Baby Steps to Infant Eye Care

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What We Really Want to Know

- Does the history suggest a problem?
- Can the baby see?
- Are the eyes straight?
- Are the eyes healthy?
- Is development progressing appropriately?
- Is intervention necessary?

Before the Appointment

- Have Infant History form
  - Send by mail to parent
  - Have the history form online on website
- Get the information when the parent has time – NOT IN THE OFFICE

Before the Appointment

- What to bring
  - Bottle, treats, pacifier, finger food
  - Favorite toys,
  - security blanket
- What not to bring
  - Siblings (unless accompanied by a designated babysitter)

Before the Appointment

- Name & Age
- Primary concern
- Special concerns & special conditions
- Schedule infants in the morning
- Avoid nap time
- Change baby just before exam

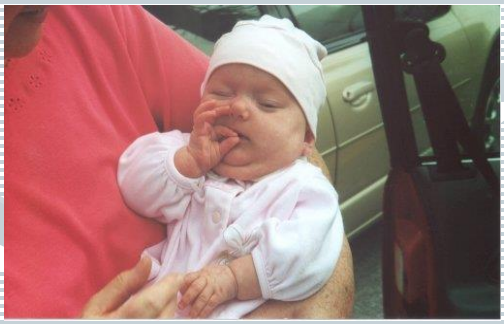
The Baby is Delivered

Now what do you do?

Elements of the Examination

- History
- Ocular Motility and Alignment
- Binocularity
- Refraction
- Vision and Visual Acuity
- Eye Health
- Parent Education

Early Warning Signs?



Pediatric History

- Expand on pertinent points from history
- First examination?
  - If not, what has been recommended?
- Premature or full term?
- Do the parents perceive a problem?
- Sick a lot?
- Family risk factors?
- Meeting developmental milestones?

Social /Emotional Milestones – 12 mos - AAP

- Shy or anxious with strangers
- Cries when mother or father leaves
- Enjoys imitating people in his play
- Shows specific preferences for certain people and toys
- Tests parental responses to her actions during feedings
- Tests parental responses to his behavior
- May be fearful in some situations
- Prefers mother and/or regular caregiver over all others
- Repeats sounds or gestures for attention
- Finger-feeds herself
- Extends arm or leg to help when being dressed

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Cognitive Milestones

- Explores objects in many different ways (shaking, banging, throwing, dropping)
- Finds hidden objects easily
- Looks at correct picture when the image is named
- Imitates gestures
- Begins to use objects correctly (drinking from cup, brushing hair, dialing phone, listening to receiver)

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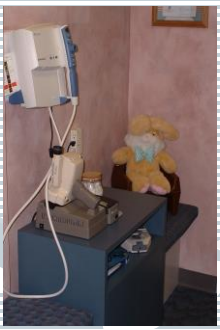
- Man ons or sp
- May office prot
- You

Office Planning Helps

- Designated exam room with infant assessment equipment
- Procedures for Staff to be prepared to work efficiently
  - History, Pre-testing, Dilation
  - Clean up protocols
- "Friends" in key places to make the babies more comfortable



"Special" Equipment

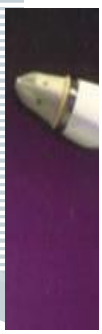
- Toys
  - Fixation Targets: quiet, noisy, dynamic, large, small, light up, flash
  - Security toys to hold on to
- Examination
  - Trial lenses / Lens bar
  - Loose prisms / Prism bar

Your Best Special Equipment?

- Office Assistants!!!
  - First contact with parent/patient
  - History
  - Any pre-testing
  - Sets the stage
- It is no accident that the name of the background in these slides is teamwork

Special Equipment

- Hand held instruments
  - Biomicroscope / MIO / BIO
  - Autorefractor / Autokeratometer
  - Retinoscope / Ophthalmoscope
  - Transilluminator
- Non-verbal visual acuity tests
- Young child stereo tests



My Best Tool for Evaluation

During the Examination

- Remove the white coat?
- What does staff wear? May be more important – sets the stage
- Have a designated Pediatric Exam room
- Have equipment & materials ready for easy access during the exam

During the Examination

- Lighting will help control attention
- No interruption notice
- Welcome "Friend" in exam chair
- Staff assistance for target control, scribe, etc.
- Seat the infant on parent's lap, in parent's arms, or on lap pillow

During the Examination

- Be prepared to work quickly, with flexibility
- Allow cool down period if the baby becomes too fussy
- Watch the baby's reaction to your voice tone & movements
- Avoid words like "test," "drops," "hurt"
- Talk to the baby at their eye level where it is easiest for them
- Use the name Mom & Dad use

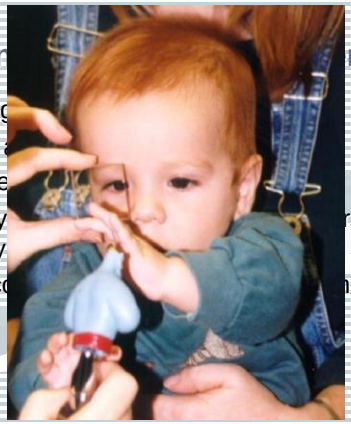
Parents and Siblings

- The Parents
  - Cell phone free zone
  - "Joey is having a hard time hearing me"
- Siblings
  - "You are much more exciting than I am so you have to be still and quiet"

Parents

- Have parents present at any age
- Explain to Mom or Dad as you go along
- Reassure parents when the baby is doing well during the exam
- Tactfully control the parent's comments
- Answer questions but don't stop
- Use parents as targets or as puppet masters to hold the baby's attention during certain procedures

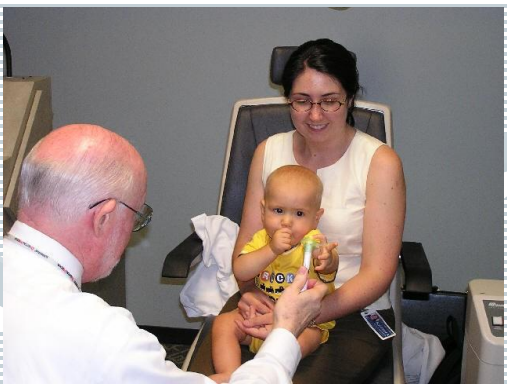
In…nt



- Laug…
- Put …
- Give…
- Play… …rst if they…
- Enco… …n game

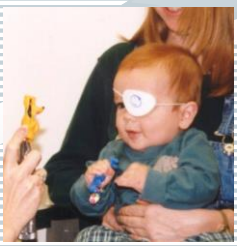
Ocular Motility and Alignment

Binocular tests should be completed before moving to monocular tests



Fixation

- Red Finger Peek-a-boo
- Colorful, Lighted Targets
- Face-like Targets
- Silent Visual Targets



Alignment

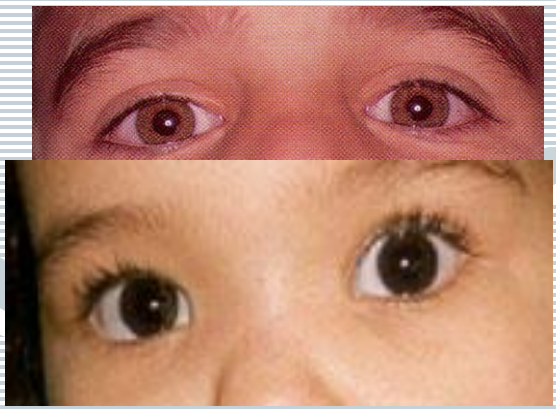
- Strabismus vs Pseudostrabismus
- Hirschberg
  - Binocular evaluation of reflex
- Krimsky
  - Prism neutralization of Hirschberg
- Steele method
  - Use of retinoscope is most efficient
- Brückner
  - Problem eye is brighter

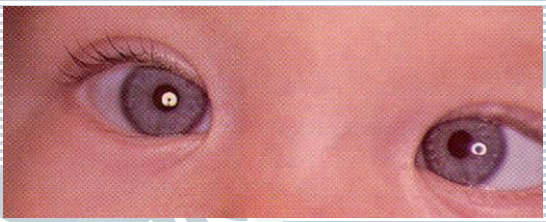
Brückner Test

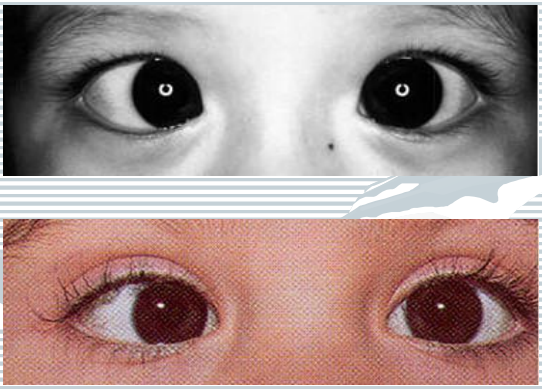
- Strabismus, amblyopia, & anisometropia
- 80 - 100 cm away in dim illumination
- Ophthalmoscope light on both eyes simultaneously
- Observe color, brightness of retinal reflex
- Note pupil size

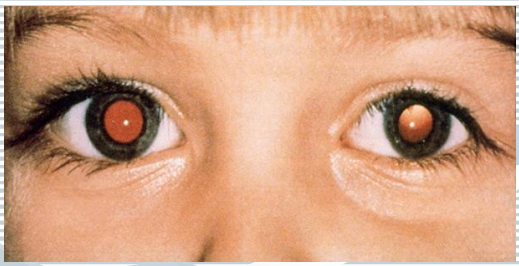
Brückner Test

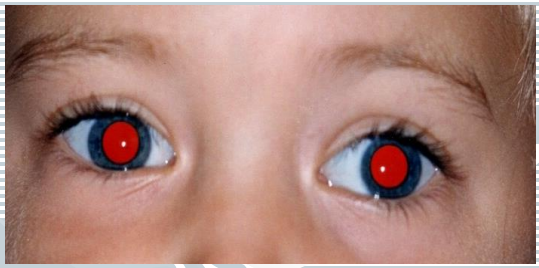
- Anisocoria, larger pupil is brighter
- Anisometropia: higher refractive condition is brighter
- Strabismus: non-fixating eye brighter
- Amblyopic eye's pupil will first constrict weakly, then dilate immediately

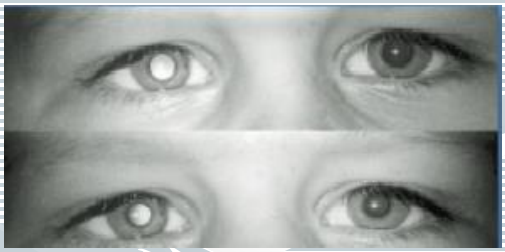




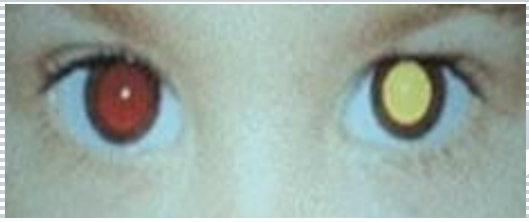






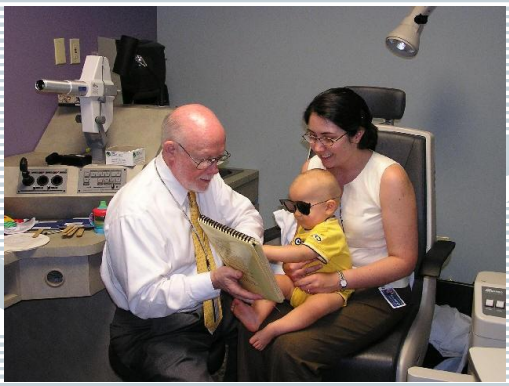


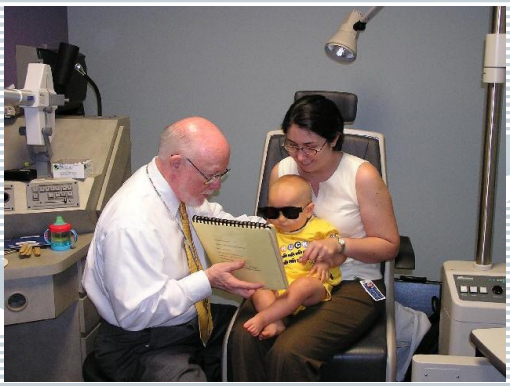
Bruckner reflex: OD esotropia



Alignment

- Cover test
  - observation with occlusion
  - loose prism / prism bar
- Prism flippers
  - with dynamic targets
  - lighted targets best for observing alignment reflex
- Stereo testing
  - Tests should be oriented towards an infant





Visual Acuity and Refractive Conditions

Visual Acuity

- Is acuity equal?
  (Interocular Acuity Difference - IAD)
- Best Tests
  - High contrast optotypes
  - Forced choice or matching
  - Decreased test distance (<= 10 ft)

Visual Acuity

- Candy bead (>1yr)
- Reaction to occlusion
- Fix – Follow - Maintain
- Fixation Preference with 10Δ BU
  - Alternates fixation equally
  - Holds briefly but one eye dominates
  - Can be done at the same time as binocularity testing

Visual Acuity

- Preferential Looking/Viewing
- Evaluate patient response to patterned and plain targets
  - Stripe Cards best for < 1 yr but can be useful with older toddlers (Teller, Lea Gratings or Patti Pics)
  - Richman Face Dot Paddles
  - IAD > 2 sequential cards for Teller/Keeler PL cards is significant

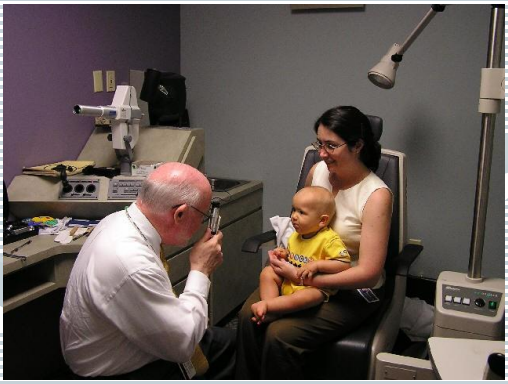
Lea Grating Testing

Determination of Refraction

- If you use retinoscopy for refraction
  - Auto-refraction
  - Distance Retinoscopy
  - Near Dynamic Retinoscopy
  - Mohindra Retinoscopy
- Retinoscopy can be used for so much more

Dynamic Retinoscopy

- My preferred method of refractive assessment – Just Look!
- Watch the visual response as the baby or patient is changing from task to task
- Think of it as a video rather than a snapshot
- ..\..\Development Seminar\Retinoscopy\GSPart2.wmv



Emmetropization

- Usually born with moderate hyperopia
- May also show myopia and astigmatism
- Gradually moves toward emmetropia
- Allow this process to take place
  - 3 X 3 Rule

3 X 3 Rule

- If refractive posture that suggests a risk factor
- Compare the measures in three and six months to ensure appropriate movement toward the expected
- Intervene at any time there is no change or a change for the worse

Prescribing

- Refractive Compensation should be considered for stable refractive conditions of abnormal degree or when significant anisometropia or ametropia is present increasing the risk for amblyopia
- 3 x 3 rule

"Normal" Range Limits AAO

- Significant refractive conditions in children 12 months and younger - AAO:
  - > 6.00 D hyperopia in any meridian
  - > 4.00 D myopia (20% with ROP)
  - > 2.50 to 3.00D astigmatism
  - > 2.00 D anisometropia (esp. if higher ametropic eye is >+3.00D)

"Normal" Range Limits AOA

- Significant refractive conditions in children 12 months and younger – AOA CPG on Amblyopia):
  - > 5.00 D hyperopia in any meridian
  - > 8.00 D myopia
  - > 2.50 D astigmatism
  - > 1.50 D anisometropia

Prescribing

I generally recommend "Partial corrections" for infants and toddlers

- greater range is normally present in infants than in adults
- there may be harm associated with removing blur completely – increased incidence of strabismus and amblyopia
- measurements are often less valid, unreliable

Prescribing

- A rule-of-thumb clinical guide for under-correction is to leave a residual refractive condition that is within normal limits for the infant patient
  - Scopes +8.00 and stable
  - When you feel it is necessary to prescribe, first observe the response to the lens that brings it within the +6.00 the upper limit
  - Continue to monitor carefully
- Don't forget development

YOU BE THE DOCTOR

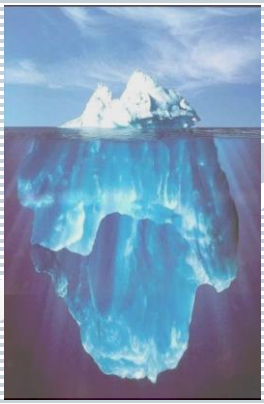
Patient SR 7 months

- History - Parents note no problems
- Ocular health - shows expected appearance
- Ocular motility - full EOM with sustained fx
- Binocularity – alignment on Hirschberg

Patient SR 7 months

- Global stereo on Keystone Basic Binocular
- Refraction - +0.25 with 0.75 cyl
- Visual Acuity – Richman FD at 24" = 20/100

WHAT IS YOUR PLAN?



This Is The Typical Patient Seen In Your Office

Case Presentation

- Baby occupied while consulting with parents
  - Not easy to have a conference with parents even if only to suggest the timing of the next visit when the baby is already "finished"
- Prioritize by risk or symptoms
- Eye Health
- Visual Ability and Refractive Condition
- Binocularity
- Vision Development – have guidelines handy

Case Management

- Follow-up for non-well cases
  - What is being followed
  - Why
    - What are the possible outcomes
    - What might be the consequences
- In the event that treatment is necessary at a later date
  - Room for improvement AND emmetropization
  - Compliance
  - Glasses (polycarbonate)
  - Consultation (OD, other health provider)

Case Management

- Mechanism for follow-up
  - Have list of other doctors available
  - Pre-appoint with postcard reminder
  - Telephone reminder
- Documentation
  - Note Tx and F/U recommendations
  - Note No Show (NS) or Reschedule (RS)

Education

- Parents
  - Educate & Explain
  - Each parent has a philosophy of child care
  - Not always in words but in actions, attitudes, questions, protests, etc
  - It's not that they don't care – It's that they don't know

What We Really Want to Know

- Does the history suggest a problem?
- Can the baby see?
- Are the eyes straight?
- Are the eyes healthy!
- Is development progressing appropriately?
- Is intervention necessary?

Thank You!

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