Pre-EMS Assessment & Preparation

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Disclosure

I have no actual, potential or perceived conflicts of interest or relationships to disclose.

Objectives

- Verbalize important aspects of assessment of injured child
- Activation of the EMS system
- Identify simple interventions to stabilize injured child
- Appropriate communication with EMS crews and/or parents
- Always follow your local protocols and policies.
You Make A Difference!!!

- Your importance as a Health Care Provider cannot be overstated.
- Treat a multitude of illnesses/injuries.
- You are the front line offense!!

Systematic Assessment

- Scene safety assessment
- Across-the-room assessment
- Initial assessment
- History
- Focused physical exam / secondary assessment

Scene Safety Assessment

- Be aware of Hazards
  - Actual and potential
- Substances
- Situational dangers
- Environmental dangers
- NEVER place yourself in danger!!!
Across-the-room Assessment

- Quick overall assessment of student’s condition (“gut feeling”)
- Pediatric Assessment Triangle (PAT)
  - Appearance
  - Breathing
  - Circulation

Pediatric Assessment Triangle

- Mental Status
  - Appears awake and aware of surroundings?
  - Aware of injury or illness?
  - Appropriate emotional response to situation?
- Muscle Tone
  - Sitting, standing upright, able to walk?
  - Appear limp?
- Body Position
  - Sitting normally
  - Tripod
  - Supine

Appearance

- Mental Status
- Muscle Tone
- Body Position

Visible Movement
Work of Breathing
Skin color
Appearance cont.

- Tone
- Interactiveness
- Consolability
- Look / Gaze
- Speech / Cry

What do you think?

Breathing

- Visible movement of chest or abdomen
- Work of breathing
  - More informative in kids than respiratory rate
  - Working hard to maintain adequate ventilation
  - Flaring nostrils, Retractions, Difficulty speaking
  - Increased WOB = Compensatory mechanism
  - Decreased WOB = Decompensation
What do you think?

Circulation

- Refers to visible skin color
- Indication of perfusion to vital organs
- Color appear normal?
- If not... appears pallid, dusky, mottled, cyanotic or flushed?
- Decreased circulation is early sign of compensation in kids
- Adjust for environmental changes

What do you think?
First Impression???

- Combine observations, experience and intuition to form first impression of student’s level of distress.
- Compared to baseline does he/she look well, ill, or sick?
- Next determine triage category:
  - Emergent – Immediate attention needed / Life threatening
  - Urgent – Non life threatening but requires medical intervention
  - Nonurgent – Referral for routine medical care

Emergent

- Requires immediate medical attention.
- Condition is acute and has potential to threaten life, limb or vision.

- Emergent
  - Cardiopulmonary arrest
  - Altered LOC
  - Burns, severe / major
  - Caustic chemical exposure
  - Childbirth, imminent
  - Head injury, hx of LOC
  - Pain, severe or significant location (i.e. chest)
  - Poisoning / drug overdose
  - Respiratory distress, severe or respiratory failure
  - Shock, any type
  - Spinal cord injury, suspected
  - Status epilepticus or first time seizure
  - Threatens harm to self or others
  - Trauma, severe or trauma to limb, no distal pulse
Emergent
- Disposition???
- Monitor by RN
- Transport to ED via ground or air EMS

Urgent
- Requires additional medical intervention w/in 2 hours.
- Condition is acute but not severe or life threatening

Urgent
- Burns, minor
- Deformity/suspected closed fx without circ compromise
- Febrile illness
- GI symptoms (n/v/d)
- Lacerations requiring sutures without excessive blood loss
- Pain, moderate
- Seizure, atypical, with hx of seizures
- Wheezing
Urgent

- Disposition???
- Monitor by RN
- Transport to ED via EMS, parent/guardian, or other appropriate adult

Non Urgent

- Requires referral for routine medical care
- Condition is minor or non-acute

Non Urgent

- Essentially well; s/s of mild non-communicable illness or URI
- Headache without fever/abnormal findings
- Injury, minor (abrasions/ecchymosis, sprains, strains)
- Pain, mild (abdominal, menstrual, headache, toothache)
Non Urgent

- Disposition???
- Monitor by RN
- Contact parent or guardian
- Return student to class (boo!?) or send home (yeeaaahh)

Expect the Unexpected

- Conditions can change at any time!!!!
- Continue to reassess and re-triage as appropriate.
- Always follow local protocols or policies!

Initial Assessment (ABCDE)

- Focus on:
  - Airway
  - Breathing
  - Circulation
  - Disability (neurologic status)
  - Exposure / Environment
- Goal – identify and treat life threatening emergencies and activate EMS.
Airway
- Spinal stabilization, if necessary
- Look, listen and feel for patency
  - Can you see movement of chest or abdomen?
  - Can you hear airway sounds?
    - Stridor
    - Wheezing
    - Coughing
  - Can you feel air movement at mouth or nose?
- Open students mouth and inspect for obstruction

Airway Interpretation
- Drooling or inability to talk may indicate upper airway edema (infection or anaphylaxis)
- Stridor/snoring indicates upper airway obstruction
- Facial injuries can compromise airway
- Can they maintain their own airway??

Breathing
- Note resp rate (normal, fast, slow, apnea), depth and pattern (shallow, gasping, agonal, irregular), and bilateral chest symmetry.
- Adventitious sounds (wheezing, grunting)
- Signs for incr. WOB (retractions, nasal flaring, difficulty speaking)
- Unusual breath odors (fruity, reminiscent of petroleum products, tobacco, or alcohol)
- Chest wall integrity, noting any obvious injuries
Breathing Interpretation

- Incr. WOB & audible breath sounds = respiratory compromise
- Tachypnea = early compensatory mechanism for hypoxia
- Breathing slows as hypoxia worsens
- Decreased, absent or unequal sounds = obstruction, pneumothorax, hemothorax or atelectasis.
- Grunting = late sign of severe resp distress

Circulation

- Assess heart rate and quality of pulses
- Evaluate perfusion
  - Capillary refill (normal <2 sec)
  - Skin color (normal, pallid, dusky, mottled, cyanotic, flushed)
  - Skin temperature and moisture (warm, dry, cool, clammy)
- Any active bleeding (none, minor, moderate, profuse; controlled or uncontrolled)

Circulation, cont.

- How do pulses correlate with blood pressure?
- Carotid pulse = SBP at least 60 mm Hg
- Femoral pulse = SBP at least 70 mm Hg
- Radial pulse = SBP at least 80 mm Hg
Circulation Interpretation
- Tachycardia = earliest sign of developing shock
  - Tachycardia and tachypnea strong indicator for compensated shock
- Thready, weak pulses; cool, clammy skin, delayed cap refill = shock
- Inelastic or tenting skin = dehydration
- Hypotension w/ bradycardia = late ominous sign of decompensated shock

Disability
- Brief evaluation of neurologic function
- L.O.C. using the A-V-P-U scale
  - Alert – awake and speaking/interacting appropriately
  - Verbal – verbal stimulus elicits some response
  - Painful – responds to painful stimulus
  - Unresponsive – no response to stimulus
- Pupil size and reactivity
  - PERRLA
- Glasgow Coma Score: 3 - 15

Disability Interpretation
- Level of consciousness is an important indicator of adequate perfusion
- Reduction in responsiveness = ominous sign
Exposure / Environment
- Remove clothing carefully and safely as needed
- Assess for any occult bleeding or injuries
- Control ambient temperature if possible to avoid heat loss

Re-Evaluate Triage Category
- Based on initial assessment, should category be increased??
- Activate EMS:
  - If child has life-threatening condition
  - If you are uncertain or “something feels wrong”
- Rule of thumb = Triage up…Better safe than sorry!!!

History
- Info gathered helps form a plan of care
- Useful mnemonics:
  - SAMPLE
  - PQRST
  - CIAMPEDS (pronounced see I am peds)
SAMPLE History

- S-A-M-P-L-E
  - Symptoms
  - Allergies
  - Medications
  - Past health history
  - Last meal
  - Events

Pain Assessment

- P-Q-R-S-T
  - Problem/Provoke/Palliate
  - Quality
  - Radiate
  - Severity/Signs/Symptoms
  - Timing

Alternative History

- C-I-A-M-P-E-D-S
  - Chief complaint
  - Immunizations / Isolation
  - Allergies
  - Medications
  - Past health history
  - Events preceding the problem
  - Diet / Diapers (elimination)
  - Symptoms associated with problem
Focused Physical Exam

- “Secondary Assessment”
- Limited or complete depending on situation
- F-G-H-I
  - Full set of vital signs
  - Give comfort measures
  - Head-to-toe assessment
  - Isolation; Injuries; Interventions

Full Set of Vital Signs

- Respiratory rate
- Heart rate
- Blood pressure
- Oxygen saturation
- Temperature
- Weight
- Blood glucose

Vital Signs By Age

<table>
<thead>
<tr>
<th>Age</th>
<th>RR</th>
<th>HR</th>
<th>SBP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neonate (birth – 30 days)</td>
<td>30-60</td>
<td>100-180</td>
<td>50-90</td>
</tr>
<tr>
<td>Infant (1 – 12 months)</td>
<td>24-50</td>
<td>100-160</td>
<td>60-100</td>
</tr>
<tr>
<td>Toddler (1- 3 years)</td>
<td>24-40</td>
<td>90-150</td>
<td>80-105</td>
</tr>
<tr>
<td>Preschooler (3 – 5 years)</td>
<td>20-30</td>
<td>80-140</td>
<td>95-105</td>
</tr>
<tr>
<td>School-aged (5 – 12 years)</td>
<td>18-30</td>
<td>65-120</td>
<td>95-120</td>
</tr>
<tr>
<td>Adolescent (12 years and older)</td>
<td>12-20</td>
<td>60-100</td>
<td>100-128</td>
</tr>
</tbody>
</table>
Give Comfort Measures

- Perform interventions to alleviate pain or anxiety
  - Remove pain producing objects
  - Cold Pack
  - Immobilizing suspected fracture
  - Dressing a wound
  - Distraction
  - Humor

Head-To-Toe Assessment

- General Appearance
- Head-to-toe
  - Head / Face
  - Eyes / Ears / Nose
  - Neck
  - Chest
  - Abdomen / Flanks
  - Pelvis / Perineum
  - Extremities
  - Posterior Surfaces

Isolation; Injuries; Interventions

- Isolate child if necessary
- Identify all injuries
- Start or complete appropriate interventions
Stabilization
- CPR, Rescue breathing
- Cervical spine precautions
- Controlling active bleeding
- Splinting suspected fractures
- Basic wound care
- Continue to REASSESS!!!
Injuries Suspected / Sustained
- General condition
- Level of consciousness
- Apparent injuries
- Suspected injuries

Vital Signs
- Prior to EMS arrival
- Upon EMS arrival
- Enroute
- Looking for trends correlating vitals with physical findings

Treatments
- Any treatments initiated or attempted
- Effectiveness of treatments
  - What was patient's response?
  - Did it help or make it worse???
  - Assists with diagnostics and guiding further treatment
Case Study # 1

- 5 yr old female
- Thrown 10 ft
- Brief LOC
- Lying motionless
- Opens eyes to loud verbal stimulus
- Not speaking or interacting
- No abnormal airway sounds
- Skin pink, warm, dry
- RR – 20 breaths/min
- HR – 95 beats/min
- BP – 100 mmHg/palp
- Chest clear
- Good tidal volume
- Cap refill < 2 seconds
- Brachial pulse strong
- Pupils 3mm PERRLA
- Large frontal hematoma

Case Study # 1 cont.

- Appearance grossly abnormal
- Lethargy w/ nml WOB and skin signs indicates intracranial injury (concussion, hemorrhage, edema)
- Triage = unstable, needs rapid treatment
- Complete assessments, immobilize child
- Provide 100% oxygen by mask

Case Study # 1 EMS Report

- 5 yo normally healthy female struck 10 mins ago by car traveling at moderate speed in crosswalk. She was thrown 10 ft onto pavement w/ a brief LOC. Currently responsive to loud verbal stimulus only, not interacting. Pupils 3 mm bilat & reactive. Maintaining own airway, Vitals RR-20, HR-95 regular, BP 100/palp. Chest, pelvis, abd nml. Cap refill nml in all extrem’s. She has a large frontal hematoma with no other obvious injuries. Spinal immobilization in place, oxygen given.
Case Study # 2
- 13 yo asthmatic
- Stating “can't breathe”
- Daily MDI
- Oral steroids yesterday
- Up all night
- Albuterol q 1-2 hrs
- Looks sleepy and pale
- Audible wheezing
- Tripoding

- Subcostal, intercostal, suprasternal retractions
- Nasal flaring
- RR - 45 breaths/min
- HR – 160 beats/min
- BP – 120/70
- Sat 83% RA
- Minimal air movement
- Prolonged expiratory phase

Case Study # 2 cont.
- Poor appearance – sleepy
- Poor color – pallor
- Incr WOB – retractions, wheezing, flaring, tripod
- Tachypnic
- Tachycardic
- Hypoxic
- Poor air movement

- Aggressive home treatment
- Worsening sx despite steroids
- Frequent MDI use
- Up all night – indicates he was in too much resp distress to recline or sleep

Case Study # 2 cont.
- General noninvasive treatment
  - High flow oxygen via NRB mask
  - Position of comfort
  - Support ventilation w/ BVM if necessary
  - Continuous reassessment

- Specific treatment
  - High dose continuous nebulized albuterol
  - IV steroids, SQ Epinephrine
  - Endotracheal Intubation
Case Study # 2 EMS Report

- 13 yo asthmatic male states he “can’t breathe”. His PCP prescribed oral steroids yesterday for worsening symptoms. States he was up all night as symptoms continued to worsen. MDI albuterol use q 1-2 hrs with minimal relief. He appears sleepy, pale, w/ audible wheezing and tripoding. Has subcostal, intercostal, & suprasternal retractions & nasal flaring. RR=45 labored, HR=160 regular, BP 120/70, Sat 83% RA, minimal air mvt bilaterally w/ prolonged expiratory phase. 100% NRB placed w/ sat increased to 94%. Given additional MDI albuterol 2 puffs 15 minutes ago.

Summary

- First impressions are very important
- Gather info with initial & secondary assessments
- Use info to guide appropriate treatments
- Activate EMS as soon as you think is appropriate
- Continuous reassessment…re-triage if necessary
- Follow applicable protocols/guidelines

References

The Power of Nursing
Never doubt how vitally important you are;
never doubt how important your work is –
and never expect anyone to acknowledge it
before you do.
Every moment, in everything you do,
you are making a difference.
In fact, you are in the business of making a
difference in other people's lives.
In that difference lies their healing and your power.
Never forget it.

Leah L. Curtin, RN, MS, MA, DSC, FAAN