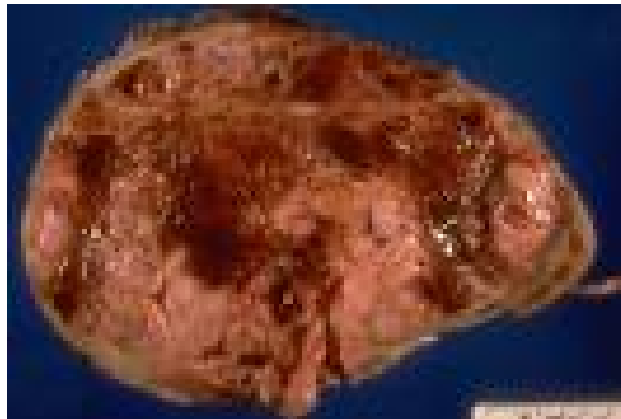




Pediatrics: An Introduction and Cases

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Pediatric medicine is varied and amazing



Cute kids -- well or sick?



Children have lots of “owies”



Pediatricians often see
adolescents and young adults

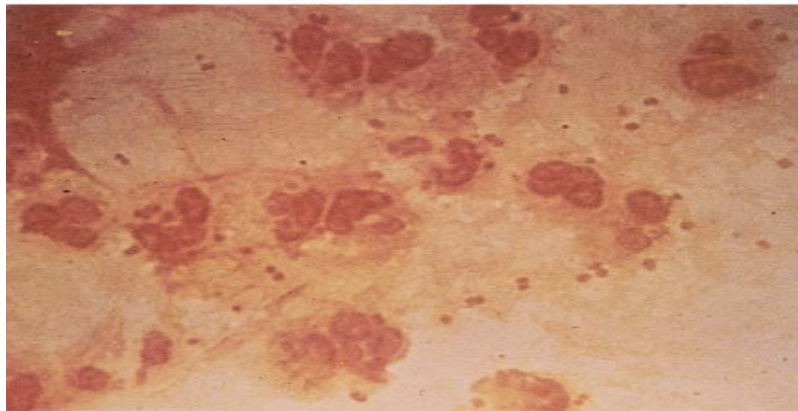


Every specialty has its “bread and butter”

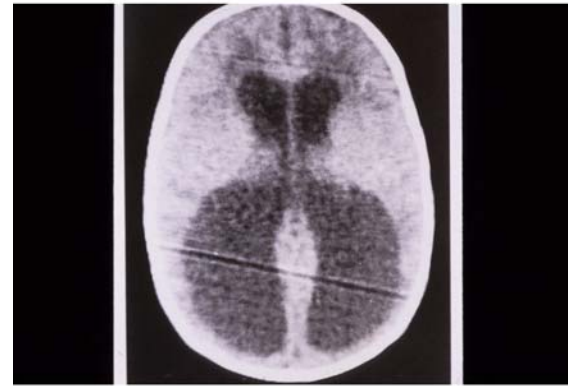
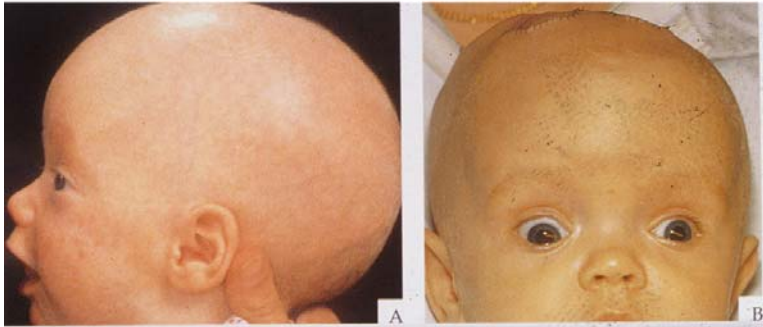


- Well child checks allow you to track development and detect problems early
- Illness visits account for a large percentage of pediatric outpatient visits

Not everything in pediatrics is warm and fuzzy



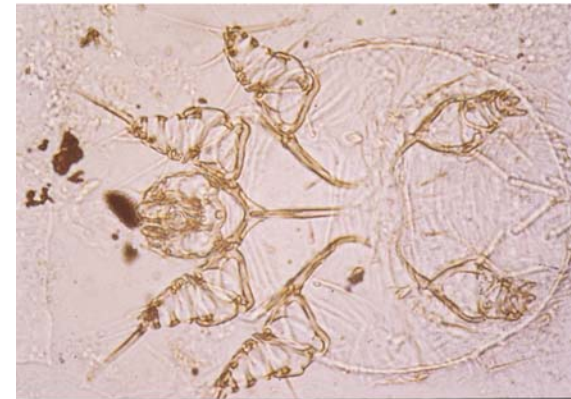
Normal or not??



- This baby seemed fine at the 2 week well baby check
- Problems became apparent at the 2 month well baby check

Kids can have “cooties” (but adults can have even more!)

- Scabies
- Lice
- Fleas
- STD's
- To name a few...



Dental health matters



Kids stick stuff where it
doesn't belong





Unique Aspects of Pediatric Patient Examination

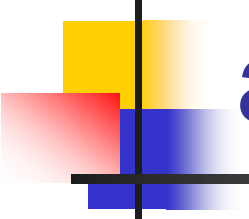
- Children are constantly changing physiologically, developmentally, and emotionally: your job is to know what is “normal”
 - Example 1: antibiotics are dosed in mg/kg/day, dosing forms must include liquid and chewable forms to suit different ages
 - Example 2: caloric needs: 6 month baby = 70 kcal/kg/day, 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



“Vital signs are vital.”

Pilar Bradshaw, MD, 1997

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



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?
- “Emancipated minor” status
- Challenges of treating beyond age 18

“Kids get sicker quicker and better faster than adults”





Case 1: Floppy Baby

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.



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 85%, 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?



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 1: 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 90%
- 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?



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



Control of arterial blood pressure

- Organ perfusion ~ perfusion pressure
- Perfusion pressure ~ CO, SVR
- SVR ~ (vessel length x blood viscosity) / (radius of vessel)^{4th power}
- Vascular smooth muscle tone regulates the radius of vessels, so whatever affects smooth muscle tone dramatically affects SVR
- $CO = SV \times HR$
- SV drops quickly as cardiac filling declines (preload) and as cardiac contractility decreases



Management of shock: Always start with ABC's

- Cardiogenic
 - Reduce stress on heart
 - Salvage heart muscle
 - Oxygen
 - Consider risks/benefits of meds to help heart pump better
- Hypovolemic
 - Give fluids
 - Stop the leak
 - Oxygen
- Distributive
 - Fluids
 - Oxygen
 - Address the underlying problem
 - Consider cardiac meds



Case 3: Found down

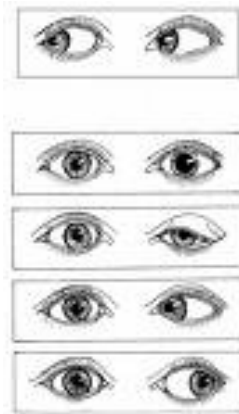
- 17 year old found unresponsive on the front lawn of a fraternity at 3 am after a big party
- Exam: T = 35, HR = 160, RR = 30, 96%
- Unresponsive except to painful stimuli, no visible trauma, Chest, CVS, Resp, Abdom, Skin nl except elevated RR
- What do you do first? What could be the problem?
- Remember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



Case 4: Tired eyes

- 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?

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, fed well until last night
- 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?



Case 6: Freaked out teen

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



Pediatric Training and Careers

- 4 years med school, 1 year internship, 2 years residency, potential for fellowship
- Hours are long, but no worse than any other non-surgical specialty (45-90 hrs/wk, not including studying)
- Wide variety of subspecialties (but being a subspecialist means you will be in a large city)



Pilar'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



Pilar's thoughts on choosing a medical specialty

- 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

Remember...



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