## OB/GYN & PEDIATRICS GUIDELINES

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</table>
**Assessment**

- Symptoms: pain, cramping, passage of clots or tissue, dizziness, weakness;
  - If pregnant, inquire about swelling of face and extremities, urge to push, contractions (regularity and timing), ruptured membranes, bleeding.
- Obtain menstrual history: last normal menstrual period, duration of period, amount of flow, birth control method
- Past and present history of: hypertension (preeclampsia / eclampsia), bleeding problems, pregnancy, medications, allergies
- Vital signs and orthostatic changes
- Evidence of blood loss, clots or tissue fragments (bring tissue to the ED)/ signs of shock
- Fever
- If severe bleeding is noted, notify ALS
  - Amount of vaginal bleeding is difficult to estimate. Try to get an estimate of number of saturated pads in previous 6 hours.
  - A patient in shock from vaginal bleeding should be treated like any other patient with hypovolemic shock.
  - Always consider pregnancy as a cause of vaginal bleeding. The history may contain inaccuracies, denial, or wishful thinking.
  - Other gynecological problems causing pain include: pelvic inflammatory disease, cystitis, ruptured ovarian cyst, dysuria, mittelschmerz, endometritis, endometriosis, miscarriage, ectopic pregnancy.

**Treatment**

<p>| | | |</p>
<table>
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<tr>
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</thead>
</table>
| B | Initiate O₂ as necessary. If bleeding vaginally (moderate to heavy):  
  - Inspect perineum (where privacy is possible) - Observation ONLY  
  - Do Not pack vagina to stop bleeding. Apply peri-pad or 5X9 ABD pad  
|   | Contact Medical Control if concerns or complications. |
| I85 | Establish IV:  
  - If hypotensive, give fluid bolus, further fluids as directed and consider a second large bore IV. |
| A | Cardiac Monitor |
| P | Cardiac Monitor |

---

### GYNECOLOGIC - CAUSES OF ABDOMINAL PAIN

<table>
<thead>
<tr>
<th>Causes</th>
<th>Signs &amp; Symptoms</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ectopic Pregnancy</td>
<td>ABD pain (sudden onset), vaginal bleeding</td>
<td>IV, fluid bolus if signs of shock</td>
</tr>
</tbody>
</table>
| Pelvic Inflammatory Disease (PID)| Back/ABD pain, painful urination, low grade fever, difficulty ambulating (? Appendicitis, UTI) | IV, fluid bolus if signs of shock  
Consider: sm. dose of fentanyl for pain |
| Toxic Shock Syndrome            | High fever, body rash, headache, hypotension          | Oxygen, IV - fluid bolus if signs of shock     |
| Ovarian Cyst                    | Increased lower ABD/pelvic pain, vaginal bleeding, hypovolema leading to shock. | Oxygen, IV - fluid bolus if signs of shock  
Evaluate orthostatic VS. |

**differential diagnosis:** hematuria, appendicitis, diverticulitis, bowel obstruction, ovarian tumor, ovarian torsion, ectopic pregnancy, salpingitis (fallopian tube inflammation), PID, inflammatory bowel disease

| Vulvular Hematoma               | Purplish swelling of the vulva                     | Apply ice, provide compression  
Monitor indwelling catheter (if in place); swelling may compress the urethra causing bladder obstruction  
|---------------------------------|----------------------------------------------------|----------------------------------|
OB - NORMAL LABOR AND DELIVERY

Assessment

- Gather history.
- Assure airway.
- Perform examination
- If delivery imminent, notify ALS

BLS Treatment:

If delivery is not imminent: Transport on left side, Monitor contractions, Be prepared for delivery

If delivery is imminent - Prepare for delivery:
- If crowning occurs, lightly place hand over perineal area to prevent explosive delivery
- Once baby’s head delivers, suction baby’s mouth/nose, prepare for resuscitation as soon as delivery is complete
- Note time or delivery, dry and warm baby by placing baby to mother's stomach
- Immediately stimulate respirations while drying and wrapping infant. Cover infant’s head as soon as possible.
- Assess and record a one-minute APGAR
- Apply cord clamps once it stops pulsating. Double clamp cord at six inches and eight inches from the infant, then cut the cord.
- Control bleeding from the perineal tears with direct pressure
- Assess and record a five-minute APGAR
- Assist with delivery of placenta and retain to take to the hospital
- Massage uterus to stimulate contractions and control post-partum bleeding
- Allow nursing if desired

Transport as soon as possible
Monitor mother for excessive bleeding
Monitor infant for distress. Be prepared to assist if needed (refer to Neonatal resuscitation guidelines)
Contact Medical Control if concerns or complications.

APGAR SCORE

<table>
<thead>
<tr>
<th>SIGN</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPEARANCE (Color)</td>
<td>Blue or Pale</td>
<td>Body pink – extremities blue</td>
<td>Completely pink</td>
</tr>
<tr>
<td>PULSE (Heart rate)</td>
<td>Absent</td>
<td>&lt; 100/min</td>
<td>&gt;100/min</td>
</tr>
<tr>
<td>GRIMACE (Irritability)</td>
<td>No Response</td>
<td>Grimace</td>
<td>Cough, sneeze, cry</td>
</tr>
<tr>
<td>ACTIVITY (Muscle tone)</td>
<td>Limp</td>
<td>Some flexion of extremities</td>
<td>Active motion</td>
</tr>
<tr>
<td>RESPIRATIONS (Effort)</td>
<td>Absent</td>
<td>Slow, irregular</td>
<td>Good, crying</td>
</tr>
</tbody>
</table>
**OB WITH COMPLICATIONS**

**Assessment:**
- Gather history
- Perform examination
- Assure airway
- If any of the following present transport immediately;
  - Heavy bleeding
  - Limb presenting
  - Prolapsed cord
  - Multiple fetuses
  - Previous C-section

**Treatment:**
- **B** Initiate Oxygen by cannula (2-6 L/min) or mask (10-15 L/min).
  - If patient has a prolapsed cord or limb presentation;
    - Place patient in Trendelenburg
    - Prolapsed cord - Insert gloved hand and hold presenting part up and off cord.
    - Transport rapidly.
  - Contact Medical Control if concerns or complications.
- **I**<sub>85</sub> If patient is experiencing post-partum hemorrhage: Massage uterus
- **A** Initiate IV NS at 20cc/kg
- **P** Consider PASG for severe bleeding after delivery
- **Contact Medical Control for further orders.**
- **Cardiac Monitor**

### COMPLICATIONS OF PREGNANCY

<table>
<thead>
<tr>
<th>Signs/Symptoms</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Spontaneous Abortion</em></td>
<td>Vaginal bleeding, cramping, ABD pain, hypotension</td>
</tr>
<tr>
<td><em>Abruptio Placenta</em></td>
<td>Vaginal bleeding, ABD pain, back pain, uterine tenderness, shock, lack of fetal heart tones</td>
</tr>
<tr>
<td><em>Placenta Previa</em></td>
<td>Bright red vaginal bleeding, NO ABD pain, detectable fetal movement &amp; heart tones</td>
</tr>
<tr>
<td><em>Uterine Rupture</em></td>
<td>Loss of uterine contour, palpated fetal parts, sharp-tearing ABD pain, weakness, dizzy, shock</td>
</tr>
</tbody>
</table>
## MEDICAL CONDITIONS DURING PREGNANCY

<table>
<thead>
<tr>
<th>Condition</th>
<th>Signs/Symptoms</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>BP &gt;140/90, proteinuria, peripheral edema</td>
<td>Oxygen, IV TKO</td>
</tr>
<tr>
<td>Preeclampsia</td>
<td>Hypertension, edema, proteinuria, headache, visual disturbances, ABD pain,</td>
<td>Pt. on L side, oxygen, CALM Environment</td>
</tr>
<tr>
<td></td>
<td>hyperreflexia, epigastric pain, anxiety</td>
<td></td>
</tr>
<tr>
<td>Eclampsia</td>
<td>Seizures, Coma</td>
<td>IV, Valium for seizures, oxygen, Mag. Sulf (2 G. over 3-5 minutes – SLOW IV push)</td>
</tr>
<tr>
<td>HELLP Syndrome</td>
<td>Hemolytic anemia, &gt; liver enzymes, &lt; platelets, ABD pain, blurred vision,</td>
<td>Oxygen, IV. (Hospital may have blood transfusion, Mag. Sulf. drip)</td>
</tr>
<tr>
<td></td>
<td>headache, edema</td>
<td></td>
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## PEDIATRICS EMERGENCIES

### PEDIATRIC PRIMARY SURVEY

#### Assessment:
- Field Primary Survey
- Establish level of responsiveness
- Evaluate airway and protective airway reflexes

#### Treatment:
- Basic airway/spinal immobilization as needed Oxygen
- Assist ventilation as needed
- Stop hemorrhage, evaluate and support circulation
- Do environmental assessment, including consideration of intentional injury
- Determine appropriate treatment protocol

#### Special Considerations:
Determine scene safety. Position patient so that he/she may be cared for safely.

Recognize signs of airway obstruction and respiratory distress, including:
- *cyanosis*
- *apnea or bradypnea*
- *nasal flaring*
- *drooling*
- *choking*
- *stridor*
- *tachypnea*
- *bradycardia*

Open the airway using jaw-thrust and chin-lift (and/or head tilt if no suspected spinal trauma). Use appropriate airway, mask, or oxygen as tolerated, with child in position of comfort.

If cervical spine trauma is suspected, immobilize spine with cervical immobilization collar (appropriate for size) and backboard.

For CPR information – refer to the AHA BLS and PALS guidelines
### Infant & Child Resuscitation

#### Assessment:
- Elapsed time since the child was last seen in good health
- History of any recent illness
- Past medical history
- Airway: obstruction, stridor, wheezing, drooling, cough
- Breathing: Respiratory rate, skin color, chest wall movement and symmetry, work of breathing (grunting, nasal flaring, retractions)
- Circulation: heart rate, pulse, capillary filling time, skin color, extremity skin temperature
- Level of consciousness, mentation
- Associated injuries

Pediatric arrests are most likely to be primary respiratory events. The rescuer’s primary attention must be directed to securing the airway and providing good ventilation before specific treatment of cardiac rhythm. Any cardiac rhythm can spontaneously convert to sinus rhythm in a well-ventilated child.

Oxygen and epinephrine are the mainstays of pediatric resuscitation. Atropine and Sodium Bicarbonate are much less likely to be effective.

Cardiopulmonary arrest in a trauma situation is treated with rapid transport and CPR en-route.

The most successful pediatric resuscitations occur before a full cardiopulmonary arrest. Assess pediatric patients carefully and assist with airway, breathing, and circulation problems before the arrest occurs.

#### Treatment:

<table>
<thead>
<tr>
<th>B</th>
<th>Airway/Breathing:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Manage the airway. Assist bag-valve-mask ventilations 20 breaths per minute with 100% oxygen for severe respiratory depression. Use blow-by or mask with 100% oxygen for mild distress.</td>
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<table>
<thead>
<tr>
<th>A</th>
<th>Circulation: Initiate CPR (as needed);</th>
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<tbody>
<tr>
<td></td>
<td>If signs of diminished perfusion and heart rate &lt; 80/min. in an infant, consider CPR:</td>
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<tr>
<td></td>
<td><a href="#">See Neonatal Resuscitation guideline</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I85</th>
<th>Establish venous access. Infants and small children – If unable to establish an IV after 1 attempt, call AEMT or Paramedic for possible Intraosseous placement.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>If any question of volume depletion, infuse a NS fluid bolus (20 mL/kg). Contact medical control if you feel you need a second fluid bolus.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>P</th>
<th>Specific treatment should be focused on the etiology of the arrest or critical nature of the illness.</th>
</tr>
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<tr>
<td></td>
<td>Stabilizing the airway and supporting respirations is the mainstay of treatment.</td>
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<tr>
<td></td>
<td>Establish vascular access with normal saline infuse per Broselow tape. If unable to establish an IV after 1 attempt, establish an IO for fluid and medication infusions.</td>
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<tr>
<td></td>
<td>Arrhythmias are treated as noted in specific Arrhythmia Algorithms. See drug guidelines for pediatric doses.</td>
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</table>
**Neonatal Resuscitation** (A neonate < 30 days old)

**BLS Treatment:**
- Position the airway. Suction the mouth and nasopharynx. Administer oxygen.
- Evaluate respirations
- Assist bag-valve-mask ventilations 40-60 breaths per minute with 100% oxygen for severe respiratory depression. Use blow-by or mask with 100% oxygen for mild distress.
- Dry and keep warm with thermal blanket or dry towel. Cover scalp with stocking cap or blanket.
- Check heart rate at umbilical cord stump.
- If signs of diminished perfusion and heart rate less than 80/min. in a neonate, consider CPR

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<td>• If thick meconium is present; or thin meconium with respiratory distress, perform deep ET suction, using appropriate suction adapter if available.</td>
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<td>• Perform chest compressions with both thumbs (with hands encircling the back) at the mid-sternum and just below the intermammary line at a depth of ½”-3/4”</td>
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</table>

**ALS Treatment:**

**Heart rate < 60/min**
- Continue with assisted ventilations
- Begin chest compressions at 120/min, 3:1
- If no improvement after 15-30 seconds, perform endotracheal intubation
- Establish vascular access with normal saline infuse per Broselow tape
- If no improvement, first dose of Epinephrine 1:10,000 per Broselow tape or epinephrine 1:10,000 dose is 0.1-0.3 mL/kg IV or ET, dilute ET dose with 1-2 ml NS.
- Reassess heart rate and respirations en-route

**Heart rate 60-80/min**
- Continue assisted ventilations
- If no improvement after 15-30 seconds of ventilation with 100% oxygen, begin chest compressions.
- Reassess heart rate and respirations en-route

**Heart rate 80-100/min**
- Continue assisted ventilations and stimulate
- Reassess heart rate and respirations after 15-30 seconds. If heart rate < 100 begin assisted ventilations with 100% oxygen. Reassess heart rate after 15-30 seconds

**Heart rate >100/min**
- Check skin color. If central cyanosis, give oxygen by mask or blow-by
- Reassess heart rate and respirations en-route
**OB/GYN & PEDIATRICS GUIDELINES**

**Assessment:**
- Primary field survey
- Perform Patient Assessment
- Be alert for and treat for dyspnea.
- Be alert for and treat for shock.
- Presence of edema of tongue, mouth and/or throat, dyspnea, and/or hypoperfusion are indications for immediate transport
- Obtain pertinent medical history
- Note the medications the patient has taken, how much, when, and response.

**Treatment:**

| B | Apply oxygen  
Rapid transport |
| I85 | **Mild Respiratory Distress**  
− Cardiac Monitor  
− Vascular access PRN |
| A | **Wheezing**: If patient is wheezing, administer albuterol 2.5 mg in 3 cc of NS or DuoNeb by nebulizer.  
If child is unable or unwilling to deal with nebulizer, administer epinephrine 1:1000 SQ/IM, dose 0.01 mL/kg. Max single dose of 0.4 mL. |
| P | **Severe Respiratory Distress**  
− Advanced airway PRN  
− Epinephrine 1:10,000 - dose 0.1 mL/kg IV or IO over 10 minutes. Max. single dose of 0.1 mg or 1 mL.  
If wheezing is severe, administer albuterol 2.5 mg in 3 cc of NS or Xopenex continuously. Repeat until O2 sats > 95%.  
For diminished perfusion administer 20 cc/kg fluid bolus IV or IO |

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**Special Considerations**

Simple hives do not require field treatment. Always reassess after each intervention.

If child is intubated and only access is per ET tube, administer Epinephrine 1:1000 0.1mL/kg ET.

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**ALTERED LEVEL OF CONSCIOUSNESS**

If time to ALS care is prolonged (30-45 minutes), evaluate LOC. Consult Medical Control if patient is alert and oriented. Consider administration of oral glucose agents for conscious diabetic with intact gag reflex.

**Assessment**

- Assess and support ABC’s, oral or nasal airway as tolerated
- Assess vital signs (BP, pulse, respirations, SPO2)
- Consider febrile seizure etiology
- Consider c-spine precautions as indicated

**Treatment:**

| B | Begin high flow oxygen. Be prepared to assist ventilations if necessary.  
If no trauma, transport patient in recovery position to protect airway.  
Prepare for possible seizures.  
Rapid Transport as needed. |
| I85 | **Cardiac Monitor**  
Establish IV/IO PRN |
| A | **Glucose test**: If glucose test shows glucose < 60 (< 40 in neonates);  
− If patient is > 2 years old, then use D50=1 mL/kg  
− If patient is < 2 years old, then use D25=2 mL/kg (can dilute D50 with NS 1:1)  
− If patient is neonate, then use D10=3 mL/kg (is made by diluting D50 with NS 4:1)  
If no response to Dextrose;  
− consider Narcan (Naloxone) 0.4-2 mg IV/OO  
− If in doubt, give the D50/25/10 as appropriate.  
If mental status and respiratory effort are decreased, administer Narcan per Broselow or 0.1 mg/kg IV, IO max of 2 mg.  
| P | Advanced airway PRN |

---

**Special Considerations**

Consider etiology and appropriate protocols:  
Shock Toxic exposure/ingestion Head trauma  
Seizure Child abuse or neglect
BURNS

ASSESSMENT

• ENSURE YOUR OWN SAFETY.
• Stop the burning process.
• For large burns or burns that threaten the airway, call ALS.
• Perform Rapid Trauma Assessment.
• Be alert and treat for airway and respiratory compromise.
• Be alert and treat for shock.
• Identify mechanism of injury.
• Estimate depth of burn, length of exposure, and percent of body surface area injured.

Special Considerations

❖ Apply 100 % oxygen by non-rebreather mask for potential inhalation injury.
❖ Do not apply cold dressings or allow environmental exposure, since hypothermia can result.
❖ Transport immediately.
❖ Consider consulting Medical Control for direct diversion to burn center when appropriate.

Treatment:

Remove jewelry, clothing and shoes.

If chemical is dry:
• brush off, then flush with copious amounts of water.

If liquid:
• flush with copious amounts of water.

If eye involvement:
• flush continuously with saline during transport.

Apply clean dry dressings to involved areas.
Minor burns or involving < 10 % can utilize burn gel.
Rapid transport

RESPIRATORY DISTRESS

Assessment:

Primary field survey
Perform patient assessment
Consider foreign body airway obstruction

Special considerations

❖ If basic airway cannot be established, consider foreign body obstruction and proceed with appropriate airway clearance maneuvers, based on patient age.
❖ If attempts at clearing obstructed airways with maneuvers are unsuccessful, proceed with appropriate surgical airway.
❖ Other non-obstructive causes of respiratory insufficiency
❖ Naloxone per Broselow tape or Naloxone [0.1 mg/kg] if narcotic OD is suspected.
❖ Naloxone in newborns is indicated for children of mothers who have been given or abused narcotics.

Treatment:

− Monitor O2 saturation
− Oxygen 15L NRB or nasal cannula
− Position of comfort. Enlist help of child’s caretaker, if distress is mild-moderate
− Consider BVM in child with significant distress or inadequate (too slow or fast) respiratory rate or depth.
− Rapid transport

Secure airway as needed

Cardiac monitor

Secure airway as needed.
Administer albuterol 2.5 mg in 3 cc of NS or DuoNeb by nebulizer. Consult MD for consequent nebulizer treatments.

If child is not able to cooperate with nebulizer use Epinephrine 1:1000 per Broselow tape or Epinephrine 1:1000 dose 0.01 ml/kg SQ.
− Maximum dose 0.4 ml, every 20-30 minutes times 3 doses PRN.
− Do not use this if the child has already been treated with epinephrine in the preceding 15 minutes. Max. dose of 0.3 mg. May repeat once.
## SEIZURES

### Assessment
- Perform Patient Assessment.
- Obtain pertinent medical history.
  - Medical alert tag, known seizure disorder.
  - Medications, what and when last taken.
- Recent trauma.
- Note fever, particularly in children under 5 years old.
  - Obtain rectal or oral temp as practical
- Note number and duration of seizures
- Protect patient from injury

### Special Considerations

Be prepared to support ventilations with oxygenation via BVM or by advanced airway.

### Treatment:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B</strong></td>
<td>Apply oxygen, UNIMPROVED ventilations or seizure &gt; 5 minutes, initiate BVM ventilations</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>Remove nearby objects that could injure child. Position on side if possible and gently support head of child to prevent further injury. Rapid transport</td>
</tr>
<tr>
<td><strong>I85</strong></td>
<td>Consider Cardiac Monitor Establish IV PRN</td>
</tr>
</tbody>
</table>
| **A** | **Glucose test:** If glucose test shows glucose < 60 (< 40 in neonates);  
- If patient is > 2 years old, then use D50=1 mL/kg  
- If patient is < 2 years old, then use D25=2 mL/kg (can dilute D50 with NS 1:1)  
- If patient is neonate, then use D10=3 mL/kg (is made by diluting D50 with NS 4:1)  
If no response to Dextrose;  
- consider Narcan (Naloxone) 0.4-2 mg IV/IO  
- If in doubt, give the D50/25/10 as appropriate.  
If mental status and respiratory effort are decreased, administer Narcan per Broselow or 0.1 mg/kg IV, IO max of 2 mg. |
| **P** | Actively seizing patients should receive Valium 0.02 mg/kg Max dose of 5 mg |
| **P** | If unable to establish IV, administer Valium 0.5 mg/kg rectally Cardiac monitor |

## SHOCK

### Assessment:
- Primary field survey
- Perform Patient Assessment
- Pulse oximetry

- **Distributive, Sepsis & Anaphylaxis**
  Fluid boluses at 20 cc/kg IV or IO
  If history of fever or suspected infection, administer additional boluses at 20 cc/kg PRN, maximum 60 ml/kg.
  If suspected allergic reaction, follow anaphylactic protocol.

- **Cardiogenic**
  Consider rhythm disturbances.
  Fluid bolus at: 10 cc/kg IV or IO

### Treatment:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B</strong></td>
<td>If trauma; stop external ongoing bleeding Apply oxygen by non-rebreather at 10 LPM Rapid transport</td>
</tr>
</tbody>
</table>
| **I85** | Hypovolemia, Trauma, dehydration and burns-Cardiac monitor  
Vascular access; Fluid bolus via IV (or IO for AEMT) of NS at a rate of 20 cc/kg |
| **A** | If suspected history of volume loss and no improvement after initial fluid bolus, administer additional boluses at 20 cc/kg PRN to 60 cc/kg max |
| **P** | Advanced airway PRN If IV cannot be established, consider IO infusion |
TOXIC EXPOSURE

PROTECT YOURSELF FROM POSSIBLE EXPOSURE

ASSESSMENT

- Perform Patient Assessment.
- Obtain pertinent history
- Identify time of exposure, contaminant & quantity.
  If possible, take empty containers to hospital.
- Medical control may provide specific information about individual toxic exposures and treatments.
- Rapid Transport

Special Considerations

- Consider hazardous material exposure and consultation with appropriate advisory agency, prior to decontamination or patient contact procedures.
- If suspected opiate overdose in non-neonate, administer Narcan per Broselow tape or 0.1 mg/kg max 2 mg IV/IO

TREATMENT:

<table>
<thead>
<tr>
<th>B</th>
<th>Be alert for and treat respiratory difficulty.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Be alert for and treat shock.</td>
</tr>
<tr>
<td></td>
<td>Be alert for and treat seizures</td>
</tr>
<tr>
<td>A85</td>
<td>Cardiac Monitor</td>
</tr>
<tr>
<td>A</td>
<td>Establish IV PRN</td>
</tr>
<tr>
<td>P</td>
<td>Advanced Airway PRN</td>
</tr>
<tr>
<td></td>
<td>Cardiac monitor</td>
</tr>
</tbody>
</table>

TRAUMA

Assessment:

Primary field survey.
Perform Patient Assessment

Special Considerations

- Immobilize spine of patients with mechanism, signs or symptoms suspecting spinal trauma.
- If avulsed tooth, transport tooth in milk or normal saline.
- Remember inline stabilization when intubating trauma patients.
- See shock guideline if shock present

TREATMENT:

<table>
<thead>
<tr>
<th>B</th>
<th>Control external hemorrhage with direct pressure.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>If extremity amputated, place amputated part in moist saline gauze in sterile container and place container on ice if available.</td>
</tr>
<tr>
<td></td>
<td>Penetrating Trauma: Seal sucking chest wounds</td>
</tr>
<tr>
<td></td>
<td>Be alert for and treat shock.</td>
</tr>
<tr>
<td></td>
<td>Spinal immobilization and Splints PRN</td>
</tr>
<tr>
<td></td>
<td>Rapid transport</td>
</tr>
<tr>
<td>A85</td>
<td>Hypovolemic shock: Establish IV (or IO for AEMT), NS - Consider fluid challenge at 20 cc/kg</td>
</tr>
<tr>
<td>A</td>
<td>Establish IV (or IO for AEMT), NS - Consider fluid challenge at 20 cc/kg</td>
</tr>
<tr>
<td>P</td>
<td>Secure Airway if needed.</td>
</tr>
<tr>
<td></td>
<td>Cardiac monitor</td>
</tr>
<tr>
<td></td>
<td>Suspected tension pneumothorax with severe respiratory distress: Consider chest decompression</td>
</tr>
</tbody>
</table>
BROSELOW EMERGENCY TAPE AND PEDIATRIC REFERENCE

Do not commit pediatric protocols to memory. Utilize quick reference guides whenever pediatric calls are encountered.

In pediatric resuscitation, the patient’s body weight should be used to calculate medication and fluid therapy dosage. In an emergency, paramedics may need to estimate the age and weight of an infant or child before a drug dose can be calculated. This often leads to inaccurate drug dosing and the use of incorrect resuscitation equipment and supplies. The Broselow Tape is a practical method of estimating weight from length.

This tape is based on analysis of the weight and height of more than 20,000 children to determine the 50th percentile for weight based on heights. This data was then used to make a measuring tape divided into boxes containing the estimated weights, pre-calculated drug doses, and size equipment appropriate for the child of that length.

Procedure:

- Place the patient supine
- Using the tape, measure the patient from the crown to heel. Place the red end with an arrow at the crown of the child’s head and stretch the tape to the child’s feet.
- Note the box on the tape, which the child’s heel falls.
- If the measurement falls on a line, the box below the line is used to generate the drug doses and equipment needed for resuscitation.
- The tape should be disinfected after use.
- Note: The range for the Broselow Tape is from 3 kg to 34 kg (approx. 7 to 75 lbs). For patients who are above the range for this reference, utilize pediatric drug dosing which is listed in brackets [ ]. There is also a drug reference for this population located in the envelope that holds the Broselow Tape. If there is ever a question in regards to pediatric drug doses or equipment size, contact medical control.
- It is important to note that the volume of epinephrine administered is 0.1 mL/kg whether conventional or high dose epinephrine is provided. The dose of epinephrine is determined by the concentration of the drug.
  - Conventional dose: 0.1 mL/kg of 1:10,000
  - High dose: 0.1 mL/kg of 1:1000 (All doses other than initial dose)
  - All endotracheal doses of epinephrine are high dose.
  - Once IV or IO route available, begin with epinephrine at first dose 0.1 mL/kg of 1:10,000.

Standing Orders

Contact Medical Control early on for cardiac arrests, cardiac rhythm disturbances, shock or trauma. If there are any problems, contact Medical Control.

Medical Control Considerations

Medical Control contact is required for any procedure or medication not listed in the following pediatric protocols.
INTRAOSSEOUS INFUSION

Intraosseous access is a type of vascular access used in children under seven years of age that are in critical condition and where IV cannulation has been unsuccessful. This is the most common vascular method of access for pediatric arrests, but peripheral IV is the first choice. The procedure is outlined in the American Heart Association Pediatric Advanced Life Support Text.

Precautions:
- In a child that is conscious, local anesthesia should be used.
- Do not perform on known or suspected fractured bones.

Possible complications include:
- Subperiosteal or subcutaneous infusion
- Leaking around the puncture site
- Bone growth plate injury
- Osteomyelitis and/or fat embolism

Considerations:
- Flow rates of up to 1200 cc/hr can be achieved with pressure infusion.
- If initial site fails, utilize other tibia or femur, using new needle for each site.
- All medications and fluids used in peripheral lines may be given IO.

Sites for Insertion:

Proximal Tibia:

Anterior medial surface of the tibia 1 cm (1 finger width) medial to the tibial tuberosity on the flat, broad portion of the tibia.

Distal Tibia:

Measure up about three finger breadths superior to the end of the medial malleolus (AD).
### Apgar Score

<table>
<thead>
<tr>
<th>Sign</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Rate (bpm)</td>
<td>Absent</td>
<td>Slow (&lt;100)</td>
<td>&gt; 100</td>
</tr>
<tr>
<td>Respirations</td>
<td>Absent</td>
<td>Slow, irregular</td>
<td>Good, crying</td>
</tr>
<tr>
<td>Muscle Tone</td>
<td>Limp</td>
<td>Some flexion</td>
<td>Active motion</td>
</tr>
<tr>
<td>Reflex irritability</td>
<td>No response</td>
<td>Grimace</td>
<td>Cough, sneeze, cry</td>
</tr>
<tr>
<td>Color</td>
<td>Blue or pale</td>
<td>Pink Body w/ blue extremities</td>
<td>Completely pink</td>
</tr>
</tbody>
</table>

### Newborn Vital Signs

<table>
<thead>
<tr>
<th>Heart Rate (awake):</th>
<th>Size: for children &gt;1 yr</th>
<th>ET Tube Size:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Rate:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systolic blood pressure:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diastolic blood pressure:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 to 180 bpm</td>
<td>age in yrs + 4</td>
<td>Age in yrs + 4</td>
</tr>
<tr>
<td>30 to 60 breaths/min</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>55 to 90 mm Hg</td>
<td>for children &gt;2 yrs</td>
<td></td>
</tr>
<tr>
<td>26 to 55 mm Hg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Vital Signs in Children

<table>
<thead>
<tr>
<th>Age</th>
<th>Awake Rate</th>
<th>Mean</th>
<th>Sleeping Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborn to 3 months</td>
<td>85 to 205</td>
<td>140</td>
<td>80 to 160</td>
</tr>
<tr>
<td>3 months to 2 years</td>
<td>100 to 190</td>
<td>130</td>
<td>75 to 160</td>
</tr>
<tr>
<td>2 to 10 years</td>
<td>60 to 140</td>
<td>80</td>
<td>60 to 90</td>
</tr>
<tr>
<td>&gt; 10 years</td>
<td>60 to 100</td>
<td>75</td>
<td>50 to 90</td>
</tr>
</tbody>
</table>

### Pediatric Trauma Score

<table>
<thead>
<tr>
<th>Category Value</th>
<th>Patient Characteristics</th>
<th>+ 2</th>
<th>+ 1</th>
<th>- 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (kg)</td>
<td>&gt;20</td>
<td>10 to 20</td>
<td>&lt; 10</td>
<td></td>
</tr>
<tr>
<td>Airway</td>
<td>Normal</td>
<td>Maintained</td>
<td>Unmaintained</td>
<td></td>
</tr>
<tr>
<td>Systolic BP (mm Hg)</td>
<td>&gt; 90</td>
<td>50 to 90</td>
<td>&lt; 50</td>
<td></td>
</tr>
<tr>
<td>Central Nervous System</td>
<td>Awake</td>
<td>Obtunded</td>
<td>Coma/decerebrate</td>
<td></td>
</tr>
<tr>
<td>Open Wound</td>
<td>None</td>
<td>Minor</td>
<td>Major/penetrating</td>
<td></td>
</tr>
<tr>
<td>Skeletal Trauma</td>
<td>None</td>
<td>Closed fractures</td>
<td>Open, multiple fractures</td>
<td></td>
</tr>
</tbody>
</table>

*Add the value for each patient characteristic. Highest possible total score is +12, and lowest possible score is -6.*

### Respiratory Rate (Breaths/Min)

<table>
<thead>
<tr>
<th>Age</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant</td>
<td>30 to 60</td>
</tr>
<tr>
<td>Toddler</td>
<td>24 to 40</td>
</tr>
<tr>
<td>Preschooler</td>
<td>22 to34</td>
</tr>
<tr>
<td>School-age child</td>
<td>18 to 30</td>
</tr>
<tr>
<td>Adolescent</td>
<td>12 to 16</td>
</tr>
</tbody>
</table>

### Blood Pressure

**Typical Systolic BP in children 1 to 10 (50th %)**

90 mm Hg + (child’s age in years X 2) mm Hg

**Lower limits of systolic BP in children 1 to 10 (5th %)**

70 mm Hg + (child’s age in years X 2) mm Hg
## DEHYDRATION ASSESSMENT

<table>
<thead>
<tr>
<th>Clinical Findings</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Rate</td>
<td>Normal</td>
<td>Increased</td>
<td>&gt; 130 / min.</td>
</tr>
<tr>
<td>Respiratory Rate</td>
<td>Normal</td>
<td>Increased</td>
<td>Tachypneic</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>Normal</td>
<td>Normal</td>
<td>Systolic &lt; 80</td>
</tr>
<tr>
<td>Peripheral Pulses</td>
<td>Normal</td>
<td>Diminished</td>
<td>Absent</td>
</tr>
<tr>
<td>Capillary Refill</td>
<td>Normal</td>
<td>2-3 seconds</td>
<td>&gt; 2 seconds</td>
</tr>
<tr>
<td>Mental Status</td>
<td>Alert</td>
<td>Irritable</td>
<td>Lethargic</td>
</tr>
<tr>
<td>Fontanelle</td>
<td>Flat</td>
<td>Depressed</td>
<td>Sunken</td>
</tr>
<tr>
<td>Turgor</td>
<td>Norm - slightly decreased</td>
<td>Decreased</td>
<td>Markedly decreased</td>
</tr>
<tr>
<td>Mucous membranes</td>
<td>Dry</td>
<td>Very Dry; may see tears</td>
<td>Parched; No tears</td>
</tr>
<tr>
<td>Temperature</td>
<td>Warm</td>
<td>Cool</td>
<td>Cool; clammy</td>
</tr>
<tr>
<td>Eyes</td>
<td>Normal</td>
<td>Darkened; sunken</td>
<td>Sunken; soft</td>
</tr>
<tr>
<td>Thirst</td>
<td>Increased</td>
<td>Intense</td>
<td>Intense; if conscious</td>
</tr>
</tbody>
</table>

## DIFFERENCES BETWEEN CROUP AND EPIGLOTTITIS

<table>
<thead>
<tr>
<th>Croup</th>
<th>Epiglottis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usually caused by viral infection</td>
<td>Usually caused by bacterial infection</td>
</tr>
<tr>
<td>Usually occurs during late fall and early winter</td>
<td>No season preference</td>
</tr>
<tr>
<td>Occurs in ages 3 months - 3 years</td>
<td>Occurs in ages 3-7 years (can develop in adults)</td>
</tr>
<tr>
<td>Slow onset</td>
<td>Rapid onset</td>
</tr>
<tr>
<td>Patient will either lie down or sit up</td>
<td>Patient will sit upright in a tripod position</td>
</tr>
<tr>
<td>Barking cough present</td>
<td>No barking cough</td>
</tr>
<tr>
<td>No drooling</td>
<td>Pain on swallowing causing drooling</td>
</tr>
<tr>
<td>Temperature &gt; 104* F</td>
<td>Temperature &gt; 104* F</td>
</tr>
</tbody>
</table>

## DIFFERENCES BETWEEN ASTHMA AND BRONCHIOLITIS

<table>
<thead>
<tr>
<th>Asthma</th>
<th>Bronchiolitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occurs at any age</td>
<td>Occurs between 6-18 months of age</td>
</tr>
<tr>
<td>Occurs in winter and spring</td>
<td>Can occur at any time</td>
</tr>
<tr>
<td>Response to allergy, exercise, or infection</td>
<td>Caused by a virus</td>
</tr>
<tr>
<td>Family history of asthma</td>
<td>Usually no history of asthma</td>
</tr>
<tr>
<td>Drugs reverse bronchospasm</td>
<td>Drugs may not always be effective</td>
</tr>
</tbody>
</table>
BLS Healthcare Provider

Pediatric Cardiac Arrest Algorithm for the Single Rescuer—2015 Update

Verify scene safety.

Victim is unresponsive. Shout for nearby help. Activate emergency response system via mobile device (if appropriate).

Activate emergency response system (if not already done). Return to victim and monitor until emergency responders arrive.

Look for no breathing or only gasping and check pulse (simultaneously). Is pulse definitely felt within 10 seconds?

No breathing or only gasping, no pulse

Witnessed sudden collapse?

Yes

Activate emergency response system (if not already done), and retrieve AED/defibrillator.

No

CPR

1 rescuer: Begin cycles of 30 compressions and 2 breaths. (Use 15:2 ratio if second rescuer arrives.) Use AED as soon as it is available.

After about 2 minutes, if still alone, activate emergency response system and retrieve AED (if not already done).

AED analyzes rhythm. Shockable rhythm?

Yes, shockable

Give 1 shock. Resume CPR immediately for about 2 minutes (until prompted by AED to allow rhythm check). Continue until ALS providers take over or victim starts to move.

No, nonshockable

Resume CPR immediately for about 2 minutes (until prompted by AED to allow rhythm check). Continue until ALS providers take over or victim starts to move.

Provide rescue breathing: 1 breath every 3-5 seconds, or about 12-20 breaths/min.
- Add compressions if pulse remains ≤60/min with signs of poor perfusion.
- Activate emergency response system (if not already done) after 2 minutes.
- Continue rescue breathing; check pulse every 2 minutes. If no pulse, begin CPR (go to “CPR” box).
NALS – NEONATAL ADVANCED LIFE SUPPORT

Neonatal Resuscitation Algorithm—2015 Update

Antenatal counseling
Team briefing and equipment check

Birth

Term gestation?
Good tone?
Breathing or crying?

Yes

No

Infant stays with mother for routine care: warm and maintain normal temperature, position airway, clear secretions if needed, dry. Ongoing evaluation

Warm and maintain normal temperature, position airway, clear secretions if needed, dry, stimulate

1 minute

Apnea or gasping?
HR below 100/min?

Yes

No

Labored breathing or persistent cyanosis?

Yes

No

PPV
SpO₂ monitor
Consider ECG monitor

Position and clear airway
SpO₂ monitor
Supplementary O₂ as needed
Consider CPAP

Postresuscitation care
Team debriefing

HR below 100/min?

Yes

No

Check chest movement
Ventilation corrective steps if needed
ETT or laryngeal mask if needed

Targeted Preductal SpO₂

After Birth

1 min 60%-65%
2 min 65%-70%
3 min 70%-75%
4 min 75%-80%
5 min 80%-85%
10 min 85%-95%

HR below 60/min?

Yes

Intubate if not already done
Chest compressions
Coordinate with PPV
100% O₂
ECG monitor
Consider emergency UVC

IV epinephrine
If HR persistently below 60/min
Consider hypovolemia
Consider pneumothorax

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