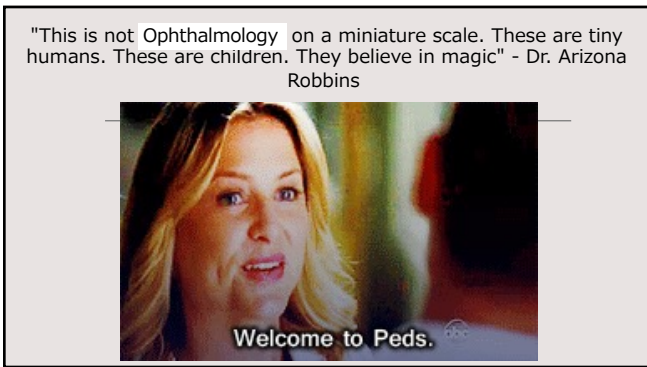
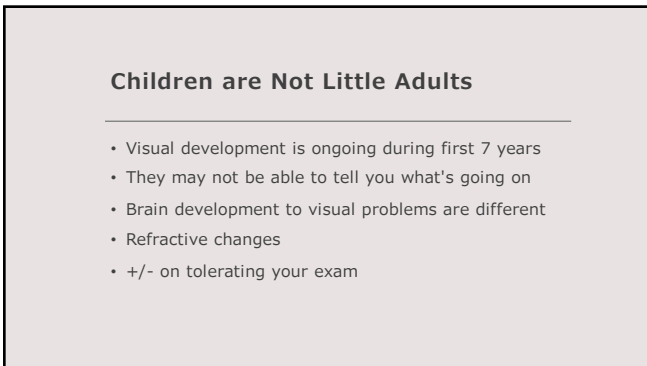


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Common things we see in Pediatric Ophthalmology:

Routine:

- Amblyopia: vision loss due to poor visual stimulation
- Strabismus: misalignment
- Refractive errors

Urgent:

- Trauma
- Acute Strabismus/diplopia
- Infection

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Critical Periods of Development

- **Vision development and Binocularity:** 0-4 months
- **Visual maturity:** 5-10 ish years

- **Blink to bright light:** by 30 weeks GA
- **Pupillary light reflex:** by 29-31 weeks GA
- **Blink to threat :** by 5 months

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Taking a History

- Obtain from parent/guardian
 - *Acute vision loss? (Worrisome)*
 - *Doesn't see well*
 - *Gets close to things*
 - *Squinting*
 - *Turning head to see*
 - Fail a vision screen at school or pediatrician's office?
- Birth History
- On track with milestones?
- Surgical History
- Family History: strabismus, amblyopia, nystagmus can have hereditary component.

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A note on "lazy eye"

- Can mean various things to patients:
 - Wandering
 - Weak
 - Drooping eyelid
 - Crossing eye
 - Jiggling eye
 - Eyes don't track together

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General Framework for a Pediatric Eye Exam

- External
- Vision
- Motility
- Visual fields
- Pupils
- Pressure
- Slit lamp exam
- Fundus exam

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1) External exam

Observation can tell you a lot! (May be all that you get that visit)

- Overall appearance
- Head position
- General eye alignment
- Eye appearance
- Demeanor (shy, energetic, inconsolable)



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External exam



Courtesy of Dr. Karr

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2) Motility



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2) Motility

Hirschburg Test : Look at corneal light reflex to determine if they have tropia

Cover Uncover test : look for phoria

Alternate cover test : can't distinguish between phoria or tropia

Test at near and at distance

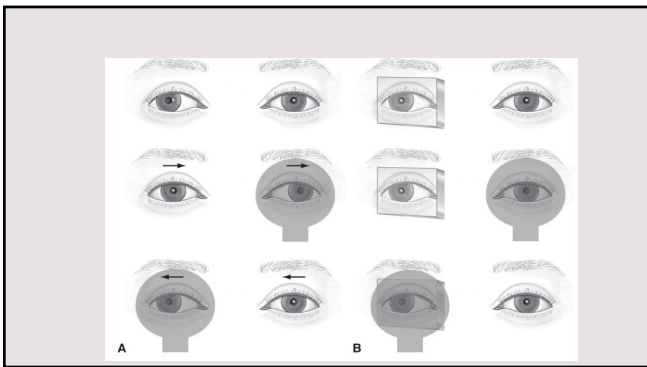
Tropia = always present

Phoria= some of the time (e.g. when fusion broken or tired)

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3) Vision

- Check binocularity first before occluding

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3) Vision - Preverbal

- Blink to Light
- Fix and Follow
- Central Steady Maintained (CSM)
 - Fixation quality – central vs eccentric
 - Fixation quantity – Steady vs unsteady (wandering)
 - Fixation duration – Maintained vs unmaintained as the object moves.

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Fix and Follow / CSM



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Induced tropia test



Courtesy of Dr. Karr

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Use an eye patch to prevent peeking!



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Lea symbols and HOTV



Use Crowding Bars!

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Normal Visual Acuity in Children

- <2 years : CSM
- 2 years: 20/60
- 3 years: 20/50
- 4 years: 20/40
- 5 years: 20/30
- 6 years: 20/20

"Rule of 8s "

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4) Visual fields

- Cover 1 eye and have them fixate at nose (sticker on nose)
- Saccade toward object in periphery or have them count fingers.
- All 4 quadrants
- For picking up major visual field defects.

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5) Pupils

- Look at red reflex using direct ophthalmoscope (equal?)
- Fixate on distance target (new video or toy)
- Test in light and dim lighting
- Swinging flashlight test

Hippus : rhythmic fluctuations in pupil in young people!

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6) Pressure

- Have child close eyes and press gently for tactile estimate
- iCare
 - No anesthetic needed
 - Test on skin
 - "Counting your eyelashes"
 - Accept 1 reading
 - For babies: nursing, bottle, or pacifier
- Tonopen for older children. Needs anesthetic drop



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7) Slit Lamp Exam



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8) Fundus exam – Eye drops!

Sting factor cyclopentolate > tropicamide > proparacaine

- Darker pigmented eyes need more drops
 - "Blink in the eye drop"
 - Have parents hug the child to hold arms/legs.
 - Spray drops option
- Cyclomidril for infants <6 months



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In Summary:

- One toy one look – keep things interesting!
- You don't have to get everything in a single visit
- Start from least invasive
- Incorporate parents/guardians into exam

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Thank you!



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