Pediatric Medical Care
Standard Medical Care Procedures (Pediatric)

Rationale:

Pediatric emergencies make up a small percentage of our call volume. Children very seldom suffer a life threatening medical emergency, but when it does occur, they generally deteriorate quickly. Calm action and speech will help decrease the child’s and family’s anxiety.

Level I:

- Assess the scene for hazards or abuse. (800) 96-ABUSE.
- Note the patient’s environment.
- Wear appropriate Personal Protective Equipment (PPE).
- Provide BLS support (including cervical stabilization, as needed).
- Perform a primary survey and provide emergency treatment.
- Perform a secondary survey, treat, and transport.
- Administer oxygen by appropriate device.
- Monitor oxygen saturation, if indicated.
- Check capillary glucose reading, if indicated.

Level II:

- Provide ALS support (ECG, IV, advanced airway including capnography, if indicated).
- Evaluate for need for advanced airway (see Airway Management Protocol)
- Administer medication therapy as needed.

Level III:

- As indicated
Abdominal Pain/GI Bleed (Pediatric)

**Rationale:**
A differential diagnosis of abdominal pain can be complex. Prolonged evaluation in the field is not appropriate. Suspect a severe underlying problem. Prompt and gentle transport is required.

**Assessment Checklist**

- Trauma
- Acute appendicitis
- Peritonitis
- Constipation
- Viral or bacterial infection
- Internal hemorrhage
- Poisoning
- Overdose
- Child abuse

**Level I:**
- Examine for distended abdomen, bowel sounds, referred pain.
- Examine for hemorrhage (unexplained tachycardia, emesis, bloody stools, and rigidity).
- Examine for palpable increased body temperature and diaphoresis indicating illness.
- Test for orthostatic hypotension.
- Administer oxygen by appropriate device.
- Use Trendelenburg position if patient is hypotensive.

**Level II:**
- Establish IV.
- Evaluate the need for advanced airway with RSI, if indicated (see Airway Management Protocol).
- Provide the shock patient a fluid challenge of 20 ml/kg. Repeat as indicated.
- If actively vomiting, Zofran 0.15 mg/kg IV for 6 months or older or Oral Dissolving Troche (ODT) 4 mg for 4 years and above. Max dose 4 mg.

**Level III:**
- None
Airway Management (Pediatric)

Rationale:
Many pediatric emergencies are related to airway compromise. Maintenance of the airway takes an even greater importance than in the adult patient. Cardiac arrest in the pediatric patient is usually secondary to airway compromise. Avoid endotracheal intubation in the patient with croup or epiglottitis unless the patient has respiratory arrest. If endotracheal intubation is attempted, only 1 attempt should be made, followed by King Airway or BVM. Maintain the infant or small child’s airway with manual techniques such as chin lift / jaw thrust.

Assessment Checklist

- Asthma
- Trauma
- Cervical spine injury
- Foreign object obstruction or aspiration
- Hyperventilation
- Croup
- Epiglottitis
- Pneumonia
- Viral or bacterial infection
- Drowning
- Hypothermia

Level I:
- Assess respiratory effort for rate and quality.
- Assess gag reflex.
- Open airway (use jaw thrust if suspected cervical injury).
- Place appropriate airway device (oral nasal).
- Monitor oxygen saturation.
- Administer oxygen by appropriate device.
- Suction airway, if indicated.

Level II:
- Evaluate the need for advanced airway with RSI, if indicated.
- Use BVM or a supraglottic device if standard endotracheal intubation is unsuccessful after one attempt.
- If intubated, sedate with Versed IV 0.05 mg/kg (max dose 2 mg).
- Confirm airway placement with capnography and 2 other documented methods.

Level III:
- None
Allergic Reactions (Pediatric)

*Rationale:*
This is more common than the more serious anaphylactic reaction. This patient responds well to prehospital treatment. Early recognition and treatment are important to prevent more severe problems.

**Assessment Checklist**

- Respiratory arrest
- Airway obstruction
- Bronchospasm
- Rash, hives, edema, itching

**Level I:**
- Administer oxygen by appropriate device.
- Attempt to determine the source of the allergic reaction.
- Poison Control: (800) 222-1222 or (800) 282-3171.

**Level II:**
- Establish IV/IO.
- Monitor ECG.
- Evaluate the need for advanced airway with RSI, if indicated *(see Airway Management Protocol)*
- Consider Albuterol treatment PRN for bronchospasm
- Administer Benadryl 0.5mg/kg IV or IM. May repeat the dose once in 5 minutes (total maximum dose of 50mg).
- Administer Solu-Medrol 2 mg/kg up to a max dose of 125 mg.
- Observe for the development of anaphylaxis and dysrhythmia.

**Level III:**
- None
Altered Mental Status (Pediatric)

**Rationale:**
It is uncommon to encounter pediatric patients with an altered mental status. It is important to attempt to determine the cause.

**Assessment Checklist**
- Trauma
- Overdose
- Hypoglycemia
- Past medical history - Medical or Psychological
- Seizures (postictal)

**Pediatric Care**

**Level I:**
- Evaluate the need for law enforcement assistance.
- Administer oxygen by appropriate device.
- Contact Poison Control at (800) 222-1222 or (800) 282-3171, if indicated.
- Patients who must be restrained should be placed SUPINE on the stretcher and a person must be dedicated to monitor the patient’s airway.
- Check capillary blood glucose level.

**Level II:**
- If glucose level is <60mg/dl, follow Hypoglycemia protocol.
- Establish IV/IO.
- Monitor ECG.
- Evaluate the need for advanced airway with RSI, if indicated (see Airway Management Protocol)
  - If intubated, sedate with Versed IV 0.05 mg/kg (max dose 2 mg).
  - Confirm airway placement with capnography and 2 other documented methods.
  - Administer Narcan 0.1 mg/kg IV, or nasal atomized if no IV access, as needed for respiratory depression. Repeat as needed (max dose 2mg).

**Level III:**
- None
Anaphylaxis (Pediatric)

Rationale:
Anaphylaxis may be mistaken for cardiac arrest by the rescuer who does not witness its onset. It has a high mortality rate. It can become resistant to medical management, especially if treatment is delayed. The rescuer must distinguish anaphylaxis from the related but less severe allergic reaction.

Assessment Checklist

- Airway obstruction
- Shock/poor perfusion
- Hives/edema
- Bronchospasm

Level I:
- Assess oxygen saturation.
- Assess for airway edema, stridor, and wheezing.
- Administer oxygen by appropriate device.
- Administer pediatric Epi-Pen, if available.

Level II:
- Establish IV/IO.
- Monitor ECG.
- Evaluate the need for advanced airway with RSI, if indicated (see Airway Management Protocol)
- Administer the hypotensive patient a fluid bolus of 20 ml/kg. Repeat as needed.
- Administer Albuterol 2.5 mg by nebulizer mask for mild respiratory compromise.
- Administer epinephrine 0.01 mg/kg of 1:1,000 SQ for moderate respiratory compromise in the normotensive patient.
- Administer epinephrine 0.01 mg/kg of 1:10,000 IV/IO for severe anaphylaxis.
- Administer Benadryl 0.5 mg/kg IV. Repeat the dose once after 5 minutes as needed (total maximum of 50 mg).

Level III:
- None
Asthma/Bronchitis (Pediatric)

Rationale:
Asthma or Bronchitis emergencies can present with little distress at first onset but can deteriorate quickly. Watch them closely and treat the problem aggressively as needed. Cyanosis is a late indicator of hypoxia in children.

Assessment Checklist

- Airway obstruction
- Asthma
- Bronchitis
- Epiglottitis
- Status asthmaticus
- Overdose
- Pneumonia

Level I:
- Assess oxygen saturation.
- Assess for airway edema, stridor, and wheezing.
- Administer oxygen by appropriate device.

Level II:
- Establish IV/IO.
- Monitor ECG.
- Evaluate the need for advanced airway with RSI, if indicated (see Airway Management Protocol)
- Administer Albuterol 2.5mg via nebulizer. This may be administered, as needed, before vascular access and repeated as needed.
- Administer Solu-Medrol 2 mg/kg up to a max dose of 125 mg.
- Administer Epinephrine 0.01 mg/kg of 1:1,000 SQ for severe asthma not improving with Albuterol.

Level III:
- None
Carbon Monoxide Inhalation (Pediatric)

**Rationale:**
Carbon monoxide can pose a serious threat to the rescuer, as well as the patient. Use caution in assessing the CO patient. Some normal diagnostic methods such as SaO2 and capillary refill may give false positives. This exposure interferes with oxygen exchange on the cellular level. Always consider it in any airway burn.

**Assessment Checklist**
- Hypoxia of unknown cause
- Smoke inhalation
- Poisoning
- Overdose
- Burns

**Level I:**
- Remove the patient from the source of exposure. Take precautions against a possible toxic environment.
- Assess for signs including vomiting, altered mental status, seizure, flushing, cyanosis, or cherry red skin (late sign).
- Assess for symptoms including headache and tinnitus.
- Administer 100% oxygen by appropriate device.
- Keep patient calm to minimize oxygen demand.

**Level II:**
- Establish vascular access.
- Monitor ECG.
- Evaluate the need for advanced airway with RSI, if indicated (see Airway Management Protocol).
- Draw blood. Cover blood tubes with a cold pack.
- Administer Albuterol 2.5 mg by nebulizer for the wheezing patient. Repeat as needed.
- Transport to the closest emergency department.
- Check CO level with CO detector device

**Level III:**
- None
Croup/Epiglottitis (Pediatric)

**Rationale:**
This is a potentially disastrous emergency. Avoid unnecessary treatment and handling of the patient unless severe respiratory compromise has occurred. Rapid and gentle transport is indicated.

**Assessment Checklist**
- Viral infection
- Pneumonia
- Bronchitis
- Asthma
- Foreign body airway obstruction

**Level I:**
- Assess airway from a distance, if possible.
- Administer oxygen by appropriate device. Have parent hold the oxygen near the child.
- Keep patient calm.
- Assess oxygen saturation.

**Level II:**
- Administer a saline mist treatment (if available) for mild croup.
- Refrain from intubation, unless the patient is in respiratory arrest.
- Evaluate the need for advanced airway with RSI, if indicated (see Airway Management Protocol)
- Refrain from IV or IO therapy unless the patient is in respiratory arrest.
- Consider cricothyrotomy (or needle cricothyrotomy if less than 10 years of age) if unable to intubate.

**Level III:**
- None
Diabetic Emergencies [Hyperglycemia] (Pediatric)

**Rationale:**
Hyperglycemic patients may present with an altered mental status. The patient’s increased blood glucose may cause severe diuresis. This can cause dehydration and hyperosmolar coma. Hyperglycemic emergencies usually onset over several days.

**Assessment Checklist**

- History of diabetes
- Hypoglycemia
- Dehydration
- Hypotension
- Coma
- Psychosis

**Level I:**
- Assess for Kussmaul respirations.
- Administer oxygen by appropriate device.
- Check capillary blood glucose level.

**Level II:**
- Establish IV/IO.
- Monitor ECG.
- Evaluate the need for advanced airway with RSI, if indicated (see Airway Management Protocol)
- Administer normal saline 20 ml/kg IV rapid infusion for dehydration, as needed.
- Repeat the infusion for the shock patient.
- Continue with an infusion of 20 ml/kg/hour.

**Level III:**
- None
Diabetic Emergencies [Hypoglycemia] (Pediatric)

Rationale:
The hypoglycemic patient suddenly develops a hyper-adrenal state as the body attempts to raise glucose levels. The patient may very quickly suffer brain damage. The patient’s mental condition deteriorates and seizure activity or coma may develop. Some patients become agitated, develop psychotic behavior or CVA like symptoms such as hemiplegia, paresthesia or cranial nerve palsies. Always suspect hypoglycemia in the mentally obtunded patient. An imbalance of insulin may precipitate hypoglycemia in the insulin dependent diabetic. Insulin abuse can also cause hypoglycemia.

Assessment Checklist

- History of diabetes (particularly with insulin use)
- Dehydration
- Hypotension
- Coma
- Psychosis
- Drug ingestion
- Assess for trauma

Level I:
- Assess for last insulin injection and food intake.
- Administer oxygen by appropriate device.
- Administer oral glucose if the patient is conscious and able to maintain airway.
- Check capillary blood glucose level.

Level II:
- Establish IV.
- Monitor ECG.
- Administer D25W 2-4 ml/kg IV (< 34 kg) if glucose is < 60 mg/dl.
- Administer D50W 25 Gm IV (> 34 kg) if glucose is < 60 mg/dl.
- If unable to establish IV and glucose < 60 mg/dl, administer Glucagon 0.5 mg IM or SQ (< 20 kg) or administer Glucagon 1.0 mg IM or SQ (> 20 kg), if available.
- The administration of D10 in the 250ml of normal saline may be administered using the infusion chart below.

<table>
<thead>
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<th>Age</th>
<th>Weight</th>
<th>Volume D10% 25g in 250ml NS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preemie</td>
<td>2 kg</td>
<td>10 ml</td>
</tr>
<tr>
<td>Newborn</td>
<td>3 kg</td>
<td>15 ml</td>
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<td>3 months</td>
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<td>25 ml</td>
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<td>200 ml</td>
</tr>
<tr>
<td>12-14 years</td>
<td>&gt;40 kg</td>
<td>250 ml</td>
</tr>
</tbody>
</table>

Level III:
- None
Environmental Cold Emergencies (Pediatric)

**Rationale:**
Cold related emergencies are possible even in Florida. These situations usually involve water immersion. The wide range of temperatures between day and night can cause problems for the unprepared. The use of alcohol and various drugs can also affect how a patient reacts to cold. Drowning patients should be managed for hypothermia.

**Assessment Checklist**

- Frostbite
- Coma
- Cardiac arrest
- Drowning

**Level I:**
- Assess for shivering, lethargy, muscle stiffness, mental status changes, discoloration of the skin, and numbness.
- Remove wet clothing and protect patient against continued heat loss and wind chill.
- Place patient in a horizontal position, avoiding rough movement and excess activity.
- Completely dry patient and cover with insulated blankets.
- Administer oxygen by appropriate device.
- NPO.

**Level II:**
- Establish IV/IO.
- Monitor ECG.
- Evaluate the need for advanced airway with RSI, if indicated (see Airway Management Protocol).
- Warm the IV fluid with hot packs.

**Level III:**
- None
Environmental Heat Emergencies (Pediatric)

**Rationale:**
Cooling the heat emergency patient helps protect the body and CNS from permanent damage. A good history of the event is essential. Some people, especially the elderly and pediatric patients, are more sensitive to heat than others. Assess the patient’s environment in the primary survey.

**Assessment Checklist**

- Heat stroke
- Heat exhaustion
- Heat cramps
- Hyperglycemia/hypoglycemia
- Seizures

**Level I:**
- Move patient to cool environment and remove clothing.
- Place the heat exhaustion patient in a supine position with feet elevated.
- Place the heat stroke patient in a semi-reclining position (with head elevated 15-30 degrees if normotensive).
- Sponge with cool water or cover with a wet sheet and fan the patient.
- Apply cold packs to lateral chest wall, groin, axilla, carotid arteries, temples and behind knees if rapid cooling is required.
- Administer oxygen by appropriate device.

**Level II:**
- Establish IV/IO.
- Monitor ECG.
- Evaluate the need for advanced airway with RSI, if indicated (see Airway Management Protocol).
- Administer fluid boluses of 20 ml/kg. Titrate as needed to maintain adequate blood pressure.

**Level III:**
- None
Overdose [Non-Tricyclic/Unknown Etiology] (Pediatric)

**Rationale:**
Children who take unprescribed medication may not take large quantities due to its unpleasant taste. Any pediatric patient who has a potential overdose should receive prompt Emergency Department evaluation. Suspect overdose in any patient who has a decreased level of consciousness. Consider the possibility that siblings or playmates have also taken medication and will not admit it. Call Poison Control.

**Assessment Checklist**

- Poisoning
- Hyperglycemia / hypoglycemia
- Seizures

**Level I:**
- Secure all possible sources of the overdose and transport them to the hospital with the patient.
- Administer oxygen by appropriate device.
- Monitor for rapid changes in condition and behavior.
- Patients who must be restrained should be placed SUPINE on the stretcher and a person must be dedicated to monitor the patient’s airway.
- Contact Poison Control at (800) 222-1222 or (800) 282-3171.
- Check capillary blood glucose level.

**Level II:**
- If glucose level is <60mg/dl, follow Hypoglycemia protocol.
- Establish IV/IO.
- Monitor ECG.
- Obtain 12 lead ECG, if high suspicion for Tricyclic antidepressant overdose
- Evaluate the need for advanced airway with RSI, if indicated (see Airway Management Protocol).
- Administer Narcan 0.1 mg/kg; if no IV access and administer via nasal atomizer as needed for respiratory depression. Repeat as needed (max 2mg).

**Level III:**
- None
Poisoning (Pediatric)

Rationale:
The poisoning victim may present with an unrelated complaint and not be aware of the poisoning. The rescuer must suspect poisoning. Poisonings may include pesticides, petroleum, and cleaning solvents. They may occur by ingestion, inhalation, or absorption.

Assessment Checklist

- Overdose
- Hyperglycemia / hypoglycemia
- Respiratory arrest
- Hypotension
- Dysrhythmia

Level I:
- Remove the victim from the source (rescuer should wear SCBA, if required).
- Decontaminate the victim, as needed.
- Assess for SLUDGEM syndrome.
- Administer oxygen by appropriate device.
- Suction, if indicated.
- Do not use a helicopter to transport any hazardous materials exposure patient.
- Contact Poison Control at (800) 222-1222 or (800) 282-3171.

Level II:
- Establish IV/IO.
- Monitor ECG.
- Evaluate the need for advanced airway with RSI, if indicated (see Airway Management Protocol).
- For the organophosphate or carbamate poisoning victim, administer Atropine 0.05 mg/kg (0.1 mg is the minimum dose) IV/ET/IO. Repeat Atropine at 5 minute intervals.
- Contact Poison Control at (800) 222-1222 or (800) 282-3171.

Level III:
- Perform Hazardous Materials protocol if approved by Medical Control.
Seizure Disorder (Pediatric)

Rationale:
Most pediatric seizures are febrile and can be corrected by cooling the patient. Careful history taking and observation are important to determining the cause and appropriate emergency department treatment.

Assessment Checklist
- Febrile illness
- Overdose
- Poisoning
- Hypoglycemia

Level I:
- Passively protect the patient from self-injury.
- Cool the febrile patient and remove excess clothing.
- Administer oxygen by appropriate device.
- If the patient was not protected from injury during the activity, immobilize the patient’s spine.
- Check capillary blood glucose level.

Level II:
- If blood sugar is < 60 mg/dl, follow Hypoglycemia protocol.
- Establish IV/IO.
- Monitor ECG.
- Administer Versed – 0.05 mg/kg IV/IO, maximum single dose of 1 mg may repeat one time (maximum combined dose of 2mg), IM or intranasal if no IV/IO access is available 0.1 mg/kg, repeat one time if seizures continue, max dose 2 mg (if available).
- Evaluate the need for advanced airway with RSI, if indicated (see Airway Management Protocol).

Level III:
- Additional Versed
Vomiting (Pediatric)

*Rationale:*
By disrupting the stimulus to vomit, and reducing nausea, we can make the patient more comfortable during transport. As well, we can reduce the chance of aspiration due to excessive vomiting, and increase the effectiveness of pain management medications administered pre-hospital.

**Assessment Checklist**

- Vomiting caused by chemotherapy, narcotic pain medication, infectious disease, chest pain or other etiologies.
- Be sure to treat the primary signs/symptoms such as chest pain, hypotension, dyspnea, etc., prior to treating emesis.

**Pediatric Care**

**Level I:**
- Place the patient in a position of comfort.
- Administer oxygen by appropriate device.

**Level II:**
- Establish IV.
- Monitor ECG.
- Administer Ondansetron (Zofran) 0.15 mg/kg, max dose 4 mg IV/IO/IM, 4 mg ODT (4 years and above).

**Level III:**
- None