

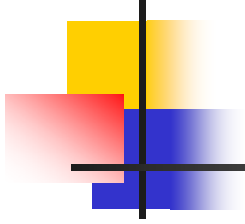
# Pediatrics

\*\*\* CME Verion \*\*\*

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**Children are NOT just small adults!**



# Assessment – common sense

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- Keep everyone calm
- Entire family is your patient
- Honesty
- Keep everyone informed
  - Reassure PRN
- **Unless contraindicated, keep parent(s) and child together**



# Some general rules

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- First **observe** from a distance
- Toe to head
- Your dealings with the child varies by age group
- Vital signs vary by age group
- Respiratory rate is often better counted by rise and fall of the abdomen



# More general rules

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- Use brachial pulse in infants
- Use carotid pulse in older children
- **Quality of pulse is extremely important**
  - → **A regular pulse in a small child is often an abnormal finding!**
- Blood pressure
  - Use correct cuff size
  - **BP measurement is not that important; pulse is a better measure of perfusion**
- **Young children are hypothermia risks**



# Important things to know

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- Children's bodies can withstand a lot
- ***But once their body fails they CRASH, quickly, with little warning, often with tragic results***
- Pediatric "codes" are almost never revived
- **Never do anything that will irritate the child**
- **Performing a proper assessment and maintaining airway and breathing are of prime importance**



# Airway and breathing

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- Do not hyperextend the neck
- Use appropriately sized OPA, NPA, Oxygen mask and BVM
- **Many children will not tolerate an oxygen mask**
  - Use “blow-by” oxygen delivery
  - “Oxygen Bear”



# Pediatric shock

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- **A big killer!**
- Causes are often the same as in adults
  - **Most often dehydration and infection are the underlying cause**
- Treatment is the same as for adults
- **Do NOT rely on dropping BP as an indicator**
  - **It's a very late sign – especially in children**





## S/S of pediatric shock

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- Crying – but no tears
- Persistently dry diapers
- Decreased LOC
- Sunken fontanelles in infants
- **CHILD DOES NOT RECOGNIZE PARENTS**



# History, history, history

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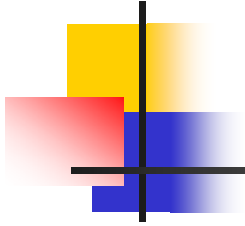
- Often the history tells the story...
- Child not nursing/nursing adequately
- Fever for several days
- Diarrhea
- Vomiting



# Respiratory disorders

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- Bronchiolitis
- Asthma
- Croup
- **Epiglottitis**



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- **Pediatric assessment triangle**



# Abdominal disorders

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- Intussusception
  - A true emergency
  - Needs surgery NOW!
  - Severe pain
  - **“Currant jelly” stool**
- Food poisoning
- Gastronteritis
  - Stomach virus/stomach flu
  - Often the cause of shock
- **Appendicitis & complications**



# Other emergencies

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- Febrile seizures
  - The most common cause of seizures in children
- **SIDS**
  - **The family becomes your patient**



# Abuse

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- Look for classic signs
- Don't accuse
- Document what you see
- **Reporting laws**
  - **You must report any suspected abuse cases to the state**
  - **Procedures?**



# Trauma

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- **Loss of as little as 25% of the blood supply in children can produce the same S/S as an adult who has lost 50%**

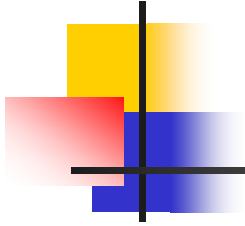




# Special needs

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- Very often chronically ill pediatric patients who require transport
  - Tracheostomy tubes
  - Patients on a respirator
  - Central IV lines
  - Gastrostomy tubes
  - Shunts
  - ...
- **Most often this must be an ALS transport**



# ALS Procedures For Pediatric Patients



## Note well!

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For ALL Pediatric drug administration, use a “length based dosing device”, e.g. Broselow tape.



# Pediatric Respiratory Arrest

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- Intubate, ONLY IF BLS MEASURES FAIL
- TPT? – Needle decompression (18-20g)
- During transport
  - Narcan 2mg IM/ET/<1yo? 1mg
  - Abdominal Distension? NG/OG
- MC Options:
  - IV/IO NS KVO – SL
  - Narcan 2mg IM/ET/<1yo? 1mg



# Pediatric Obstructed Airway

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- Direct laryngoscopy/Magill forceps
  - **STOP if enlarged epiglottis is seen!**
- Intubate, **ONLY IF BLS MEASURES FAIL**
- **Rapid transport with FBAO techniques**
  
- **Needle “cric” soon to be out**



# Pediatric croup/epiglottitis

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- Croup is common/Epiglottitis is very rare
- **DO NOT ATTEMPT INTUBATION!**
- High pressure BVM
- Abdominal Distension? NG/OG – **ONLY IN UNCONSCIOUS PATIENT**



# Pediatric **non-traumatic** code-1

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- VF/Pulseless VT?
  - Defibrillate 2J/Kg
  - 5 Cycles of CPR
- Remains in VF/Pulseless VT?
  - Defibrillate 4J/Kg
  - 5 Cycles of CPR
- Intubate, **ONLY IF BLS MEASURES FAIL**



# Pediatric **non-traumatic** code-2

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- During Transport:
  - Intubated? Epi 0.1mg/kg (1:1000) ET
  - Abdominal Distension? NG/OG
  - IV/IO/SL – Max of 2 attempts
  - Remains in VF/Pulseless VT?
    - Defibrillate 4J/Kg
    - 5 Cycles of CPR
    - Amioderone 5mg/kg IV/IO/SL
    - IV? Epi .01mg/kg 1:10000 Q3-5m
    - No IV, but intubated: Epi 0.1mg/kg (1:1000) ET Q3-5m





# Pediatric **non-traumatic** code-4

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- MC Options:
  - Repeat any SO
  - Narcan 2mg (1mg if <2YO) IV/IO/SL/ET
  - Dextrose 0.5mg/kg:
    - Age between 1mo & 14YO: D25
    - Age < 1mo: D10
  - Sodium Bicarbonate 1mEq/kg IV/IO/SL
  - Torsades de Pointes? Mag Sulfate 25-50mg IV/IO/SL
  - Rapid IV/IO NS bolus of 20mg/kg



# Pediatric Asthma/Wheezing

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- BEWARE OF SILENT CHEST!!!
- Albuterol SUD – Max of 3
- Ipratropium Bromide ½ SUD – **Do not use for pt with soy/nut allergy**
- Epi .01mg/kg (1:1000) for age > 1YO
  - MAX of 0.3mg (adult dose)
- MC Options – during transport
  - Repeat Albuterol
  - Repeat Epi .01mg/kg (1:1000) for age > 1YO
  - IV NS



# Pediatric Anaphylaxis

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- Respiratory failure/AW Obstruction/Decompensated Shock?
  - Intubate
  - Epi .01mg/kg (0.1ml/kg 1:10000) ET
  - Cannot Intubate?
  - Epi .01mg/kg (1:1000)
    - MAX of 0.3mg (adult dose)
- During transport:
  - Abdominal Distension? NG/OG
  - MC Options:
    - Repeat SO
    - IV/IO/SL NS 18-22 ga
    - Rapid NS infusion: 20,l/kg
    - ***Epi Drip: .01mcg/kg/min – soon to be eliminated***



# Pediatric AMS

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- **All ALS during transport**
  - Glucagon 1mg IM
  - IV/IO/SL NS
  - Dextrose 0.5mg/kg:
    - Age between 1mo & 14YO: D25
    - Age < 1mo: D10
  - IV established?
    - Narcan in increments of 0.4mg IV titrated to response. Max of 2.0mg
  - No IV established?
    - Narcan in increments of 0.8mg IM/IN titrated to response. Max of 2.0mg
  - MC Options
    - Repeat SO



# Pediatric Seizures

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- **All ALS during transport**
  - Glucagon 1mg IM
  - IV/IO/SL NS
  - Dextrose 0.5mg/kg:
    - Age between 1mo & 14YO: D25
    - Age < 1mo: D10
  - Seizures Persist?
    - MC Options:
      - IV established?
        - Lorazepam .005mg/kg IV/IN/SL/IO over 2 minutes. Repeat PRN
        - Diazepam 0.1mg/kg IV/SL/IO over 2 minutes. Repeat PRN
      - No IV established?
        - Midazolam 0.1mg/kg IM/IN. Max of 5mg
        - Diazepam 0.5mg/kg PR



# Pediatric **Decompensated Shock-1**

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- Signs of hemorrhage/dehydration **not** present?
  - EKG
    - SVT/VT and signs of low cardiac output?
      - Goto MC Options
  - During transport
    - IV/IO 18-22 ga infusion 20ml/kg NS
    - Signs of hemorrhage/dehydration present?
      - Second IV/IO 18-22 ga infusion add'l 20ml/kg NS



# Pediatric **Decompensated Shock-2**

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## ■ MC Options

- Signs of hemorrhage/dehydration present?
  - infuse additional 20ml/kg NS
- SVT/VT & signs of low cardiac output
  - if exact calculated dose **can** be given:
    - Cardiovert @ 0.5-1.0 J/kg
    - Repeat cardioversion @ 1-2J/kg PRN
  - if exact calculated dose **can NOT** be given:
    - Adenosine 0.1mg/kg rapid IV and flush
    - Repeat Adenosine 0.2 mg/kg rapid IV and flush up to twice PRN



# Pediatric Traumatic Cardiac Arrest

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- **All ALS during \*\* TRANSPORT \*\***
- Intubate, ONLY IF BLS MEASURES FAIL
- TPT? Needle decompression
- Rapid IV/IO 18-22 ga NS 20ml/kg
- Abdominal Distension? NG/OG
- Additional rapid NS 20ml/kg PRN
- MC Options
  - Additional rapid NS 20ml/kg PRN – 60ml/kg total