Pediatrics: An Introduction and Cases

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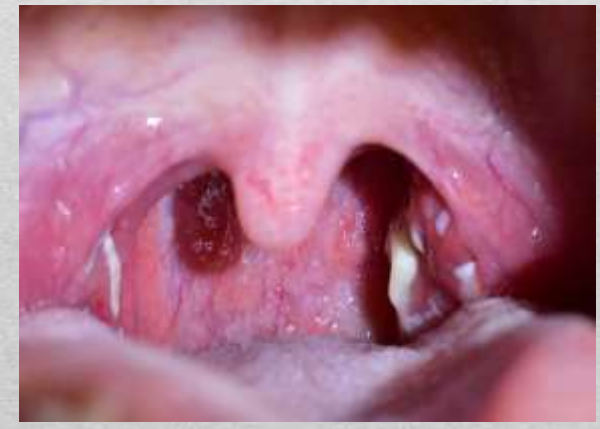
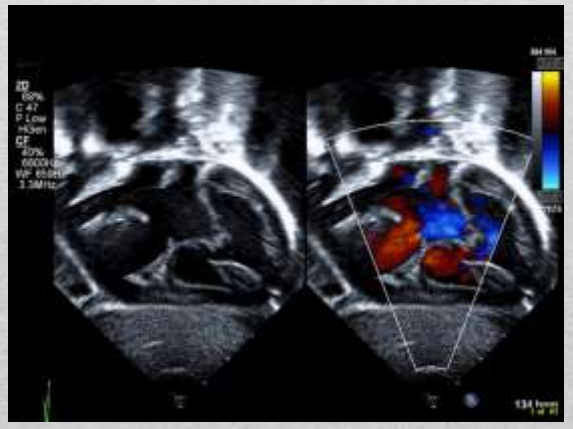
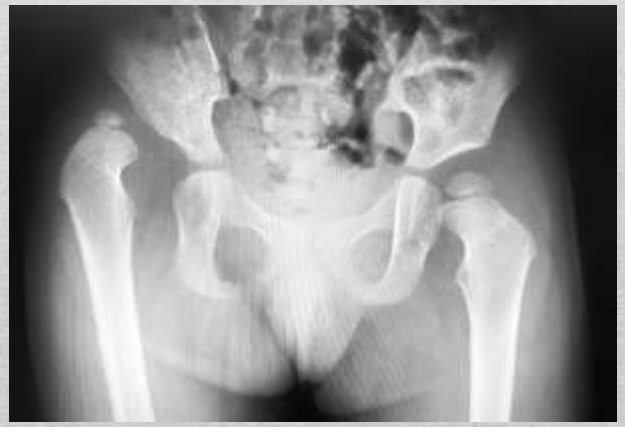
Pediatric medicine is varied and amazing





Prevention is key in pediatrics

- Diagnosis and treatment health problems in babies can prevent a lifetime of suffering



Unique Aspects of Pediatric Patient Examination

- Children are constantly changing physiologically, developmentally, and emotionally: your job is to know what is “normal”
  - Example 1: antibiotics are dosed in mg/kg/day, dosing forms must include liquid and chewable forms to suit different ages
  - Example 2: caloric needs: 6 month baby = 70 kcal/kg/day, 6 year old child = 40 kcal/kg/day, adult = 20 kcal/kg/day
  - Example 3: 9 month old babies are often stranger fearful, so your best exam may be done on mom’s or dad’s lap; teens need alone time with their doctor

- Example: respiratory rate
  - Newborn baby 40-60 BPM
  - 1 year old 20-30 BPM
  - 10 year old 15-20
  - Adult 10-18

“Vital signs are vital.”

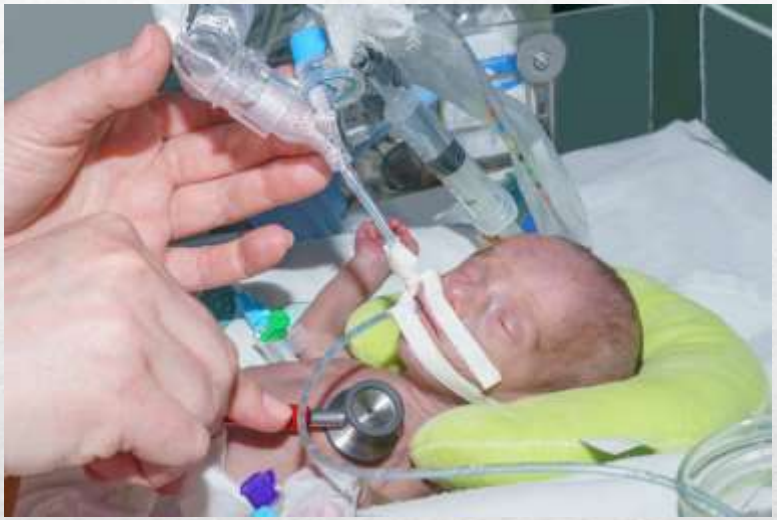
Pilar Bradshaw, MD, 1997

Tricks to examining babies and young children

- Take time to make them comfortable
- Don’t stare at them…you are intimidating!
- Use the parent to help you
- Look for clues to their illness (history is often unreliable from little kids)
- LISTEN to parents..they are the experts on their own child

Special issues with teens and young adults

- Parent and child may have very different agendas, history, and needs
- What is your role as the doctor?
- Confidentiality issues: where do you draw the line?
- Challenges of treating beyond age 18



“Kids get sicker quicker and better faster than adults”

Previously healthy 5 month baby boy is brought in his mother's arms, limp and gray. He was nursing 30 minutes ago, cried out as if in pain, vomited and became limp and pale. En route to the office, he occasionally became more responsive and cried, then returned to his semi-comatose state.

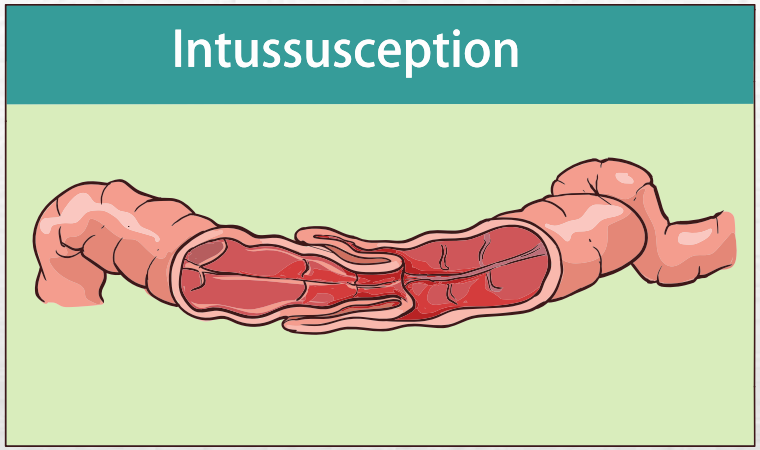
Case 1: Floppy Baby

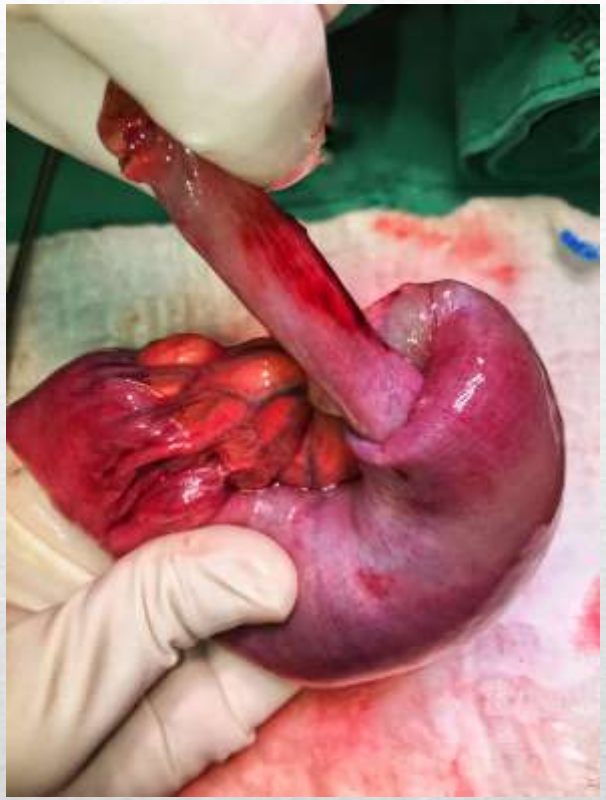
- Past medical history: healthy term infant
- Social history: first baby, lives with biological parents, no apparent stress in home
- Family history: no sudden death, cardiac disease, seizures or other neurological diseases

Floppy Baby…

- Exam: T = 37, RR = 10, HR = 150, Sats 91%, BP 90/40
- Limp, gray, chubby baby in frantic mother's arms. HEENT, Chest, CVS, GI exam grossly normal
- What do you do first?
- What could be wrong with this baby?

Floppy Baby…





Case 1 Diagnosis: Intussusception

Thinking about medical problems

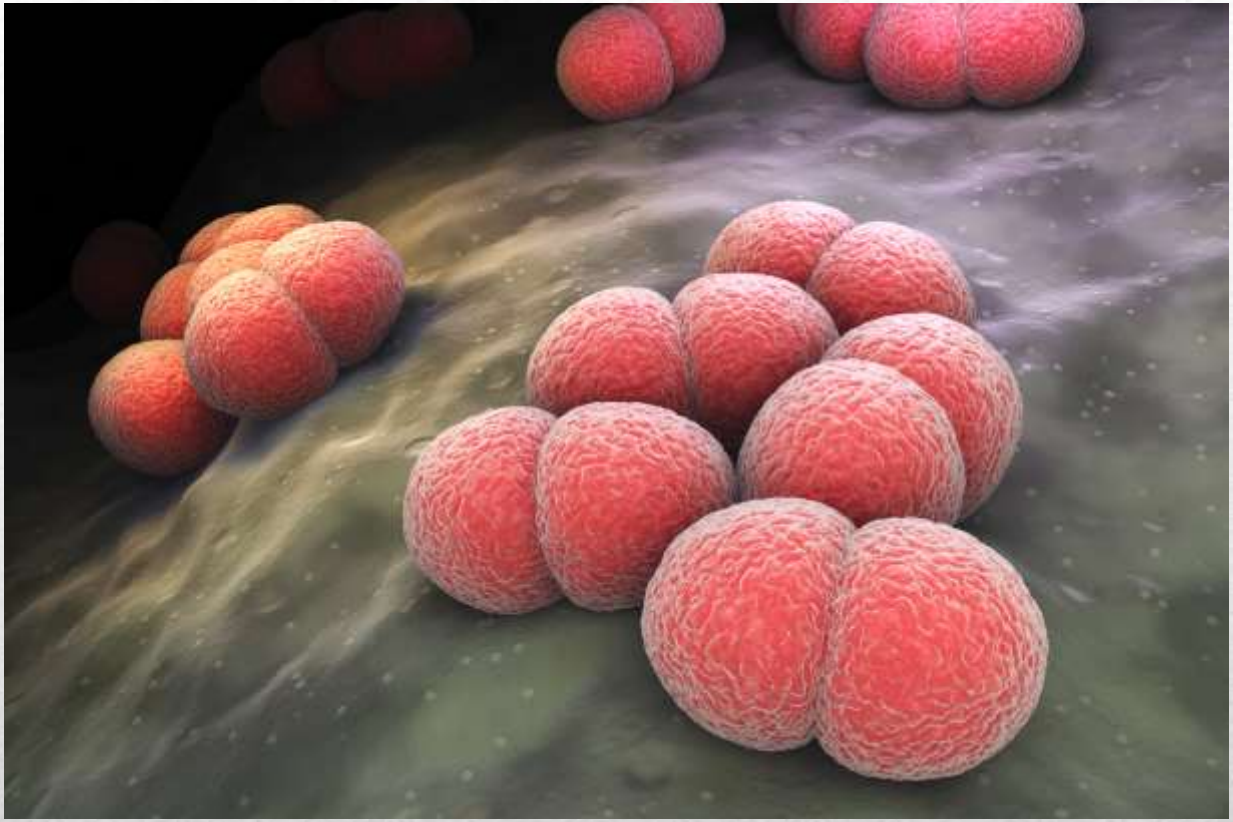
- Neurological
- Ophthalmological
- Ear/Nose/Throat
- Endocrine
- Respiratory
- Cardiovascular
- Gastrointestinal
- Genitourinary
- Musculoskeletal
- Dermatological
- Infectious
- Hematologic
- Immunologic/Rheumatologic
- Oncologic
- Toxic
- Drug
- Psychological

Case 2: Shocking!

You must act FAST when you see this rash!

Case 2: Shocking!

- 10 month baby girl is brought to the ER by mother with a rash and fever. Well until yesterday, when she became fussy. This morning she had a fever and took a very long nap. Mom checked on her and found her covered in purple spots. Rest of history is deferred.
- Exam: T = 40, RR = 40, HR = 190, BP = 45/15, Sats 88%
- Lying motionless with eyes half shut. Fontanel flat, pupils sluggish, mouth dry, heart rapid with murmur, skin with confluent areas of purple and black, non-responsive except to painful stimuli
- What do you do first? What could be wrong with this baby?



Case 2 Diagnosis: Meningococcemia

Shock

- Definition: Profound and widespread reduction of tissue perfusion leads to first reversible and eventually to irreversible cellular injury
- Categories of shock:
  - Cardiogenic shock = pump fails
  - Hypovolemic shock = not enough blood to pump around
  - Distributive shock = fluid leaves the vascular system

Managing this case of shock

- Always remember in a pediatric code, start with your “ABCs”
- Fluids --- fill up those floppy blood vessels
- Improve cardiac contractility with vasopressors
- Antibiotics to treat the infection actually exacerbate the problem but are critical
- Steroids to minimize hearing loss
- Ship her to a pediatric ICU asap!

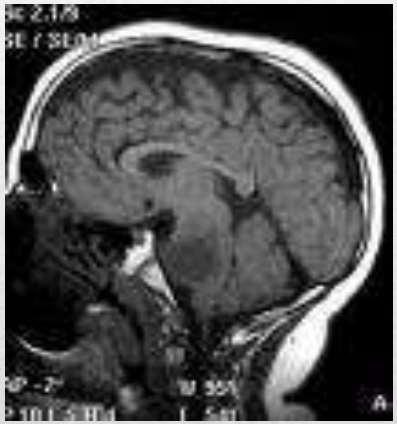
Case 3: Found down

- 17 year old found unresponsive on the front lawn of a fraternity at 3 am after a big party
- Exam: T = 35, HR = 160, RR = 30, 96%
- Unresponsive except to painful stimuli, no visible trauma, Chest, CVS, Resp, Abdom, Skin nl except elevated RR
- What do you do first? What could be the problem?
- Remember to keep an open mind!!

- 4 year old child with “tired eyes”. Exam: VSS except BP 130/85, sitting on mom’s lap with one eye grossly malaligned, no other findings
- What could be wrong with this child?

Case 4: Tired eyes

Increased intracranial pressure due to a brainstem tumor



- Elevated BP
- Lowered HR
- Irregular respirations
- Cranial nerve palsies

Case 5: Breathing easy?

- 20 day old presents with decreased feeding, “breathing funny” by dad’s report
- Brief history: healthy pregnancy, NSVD, 8 lbs birth wt, few days of congestion, fed well until last night (Dad went into a paroxysm of coughing while speaking to me)
- Exam: T 37.3, RR 8, HR 160, BP 50/30, 80% Generally very quiet, breathing irregularly, pale
- What do you do first? What could be wrong with this baby?

Diagnosis Case 5: pertussis

Case 6: Freaked out teen

- 15 year old healthy girl presents with morning nausea for 2 weeks, vomited once, no other symptoms.
- Exam: VSS, exam normal
- What could be wrong? What would you do?

- 6 day old baby with poor feeding observed by lactation consultant
- VS: Afeb, HR: 200, RR: 20, BP 80/35, sats: 82%
- Exam: grunting, pale, retractions, poor perfusion, floppy
- 911 called and baby transferred to NICU

Case 6: Poor feeding

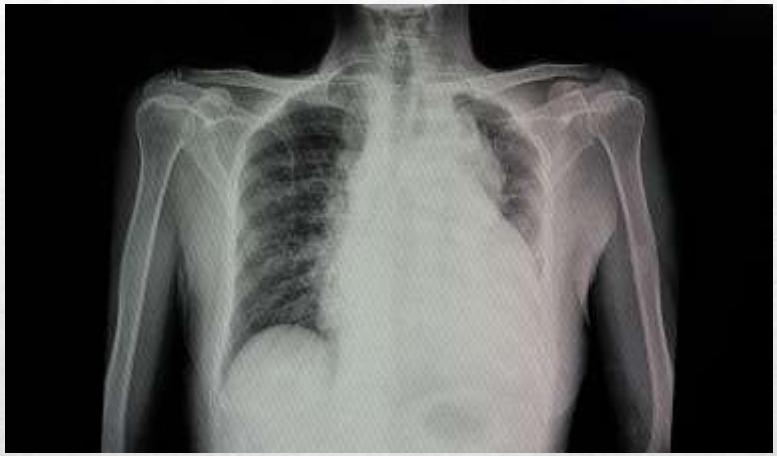
Case 6: worsens at NICU

- Baby rapidly deteriorates despite NICU efforts
- Intubated, high oxygen and pressures needed on ventilator
- Multiple vasopressors, echo shows cardiac dysfunction
- Rapid onset jaundice, LFTs over 4,000
- Seizures start, LP shows pleocytosis
- IV sites oozing blood, all cell counts low, DIC screen positive
- What could be wrong with this baby?

Case 6 diagnosis: Herpes type 2 sepsis

- 14 year old previously healthy boy with 1 week of increasing shortness of breath, cough and low energy
- VS: Afeb, HR 212, RR 36, sats 87%, BP 85/45
- Exam: anxious, diffuse rales, rapid heartbeat, large abdominal mass
- What could be wrong?

Case 7: Short of breath



Diagnosis Case 7: heart failure

Pediatric Training and Careers

- 4 years med school, 1 year internship, 2 years residency, fellowship to subspecialize
- Hours are long, but no worse than any other non-surgical specialty (80 hrs/wk, not including studying)
- Wide variety of subspecialties (but being a subspecialist means you will be in a large city)

Dr B's thoughts on medical school

- Consider what you need to be happy so you can work your best
- Go ready to immerse yourself, but keep some balance
- Almost nobody cares where you went to medical school years down the road -- what matters is how good you are at your job, how kind you are to your patients and colleagues

- Think about what type of patient motivates you
- Surgical vs. non-surgical?
- Research or not?
- Part-time vs. full-time (what does that mean?)?
- Big city vs. smaller city or rural setting?
- Try to see a lot of the type of doc you think you want to be before you decide

Dr B's thoughts on choosing a medical specialty

Remember…

If you like children, there is no finer job in life than being a pediatrician!