

Michigan
Pediatric Treatment Protocols

Date: February 23, 2010

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PEDIATRIC ALTERED MENTAL STATUS

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Pediatric Altered Mental Status

The purpose of this protocol is to provide for the assessment and treatment of patients with altered mental status of unknown etiology such as alcohol, trauma, poisonings, seizures, behavioral problems, stroke, environmental causes, infection, etc.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **Pediatric Assessment and Treatment Protocol**.
2. Restrain patient if necessary, refer to **Physical Patient Restraint Procedure**.
3. If patient is not alert or vital signs are unstable:
 - A. Evaluate and maintain airway, provide oxygenation and support ventilations as needed.
 - B. If no concern regarding spinal injury, place the patient on either side.

EMT/SPECIALIST/PARAMEDIC

4. **If the patient is alert** but demonstrating signs of hypoglycemia, measure blood glucose level, if available.
 - A. If less than 60 mg/dl administer oral high caloric fluid.

PARAMEDIC

5. If glucose is less than 60 mg/dl, administer Dextrose 50 %, 2 ml/kg IV.
 - A. Dextrose 12.5% for children under 1 yr.
 - B. Dextrose 25% for children between 1 and 12 years old.
6. Administer naloxone at 0.1 mg/kg IV/IM (maximum dose 2 mg), repeat as indicated.

Post-Medical Control

1. Repeat Dextrose as indicated.
2. Repeat Naloxone as indicated.

NOTE: To obtain Dextrose 12.5%, discard 37.5 ml out of one amp of D50, then draw 37.5 ml of NS into the D50 amp; administer as indicated above.

To obtain Dextrose 25%, discard 25 ml out of one amp of D50, then draw 25 ml of NS into the D50 amp; administer as indicated above.

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PEDIATRIC ANAPHYLAXIS/ALLERGIC REACTION

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Pediatric Anaphylaxis/Allergic Reaction

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **Pediatric Assessment and Treatment Protocol**.
2. Determine substance or source of exposure, remove patient from source if known and able.
3. Assist the patient in administration of their own epinephrine auto-injector, if available.

EMT/SPECIALIST

4. In cases of severe allergic reaction, wheezing or hypotension:
 - A. Administer Epinephrine Junior auto injector.

PARAMEDIC

5. If patient is symptomatic, administer diphenhydramine 1 mg/kg IM/IV/IO (maximum dose 50 mg).
6. In cases of severe allergic reaction, wheezing or hypotension:
 - A. Administer Epinephrine 1:1,000, 0.01 mg/kg (0.01 ml/kg) IM to a maximum of 0.3 mg (0.3 ml), OR via auto-injector
7. In cases of profound anaphylactic shock (near cardiac arrest):
 - A. Administer Epinephrine 1:10,000, 0.01 mg/kg (0.1 ml/kg) slow IV/IO to a maximum of 0.3 mg (3 ml).

Bronchodilator Options

Albuterol 2.5 mg/3ml NS nebulized

OR

Albuterol 2.5 mg/3ml NS & Ipratropium 500 mcg nebulized

Medication Options:

Prednisone

50 mg tablet PO
(Children 6 and above, if tolerated)

YES NO

Methylprednisolone

2 mg/kg IV/IO,
(maximum dose 125 mg)

YES NO

8. Per MCA selection, administer Albuterol nebulized **OR** Albuterol and Ipratropium nebulized if wheezing or airway constriction.
9. Administer additional Albuterol 2.5 mg/3 ml NS nebulized as needed if wheezing or airway constriction persists.
10. Per MCA Selection, if a second nebulized treatment is needed also administer Prednisone **OR** Methylprednisolone, if tolerated.

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Post-Medical Control:

1. Additional Epinephrine 1:1,000, 0.01 mg/kg (0.01 ml/kg) IM to a maximum of 0.3 mg (0.3 ml), OR via auto-injector.
2. Administer Epinephrine 1:10,000, 0.01 mg/kg (0.1 ml/kg) to a maximum of 0.3 mg (3 ml) slow IV/IO.

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PEDIATRIC ASSESSMENT & TREATMENT

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Pediatric Assessment & Treatment

Purpose: This protocol provides general guidelines for pediatric patient management. A pediatric medical patient is defined as 8 years and under. A pediatric trauma patient is defined as 14 years and under. Refer to additional protocols as appropriate for treatment of specific conditions.

Assessment

MRF/EMT/SPECIALIST/PARAMEDIC

1. Ensure scene safety.
2. Form a general impression of the patient's condition.
3. Observe standard precautions.
4. Establish patient responsiveness. If cervical spine trauma is suspected, manually stabilize the spine.

Management

MRF/EMT/SPECIALIST/PARAMEDIC

1. Assess the patient's airway and respirations. If compromise is suspected, refer to the **Pediatric Respiratory Distress, Failure or Arrest Protocol**.
2. Control hemorrhage using direct pressure or a pressure dressing.
3. Assess circulation and perfusion by measuring heart rate and observing skin color and temperature, capillary refill time, blood pressure, and the quality of central and peripheral pulses.
4. Evaluate mental status, including pupillary reaction, distal function and sensation.
5. If spinal trauma is suspected, continue manual stabilization, place a size-appropriate rigid cervical collar, and observe spinal precautions. Refer to **Pediatric Trauma Protocol**.
6. Expose the child only as necessary to perform further assessments. Keep child as warm as possible.
7. Reassess the patient frequently.
8. If pulse absent, refer to **Pediatric Cardiac Arrest - General Protocol**.

EMT/SPECIALIST/PARAMEDIC

9. For pediatric patients with life threatening or potentially life threatening conditions, measure the patient with Broselow Pediatric Emergency Care tape to determine color.
10. If the child's condition is critical or unstable, initiate transport as indicated. Perform focused history and detailed physical examination en route to the hospital if patient status and management of resources permit.

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SPECIALIST/PARAMEDIC

11. If there is evidence of shock, obtain vascular access using an age-appropriate large-bore catheter. If intravenous access cannot be obtained, proceed with intraosseous access if indicated. Administer a fluid bolus of normal saline at 20 ml/kg set to maximum flow rate. Reassess patient after bolus. If signs of shock persist, bolus may be repeated at the same dose for a maximum total of 40 ml/kg.

PARAMEDIC

12. Initiate cardiac monitoring.

Post-Radio

1. Contact Medical Control for additional instructions.

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PEDIATRIC BRONCHOSPASM

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Pediatric Bronchospasm

Pre-Medical Control:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **Pediatric Assessment and Treatment Protocol**.

MFR/EMT/SPECIALIST

2. Assist the patient in using their own Albuterol Inhaler, if available

EMT/SPECIALIST

3. Administer Albuterol 2.5 mg/3ml nebulized if available, repeat as indicated.

PARAMEDIC

4. Per MCA selection, administer Albuterol nebulized **OR** Albuterol and Ipratropium nebulized if wheezing or airway constriction.
5. Administer additional Albuterol 2.5 mg/3 ml NS nebulized as needed if wheezing or airway constriction persists.
6. Per MCA selection, if a second nebulized treatment is needed also administer Prednisone **OR** Methylprednisolone.
7. If patient is in severe respiratory distress administer Epinephrine 1:1000, 0.01 mg/kg (0.01 ml/kg) IM to a maximum dose of 0.3 mg (0.3 ml).

Bronchodilator Options

Albuterol 2.5 mg/3ml NS nebulized

OR

Albuterol 2.5 mg/3ml NS & Ipratropium 500 mcg nebulized

Medication Options:

Prednisone

50 mg tablet PO

(Children 6 and above, if tolerated)

YES NO

Methylprednisolone

2 mg/kg IV/IO,

(maximum dose 125 mg)

YES NO

8. Consider CPAP/BiPAP (if available) per **CPAP/BiPAP Procedure**.

Post -Medical Control:

1. Consider additional Epinephrine 1:1000, 0.01 mg/kg (0.01 ml/kg) IM, to a maximum dose of 0.3 mg (0.3 ml).

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PEDIATRIC BURNS

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Pediatric Burns

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Refer to **Pediatric Assessment and Treatment Protocol**
2. Determine burn extent & severity (rule of nines).
3. Follow local MCA transport protocol.

THERMAL BURNS:

1. Stop the burning process. Remove smoldering and non-adherent clothing.
2. Assess and treat associated trauma.
3. Remove any constricting items.
4. If partial/full burn is moderate-to-severe, more than 15% of body surface area (BSA), cover wounds with dry clean dressings.
5. Use cool, wet dressings in smaller burns, less than 15% BSA, for patient comfort.

CHEMICAL BURNS:

1. Protect personnel from contamination.
2. Remove all clothing and constricting items.
3. Decontaminate patient prior to transport, brushing off dry chemicals prior to irrigation.
4. Assess and treat for associated injuries.
5. Evaluate for systemic symptoms, which might be caused by chemical contamination.
6. Cover burned area in clean, dry dressing for transport.

ELECTRICAL INJURY:

1. Protect rescuers from live electric wires.
2. Remove patient from electrical source when safe.
3. Treat associated injuries, provide spinal immobilization when indicated.
4. Assess and treat entrance and exit wound.

PARAMEDIC

5. Monitor patient EKG for possible arrhythmias. Treat as per specific arrhythmia protocol.

FOR ALL TYPES OF BURNS:

SPECIALIST/PARAMEDIC

6. Obtain vascular access if indicated for pain management or fluid therapy.
7. If partial or full thickness burn is greater than 15% BSA
 - A. Administer fluid bolus NS 20 ml/kg.
8. Administer NS 20 ml/kg wide open for hypotension or severe burn. Repeat as indicated.
9. Follow local MCA transport protocol.

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PARAMEDIC

10. Administer Analgesic Medication (see box below), if indicated.

NARCOTIC ANALGESIC OPTIONS
(Select Options)

- Fentanyl 1 mcg/kg IV/IO, may repeat every 5 minutes until maximum of 2 mcg/kg

- Morphine Sulfate 0.05 mg/kg IV, may repeat dose every 5 minutes until maximum of 20 mg.

Medication Administration Option
(Choose one)

- Pre-radio

- Post-radio

Post-Medical Control

Thermal Burns and Electrical Injury:

1. Additional IV fluid bolus.

Thermal inhalation, chemical burns:

1. Intubation per **Emergency Airway Procedure**.

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PEDIATRIC DROWING/NEAR DROWNING/SUBMERSION

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Pediatric Drowning/Near Drowning/Submersion

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **Pediatric Assessment and Treatment Protocol**
2. **If pulse is absent:**
 - A. If documented submersion time is greater than 1 hour refer to the **Dead on Scene Procedure**.
 - B. In normothermic patients, initiate CPR and refer to **Pediatric Cardiac Arrest - General Protocol**.
 - C. If the patient is hypothermic, go to **Hypothermia Cardiac Arrest Protocol**.
 - D. Prevent further heat loss by transport in a warm environment. Patient should be dry.
3. **If pulse is present:**
 - A. Assess patient's temperature.
 - B. If patient is hypothermic, go to **Hypothermia/Frostbite Protocol**.
 - C. Prevent further heat loss by transport in a warm environment. Patient should be kept dry.

PARAMEDIC

- D. Consider CPAP/BiPAP if respiratory distress, if available

EMT/SPECIALIST/PARAMEDIC

4. Contact Medical Control if no transport is considered or requested.

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PEDIATRIC NEWBORN ASSESSMENT, TREATMENT AND RESUSCITATION
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Pediatric Newborn Assessment, Treatment and Resuscitation

To provide a process for the assessment and management of the newborn.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

Assessment

1. History
 - A. Approximate gestation age (weeks)
 - B. History of maternal drug usage just prior to delivery
 - C. Evidence of meconium in amniotic fluid
2. Assess and document APGAR score at 1 and 5 minutes, or with changes in patient's presentation
 - A. APGAR and normal vital charts are at the end of this protocol.

Treatment

1. Prevent heat loss
 - A. Place patient in warm environment.
 - B. Dry off amniotic fluid and remove all wet linen.
 - C. Rubber gloves filled with warm water (if available) can serve as heat packs. DO NOT apply directly to skin.
 - D. Use of chemical heat packs is prohibited unless they are specifically designed as infant warmers.
2. The umbilical cord must be tied or clamped approximately 8" from the infant's abdominal wall with a second tie or clamp 2" further. The cord should be cut between the ties and clamps.
3. Position patient by placing patient on back with padding under shoulders to maintain head in neutral position.
4. Provide tactile stimulation to induce breathing.
 - A. Flick soles of feet and gently rub back
 - B. If infant remains apneic, tactile stimulation should be abandoned and ventilation should be initiated with 100% high flow O₂.
5. Evaluate Respirations, Heart Rate and Color
 - A. If the infant is breathing, **the heart rate is above 100 bpm, and the infant is pink:**
 - a. Observe and continue with routine care and evaluation.
 - B. If the infant is breathing, **the heart rate is above 100 bpm, and the infant is cyanotic:**
 - a. Give supplemental oxygen.
 - b. If the cyanosis persists, provide ventilations, with a bag-valve mask and 100% oxygen, at 40 – 60 breaths/min.
 - C. If the infant is **apneic or the heart rate is less than 100 and greater than 60 bpm:**
 - a. Provide ventilations via bag valve mask with 100% oxygen, at 40 – 60 breaths/min.
 - D. If **heart rate is less than 60 bpm:**

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- a. Perform chest compressions 3:1 compression-ventilation ratio 120 events/min (90 compressions interspersed with 30 ventilations).
6. Establish and maintain an airway
 - A. If the newborn is vigorous (strong respiratory effort, good muscle tone and a heart rate over 100 bpm), there is no need to suction the airway.
 - B. If the newborn is lethargic, having difficulty breathing, has poor muscle tone, has a heart rate less than 100 bpm, ventilation should be supported.

SPECIALIST/PARAMEDIC

- C. If ventilatory support is prolonged with no patient improvement endotracheal intubation should be considered.
- D. If there is visible meconium in the airway,
 - a. The patient should be intubated and the lower airway suctioned via ET tube [with LOW PRESSURE (80-120 mmHg) suction to the tube]
 - b. Repeat suction with a new ET tube each time suctioning is performed.

PARAMEDIC

7. If the heart rate remains below 60 bpm despite compressions and ventilations:
 - A. Administer Epinephrine 1:10,000, 0.01 mg/kg (0.1 ml/kg) IV/IO. Repeat every 3 – 5 minutes. As an alternate, administer Epinephrine 1:10,000, 0.1 mg/kg (1 ml/kg) via ETT. ETT route should only be used as a last resort if IV/IO cannot be established.
 - B. If there is evidence of maternal opiate use prior to or during delivery, administer naloxone 0.1 mg/kg IV/IO/IM, repeat as needed.
 - C. Evaluate blood glucose, if < 60 mg/dl administer dextrose 10% (1 gm/10 ml), 0.2 gm/kg IV/IO.
 - a. To obtain 10 % Dextrose mixture draw 40 ml out of one amp of D50 and discard, then add 40 ml of NS.

MFR/EMT/SPECIALIST/PARAMEDIC

Special Considerations

1. Ventilation should always be accompanied with supplemental O₂.
2. Heart rate may be checked by apical pulse or feeling at the base of the cord.
3. Preventing heat loss in the newborn is critical (dry and discard wet linen).
4. Most patients will respond well to tactile stimulation or ventilation. Intubation and meds may not be needed.
5. Capillary refill is an excellent indicator of perfusion in infants. Color should return in 3 seconds or less.

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6. APGAR Scoring

- A. Procedure for immediately evaluating a newborn baby.
 - a. Based on:
 - 1. A – appearance (color)
 - 2. P – pulse (heart rate)
 - 3. G – grimace (reflex irritability to slap on sole of foot)
 - 4. A – activity (muscle tone)
 - 5. R – respiration (respiratory effort)
- B. Each parameter gets a score of 0 to 2.
- C. APGAR score should be checked at 1 minutes and 5 minutes post delivery.

APGAR SCORING

Sign	0	1	2
Appearance – skin color	Bluish or paleness	Pink or ruddy; hands or feet are blue	Pink or ruddy; entire body
Pulse – heart rate	Absent	Below 100	Over 100
Grimace – reflex irritability to foot slap	No response	Crying; some motion	Crying; vigorous
Activity – muscle tone	Limp	Some flexion of extremities	Active; good motion in extremities
Respiratory effort	Absent	Slow and Irregular	Normal; crying

Term Newborn Normal Vital Signs

Heart rate (awake): 100 to 180 bpm
 Respiratory Rate: 30 to 60 breaths/min
 Systolic blood pressure: 55 to 90 mmHg
 Diastolic blood pressure: 26 to 55 mmHg

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PEDIATRIC POISONING/OVERDOSE

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Pediatric Poisoning/Overdose

Pre-Medical Control

GENERAL MANAGEMENT OF TOXIC EXPOSURE
(INCLUDING INGESTION) MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **Pediatric Assessment and Treatment Protocol**.
2. Use proper protective equipment and prepare for decontamination if necessary.
3. Remove clothing exposed to chemical (dry decon).
4. Identification of the substance (patient has been exposed to).

EMT/SPECIALIST/PARAMEDIC

5. Alert receiving hospital if patient may present HAZMAT risk.
6. Sample of drug or substance and any medication or poison containers should be brought in with patient if it does NOT pose a risk to rescuers.

PARAMEDIC

7. Refer to **Pain Management Procedure**

INHALATION EXPOSURES:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Dilute noxious gas inhaled (including carbon monoxide & smoke), ensure high concentration of oxygen is provided.
2. If suspected cyanide gas exposure, refer to **Cyanide Exposure Protocol** and contact medical control immediately.

EYE CONTAMINATION:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Irrigate continuously with Normal Saline or tap water for 15 minutes (attempt to continue enroute) or as directed by Medical Control.
2. For alkali exposure, maintain continuous irrigation.

PARAMEDIC

3. If available, administer Tetracaine, 1-2 drops per eye to facilitate irrigation. Ensure patient does not rub eye.

Tetracaine included:

YES

NO

SKIN ABSORPTION:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Irrigate continuously with Normal Saline, or tap water for 15 minutes or as directed by Medical Control.

INGESTION:

MFR/EMT/SPECIALIST/PARAMEDIC

1. If altered mental status, refer to **Pediatric Altered Mental Status Protocol**.

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2. If respiratory distress, refer to **Pediatric Respiratory Distress, Failure or Arrest Protocol**.
3. If the patient is seizing, refer to **Pediatric Seizure Protocol**.

PARAMEDIC

4. If cardiac dysrhythmia, refer to appropriate pediatric dysrhythmia protocol.

DRUG, CHEMICAL, PLANT, MUSHROOM INGESTION:
MFR/EMT/SPECIALIST/PARAMEDIC

1. Use protective eye equipment.
2. In situations of potential ingestion or inhalation of petroleum distillates, do NOT induce vomiting.
3. Monitor the patient's respiratory and mental status very closely.
4. If patient is alert and oriented, prepare for emesis; recover and save emesis. Use appropriate barriers according to universal precautions guidelines.

PARAMEDIC

5. For symptomatic tricyclic antidepressant ingestions (tachycardia, wide complex QRS), administer sodium bicarbonate 1 mEq/kg IV, repeat as needed.
6. For extrapyramidal dystonic reactions, administer diphenhydramine 1 mg/kg IV, (maximum dose 50 mg).
7. For symptomatic calcium channel blocker overdose, consider calcium chloride 20 mg/kg IV, (maximum dose 1 gm).
8. For respiratory compromise or hemodynamic instability with narcotic overdose, consider naloxone 0.1 mg/kg IV, (maximum dose 2 mg).

ORGANOPHOSPHATE EXPOSURE (MALATHION, PARATHION)
MFR/EMT/SPECIALIST/PARAMEDIC

1. Administer Mark I Kit/Duo Dote auto injector per **Nerve Agent/Organophosphate Pesticide Exposure Treatment Protocol**.
2. Mild or moderate symptoms
 - A. 8 years old or greater – 1 Mark I Kit/Duo Dote auto injector
 - B. Less than 8 yrs contact Medical Control
3. Severe signs & symptoms
 - A. 8 years old or greater – 3 Mark I Kits/Duo Dote auto injectors
 - B. Less than 8 – 1 Mark 1 Kit/Duo Dote auto injector
 - C. If 3 Mark I Kit/Duo Dote auto injectors are used, administer 1st dose of benzodiazepine, if available.

PARAMEDIC

4. If Mark I Kit/Duo Dote auto injector is not available, administer Atropine 2 mg IV/IM (if available) per each Mark I Kit/Duo Dote auto injector indicated (each Mark I Kit contains 2 mg of Atropine) repeated every 5 minutes until "SLUDGEM" symptoms improve or as directed. (Salivation, Lacrimation, Urination, Defecation, Gastrointestinal hypermotility, Emesis, Muscle twitching or spasm).

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MANAGEMENT OF BITES AND STINGS

SPIDERS, SNAKES AND SCORPIONS:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Protect rescuers. Bring in spider, snake or scorpion if captured and contained or if dead for accurate identification.
2. Ice for comfort on spider or scorpion bite; DO NOT apply ice to snake bites.

BEEES AND WASPS:

MFR/EMT/SPECIALIST/PARAMEDIC

1. Remove sting mechanism from honey bees only by scraping out. Do not squeeze venom sac if this remains on stinger.
2. Provide wound care.
3. Observe patient for signs of systemic allergic reaction. Treat anaphylaxis per **Pediatric Anaphylaxis/Allergic Reaction Protocol.**

Post-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Other specific poisonings may be managed per specific medical control protocol.

Toxic Cases	Treatment
Beta blocker OD	Glucagon, if available
Ca Channel Blockers	CaCl ₂ , Glucagon, if available
Tri-cyclic antidepressants	NaHCO ₃ , MgSO ₄
Organophosphates	Atropine, 2-PAM per CBRNE Protocol
Narcotics	Naloxone
CO poison	O ₂

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PEDIATRIC RESPIRATORY DISTRESS, FAILURE OR ARREST

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Pediatric Respiratory Distress, Failure or Arrest

Pre-Medical Control

MRF/EMT/SPECIALIST/PARAMEDIC

1. Follow **Pediatric Assessment and Treatment Protocol**.
2. Assess the patient's airway for patency, protective reflexes and the possible need for advanced airway management. Look for signs of airway obstruction. Signs include:
 - A. absent breath sounds
 - B. tachypnea
 - C. intercostal retractions
 - D. stridor or drooling
 - E. choking
 - F. bradycardia
 - G. cyanosis
3. If foreign body obstruction of the airway is suspected, refer to the **Obstructed Airway Procedure**.
4. Consider partial airway obstruction in a patient who presents with acute respiratory distress of sudden onset accompanied by fever, drooling, hoarseness, stridor, and tripod positioning.
 - A. Do nothing to upset the child.
 - B. Perform critical assessments only.
 - C. Enlist the parent to administer blow-by oxygen.
 - D. Place the patient in a position of comfort.
 - E. Do not attempt vascular access.
 - F. Transport promptly
5. Open the airway using head tilt/chin lift if no spinal trauma is suspected, or modified jaw thrust if spinal trauma is suspected.
6. Suction as necessary.
7. Consider placing an oropharyngeal or nasopharyngeal airway adjunct if the airway cannot be maintained with positioning and the patient is unconscious.
8. Assess the patient's breathing, including rate, auscultation, inspection, effort, and adequacy of ventilation as indicated by chest rise.
9. If chest rise indicates inadequate ventilation, reposition airway and reassess.
10. If inadequate chest rise is noted after repositioning airway, suspect a foreign body obstruction of the airway. Refer to the **Obstructed Airway Procedure**.
11. If breathing is adequate and patient exhibits signs of respiratory distress, administer high-flow, 100% concentration oxygen as necessary. Use a non-rebreather mask or blow by as tolerated.
12. Assess for signs of respiratory distress, failure, or arrest. If signs of respiratory failure or arrest are present, assist ventilation using a bag-valve-mask device with high-flow, 100% concentration oxygen.

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PEDIATRIC RESPIRATORY DISTRESS, FAILURE OR ARREST

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SPECIALIST/PARAMEDIC

13. If wheezing is present, refer to the **Pediatric Bronchospasm Protocol**.
14. If the airway cannot be maintained by other means, including attempts at assisted ventilation, or if prolonged assisted ventilation is anticipated, consider endotracheal intubation. Confirm placement of endotracheal tube using clinical assessment and end-tidal CO₂ monitoring as per medical direction. Refer to the **Emergency Airway Procedure**.

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PEDIATRIC SEIZURES

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Pediatric Seizures

Pre-Medical Control

MRF/EMT/SPECIALIST/PARAMEDIC

1. Follow **Pediatric Assessment and Treatment Protocol**.
2. **IF PATIENT IS ACTIVELY SEIZING:**
 - A. Protect patient from injury.
 - B. Do not force anything between teeth.

SPECIALIST/PARAMEDIC

- C. Start an IV/IO NS KVO.
- D. Measure blood glucose level.

PARAMEDIC

- E. If blood glucose is found to be less than 60 mg/dl or hypoglycemia is suspected, administer Dextrose 2 ml/kg IV.
 - 1) Dextrose 12.5% for children under 1 yr.
 - 2) Dextrose 25% for children between 1 and 12 years old.
- F. Per MCA selection, administer Diazepam or Midazolam.

(Choose One)	
<input checked="" type="checkbox"/>	Diazepam - 0.1 mg/kg IV/IO or 0.5 mg/kg rectally (maximum individual dose 10 mg)
OR	
<input type="checkbox"/>	Midazolam - 0.05 mg/kg IV/IO, 0.1 mg/kg IM (maximum individual dose 5 mg)

- G. If seizures persist, per MCA selection, repeat Diazepam or Midazolam at the same dose or contact medical control for further instructions.

EMT/SPECIALIST/PARAMEDIC

3. **IF PATIENT IS NOT CURRENTLY SEIZING, BUT HAS ALTERED MENTAL STATUS**
 - A. Measure blood glucose level.

EMT/SPECIALIST

- B. If glucose is less than 60 mg/dl and awake, administer oral glucose or oral high caloric fluid if available.

PARAMEDIC

- C. If glucose is less than 60 mg/dl, administer Dextrose 2 ml/kg IV.
 - 1) Dextrose 12.5% for children under 1 yr.
 - 2) Dextrose 25% for children between 1 and 12 years old.

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SPECIALIST/PARAMEDIC

4. **IF PATIENT IS ALERT:**
 - A. Obtain vascular access.

Post-Medical Control

PARAMEDIC

Actively seizing:

1. Additional **Dextrose** IVP
2. Additional Benzodiazepine

NOTE: To obtain Dextrose 12.5%, discard 37.5 ml out of one amp of D50, then draw 37.5 ml of NS into the D50 amp; administer as indicated above.

To obtain Dextrose 25%, discard 25 ml out of one amp of D50, then draw 25 ml of NS into the D50 amp; administer as indicated above.

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Pediatric Shock

Assessment: Consider multiple etiologies of shock (hypovolemic, distributive – neurogenic, septic and anaphylactic, and cardiogenic)

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **Pediatric Assessment and Treatment Protocol**.
2. If anaphylaxis shock suspected follow **Pediatric Anaphylaxis/Allergic Reaction Protocol**.
3. Control major bleeding

SPECIALIST/PARAMEDIC

4. Establish vascular access using an age-appropriate large-bore catheter. If intravenous access cannot be obtained, proceed with intraosseous access. Do not delay transport to obtain vascular access.
5. If evidence of shock, administer a fluid bolus of normal saline
 - A. At 20 ml/kg set to maximum flow rate. Reassess patient after bolus.
 - B. If signs of shock persist, bolus may be repeated at the same dose up to a maximum total of 40 ml/kg.

Post-Medical Control

1. Additional IV fluid bolus.

PARAMEDIC

2. Consider Dopamine 5-20 mcg/kg/min. Start at 5 mcg/kg/min, and increase every 10 minutes by an additional 5 mcg/kg/min . DO NOT exceed 20 mcg/kg/min unless ordered by Medical Control.

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Pediatric Trauma

The priorities in pediatric trauma management are to prevent further injury, provide rapid transport, notify the receiving facility, and initiate definitive treatment. **Minimize scene time.**

Management

MFR/EMT/SPECIALIST/PARAMEDIC

1. Follow **Pediatric Assessment and Treatment Protocol.**
2. If the airway or breathing management is needed see **Pediatric Respiratory Distress, Failure or Arrest Protocol.**
3. If breathing is adequate, provide high flow oxygen as necessary. Use a non-rebreather mask or blow-by as tolerated.
4. Control bleeding and splint injuries appropriately.
5. Assess for potential spine injury. Provide for spinal precautions as indicated. See **Spinal Injury Assessment Protocol.**

EMT/SPECIALIST/PARAMEDIC

6. Initiate transport per MCA transport protocol.

SPECIALIST/PARAMEDIC

7. Obtain vascular access using an age-appropriate large-bore catheter and administer NS KVO. If extenuating circumstances delay transport, obtain vascular access on the scene, but do not delay transport to obtain vascular access.
8. If there is evidence of shock see **Pediatric Shock Protocol.**

PARAMEDIC

9. If tension pneumothorax is suspected see **Pleural Decompression Procedure.**
10. Refer to **Pain Management Procedure.**

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Pediatric Fever

This protocol is intended to assist EMS providers in reducing fever in the pediatric patients prior to arrival to the emergency department. Fever is defined as a core temperature of 101 degrees Fahrenheit (38 degrees Celsius) or greater. Emergency management of the febrile child involves an assessment to determine if any associated problems are present which may require emergency treatment.

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Obtain baseline temperature and document method used.
2. Facilitate passive cooling by removing excess clothing and blankets.

PARAMEDIC

3. If the child has not been given acetaminophen in last four (4) hours and is alert, give oral Tylenol (acetaminophen) 15 mg/kg.
4. If any question concerning alertness or ability to swallow, **DO NOT ADMINISTER.**