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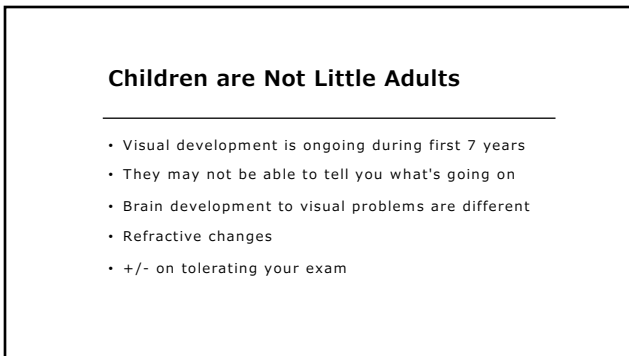
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**Common things we see in Pediatric Ophthalmology:**

**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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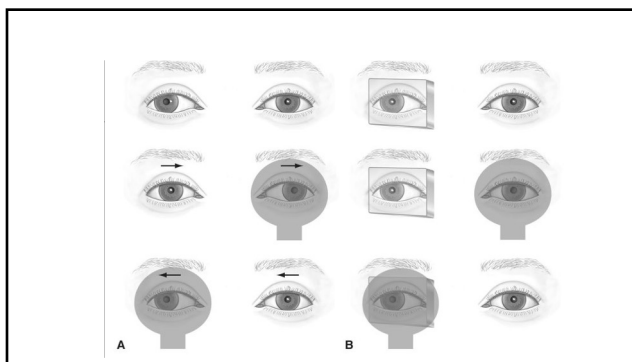
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### 3) Vision - Preverbal

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- 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

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Courtesy of Dr. Karr

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Use an eye patch to prevent peeking!



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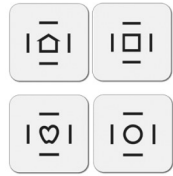
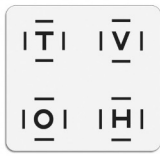
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Lea symbols and HOTV



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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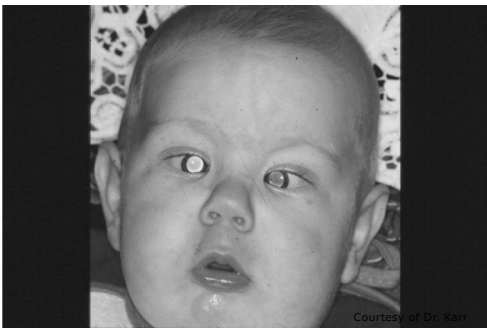
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### 6) Pressure

- 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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