

# Challenging Peds Cases in the Community ED

2026 updates

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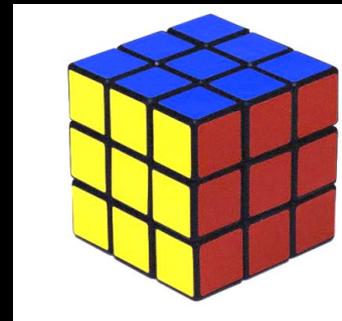
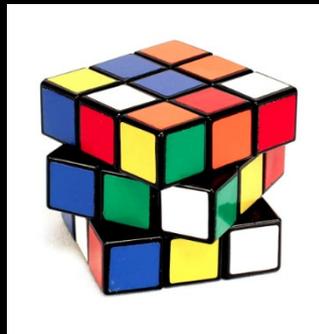
No disclosures



# Objectives

- \* Learn some (peds) stuff
- \* Inspire you to learn more about PEM
- \* Pediatric Readiness Project
- \* Share our cases!

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Blame it on the Fritos

Achy Breaky Heart

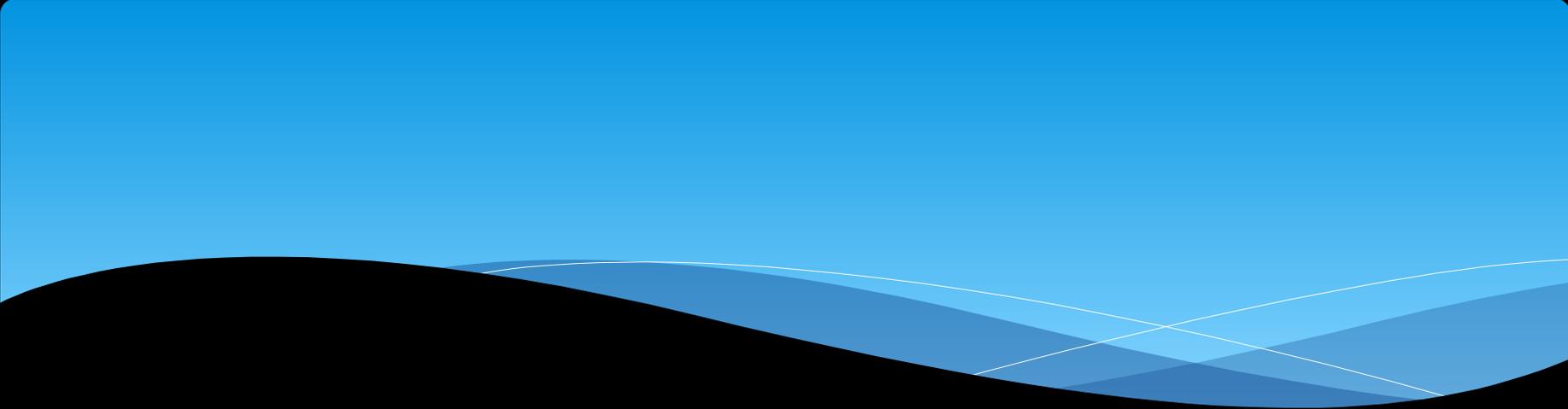
Hit Me With Your  
Best Shot

Decisions, Decisions

ABCs of NRP

Under Pressure

17 mo with Fritos



\* 98.5

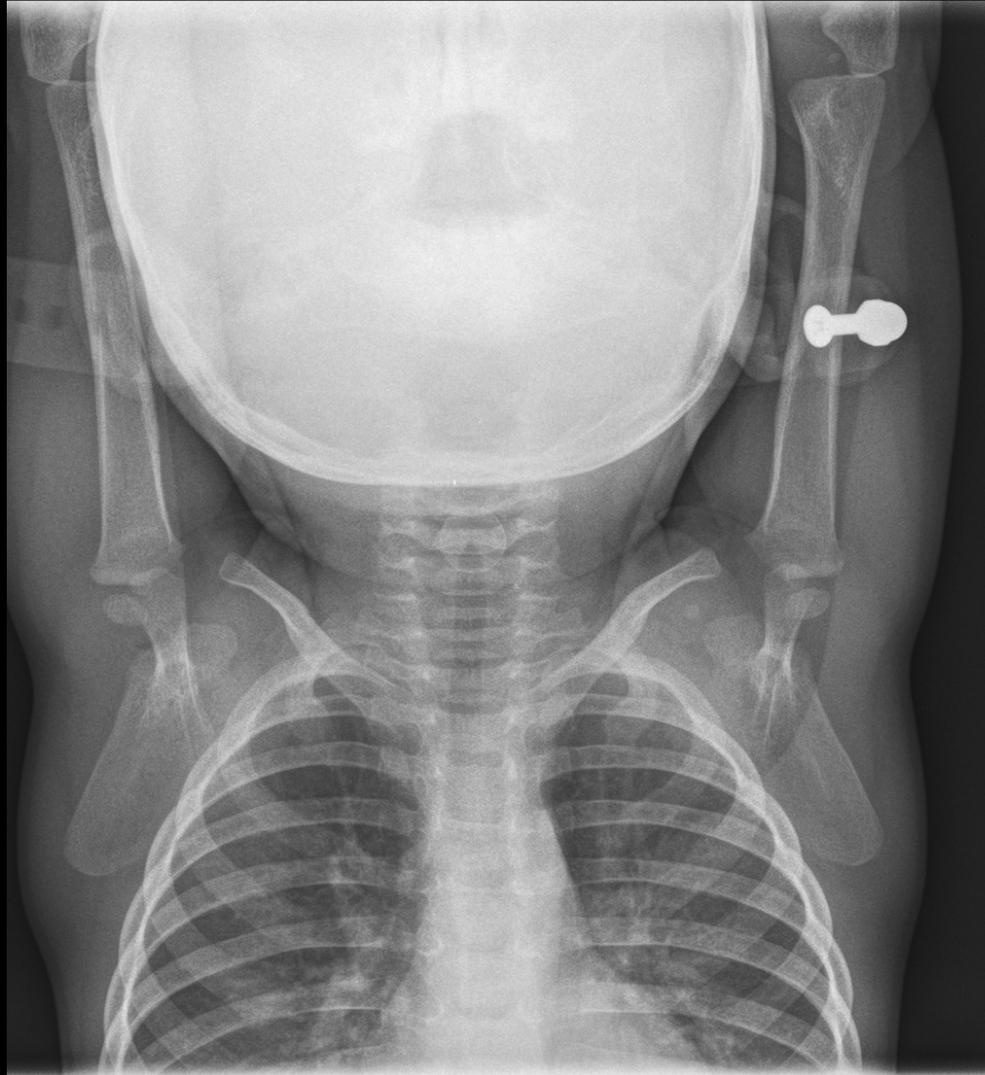
\* 154

\* 28

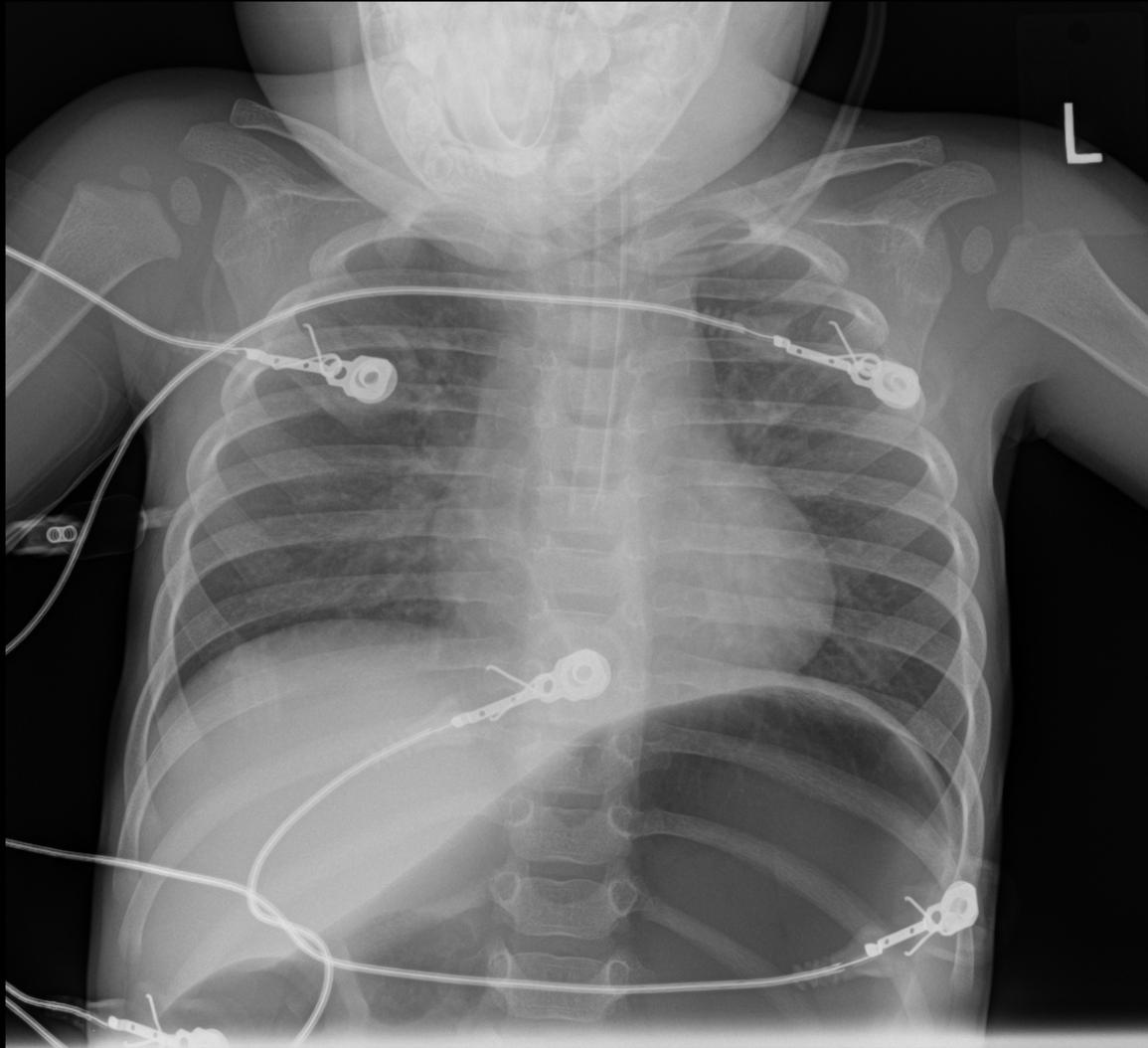
\* 96/62

\* 98%

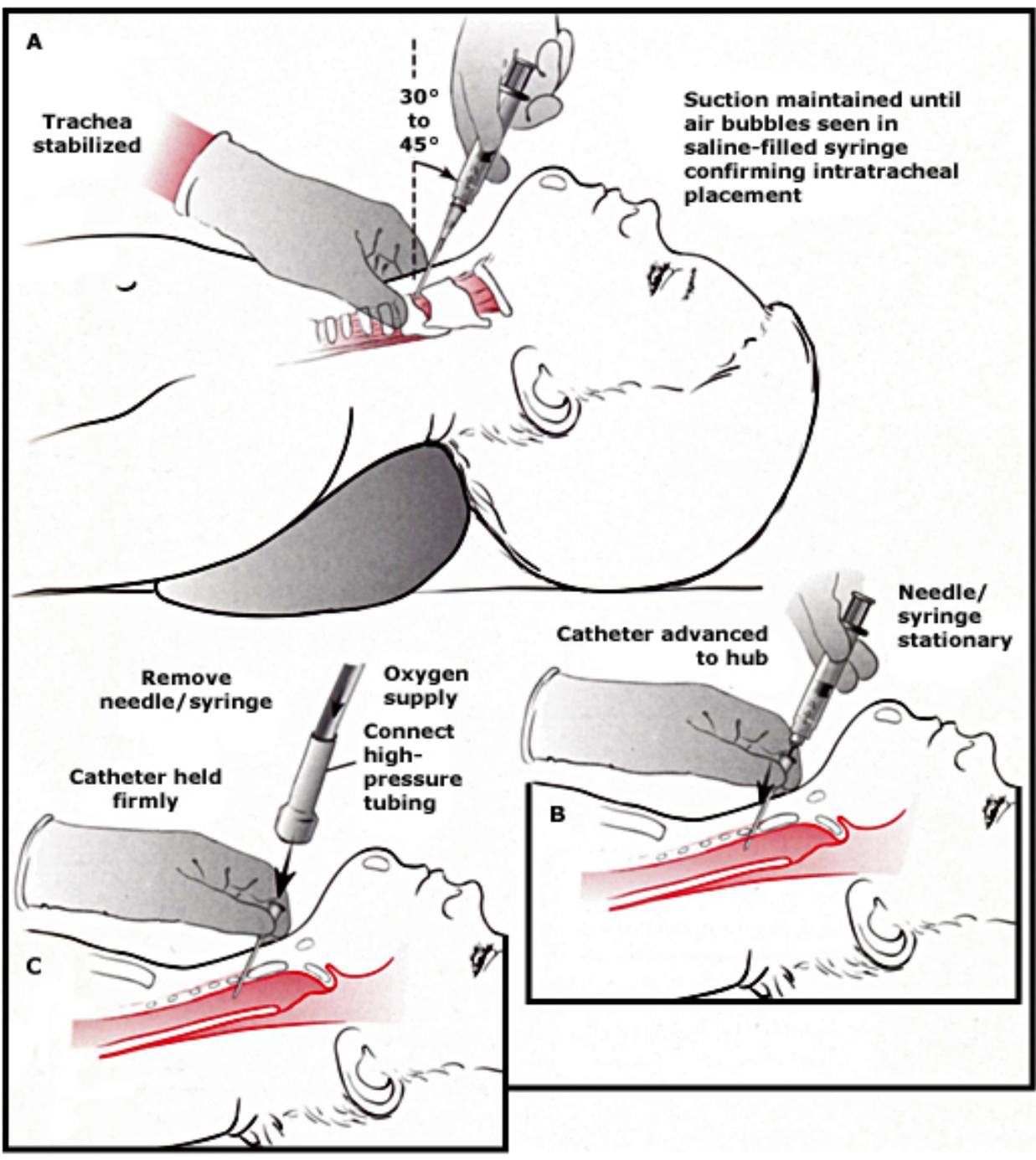












**A**

**Trachea stabilized**

30° to 45°

**Suction maintained until air bubbles seen in saline-filled syringe confirming intratracheal placement**

**Remove needle/syringe**

**Catheter held firmly**

**Oxygen supply  
Connect high-pressure tubing**

**Catheter advanced to hub**

**Needle/syringe stationary**

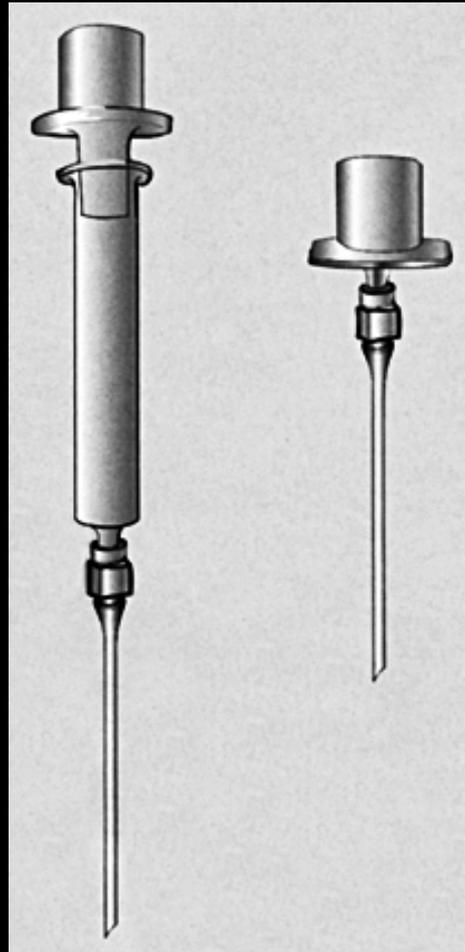
**C**

**B**

7.0 ETT connector

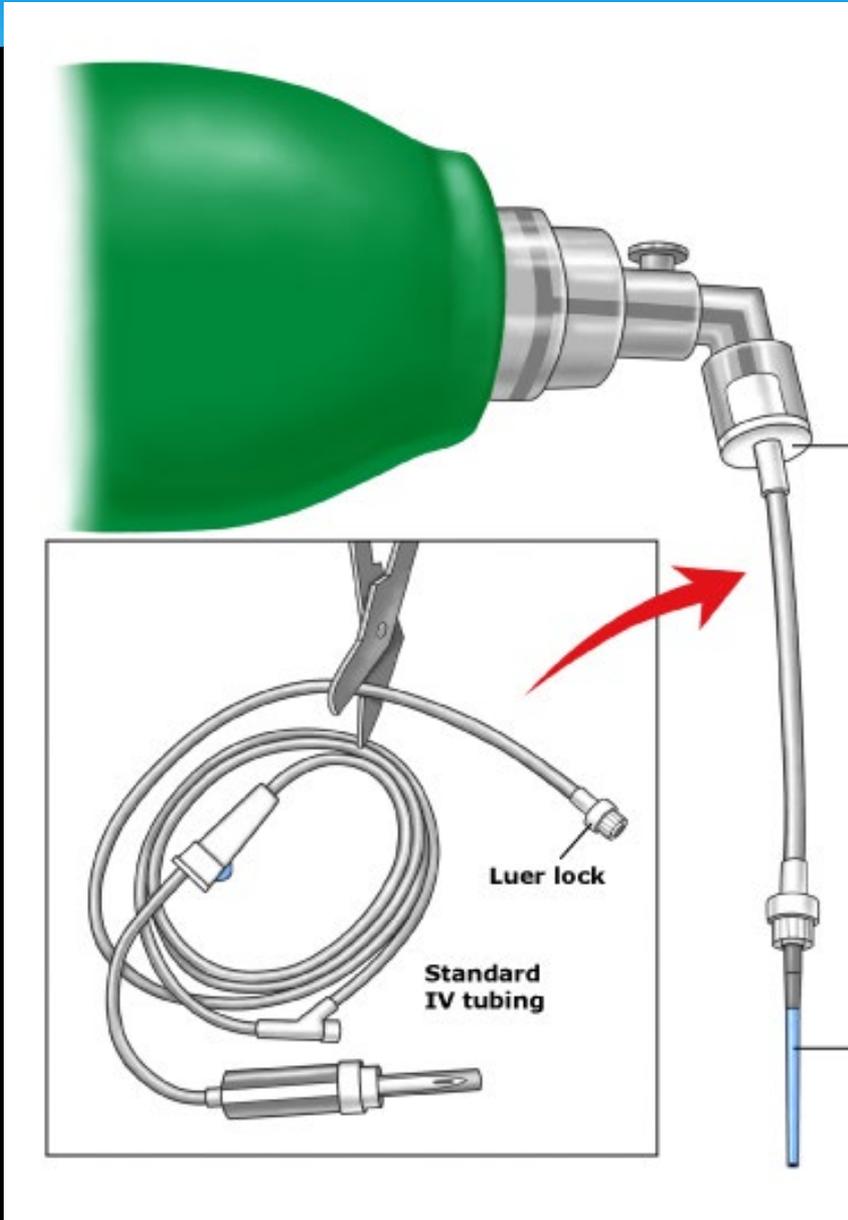
3 ml syringe

12-14 G catheter



3.5 ETT connector

12-14 G catheter



2.5 ETT connector

Cut end IV tubing

12-14 G catheter



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# Case

- \* 8 yo healthy female
- \* CC: Chest pain
- \* HPI:
  - \* 5 AM midsternal CP
  - \* +nausea, no SOB, “dark vision”, pale
  - \* +headache, “cold arms”

# Case

- \* ROS:

- \* + rhinorrhea, seasonal allergies
- \* No fevers
- \* No travel
- \* No sick contacts

- \* All the other stuff....

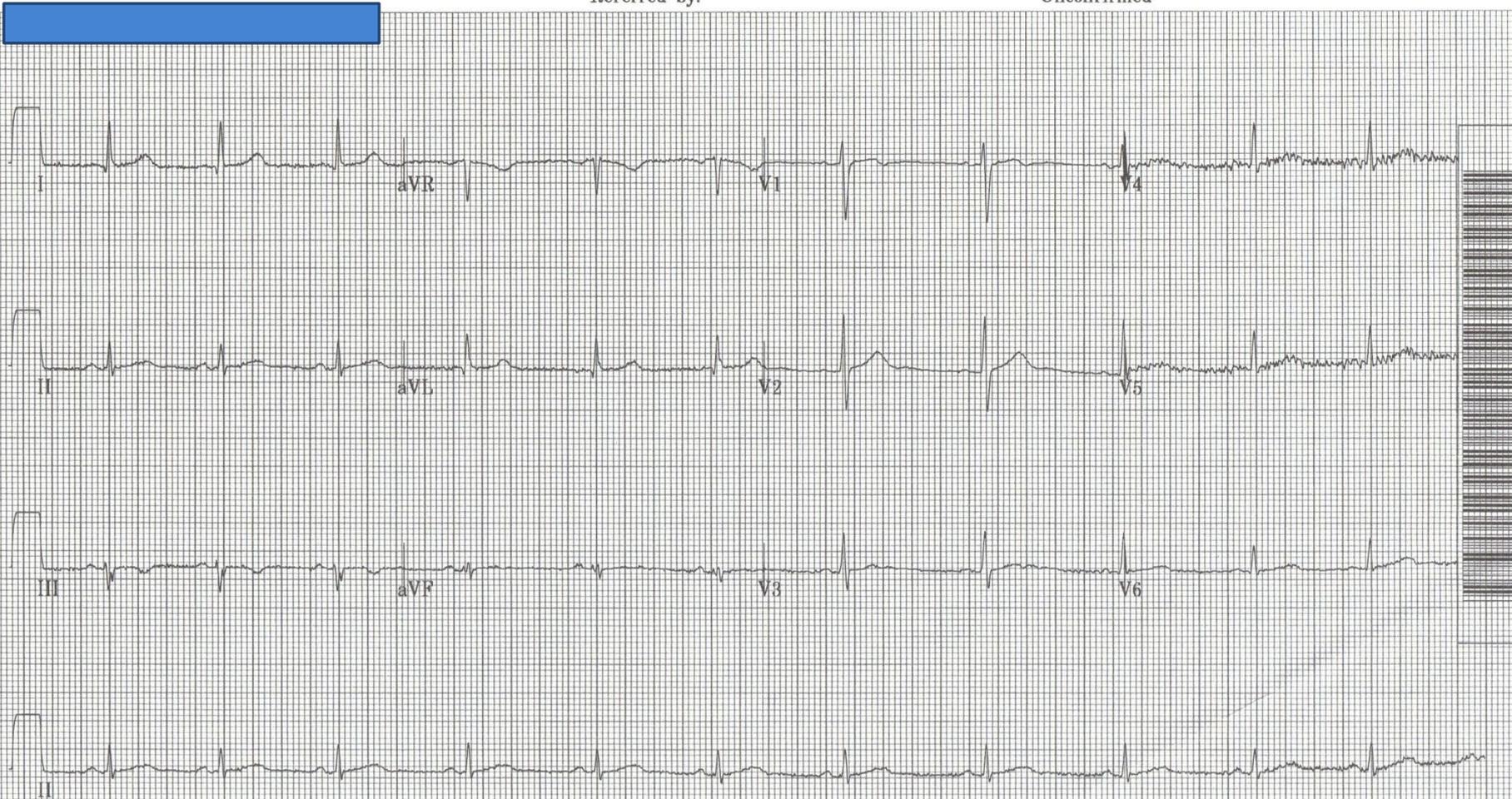
- \* No, No, No, No



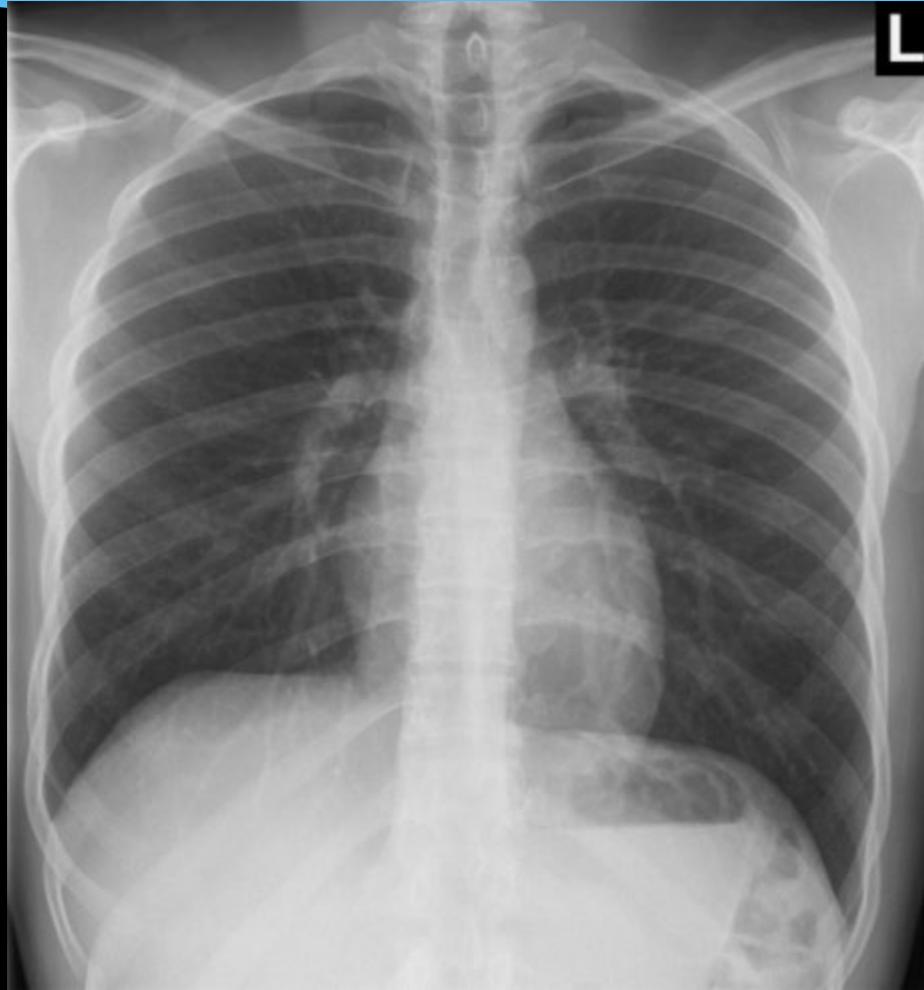
# EKG @ 12:48

Referred by:

Unconfirmed

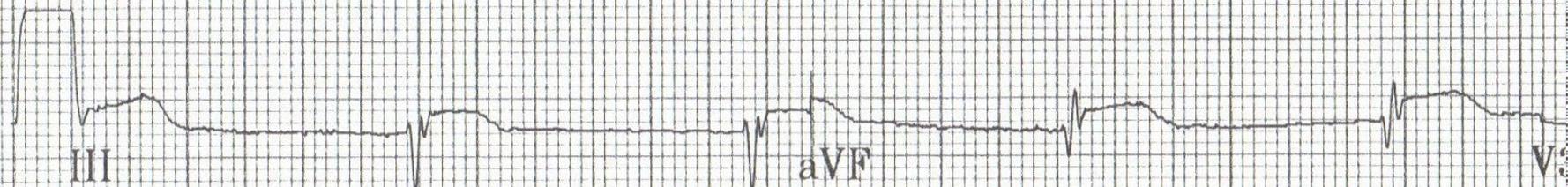
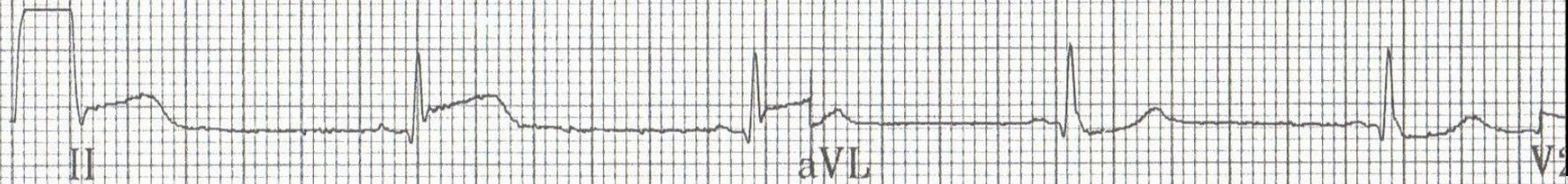


# CXR



Now what???





# Labs

138	103	11	110
4.5	27	0.6	

Ca: 9.2

Mg: 1.9

Ph: 4.2

LFT: wnl

AST: 148

GGT: 21

~~12.6  
15.8 321  
36.8~~

BNP: 26

ESR: 66

CRP < 0.5

CPK: 832

Trop: 32.6

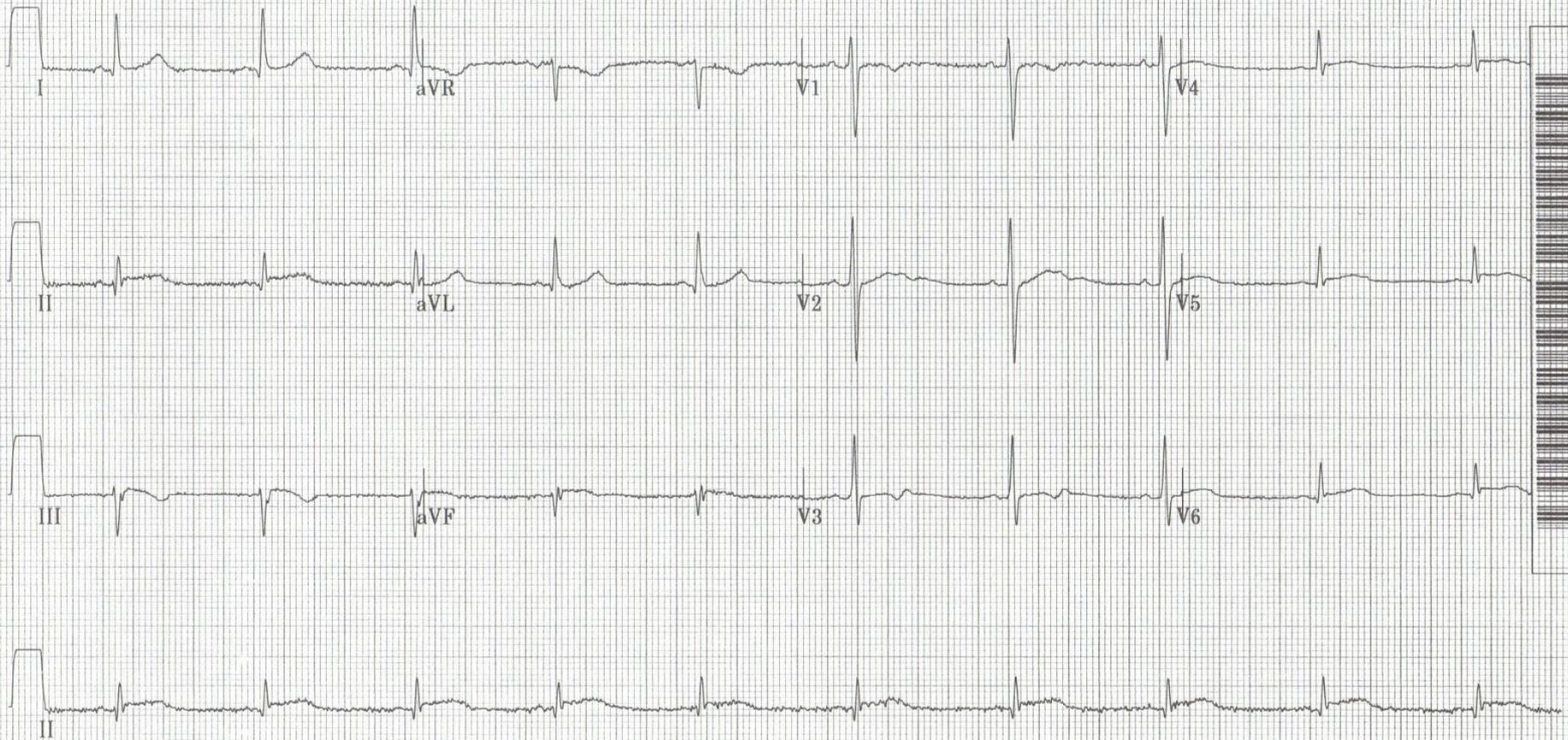
Now what???



# ED course

- \* NTG, ASA
- \* CT Chest: no dissection
- \* Heparin bolus + gtt
- \* Transfer to PICU

# EKG @ 17:20



# Case #1 Resolution

- \* PICU course:
  - \* Frequent PVCs, NSVT
  - \* Heparin gtt until cardiac cath
  - \* IVIG presumptive myocarditis

# Dx: Myocarditis

Pause if:

- Persistent unexplained tachycardia
- Antecedent illness
- New murmur
- Not quite right...

10 month old

# Case

- \* A 10 month old is referred by PCP office due to fever, URI symptoms, “lethargy”
  - Cough, congestion x 3 days
  - Heavier breathing
  - 24 hours of lethargy and poor feeding, ↓UOP
- \* PMHx: None

# Case

- ROS

- No vomiting
- No diarrhea
- No neck stiffness
- No abdominal distension
- No seizures
- No rash
- No developmental delay
- No known ingestion or trauma
- No apparent pain



# Case

- \* T 99.5°C, P 150s, RR 60, 89% RA → 95% 1L
- \* Alert but listless, lying in mom's arms
- \* HEENT: bulging right TM, +rhinorrhea
- \* Neck: supple
- \* GI: Abdomen soft, NT/ND, no masses



# Case

- \* T 99.5°C, P 150s, RR 60, 89% RA → 95% 1L
- \* Resp/CV
  - \* mild to moderate respiratory distress
  - \* SC/SS retractions
  - \* coarse BS and bilateral crackles and rhonchi
  - \* brisk CR and normal pulses, no murmur

# Case

- \* T 99.5°C, P 150s, RR 60, 89% RA → 95% 1L
- \* Neuro
  - \* Arouses for exam/ labs, just sleeps in mom's arms
  - \* No focal weakness, CN intact as can be tested, DTR's symmetric, gag intact, moves all extremities

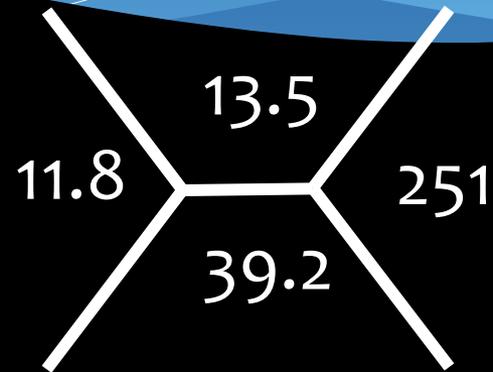
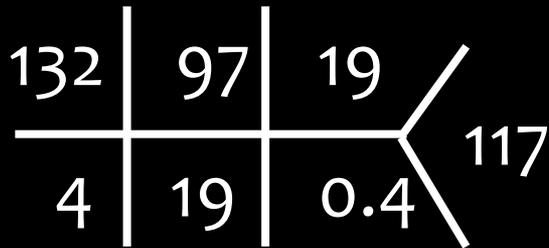
Now what???



# Imaging



# Labs



- \* UA and tox screen – ketones but normal
- \* RSV positive
- \* CSF negative

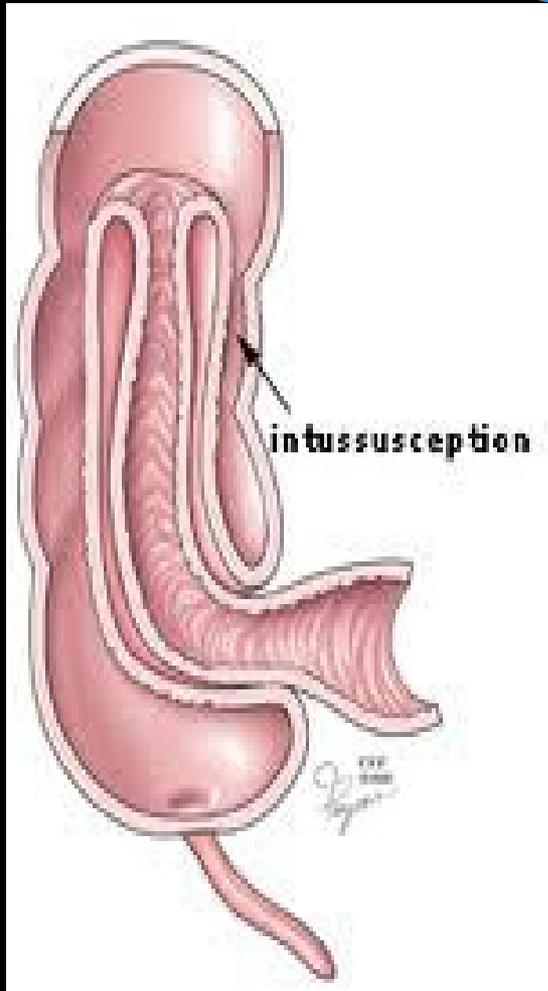


# Management

- \* Supplemental Oxygen
  - \* >94% on 1 L nasal cannula
- \* IV fluids
  - \* NS bolus 20ml/kg x 2
  - \* Maintenance fluids with dextrose
- \* IV antibiotics
  - \* IV Ceftriaxone given

# Clinical Course

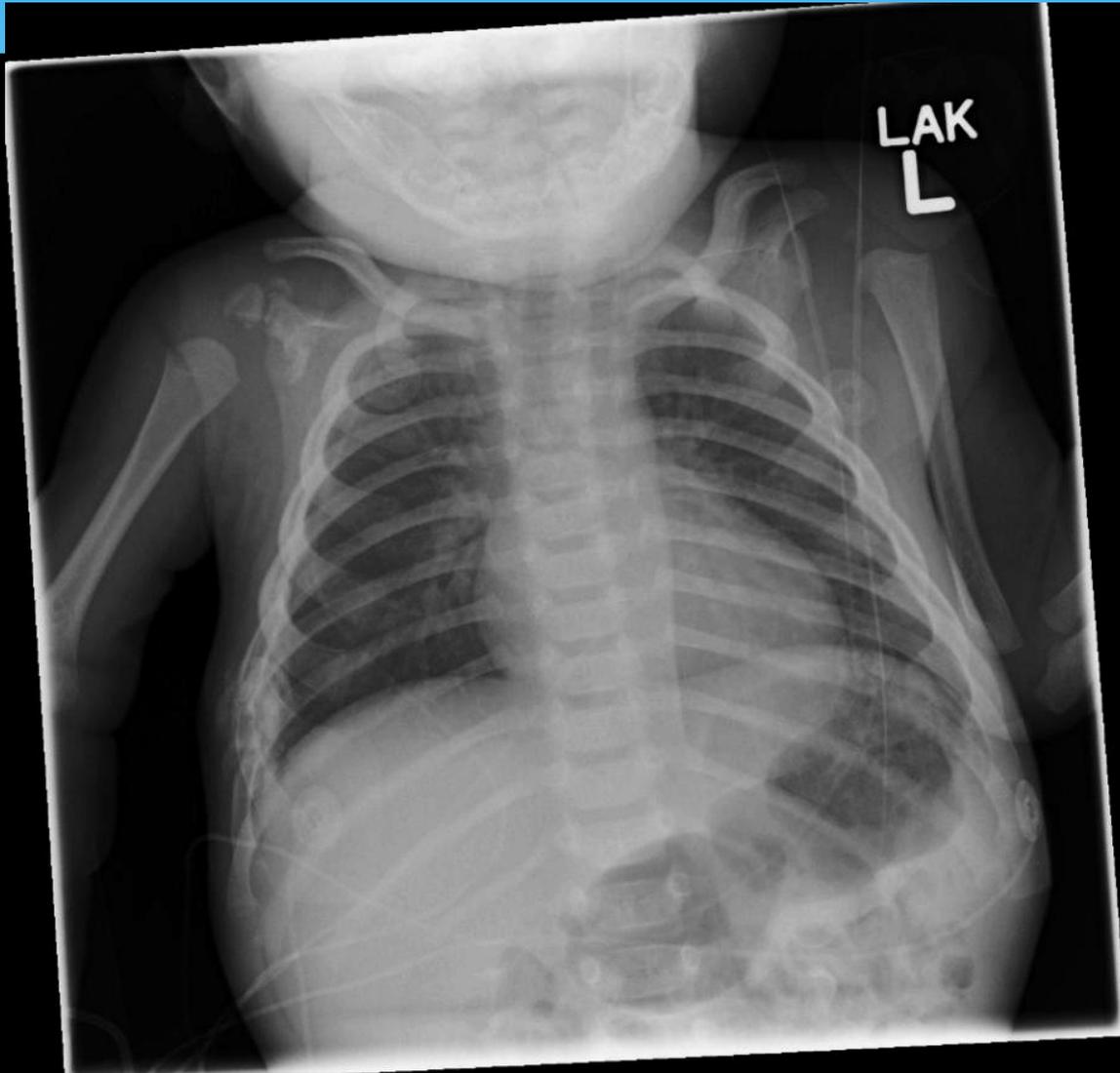
- \* Transferred to PICU due to persistent lethargy
- \* Cause uncertain but remained lethargic
- \* Had bloody stool the following day
  - \* US diagnosed intussusception
  - \* 10 cm of necrotic bowel removed

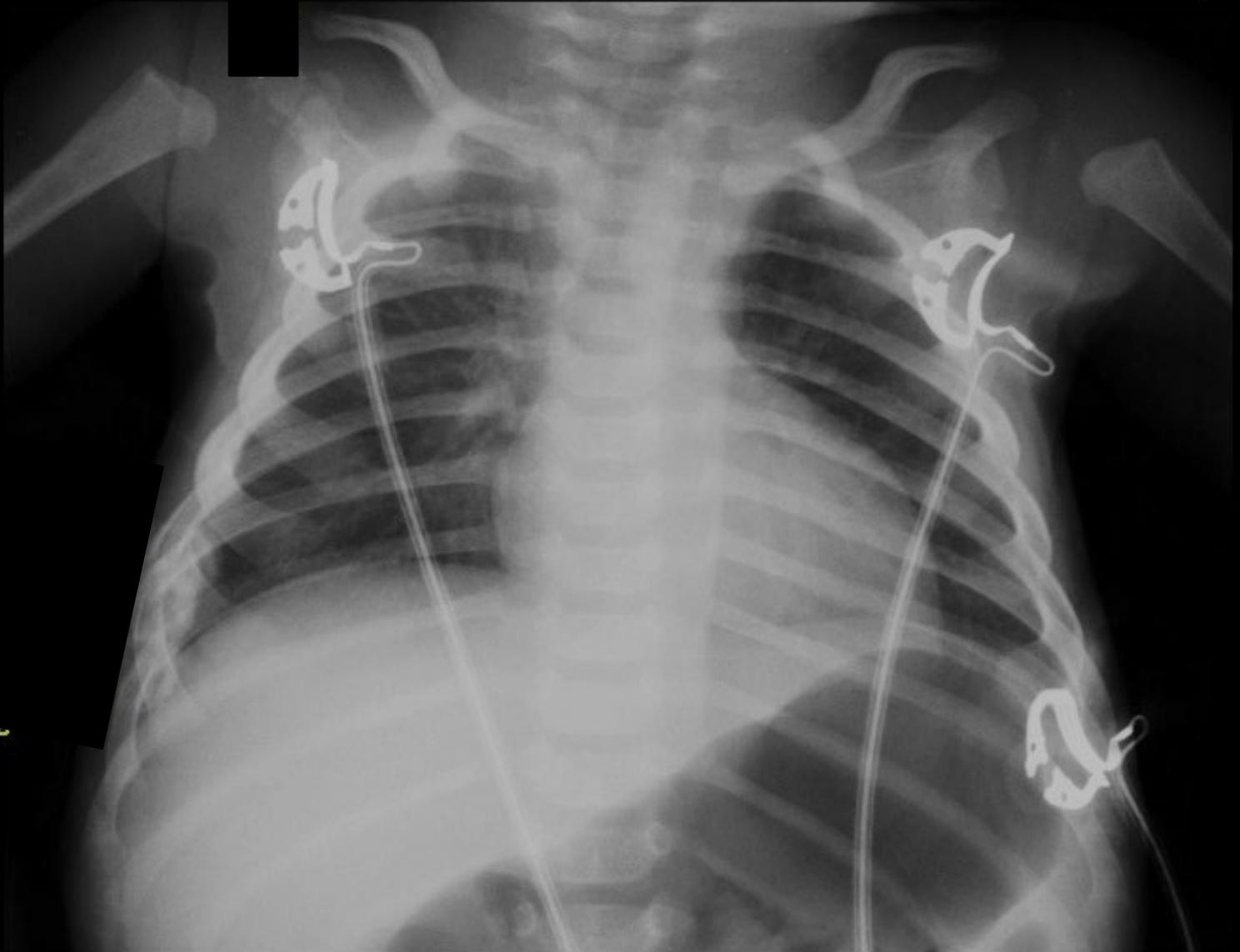


# Intussusception: presentation

- Signs and symptoms
  - Intermittent inconsolable crying
  - Drawing legs toward abdomen
  - Vomiting (56%)
  - Lethargy (36%)

2 mo with respiratory distress





6

3

10 day old with “bump”



# 6 mo crying, refusing to crawl

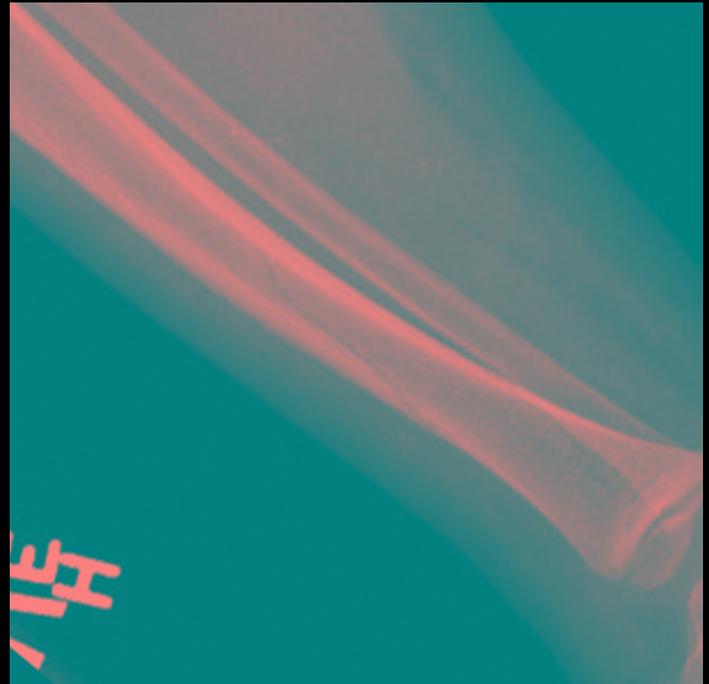
Classic metaphyseal lesion



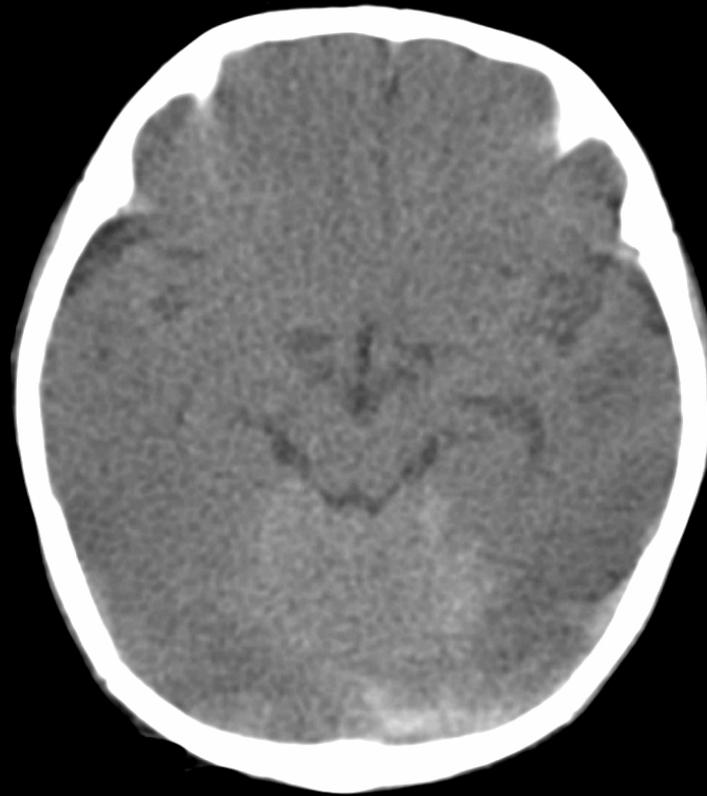
# 2 yo with limp



## Toddler's fracture



5 mo vomiting and lethargy





Courtesy of Julia Magaña, MD

# TEN-4 Rule

- \* Bruising clinical decision rule
  - \* 95 patients admitted to PICU for trauma
- \* Abnormal →
  - \* Bruises anywhere on a child < 4 months old
  - \* OR bruises on the torso, ears or neck of a child < 4 years old

# CDRs for Bruising

## \* TEN-4 FACESp

- \* Any bruising in suspicious body regions in children < 4 yrs old: Torso; Ears; Neck
- \* Any bruising in infant under 4.99 mos of age

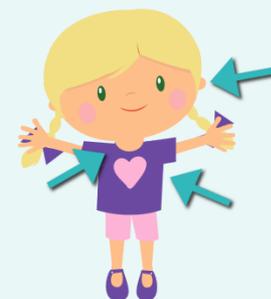
<https://faceitabuse.org/>

Torso

Ears

Neck

4 years or younger



Or any bruising anywhere, if the baby is not yet pulling up or taking steps.

# TEN-4 FACES P

- \* Any bruising in infant under 4.99 mos of age
- \* **F**= Frenulum (3)
- \* **A**= Angle of the jaw
- \* **C** = Cheek (buccal)
- \* **E**= Eyelid
- \* **S**= Subconjunctival Hemorrhage (Sclera)
- \* **P** = Patterned bruising

**96%/87% sens/spec**

# BROWN SKIN MATTERS



HIVES HIVES



ERYTHEMA  
MULTIFORME



# BROWN SKIN MATTERS



# Case 1

- \* 10 yo female h/o asthma sent from Urgent Care with wheezing x 2 days. Received 1+1 nebs.
- \* PMHx: Asthma, 2x ICU, 1x intubation
- \* Meds: Albuterol, Flovent, Singulair



VS: T 37.8°C, P 134, RR 40, BP 90/40, 93% neb  
Wt: 30 kg



Mystical smoke



# Case 2: Vomiting Infant

# Case 2

- \* 3 week FT male sent from PMD for progressive vomiting. Formula fed. Recent change to Similac. BM 2 days ago. Last wet diaper 23:00 last PM.
- \* VS: T 37°C, P 160, RR 50, 98% RA
- \* Wt: 5 kg



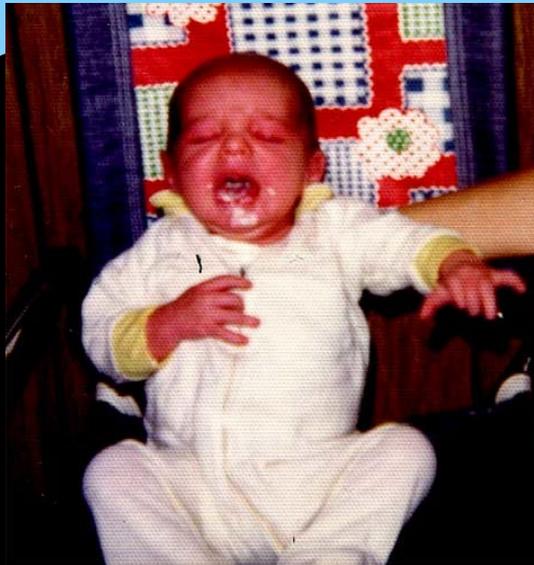
# Back to Case 1: Asthma



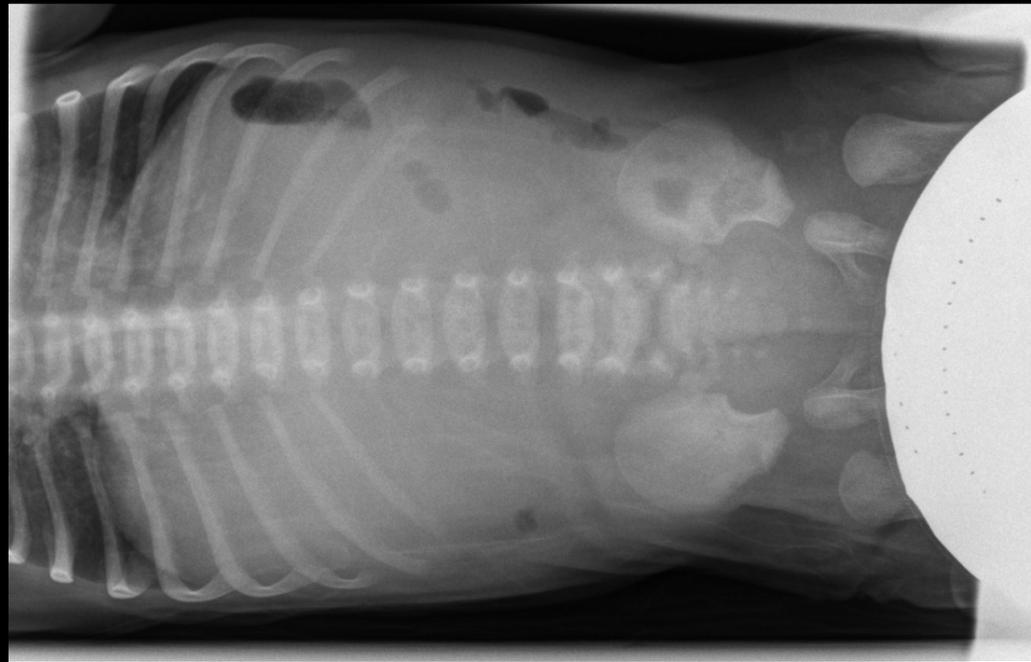
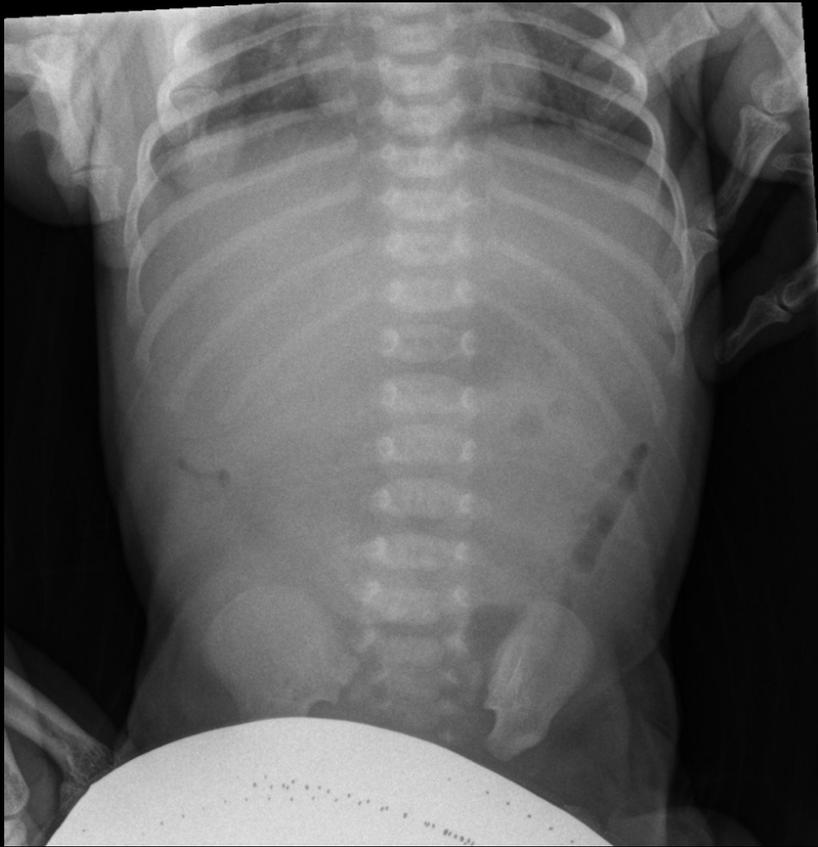
Triage VS: T 37.8°C, P 134,  
RR 40, BP 90/40, 93% neb  
Wt: 30 kg

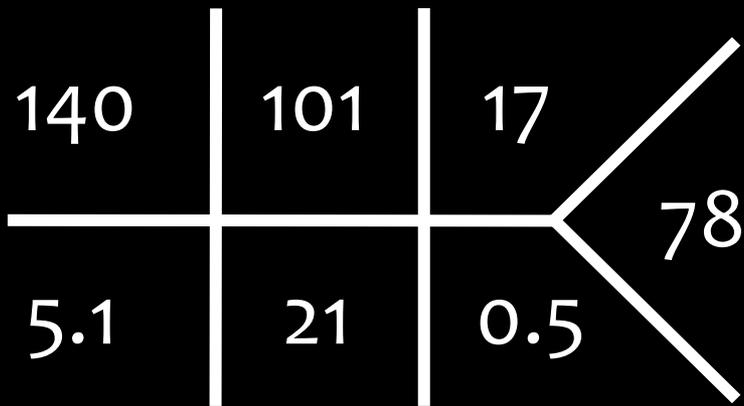
Repeat VS: T 38.1°C, P 144,  
RR 32, BP 95/42, 92% neb

# Back to Case 2: vomiting infant



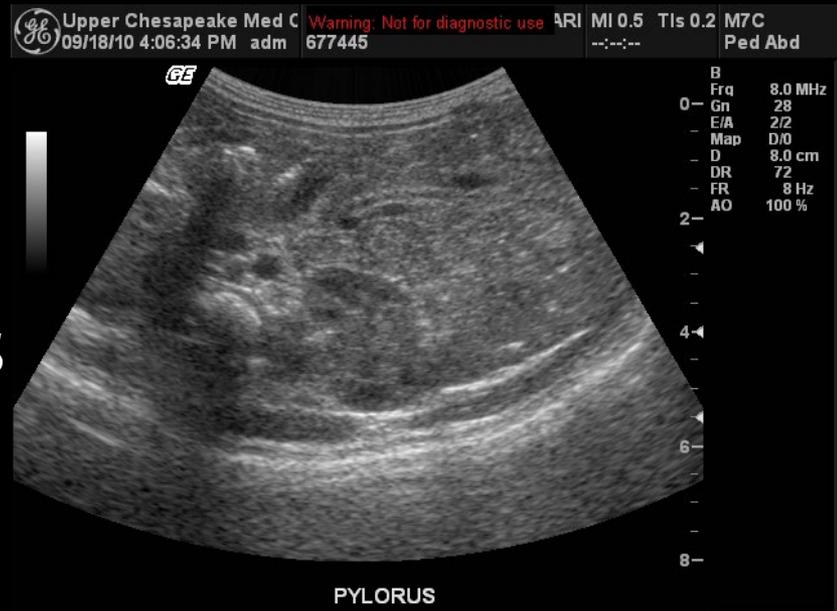
# Case 2





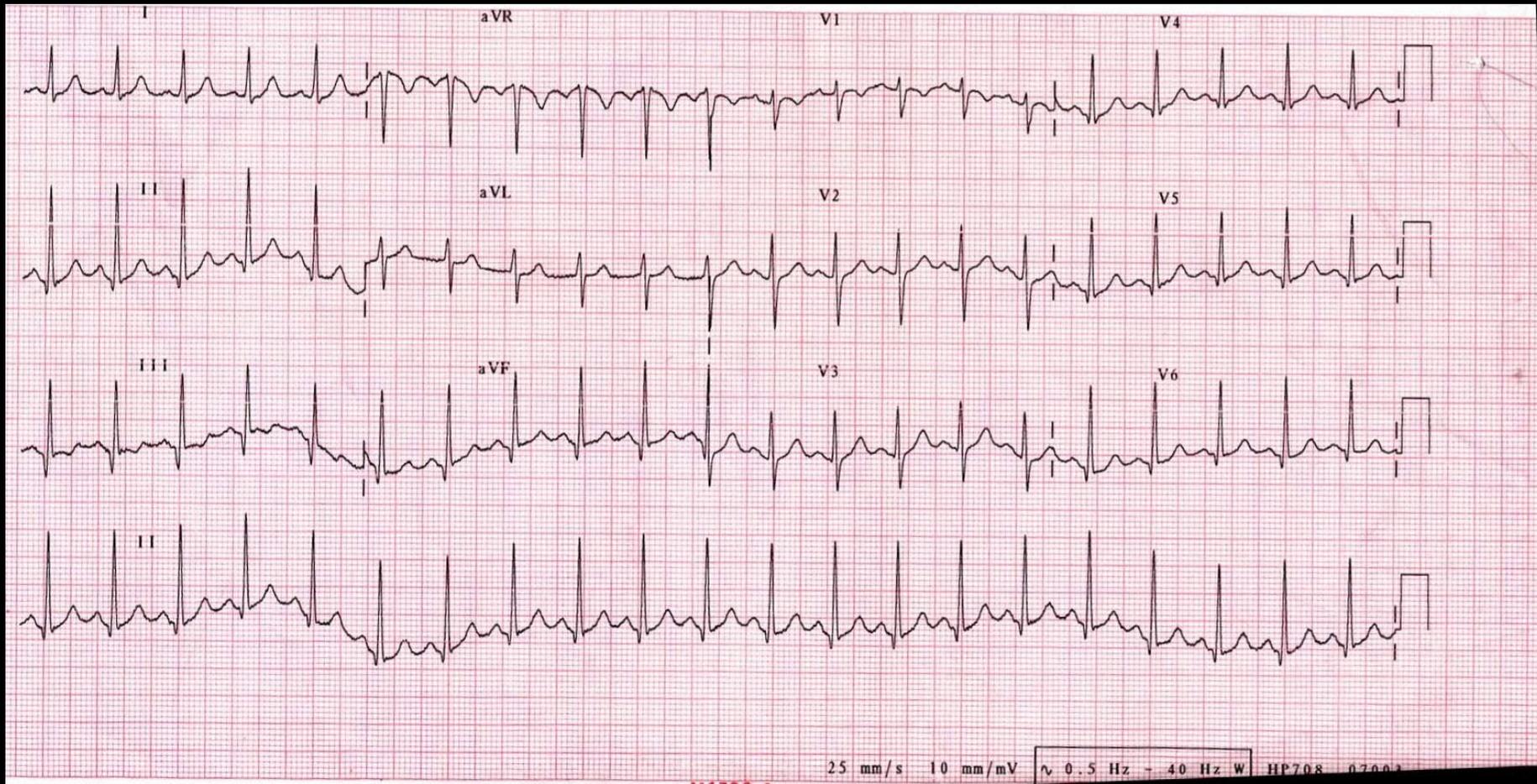
Ca 11.2

Ultrasound: normal pylorus



# Back to Case 1: Asthma





25 mm/s 10 mm/mV  $\sim$  0.5 Hz - 40 Hz W HP708 07002



# Case 1

143	107	7	149
3.3	23	0.5	

Ca 8.6  
Ph 3.9  
Mg 1.9

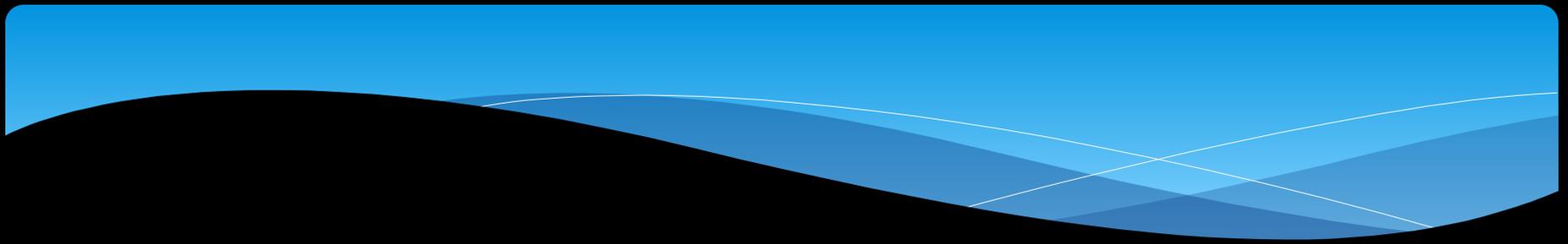
<del>16.6</del>	14	<del>275</del>
<del>39.8</del>		

N<sup>86</sup>L<sup>6</sup>

ABG: 7.20/ 55/ 69

BE: -4

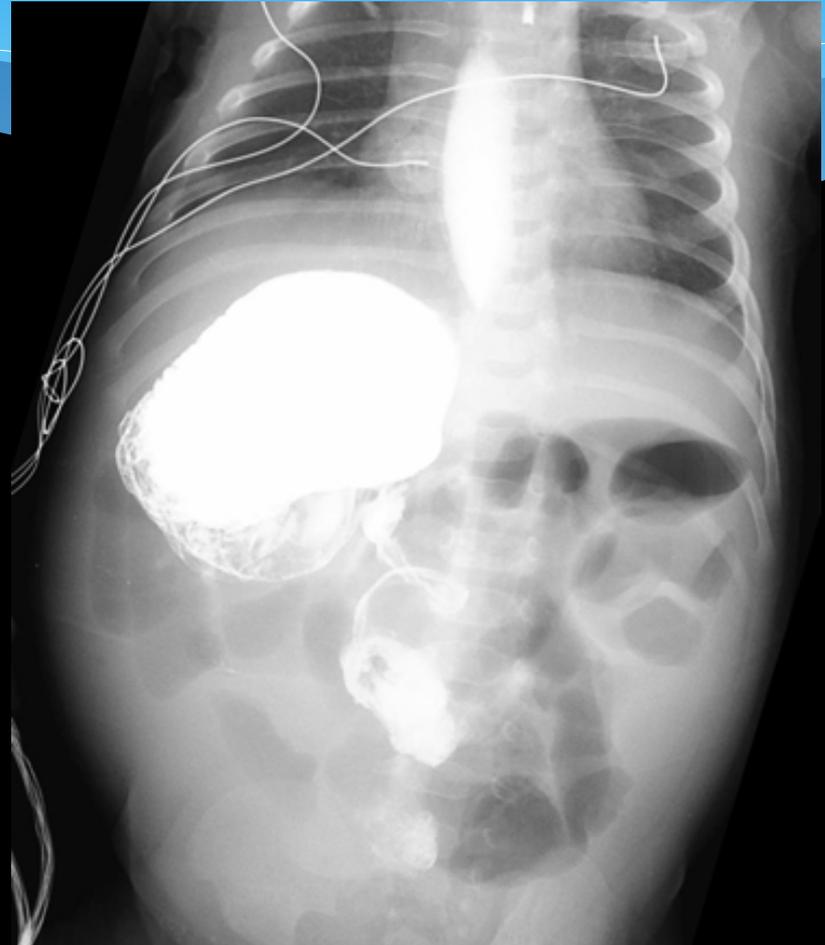
# Case 2: vomiting infant



# Malrotation with midgut volvulus



Abdominal Xray



Upper GI

# Differential for vomiting infant

## Bilious

- \* Malrotation with volvulus
- \* Intestinal atresia
- \* Meconium ileus

## Bilious or non-bilious

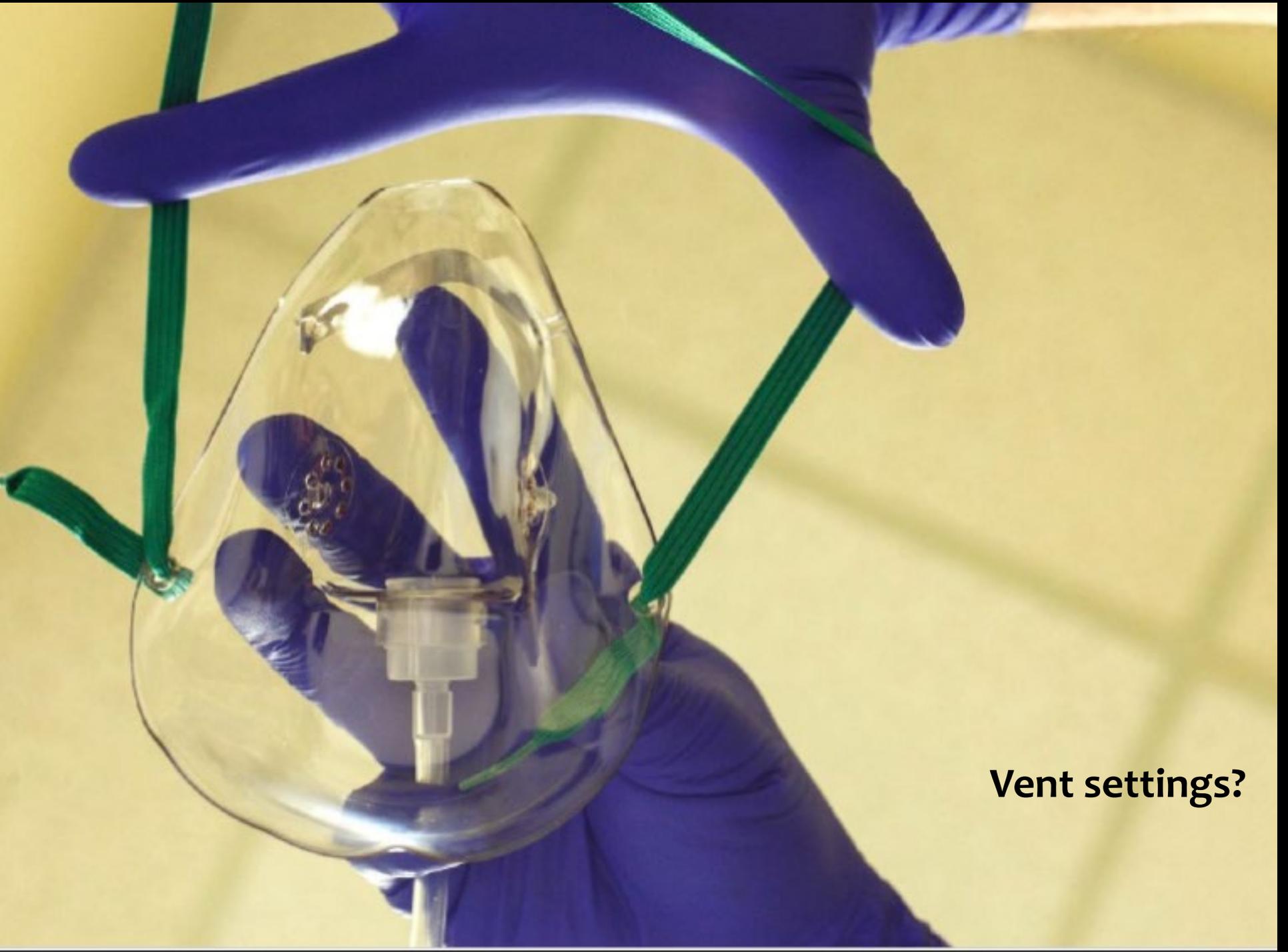
- \* Necrotizing enterocolitis
- \* Pyloric stenosis
- \* Hirschsprung's
- \* Inborn errors of metabolism
- \* Infection
  - \* UTI, pneumonia, meningitis
- \* GERD
- \* Intussusception

# Infant with bilious emesis

- \* NEVER normal
- \* Surgical emergency until proven otherwise
- \* Potential for rapid decompensation
- \* Critical actions:
  - \* Sepsis if ischemic bowel
  - \* Treat metabolic derangements
  - \* IVF resuscitation
  - \* Antibiotics
  - \* Upper GI
  - \* Transfer to higher level of care

# Back to Case 1: Asthma



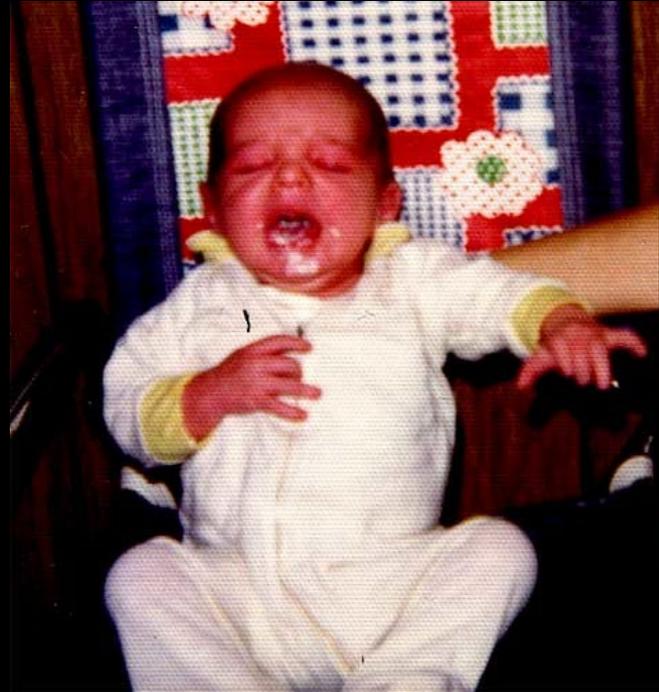


**Vent settings?**











# Neonatal Resuscitation

# Birth on arrival



# Delayed cord clamping

- \* More than 60 seconds
- \* Less IVH
- \* High BP and blood volume
- \* Less transfusions
- \* Less NEC

# The newly born

- \* Term?
- \* Tone?
- \* Breathing/ crying?



- Initial steps:
  - warm, position, clear secretions, dry, stimulation
- Ventilate and oxygenate
- Chest compressions
- Epinephrine and/or volume

# The newly born

- \* Initial steps:
  - \* Warm, position, clear secretions, dry, stimulate



# The newly born

- \* De-emphasize peri-partum suctioning
- \* No routine ETT suctioning for *nonvigorous* newly born with meconium-stained amniotic fluid



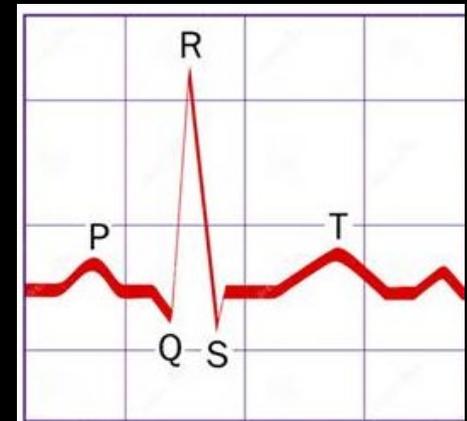
# The newly born

- Ventilate and oxygenate
  - Assess respirations and heart rate (<100)
  - PPV (PEEP 5)
  - Begin with  $\text{FiO}_2$  room air



# The newly born

*The most sensitive indicator for a successful response to each step is an increase in heart rate*



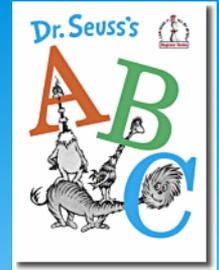
# Pulse oximetry

- Use oximetry if: (Class I, LOE B)
  - Resuscitation anticipated
  - PPV administered
  - Persistent cyanosis
  - Supplementary oxygen is administered
- Attach probe to pre-ductal location
  - Right wrist or palm

## Targeted Preductal SpO<sub>2</sub> 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%

# Airway: endotracheal tube



## Uncuffed tube

Children > 2 years:

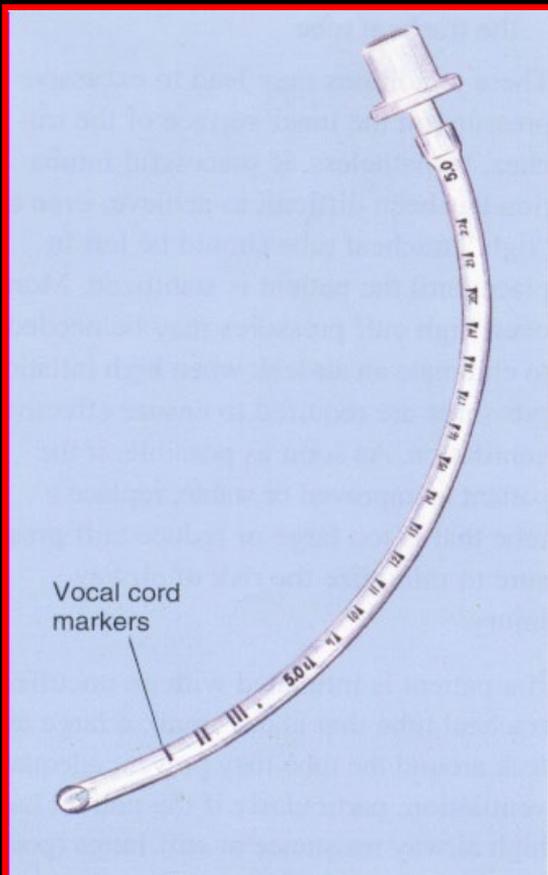
ETT size:  $(\text{Age}/4) + 4$

ETT depth (lip): ETT size  $\times 3$

## Cuffed tube

Except newborns (<30 days)

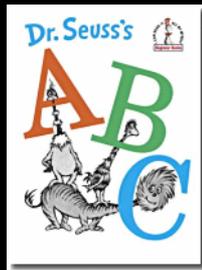
ETT size:  $(\text{Age}/4) + 3.5$



# Airway: pre-term tube sizes

ETT = *uncuffed* endotracheal tube size.

- \* 20-25 week gestation: 2.0-2.5 ETT
- \* 25-30 week gestation: 2.5-3.0 ETT
- \* 30-35 week gestation: 3.0-3.5 ETT
- \* 35-40 week gestation: 3.5-4.0 ETT



# Intubation Rescue Devices: LMA

- \* Insert partially inflated
- \* Insert slightly sideways then rotate to midline when resistance met
- \* Intubating LMA for children 30 kg+
  - \* Can fiberoptic smaller (usually  $\geq 17$ kg)
- \* Size
  - \* Can use down to 2 kg
  - \* Cushion size = patients ear



# The newly born



- \* Chest compressions
  - \* HR < 60 despite ventilation
  - \* 3:1 (15:2 if cardiac)
  - \* 100% FiO<sub>2</sub>
- \* Epinephrine and/or volume
  - \* 0.01 mg/kg (0.1 mL/kg) 1:10,000
  - \* 10 mL/kg IVF

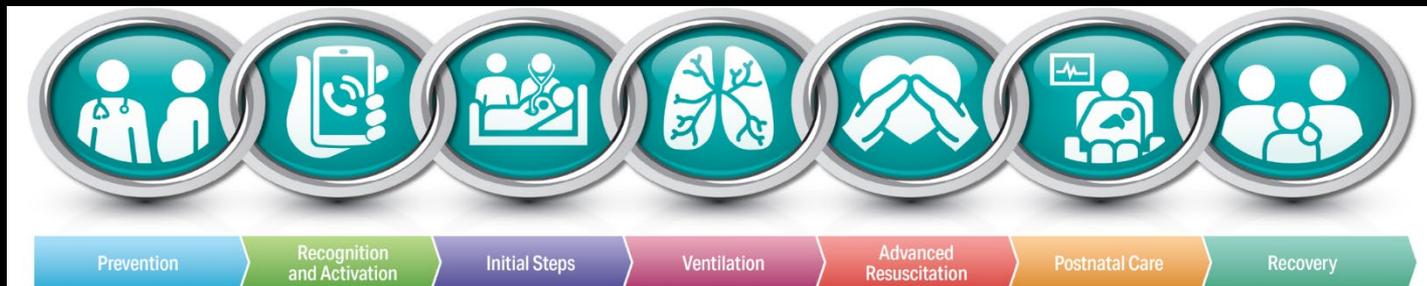
# Summary 2025 NRP

1. Newborn chain of care
2. Preparation by individual clinicians and teams
3. *Deferred cord clamping for  $\geq 60$  seconds and can maintain skin-to-skin contact*
4. Prioritize effective ventilation
5. Ventilation corrective steps (LMA or ETT)



# Summary 2025 NRP

6. Avoid hypothermia and hyperthermia
7. *Pulse oximetry to guide oxygen therapy and meet oxygen saturation target ranges*
8. Chest compressions if HR <60 after ventilation corrective steps (ETT)
9. Epi If the HR <60 after chest compressions
10. *If no heart rate by 20 minutes, discuss redirection of care*

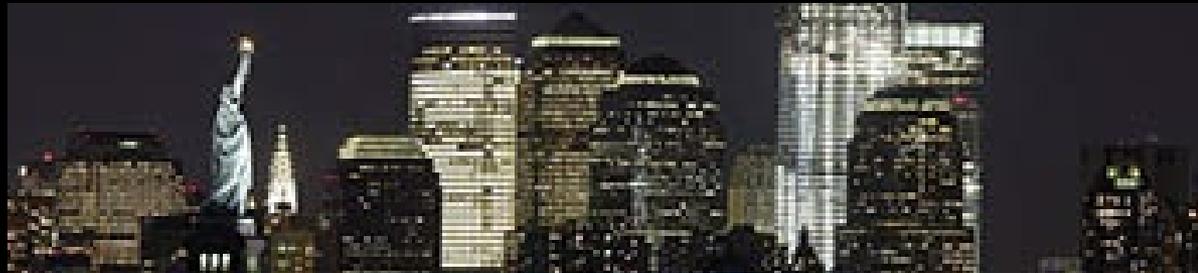


# The Most Well-Known Inventions from All 50 United States



Florida

# The Most Well-Known Inventions from All 50 United States



New York

# The Most Well-Known Inventions from All 50 United States



Montana

# The Most Well-Known Inventions from All 50 United States



Maryland

# The Most Well-Known Inventions from All 50 United States



California

# The Most Well-Known Inventions from All 50 United States



Hawaii

# The Most Well-Known Inventions from All 50 United States

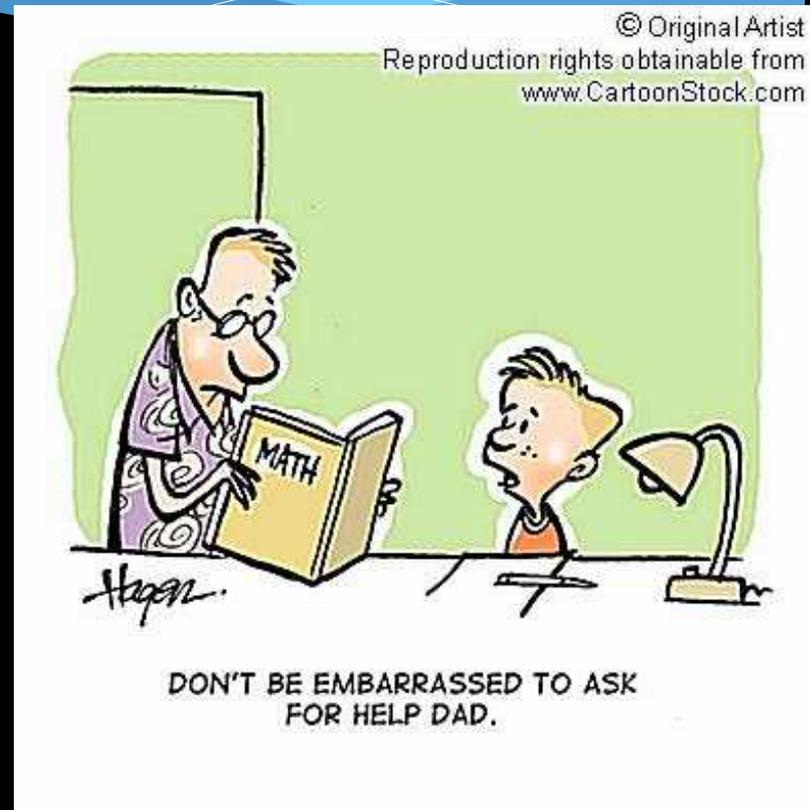


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Delaware

# Resuscitation: Numbers

- \* SBP:  $(2 \times \text{age}) + 90$
- \* Wt:  $(2 \times \text{age}) + 10 \text{ kg}$
- \* RR: 60/30/15 rule
  
- \* 1 x ETT:  $(\text{Age}/4) + 4$
- \* 2 x ETT: NG/OG/Foley
- \* 3 x ETT: Depth
- \* 4 x ETT: max Chest tube



Thanks!

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