Posturing? If actively seizing, anticipate orders for Benzodiazepine of choice IV or IR
5. **Resuscitative interventions:**
Anticipate giving **Naloxone** if assessment suggests narcotic overdose or **Dextrose 25% 2 ml/kg** IVP (Dextrose 12.5% for neonates) if assessment suggests hypoglycemia as co-morbid factors.

- F. **E = Expose the patient; cut away clothing** but preserve evidence and patient modesty whenever possible. Assess for signs of heat/chemical exposure and need for irrigation. Initiate measures to prevent heat loss: light blankets, thermal warming packs.

VII. **Identify Priority Patients:** Examples include but may not be limited to the following:

- A. Those with a poor general impression who look ill or severely injured.
- B. Those with immediate life threats where the ABCs have not been successfully reversed or definitively altered during resuscitative efforts.
- C. Those who had airway/ventilatory impairment and are now intubated or requiring ventilatory assistance with BVM.
- D. Patients who were hemodynamically unstable and have received temporizing measures (pleural decompression for tension pneumothorax).
- E. Patients who may deteriorate at any time
- F. Poisoning or overdose of unknown substance or a known caustic substance.
- G. Patients with altered mental status of unknown origin who do not respond to naloxone or glucose.
- H. **Transport decision:** The assessment process should not proceed until all life-threatening conditions have received initial interventions to the extent possible in the field. However, if a patient has an uncorrectable respiratory compromise or signs of shock, begin transport immediately. Scene time for severely ill or injured children should be kept to an absolute minimum. **Goal: less than 15 minutes.**

VIII. **Focused History & Physical Exam**

Perform on all responsive patients following the initial assessment. Focus on the history and signs and symptoms of the present illness/injury.

- A. **Patient History** (acquire during/incorporate into physical exam)
 1. Obtain from the patient, family, significant others, bystanders, medic-alert tags, or personal belongings. Ask verbal child simple questions: age, what happened, do they have pain and where. Adolescents may need to be interviewed without their caregivers present if accurate information is to be obtained regarding sexual behavior, drug use, alcohol use, or child abuse.
 2. **S = Signs & Symptoms** as they relate to chief complaint. Will be different for medical as opposed to trauma patients.
 3. **A = Allergies:** medications, foods, environmental
 4. **M = Medications:** prescribed, over-the-counter, compliance with prescribed dosing regimen, time, date and amount of last dose.
 5. **P = Past Pertinent Medical History**
 - a. Pertinent medical or surgical problems

- b. Preexisting diseases/chronic illness
 - c. Previous hospitalizations
 - d. Currently under medical care
 - e. For infants, obtain a neonatal history (gestation, prematurity, congenital anomalies, was infant discharged home at the same time as the mother)
6. **L: Last oral intake/liquid/food ingested;** adolescent females: LMP; sexually active?
7. **E = Events surrounding current problem**
- a. Onset, duration and precipitating factors
 - b. Associated factors such as toxic inhalants, drugs, alcohol
 - c. Injury scenario and mechanism of injury
 - d. Treatment given by caregiver.

B. Obtain baseline vital signs

1. **Respiratory rate, pattern, depth:** know growth and development milestones.

Normal Respiratory Rates

| | | |
|-------------|-------|-------|
| Newborn | | 30-60 |
| Infants: | 30-40 | |
| Pre-school: | | 20-30 |
| School age: | | 20 |
| Adolescent | | 15-18 |

2. **Pulse rates:** Pulse quality or volume is important in assessing for shock. Consider situational effects:

| | | |
|-----------|-----|-----------|
| Neonate: | 130 | (100-160) |
| Infant: | 110 | (90-120) |
| 3 Years: | 100 | (80-120) |
| 6 Years: | 90 | (70-110) |
| 10 Years: | 75 | (60 -90) |
| 15 Years: | 75 | (60 -90) |
| 18 Years: | 72 | (50 -95) |

3. **Blood pressure**

- a. $80 + (2 \times \text{age in years}) = \text{normal SBP in children}$

| AGE | SYSTOLIC PRESSURE |
|-----------|-------------------|
| Neonate: | 50 - 90 |
| Infant: | 80 - 100 |
| 3 Years: | 80 - 110 |
| 6 Years: | 80 - 110 |
| 10 Years: | 90 - 120 |
| 15 Years: | 100 - 130 |

- b. Essential to use cuff which covers 3/4 of the upper arm, thigh or calf and which does not have an overlapping bladder.

4. **Pediatric Trauma Score***

| | | | |
|------------------|-----------|-----------|-----------|
| Component | +2 | +1 | -1 |
|------------------|-----------|-----------|-----------|

| | | | |
|---|----------------------------|--|------------------|
| Weight | >20kg | 10-20kg | <10kg |
| Airway | Normal | Maintainable | Unmaintainable |
| CNS | Awake | Obtunded | Coma |
| Systolic BP or <i>**Pulse Palpable</i> | >90mmHg <i>At Wrist</i> | 90-50mmHg <i>At Groin No Pulse Palpable</i> | <50mmHg or |
| Open Wound | None | Minor | Major |
| Skeletal Injury | None | Closed Fx | Open/Multiple Fx |

***If proper size BP cuff is unavailable,
 BP may alternatively be assigned by
 determining pulse palpable point.*

TOTAL POINTS ____
 (Total points range from -6 to +12)

***Adapted from the Illinois Prehospital Care Report**

- C. **Focused Physical Assessment** - tailor assessment to needs of the patient
 Rapidly examine areas specific to chief complaint
1. **Responsive Medical Patients:**
 - a. Perform rapid assessment based on chief complaint. A full review of systems may not be necessary. If chief complaint is vague, examine all systems.
 2. **Unresponsive Medical Patients:**
 - a. Perform rapid assessment: ABC's, quick head-to-toe exam.
 - b. Emergency care based on signs and symptoms, initial impressions and standard operating procedures
 3. **Trauma patient with NO significant mechanism of injury** - Focused assessment is based on specific injury site.
 4. **Trauma patient WITH significant mechanism of injury** - Perform rapid assessment of all body systems.

IX. **Detailed Assessment/Physical Exam**

- 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.
1. Inspect & palpate each of the major body systems for the following:
 - D:** Deformities
 - C:** Contusions
 - A:** Abrasions
 - P:** Penetrations/punctures
 - B:** Burns
 - L:** Lacerations
 - S:** Swelling/edema
 - T:** Tenderness
 - I:** Instability
 - C:** Crepitus

2. **Auscultation** of breath and heart sounds as well as blood pressure readings may be required in the field.

B. HEENT

1. **Inspect:** medial to lateral; superior to inferior
 - a. **HEAD:**
 - (1) Note size, shape, contour of skull and face; fontanelles.
 - (2) Look for **DCAP, BLS**, ecchymoses, depressions, and old scars.
 - (3) Is there blood in the hair?
 - (4) Skin color of face and neck.
 - b. **EYES:**
 - (1) Trauma (**DCAP, BLS**) about the orbits. Assess for tele canthus.
 - (2) Sclera, conjunctiva, cornea, lids: discoloration, hemorrhage, hyphema, ptosis, foreign bodies, penetrating trauma, contusions, lacerations and contact lenses.
 - (3) Visual acuity, pupils for size, shape, equality, reactivity to light, and eye movement for conjugate gaze.
 - (4) Close eyes in unconscious patient to protect cornea from drying and injury.
 - c. **FACE:** Facial symmetry; epistaxis, rhinorrhea; raccoon eyes; facial sensation and movement.
 - d. **ORAL CAVITY:** Broken, malaligned or missing teeth; trismus, bleeding gums, trauma to tongue or oral cavity, and malocclusion.
 - (1) Look for fluid/secretions
 - (a) Blood: hemoptysis or hematemesis?
 - (b) Sputum/mucous
 - (c) Frothy: pulmonary edema
 - (d) Carbonaceous (respiratory burn)
 - (e) Cerebral spinal fluid
 - (f) Saliva from laceration through parotid duct
 - (2) Gag reflex intact?
 - e. **EARS:** External trauma, hearing deficit, otorrhea, Battle Sign.
2. **Palpate:** Skull, orbital rims, nasal bones, zygoma, maxilla, mandible for **TIC**, deformity, hematoma, neuro-vascular impairment, muscle spasm, false motion or motor impairment.
3. **Anticipate:** ↑ ICP; alteration in body temperature; orders for anticonvulsants; eye patching (if indicated).

C. Neck; ask about pain

1. **Inspect**
 - a. **DCAP, BLS**, symmetry, abnormal pulsations, hematoma, subcutaneous emphysema.
 - b. Jugular veins; flat or distended
 - c. Tracheal tugging, use of accessory muscles
 - d. Listen for hoarseness, inability to talk

- e. Difficulty swallowing (dysphagia)
2. **Palpate**
 - a. Cervical spinous processes for **TIC**, deformity, muscle spasm. Consider cervical injury if any trauma above the clavicles, unconscious head injury, evidence of motor or sensory deficiency, evidence of neurogenic shock, **localized tenderness**, or deformities.
 - b. Trachea; midline or deviated
 - c. Carotid pulses
- D. **Chest/Thorax/Pulmonary System**; ask about pain, dyspnea
 1. **Re-inspect** for any changes from initial exam/primary survey
 2. Contour and integrity of chest wall - should be symmetrical with 2:1 lateral to AP diameter. Abnormalities to note: hyperinflated hemithorax.
 3. Ratio of inspiration to expiration. Prolonged expiration indicates distress.
 4. Coughing. May be due to aspiration, smoke, secretions, irritation, bronchospasm. Determine if productive or non-productive cough.
 5. **Palpate**: ribs, clavicles, sternum, scapulae.
 6. **Re-auscultate**:
 - a. Presence or absence/equality of breath sounds; adventitious sounds
 - b. Heart Sounds; muffled or clear
- E. **Abdomen**: Ask about pain, cramping, nausea, vomiting.
 1. **Inspect** all four quadrants for:
 - a. **DCAP, BLS**, evidence of blunt or penetrating trauma, bruising around umbilicus or over flank characteristic of internal hemorrhage, lesions, striae.
 - b. Contour/symmetry; flat, scaphoid, distended.
 - c. Old scars from previous trauma or surgery.
 - d. Visible pulsations; peristaltic and arterial; signs of hernia.
 2. **Palpate** all four quadrants. Use pads of fingers or side of hand almost parallel to patient's abdomen. Start at point farthest from area of pain.
- F. **GU/Pelvis**; ask about pain, urge to void, possibility of pregnancy in females of child-bearing age.
 1. **Inspect**:
 - a. Scrotal edema, discoloration; priapism
 - b. Blood at urinary meatus, vaginal outlet
 - c. Integrity of soft tissues/surface trauma
 2. **Palpate**:
 - a. Gently push downward and outward over iliac crests
 - b. Gently depress symphysis pubis
 - c. Detect **TIC**, suprapubic mass (bladder)
- G. **Extremities X 4**: 5 P's: pain, pallor, paralysis, paresthesia, pulselessness
 1. **Inspect** legs then arms

- a. Symmetry of limbs. Compare for length and position.
 - b. Surface trauma, **DCAP, BLS**, protruding bone, avulsions, amputations, or hematomas.
 - c. Skin color; ecchymoses, pallor, mottling, and/or cyanosis.
 2. **Palpate** legs then arms:
 - a. Bones: **TIC**
 - b. Pulses (dorsalis pedis/radial), capillary refill, skin moisture/temperature
 - c. Motor exam: passive ROM; muscle strength; muscle spasm
 - d. Sensory exam: ability to detect stimuli
 3. Anticipate: application of appropriate splinting/immobilization devices; ice/elevation; pharmacologic pain management; Development of crush/compartment syndrome.
- H. **Back/Posterior body**
 1. **Inspect**; may sit up, log roll, or rotate shoulder forward to palpate back depending on suspected injuries.
 - a. **DCAP, BLS**
 - b. Paravertebral muscle spasms
 2. **Palpate**: Palpate all posterior spinous processes from cervical to coccyx and posterior ribs for TIC, deformity, blood.
- I. **Skin & Soft Tissue**: The color of skin and mucous membranes reflects the circulation immediately underlying the skin as well as the oxygen saturation of the blood.
 1. **Inspect: DCAP, BLS**, color; impaled objects; frostbite; gooseflesh, diaphoresis, anhidrosis (lack of sweating).
 - a. **Red/flushed**: fever, carbon monoxide poisoning in late stages, neurogenic shock, allergic reaction/anaphylaxis.
 - b. **Pale**: peripheral vasoconstriction from cold or shock, excessive blood loss, peripheral perfusion deficit.
 - c. **Cyanotic**: shock, hypoxia, circulatory/hemoglobin deficit.
 - d. **Burned tissue**: partial or full thickness; TBSA burned.
 2. **Palpate**: temperature, moisture, turgor, edema, deformities, hematomas and crepitus.
 3. Anticipate: application of dressings/bandages; calculate % TBSA burned (palm of hand of infant or child = 1% of the total body surface); identify depth of skin injury (partial or full thickness); institute appropriate cooling/rewarming techniques; appropriate pharmacologic pain management.
- J. **Neurological Exam**
 1. **Mental status exam**; content & arousal; alertness, judgement, orientation, responsiveness to environment & commands; amnesia.
 2. **Modified Glasgow Coma Score (3-15)**: Patient's **best** response.
 - a. **Eye Opening**

| | |
|----------------|-------------------------|
| INFANTS | CHILDREN, ADULTS |
| 4 Spontaneous | Spontaneous |
| 3 To speech | To verbal stimuli |
| 2 To pain | To pain |

1 No response No response

b. **Motor Response**

| INFANTS | CHILDREN, ADULTS |
|-------------------------------|--------------------------|
| 6 Normal spontaneous movement | Follows commands |
| 5 Withdraws to touch | Localizes pain |
| 4 Withdraws to pain | Withdraws to pain |
| 3 Abnormal flexion | Abnormal flexion to pain |
| 2 Abnormal extension | Abnormal extension |
| 1 No response | No response |

c. **Verbal Response**

| INFANTS | CHILDREN, ADULTS |
|--------------------|-------------------------|
| 5 Coos and babbles | Oriented |
| 4 Irritable cries | Confused |
| 3 Cries to pain | Inappropriate words |
| 2 Moans to pain | Non-specific sounds |
| 1 No response | No response |

3. **Cranial Nerves**

- Examine both pupils simultaneously for size, shape, equality, deviation and reactivity to light - direct and consensual
- Feeling to face; ability to bite down
- Ability to smile; wrinkle forehead; blow out a candle
- Hearing deficits; equilibrium
- Gag, palate elevation
- Ability to stick out tongue

4. **Motor evaluation:** all limbs for spontaneous and purposeful movements, response to verbal commands. Evaluate for flaccidity or rigidity, muscle strength to gravity (pronator drift) and against resistance.

5. **Sensory evaluation:** any sensory deficits or abnormalities

X. **Ongoing Assessment**

Usually performed following the detailed physical exam. However, the patient's condition may abort performance of detailed physical exam while you continue to attempt resuscitation of immediate life-threats. In these cases, the on-going assessment is extremely valuable!

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.

A. **Standard Respiratory Monitoring**

- Ventilatory rate, pattern, and depth (if abnormal)
- Signs of impaired airway/ventilatory distress/impaired gas exchange
- Integrity of oxygen delivery system
- Airway compliance if being bagged
- Breath sounds

B. **Standard Cardio-vascular monitoring:**

- Peripheral pulses

2. BP; pulse pressure
 3. Skin color/temperature/moisture
 4. Temperature (if extremely hot or cold)
 5. EKG: rhythm, intervals if cardiac/respiratory/neuro complaint
 6. Heart sounds (if chest trauma)
 7. Fluid volumes administered by type and amount
 8. Type and amount of drainage through dressings
- C. **Standard Neurological Monitoring:** Mental status (GCS); pupils, motor/sensory exam changes. Continued security of spinal immobilization and seizure precautions in head/spine injury patients.
- D. **Pain:** response to analgesia

XI. Considerations for Children with Special Healthcare Needs (CSHN)

- A. Track CSHN in your service community and become familiar with both the child as well as their anticipated emergency care needs.
- B. 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: medication, baseline vitals, functional level/normal mentation, likely medical complications, equipment operation and troubleshooting, emergency procedures.
- C. Regardless of underlying condition, assess in a systematic and thorough manner. Use parents/caregivers/home health nurses as medical resources.
- D. 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), biotelemetry, ostomy care, orthotic devices, communication or mobility devices, or hospice care.
- E. Communicate with the child in a developmentally appropriate manner. Maintain communication with and remain sensitive to the parents/caregivers and the child.
- F. The most common emergency encountered with these patients is respiratory related and so familiarity with respiratory emergency interventions/adjuncts/treatment is appropriate.

XII. Definitive Care

All interventions for problems found in the Secondary Assessments should be implemented here if not already completed.

- A. Assessment essentially complete
- B. Definitive emergency interventions: dressings, splints, bandages
- C. Patient stabilized and prepared for transport
 1. Immobilized patients must be strapped to the backboard **and** the stretcher.
 2. Children **must** be transported in child restraint devices or secured to the stretcher.

XIII. Communication, Records, and Documentation

- A. Radio communication should provide just enough information to support the request for orders and to allow the receiving hospital to prepare for the patient's arrival. Organize in a logical manner per local protocols and provide significant positive and negative findings.

- B. Once at the hospital, update ED personnel with findings that occurred subsequent to any radio reports. If there are inconsistencies in what they hear in a radio report and the actual patient presentation on arrival, continuity of care is interrupted while the patient is re-evaluated and EMS credibility is questioned.
- C. The EMS Run sheet should chronologically document all facts related to the call. It should be able to stand alone as a record of all prehospital assessments, interventions, and patient responses. Include all pertinent positive as well as negative findings unless local protocols allow for charting by exception; include precautions instituted or maintained, ie., barrier precautions, spinal immobilization.
- D. All data/interventions must be timed and the record signed by the responsible parties.

NOTE: The Prehospital and Emergency Task Force of the Illinois Emergency Medical Services for Children 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 pediatric initial assessment teaching tool may be modified at the discretion of the EMS System Medical Director. It is recommended that care must be based on the child's clinical presentation, and on authorized policies and protocols.

9/97

References

- American College of Surgeons (1990). Initial assessment and management. ***Advanced Trauma Life Support Course***, pp. 11-24.
- Bledsoe, B.E., Porter, R.S., Shade, B.R. (1997). ***Paramedic emergency care*** (3rd Ed.) (pp.164-204). Englewood Cliffs: Brady.
- Campbell, J.E. & Stoy, W.A. (1995). Assessment and initial management of the trauma patient. In ***Basic Trauma Life Support (Third ed)***. (pp. 23-46). Englewood Cliffs: Brady.
- Caroline, N.L. (1987). ***Emergency care in the streets*** (3rd ed.) (pp. 39-55). Boston: Little, Brown and Co.
- Cavallaro, D. et al., (February 1988). An algorithm for trauma victim assessment. ***JEMS***, 28-33.
- Emergency Medical Services for Children, National Task Force. EMS for Children: Recommendations for Coordinating Care for Children With Special Health Care Needs; ***Annals of Emergency Medicine***; 30:3. Sept. 1997.
- Esposito, B.W., (1992). Nursing assessment. In Bayley & Turcke (Eds.), ***A Comprehensive Curriculum for Trauma Nursing*** (pp. 253-265). Boston: Jones and Bartlett.
- Hafen, B.Q., Karren, K.J., Mistovich, J.J. (1996). Patient assessment. In Hafen et al., ***Prehospital Emergency Care*** (5th Ed.) (pp.147-214). Upper Saddle River: Brady.
- How to treat a fever. Nursing 92, (1992) 22(9), 89.

Illinois Emergency Medical Services for Children (EMSC)
Initial Pediatric Assessment - page 15

- Jarosz, D.A. et al., (April, 1994). The tertiary survey in the assessment of trauma patients: an important addendum to survival. **Critical Care Nurse**, 14(2), 98-103.
- King, B.R. et al., (1993). Endotracheal tube selection in children: a comparison of four methods. **Annals of Emergency Medicine**, 22(3), 530-534.
- McSwain, N., (Feb. 29, 1984). To manage multiple injury. **Emergency Medicine**, 57-92.
- Myers, M.B., (1994). Standing orders for trauma care. **JEN**, 20(2), 111-117.
- Sanders, M.J. (1994), General patient assessment. In Sanders, M.J., **Mosby's Paramedic Textbook** (pp. 180-217). St. Louis: Mosby Lifeline.
- Schiffman, M. (August 1989). Nonoperative management of blunt abdominal trauma in pediatrics. **Emergency Medicine Clinics of North America**, 7(3), 519-535.
- Schutzman S.A., Barnes P.D., Matello M., Scott R.M. (March 1993). Epidural hematomas in children. **Annals of Emergency Medicine**, 22(3), 535-541.
- U.S. DOT, (1994). **EMT-Basic Transitional Program**, Module 2, pp. 3-11.

