BMRC Training 11/18/2025

Pediatrics & OB

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Pediatric Assessment

What defines a pediatric patient?

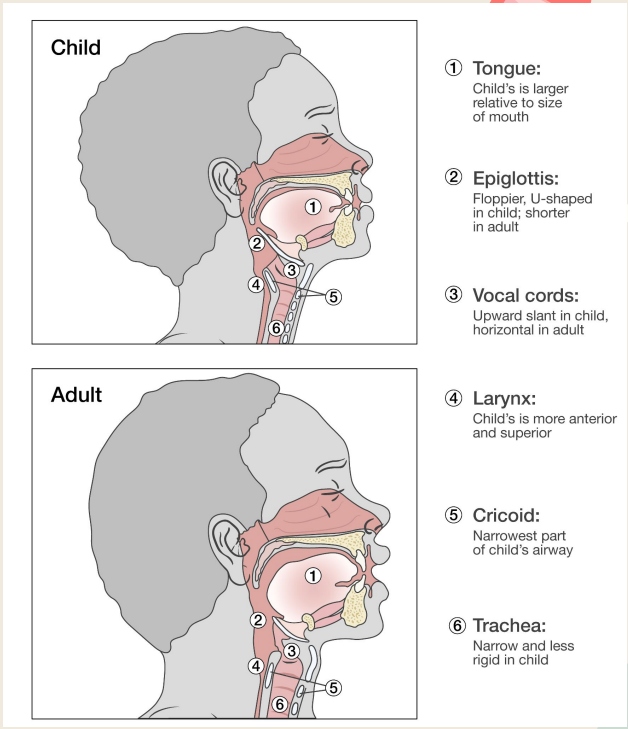
- Generally under 14 years old; use age, physical characteristics (signs of puberty)
    - General impression is also helpful
- Subgroups
    - Infants
    - Toddlers
    - Children

Why it matters

- Pediatric patients are not just small adults
  - **Expressed consent**: parent or guardian for a non-emergency medical procedure gives clear consent (written or verbal consent)
  - **Implied consent**: assumed in life-saving emergency situations when a parent is unavailable or consent conveyed through patient's actions
- Differences in anatomy and physiology

Anatomy and Physiology (Airway)

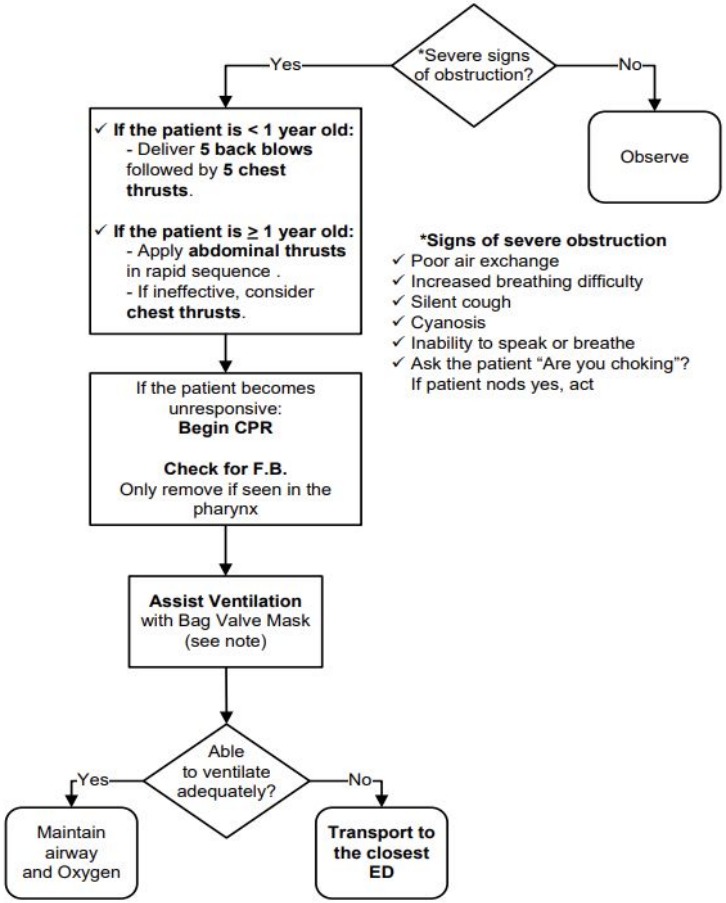
- Proportionally large head/tongue; **narrow airway →** easy obstruction
- Obligate nose breathers (breathe through nose, under 6 months)
- **Trachea shorter & more flexible ⇒** Important positioning for assessment/treatment



ALCO Protocols

AIRWAY OBSTRUCTION

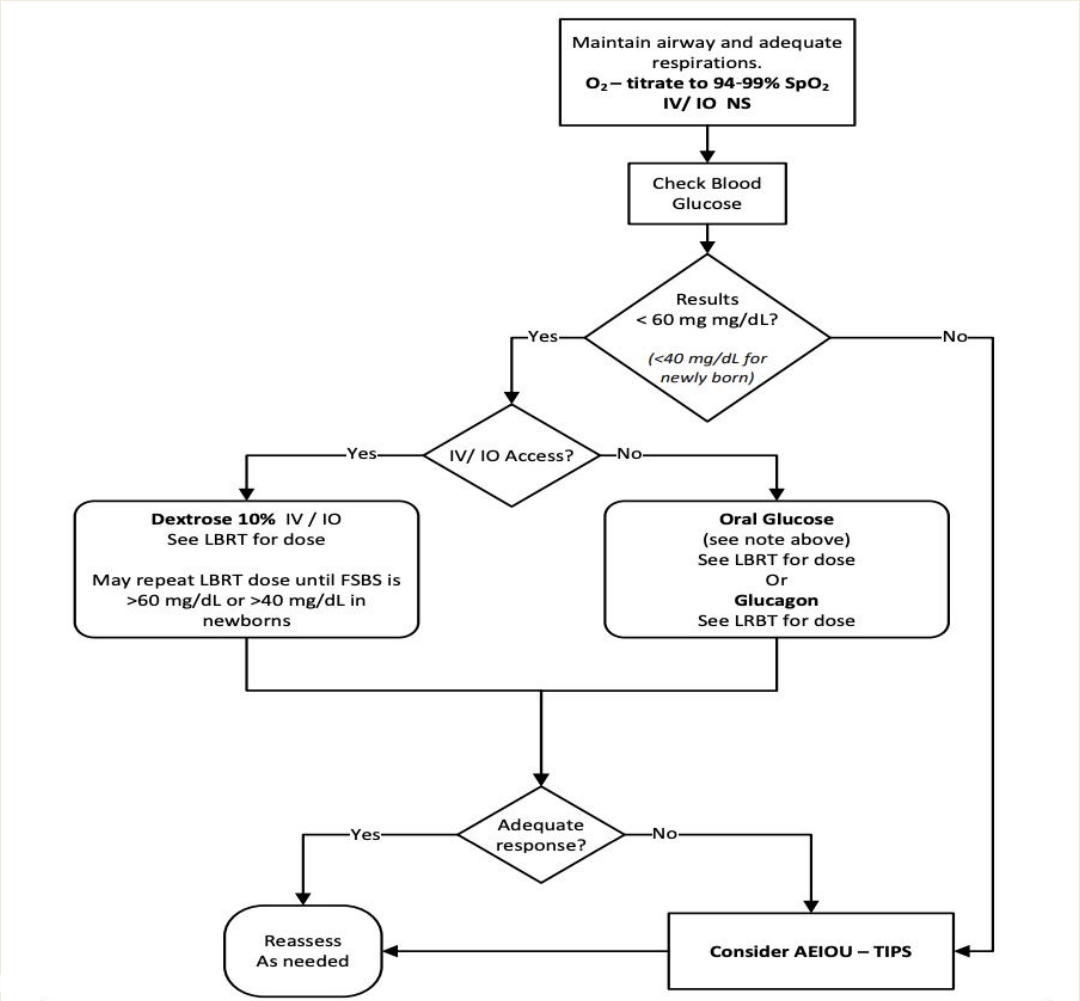
- **Pediatric Routine Medical Care**
- If airway obstruction is caused by laryngeal trauma, see **page 25** "Trauma Patient Care"
- Do not use a tongue/jaw lift or perform blind finger sweeps
- Obstruction due to suspected epiglottitis:
  - ➔ Do not attempt to visualize the throat or insert anything into the mouth
  - ➔ Minimize outside stimulation. Keep the patient calm. Position of comfort.
- **Rapid Transport**
- **Note:** Manage the patient's airway with proper airway positioning, simple airway adjuncts, suctioning, and BVM ventilation as necessary. Consider Advanced Airway Management (**page 112**) if BVM ventilation is not adequate.


*Severe signs of obstruction?
Yes
No
Observe
✓ If the patient is < 1 year old:
- Deliver 5 back blows followed by 5 chest thrusts.
✓ If the patient is ≥ 1 year old:
- Apply abdominal thrusts in rapid sequence .
- If ineffective, consider chest thrusts.
*Signs of severe obstruction
✓ Poor air exchange
✓ Increased breathing difficulty
✓ Silent cough
✓ Cyanosis
✓ Inability to speak or breathe
✓ Ask the patient "Are you choking"? If patient nods yes, act
If the patient becomes unresponsive:
Begin CPR
Check for F.B.
Only remove if seen in the pharynx
Assist Ventilation with Bag Valve Mask (see note)
Able to ventilate adequately?
Yes
No
Maintain airway and Oxygen
Transport to the closest ED

ALCO Protocols Cont.

ALTERED LEVEL OF CONSCIOUSNESS

- **Pediatric Routine Medical Care**
- Naloxone **should not** be given as treatment for altered level of consciousness in the absence of respiratory depression (respiratory depression = rate of less than 12 breaths per minute) (see **page 77**)
- **Consult with the Base Physician** if the Blood Glucose reading is ≥ 60 mg% but hypoglycemia is suspected
- **Use an LBRT to determine pediatric drug doses** (Shown underlined on the algorithm)
- **Note: Oral Glucose** may be administered if the patient: **1)** is able to hold head upright; **2)** has a gag reflex; and, **3)** can self-administer the medication
- **Note:** A newborn in this protocol is considered such for the first 30 minutes after being born.


Maintain airway and adequate respirations.
O_2 – titrate to 94-99% SpO_2
IV/ IO NS
Check Blood Glucose
Results < 60 mg mg/dL?
(<40 mg/dL for newly born)
Yes
No
IV/ IO Access?
Yes
No
Dextrose 10% IV / IO
See LBRT for dose
May repeat LBRT dose until FSBS is >60 mg/dL or >40 mg/dL in newborns
Oral Glucose
(see note above)
See LBRT for dose
Or
Glucagon
See LRBT for dose
Adequate response?
Yes
No
Reassess As needed
Consider AEIOU – TIPS

Anatomy and Physiology (Breathing)

- Diaphragm-dependent (**Belly movement**)
- Higher (faster) RR ⇒ Easily fatigued
- Note patterns of breathing & signs of respiratory distress:
  - nasal flaring
  - retractions (*sucking in of the chest*)
  - grunting
  - wheezing sounds

Normal Resting Respiratory Rates in Children

Age	Normal Resting Respiratory Rate
Newborn	30-60 breaths per minute
1-6 Months	30-50 breaths per minute
6-12 Months	24-46 breaths per minute
1-4 Years	20-30 breaths per minute
4-6 Years	20-25 breaths per minute
6-12 Years	16-20 breaths per minute
> 12 Years	12-16 breaths per minute

KidNurse

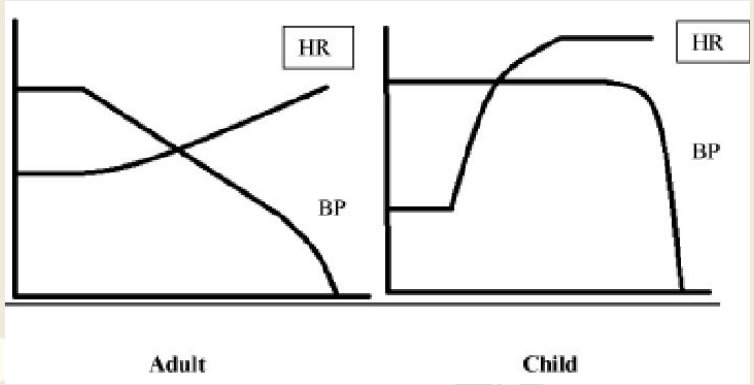
*Reference: The Pediatric Emergency Medicine Resource, AAP

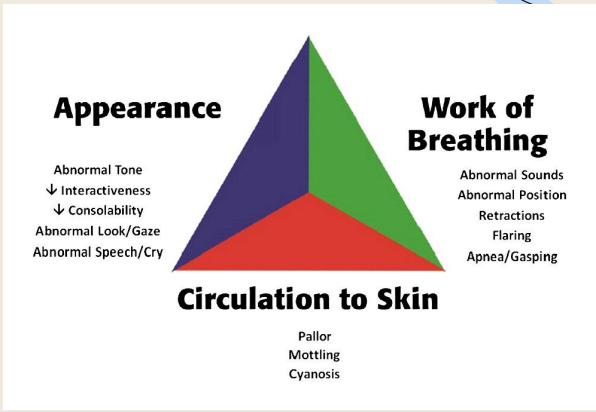
Anatomy and Physiology (Circulation)

- Less total blood volume ⇒ minor blood loss can be life-threatening
- Higher HR (quick decompression/ faster heat loss)
- Pediatric BP is lower
- Note signs of inadequate circulation (pallor, mottling, cyanosis)

Shock Progression for adults vs peds

- Adult: "slow and shakily, but more consistent"
- Pediatric: "compensate until breaking point, vitals will drop quickly"





Pediatric Assessment Triangle (PAT)

Purpose: to rapidly form a first impression of a pediatric patient's condition visually (Helpful for interaction with patient)

Pediatric Vitals Chart

PEDIATRIC VITAL SIGNS

Age	HEART RATE		RESP	BLOOD PRESSURE			
	Awake HR (beats/min)	Sleeping HR (beats/min)	Resp Rate (breaths/min)	Minimal Systolic Pressure (mmHg)	Systolic Pressure (mmHg)	Diastolic Pressure (mmHg)	Mean Arterial Pressure (mmHg)
Neonate (0-30 days)	100-205	90-160	40-60	60	60-84	31-53	48-60
Infant (1-12 months)	100-180	90-160	30-53	70	72-104	37-56	50-62
Toddler (1-2 years)	98-140	80-120	22-37	74	86-106	42-63	49-62
Preschooler (3-5 years)	80-120	65-100	20-28	78	89-112	46-72	58-69
School aged (6-9 years)	75-118	58-90	18-25	86	97-115	57-76	66-72
10+ years	60-100	50-90	12- 20	90	102-131	61-83	71-79

Approved by Dr. Daftary | July 2021

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- Recommend that EMTs keep this saved on phone, wallet etc. as pediatric vitals have different specifics and divisions compared to adults.

Communicating With Kids

- Be honest: avoid false reassurance; kids can tell when you are lying

  ⇒ **Use trusted caregiver** to help calm child

- Use simple, age-appropriate language

  ⇒ Get down to their level

- Explain what you're going to do before you do it

  ⇒ Make sure the child feels safe and respected

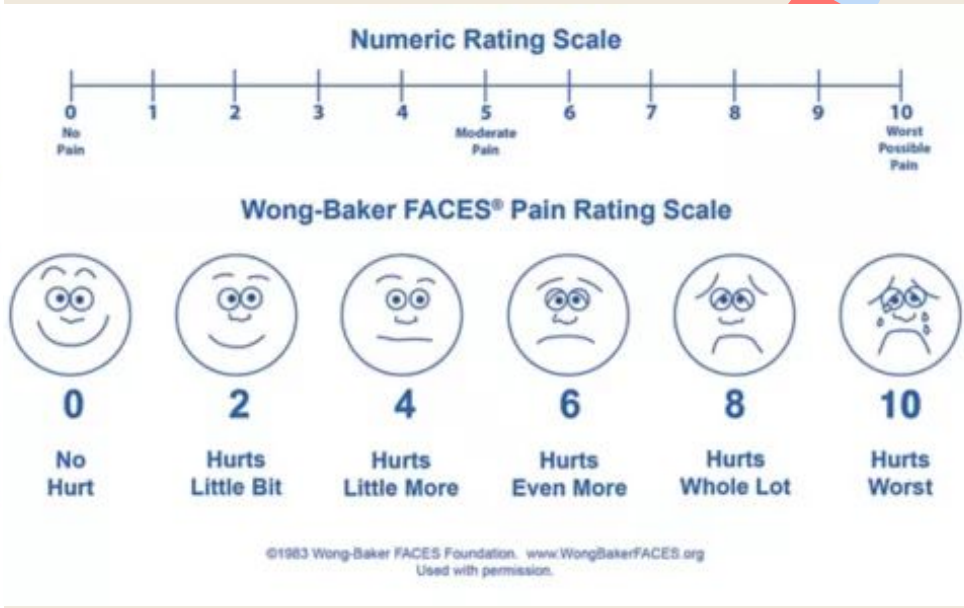
Pediatric Pain Assessment

FLACC Scale[2]	0	1	2
1 Face	No particular expression or smile.	Occasional grimace or frown, withdrawn, disinterested.	Frequent to constant frown, clenched jaw, quivering chin.
2 Legs	Normal position or relaxed.	Uneasy, restless, tense.	Kicking, or legs drawn up.
3 Activity	Lying quietly, normal position, moves easily.	Squirming, shifting back and forth, tense.	Arched, rigid or jerking.
4 Cry	No crying (awake or asleep).	Moans or whimpers; occasional complaint.	Crying steadily, screams or sobs, frequent complaints.
5 Consolability	Content, relaxed.	Reassured by occasional touching, hugging or being talked to, distractible.	Difficult to console or comfort.

REFERENCES:
1. Pain FACES based on Wong D.L., Hockenberry-Eaton M., Wilson D., Winkelstein M.L., Schwartz P: *Wong's Essentials of Pediatric Nursing*, ed 6, St. Louis, 2001, p. 1301 © by Mosby, Inc.
2. From The FLACC: A behavioral scale for scoring postoperative pain in young children, by S Merkel and others, 1997, Pediatr Nurse 23(3), p. 293-297. ©1997 by Jannetti Co. University of Michigan Medical Center.

Product ID: PGPA-130
(877) 646-5877
HealthcareInspirations.com/pain

Healthcare Inspirations



- Use behavioral scales for non-verbal infants and children

- Use self-report scales for verbal children

ALCO Protocols

ROUTINE MEDICAL CARE - PEDIATRIC

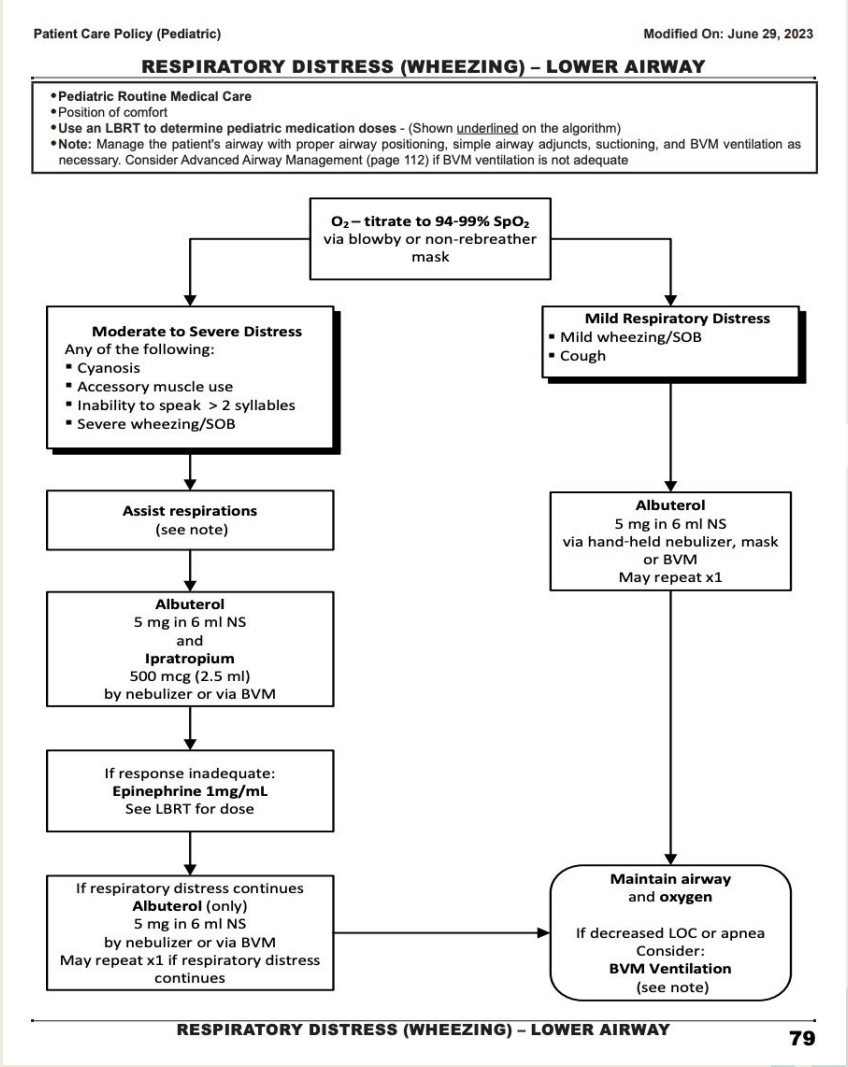
The defined age of a pediatric patient is **14 years old or less**, and unless specified otherwise, pediatric protocols should be used to treat these patients. Note: An infant is considered to be < 1 year old. A child is considered to be ≥ 1 year old. Specified ages for transport or treatment other than 14 years old include:

TRANSPORT	TREATMENT
5150 Psych Evaluation (page 128): ➔ Children (≤ 11 y.o.) – Children's Hospital ➔ Adolescents (≥ 12 y.o. & ≤ 17 y.o.) – ALCO Youth CSU **Trauma Destination (page 26):** ➔ ≤ 14 y.o. – Children's Hospital ➔ ≥ 15 y.o. – Closest Adult Trauma Center **Sexual Assault (page 3):** ➔ Children (≤ 13 y.o.) – Children's Hospital ➔ All Others (≥ 14 y.o.) – Highland or Washington	**Advanced Airway Management (page 112):** ➔ <40kg- authorized airway is OPA/NPA, BVM, or SGA **CPAP (page 118):** ➔ < 8 y.o. – Absolute Contraindication **IO Access (page 125):** **Refusal of Care (page 114):** ➔ ≤ 17 y.o. may not refuse transport or treatment unless legally emancipated

An approved Alameda County-specific, pediatric **LBRT** shall be used to determine appropriate medication dosages, fluid volumes, defibrillation settings and equipment sizes. The tape is designed to estimate a child's weight based on length (head to heel). When the child's height exceeds the length of the tape, refer to the adult dose.

PRIMARY SURVEY	SPECIAL CONSIDERATIONS
Establish level of responsiveness	▶ AVPU: **A**lert, **V**erbal, **P**ainful, **U**nresponsive
Evaluate airway and protective airway reflexes	▶ Identify signs of airway obstruction and respiratory distress, including: ➔ cyanosis ➔ intercostal retractions ➔ choking ➔ stridor ➔ absent breath sounds ➔ grunting ➔ drooling ➔ apnea or bradypnea ➔ nasal flaring ➔ tachypnea
Secure airway	▶ Open airway using jaw-thrust and chin-lift (and/or head tilt if no suspected spinal trauma). Suction as needed. Consider placement of an oral or nasal airway adjunct if the child is unconscious ▶ If cervical spine trauma is suspected, see **page 134**
Consider Spinal Motion Restriction (SMR)	▶ Use chest rise as an indicator of ventilation ▶ Use pulse oximetry
Assess need for ventilatory assistance	▶ CPR as needed (see CPR **page 10**) ▶ Assess perfusion using the following indicators: ➔ heart rate ➔ mental status ➔ skin signs ➔ quality of pulse ➔ capillary refill ➔ blood pressure
Evaluate and support circulation. Stop Hemorrhage	▶ Perform a head-to-toe assessment, including temperature ▶ Obtain a patient history ▶ Do environmental assessment, consider possibility of intentional injury
Continue with secondary survey	▶ Perform a head-to-toe assessment, including temperature ▶ Obtain a patient history ▶ Do environmental assessment, consider possibility of intentional injury
Determine appropriate treatment protocols	▶ Provide family psychosocial support ▶ An approved Alameda County-specific, pediatric **LBRT** shall be used to determine appropriate medication dosages, fluid volumes, defibrillation settings and equipment sizes. ▶ When starting an IV/IO/saline lock, use chlorhexidine as a skin prep ▶ Label insertion site with "PREHOSPITAL IV – DATE and TIME" ▶ Pediatric patients are subject to rapid changes in body temperature. Steps should be taken to prevent loss of or increase in body temperature ▶ Compared to the adult patient, a small amount of fluid, lost from or administered to, a pediatric patient can result in shock or pulmonary edema ▶ Scene time for treatment of pediatric patients should be kept at a minimum. Most treatment should be done en route

ALCO Protocols Cont.



RESPIRATORY DISTRESS (WHEEZING) – LOWER AIRWAY

- **Pediatric Routine Medical Care**
- Position of comfort
- **Use an LBRT to determine pediatric medication doses** - (Shown underlined on the algorithm)
- **Note:** Manage the patient's airway with proper airway positioning, simple airway adjuncts, suctioning, and BVM ventilation as necessary. Consider Advanced Airway Management (page 112) if BVM ventilation is not adequate

O_2 – titrate to 94-99% SpO_2 via blowby or non-rebreather mask

Moderate to Severe Distress
Any of the following:
- Cyanosis
- Accessory muscle use
- Inability to speak > 2 syllables
- Severe wheezing/SOB

Assist respirations (see note)

Albuterol
5 mg in 6 ml NS
and
Ipratropium
500 mcg (2.5 ml)
by nebulizer or via BVM

If response inadequate:
Epinephrine 1mg/mL
See LBRT for dose

If respiratory distress continues
Albuterol (only)
5 mg in 6 ml NS
by nebulizer or via BVM
May repeat x1 if respiratory distress continues

Mild Respiratory Distress
- Mild wheezing/SOB
- Cough

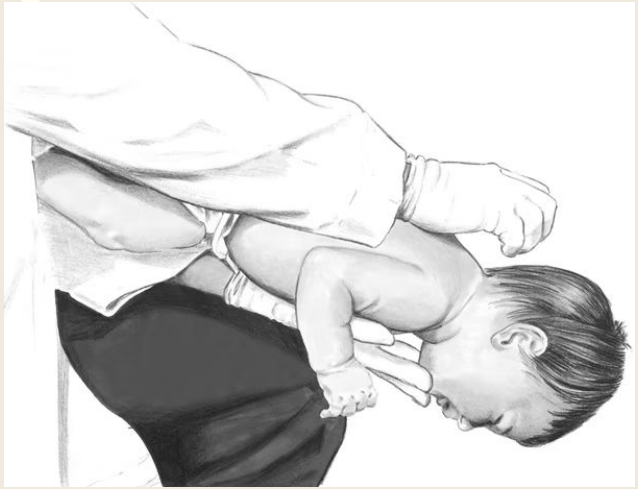
Albuterol
5 mg in 6 ml NS
via hand-held nebulizer, mask or BVM
May repeat x1

Maintain airway and **oxygen**

If decreased LOC or apnea
Consider:
BVM Ventilation
(see note)

Common Pediatric Emergencies

Condition	Key S&S	Treatment	ALCO Protocol
Croup*	Barking cough, stridor (especially inspiratory), hoarse voice	Position of comfort, humidified O_2 if tolerated, do not agitate; ALS may give nebulized epinephrine	Supportive; minimize agitation; transport upright
Pertussis* **(aka whooping cough)**	Repetitive coughing fits, “whoop” sound on inspiration	O_2 as needed, suction for mucus, monitor for apnea or cyanosis	Notify public health if suspected; isolate patient
Epiglottitis*	Sudden high fever, drooling, tripod position, muffled voice, severe distress, no cough	Do not attempt to visualize airway, keep child calm, provide O_2, rapid transport	ALS: consider advanced airway backup, minimize handling
SIDS / ALTE	Found unresponsive infant; may show cyanosis or apnea	Begin CPR if pulseless/apneic, O_2/ventilation as needed, support family, preserve scene for investigation	Follow pediatric cardiac arrest protocol; notify law enforcement if SIDS suspected
Fever / Febrile Seizure	Seizure with temp >100.4°F, usually <6 years old, brief (<5 min)	Protect airway, O_2, remove excess clothing, monitor temp, transport; if seizure >5 min, ALS: midazolam	Do not actively cool with ice/cold water; focus on comfort
Choking	Sudden distress, inability to speak/cough, cyanosis	Encourage coughing if effective; if not—perform abdominal thrusts (>1yr) or back blows/chest thrusts (<1yr)	If unresponsive, start CPR and check airway each cycle




Place one fist just above the child's navel with the thumb side facing the abdomen
A.D.A.M.

Obstetric Assessment

Questions to Ask Patient

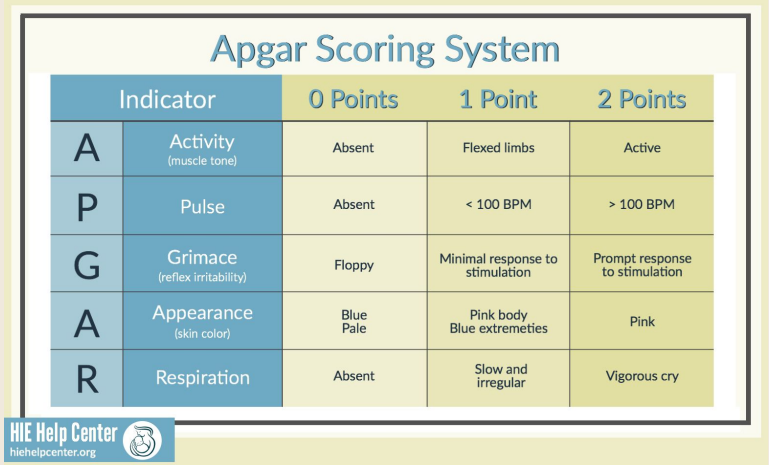
- **Gravida / Para** (number of pregnancies and births)
  a. Don't forget twins, triplets, etc.
- **How far along?** (gestational age, due date if known)
- **Any previous pregnancy or delivery complications?**
- **Contraction pattern** (how long they last, how far apart, when they started)
- **Bleeding or fluid leakage?** (color, amount, when it started)
- **Fetal movement** (normal, decreased, last time felt, urge to bear down)

Meconium

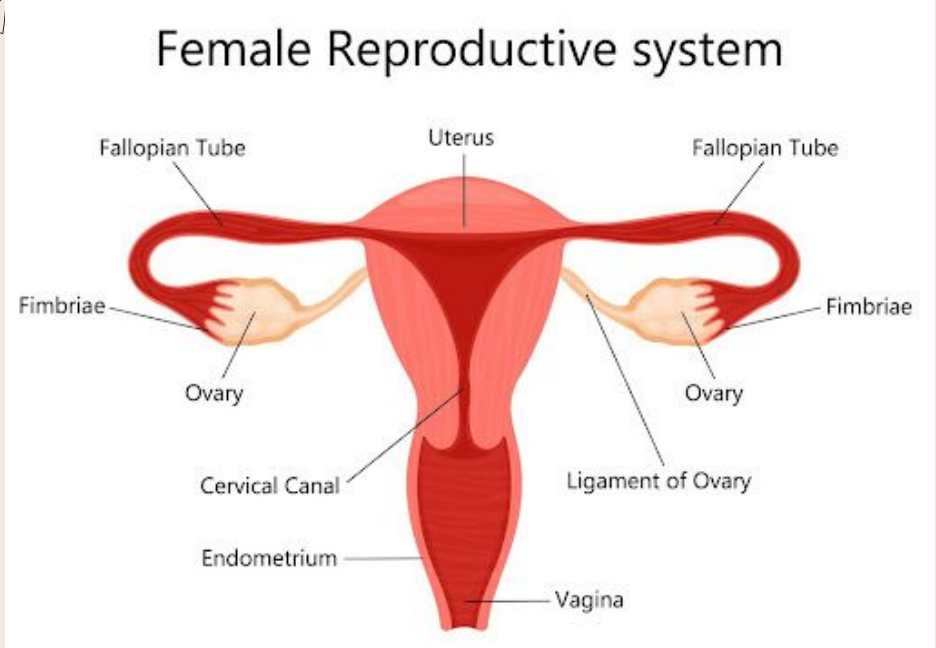
- **Green or brown discoloration** in amniotic fluid (indicates possible fetal distress)
- **Risk for airway compromise** if inhaled by the newborn
- **Suction only if the newborn is NOT vigorous** (poor tone, weak cry, low HR)

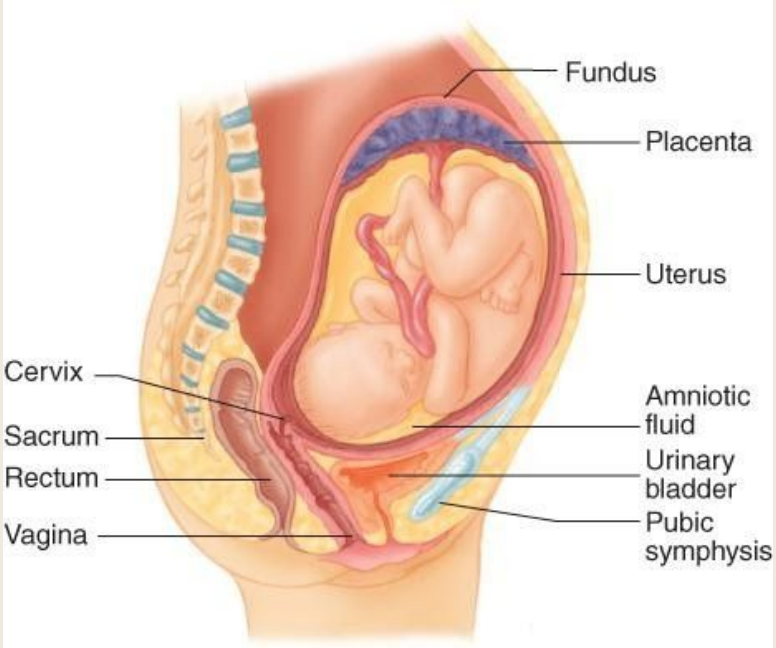
APGAR Score

- **Calculate immediately after birth** to assess newborn status (at **1 and 5 minutes**)
- **Appearance** – skin color (pink, blue, acrocyanosis)
- **Pulse** – heart rate above/below 100 bpm
- **Grimace** – reflex response to stimulation
- **Activity** – muscle tone (active vs limp)
- **Respiration** – breathing effort and quality



OBGYN ANATOMY


Female Reproductive system
Fallopian Tube
Uterus
Fallopian Tube
Fimbriae
Fimbriae
Ovary
Ovary
Cervical Canal
Ligament of Ovary
Endometrium
Vagina


Fundus
Placenta
Uterus
Cervix
Amniotic fluid
Sacrum
Urinary bladder
Rectum
Pubic symphysis
Vagina

Delivering a Baby

Normal Steps if Nothing Bad Happens:

1. Ask mom questions: # of months pregnant; frequency, duration, and intensity of contractions, etc.
2. Check for crowning. If yes, prepare area for delivery: consensually remove patient's clothes, cover and place pad underneath, prepare OB kit, have the following: bulb syringe, cord clamps, towels, newborn blanket
3. Urge patient to push, support baby's head as it comes out. DO NOT push or pull on baby's head
4. Check for nuchal or prolapsed cord, and meconium (assume these didn't happen hooray)
5. After baby is delivered, place on mother's abdomen, Reassess vitals

Delivering a Baby Cont.

Postpartum Care:

- After baby is delivered, check airway and wrap in blanket for warmth
- Obtain 1 min APGAR score
- Clamp and cut umbilical cord once it stops pulsating
- If heart rate less than 100 or any respiratory issues, provide PPV (1 breath every 2-3 sec) and monitor Sp02
- If heart rate less than 60, begin chest compressions at 100-120 bpm with a depth of ⅓ of the chest
- Obtain 5 min APGAR score

Things Go Wrong:

- Nuchal Cord: carefully unwrap cord around baby's neck or head
- Prolapsed Cord: gently lift baby's head to take pressure off cord, rapid transport
- Postpartum Hemorrhage: initiate fundal massages to stop bleeding

Common Obstetric Emergencies

Condition	Key S&S	Treatment	ALCO Protocol
Placenta Previa	Painless bright red bleeding in third trimester, soft non tender uterus	High flow oxygen, treat shock, no vaginal exam (might shear the placenta), rapid transport, continuous monitoring	Left lateral positioning, ABCs, oxygen, early shock care, notify receiving hospital of pregnancy
Placentae abruptio	Painful vaginal bleeding, rigid or tender uterus, possible contractions, shock greater than visible bleeding	Oxygen, treat shock, rapid transport, monitor for increasing pain or deterioration	Left lateral position, ABCs, oxygen, rapid transport, early shock care
Breech delivery	Buttocks or legs present first (visible presenting part is not the head), cord possibly compressed	Rapid transport if delivery not imminent, if it is, allow spontaneous delivery until umbilicus visible, support body, create airway space with two gloved fingers to relieve pressure on the cord	ABCs, oxygen, left lateral unless active delivery, notify hospital early
Nuchal cord	Cord wrapped around neck	Gently slip cord over head if loose, if tight apply clamp and cut, continue delivery and support newborn	Standard ABCs, oxygen for mother, prepare neonatal support, notify hospital

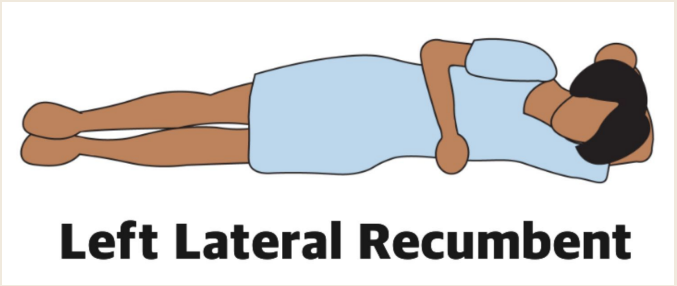
Condition	Key S&S	Treatment	ALCO Protocol
Prolapsed cord	Cord visible outside vagina or palpable before delivery, causes fetal distress	Insert gloved hand to lift presenting part off cord, keep cord moist with sterile saline, rapid transport. DO NOT PULL ON THE CORD	ABCs, oxygen, left lateral when feasible, immediate transport with early notification
Preeclampsia	Hypertension, headache, visual changes, edema, epigastric pain	High flow oxygen, minimize stimulation, transport, monitor for seizure	ABCs, left lateral position, oxygen, reduce stimulation, rapid transport
Eclampsia	Hypertension, seizures during pregnancy, altered mental status	Protect airway, suction as needed, oxygen, protect from injury, recovery position after seizure, rapid transport	ABCs, oxygen, left lateral position after seizure, rapid transport with early notification
Miscarriage	Vaginal bleeding with cramping, passage of tissue, possible shock	Oxygen, absorbent pads, save passed tissue, treat for shock, supportive care, transport	ABCs, oxygen, early shock care, left lateral if still pregnant, notify hospital

Left Lateral Recumbent Position

- Supine position in late pregnancy can compress the vena cava

- Decrease of blood return and cardiac output can cause
  - Hypotension
  - Dizziness
  - Pallor
  - Tachycardia

- **Always put the patient in left lateral recumbent position, put towel under right hip for support**



ALCO Protocols

OB/GYN EMERGENCIES

- **Routine Medical Care**
- Level of distress:
  - ➔ Estimate blood loss (if any)
  - ➔ Is the patient in shock? If yes, Go to **page 54** "Shock" protocol
- Consider immediate transport or prepare for delivery
- Determine stage (trimester) of pregnancy
- Any patient that is ≥ 20 weeks pregnant who has sign(s)/symptom(s) that may be pregnancy related (e.g. pain), should be preferentially triaged to a receiving facility with a Labor and Delivery department.

1. **VAGINAL BLEEDING** (Abnormal bleeding between menses, during pregnancy, postpartum or operative)
   - 1.1 If postpartum, gently massage the fundus to decrease bleeding
   - 1.2 Monitor vital signs frequently
2. **SPONTANEOUS ABORTION**
   - 2.1 If fetus is > 20 weeks or 500 grams, see neonatal resuscitation protocol (**page 73**). If non-viable, save and transport any tissue or fetal remains
   - 2.2 Have patient place a sanitary napkin or bulky dressing material over vaginal opening - **Do not pack the vagina *with anything***
3. **SEVERE PRE-ECLAMPSIA / ECLAMPSIA**
   - 3.1 Attempt to maintain a quiet environment
   - 3.2 Monitor vital signs frequently
   - 3.3 Observe for seizures, hypertension or coma. If seizures occur, go to the appropriate seizure policy
4. **BREECH DELIVERY**
   - 4.1 Allow delivery to proceed passively until the baby's waist appears. Gently rotate the baby to a face down position and continue with the delivery
   - 4.2 If the head does not readily deliver insert a gloved hand into the vagina to relieve pressure on the cord and create an air passage for the infant. Transport. Monitor vital signs and infant condition frequently
5. **PROLAPSED CORD**
   - 5.1 Place the mother supine position with head lower than hips
   - 5.2 Insert a gloved hand into the vagina and gently push the presenting part (e.g.: the neonate's head or shoulder off the cord. **DO NOT TUG ON THE CORD**
   - 5.3 Place fingers on each side of the neonate's nose and mouth, split fingers into a "V" to create an opening. **Do not** attempt to re-position the cord. **Do not** remove your hand. Cover the exposed cord with saline soaked gauze
6. **LIMB PRESENTATION**
   - 6.1 Defined as the presentation of a single limb - arm or leg
   - 6.2 It is unlikely that the baby will deliver and immediate transport should be initiated
   - 6.3 Place the mother supine position with head lower than hips

Kahoot

Any Questions?

https://create.kahoot.it/share/pediatrics-and-obstetrics/5c0a0b97-240f-4cd5-b287-2db4aeae5285