

Peek-A-Boo: I'll See You

Description

The InfantSEE program has celebrated its 14th year - increasing awareness of eye exams before the age of one year. This course will review the reasons for early eye exams for early identification and intervention in infants and young children. Protocols for the examination and management of important refractive, binocular and ocular health problems in the infant and young child will be covered.

Course Objectives

1. Recall the normal developmental milestones for infants and young children
2. Select the most appropriate tests for examining infants and young children
3. Recall the normal visual developmental milestones for infants and young children
4. Identify the key guidelines from the AOA evidence-based pediatric eye and vision examination practice document

Course Outline

I. InfantSEE program

A. Components of the eye assessment

B. Equipment

1. Toys for fixation
2. Loose lenses/prisms
3. Hand-held instruments (panoptic, tonopen, bluminator)
4. Non-verbal acuity test
5. Young child stereo test

C. Resources

1. For the doctor
2. For the community

II. Examining Infants and Young Children

A. During the examination

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

B. Parents and siblings

1. Explain to Mom or Dad as you go along
2. Reassure parents when the baby is doing well during the exam
3. Tactfully control the parent's comments
4. Answer questions but don't stop

5. Use parents as targets or as puppet masters to hold the baby's attention during certain procedures

C. Introduction of equipment

1. Laugh when you introduce it
2. Put a toy on it
3. Give it a fun name
4. Play the game with Mom or a toy first if they hesitate
5. Encourage them to touch with each game

III. History taking

A. Expand on pertinent points from parent history

1. Premature or full term • Do the parents perceive a problem • Sick a lot
2. Family risk factors
3. Is the child meeting developmental milestones: social, emotional, cognitive

IV. Ocular motility and Alignment

A. Fixation - Red reflex (Finger Peek-a-boo • Colorful, Lighted Targets • Face-like Targets • Silent Visual Targets)

B. Hirschberg – Binocular evaluation of reflex Angle Kappa

1. Place penlight at the midline ~50 cm away
2. Estimate reflex displacement (1mm displacement of corneal reflex is ~ 22 prism diopters)

C. Krimsky – Prism neutralization of Hirschberg

D. Steele method – Use of retinoscope is most efficient – especially with dark eyes

E. Brückner

1. Strabismus, amblyopia, & anisometropia
2. 80 - 100 cm away in dim illumination
3. Ophthalmoscope light on both eyes simultaneously
4. Anisocoria, larger pupil is brighter
5. Anisometropia: higher refractive condition is brighter
6. Strabismus: non-fixating eye brighter
7. Amblyopic eye's pupil will first constrict weakly, then dilate immediately

F. Cover test – observation with occlusion (direct or alternate) – loose prism / prism

bar

1. An effective way to maintain an infant's attention for cover test is to use a lighted detailed small finger puppet & laugh when you introduce it

G. Stereo testing

1. Lang Randot Stereo test
2. Keystone Basic Binocular Test
3. Can perform beginning around 6 months of age
4. PASS - Preschool Assessment of Stereopsis with a Smile
 - a. 6 Cards (480", 240", 120", 60", Demo & Blank)

- b. Forced choice preferential looking with Polarized glasses
- H. Convergence Near Point (NPC)
 - 1. NPC is expected to be close to adult-like by 6 months of age
- I. Video of Ocular motility and alignment testing

V. Visual acuity

- A. Reaction to occlusion
- B. Fix – Follow – Maintain
- C. Fixation Preference with 10Δ BU
 - 1. Alternates fixation equally
 - 2. Holds briefly but one eye dominates
- D. Preferential Looking/Viewing
 - 1. Teller acuity cards/ Lea gratings or Patti pics/ Richman Face Dot Paddles
 - i. Best for < 1 yr but can be useful with older toddlers
 - 2. Cardiff cards
 - i. Can use beginning at age 6 months
 - 3. The expected acuities using forced choice preferential looking tests are approximately:

6 mo	20 / 200
1 yr	20 / 100
2 yrs	20 / 20
- E. Video of Visual acuity testing

VI. Refraction

- A. Dynamic retinoscopy
 - 1. Rapid assessment of accommodation when child fixates on a target
- B. Mohindra retinoscopy
 - 1. Non-cycloplegic near retinoscopy that provides an estimation of refractive error
 - 2. Performed monocularly
 - 3. Child fixates on retinoscope light held at 50 cm in a dark room (note: no stimulus to accommodation)
 - 4. Calculate refractive error by adding to your final neutralizing lenses
 - a. -0.75 D under age 2 yrs
 - b. -1.25 D for age 2 yrs and older
 - 5. One would expect a cycloplegic refraction to uncover more hyperopic refractive error than Mohindra near retinoscopy
- C. Cycloplegic retinoscopy is the retinoscopy of choice to determine refractive status in infants (and young children)
 - 1. Cyclopentolate is the drug of choice for cycloplegic refraction
 - a. 0.5% C (under 1 year)
 - b. 1.0% C (children over 1 year)

- c. For infants and young children
 - d. For patients with strabismus and amblyopia
 - 2. Tropicamide may be used for older children
 - a. Timing is critical (perform retinoscopy at 25 minutes)
 - 3. Spray instillation can be performed with eyes open or closed
 - a. One spray is equivalent to one drop
 - b. Is especially useful for toddlers
- D. Video of Refraction

VII. Ocular health

- A. Pupil response
 - 1. Perform with child fixating at distant video
- B. Visual field screening
 - 1. Use two fixation toys
- C. Anterior segment & Adnexa
 - 1. IOPs
- D. Posterior segment
 - 1. Dilating drops: T0.5%, T1%, P2.5%
 - 2. Tropicamide is a better mydriatic but an inferior cycloplegic compared to Cyclopentolate
 - a. For active accommodation, hyperopes, strabismics, amblyopes
- E. Video of instillation of drops and health assessment

VIII. AOA Evidence-based practice guidelines

- A. Educate & Explain the tests performed and exam findings
 - 1. Raise level of awareness
 - 2. For a well-baby exam a review of the tests performed, and explanation of the exam findings is most important
- B. What we really want to know
 - 1. Does the history suggest a problem?
 - 2. Can the baby see?
 - 3. Are the eyes straight?
 - 4. Are the eyes healthy!
 - 5. Is development progressing appropriately?
 - 6. Is intervention necessary?
- C. Video of Summary