Ingrid A Carlson, MD

Pediatric Ophthalmology &

Adult Strabismus
Peter Piper Picked a Peck of

Pediatric Pearls

Northwest Eye Surgeons
Partnering with Optometry for Education and Patient Care
What is a Pearl?

Northwest Eye Surgeons
Partnering with Optometry for Education and Patient Care
A pearl is nature’s elegant solution to
a chronic irritation!
How irritating is this?

Turn your grain of sand...
Make it Easy!
Here’s How…

Into a pearl of wisdom!
Patient presents to technician
19 million children in the world are visually impaired

What are the most common causes?
#1 cause: uncorrected refractive error

Developed Nations
- Amblyopia
- Cataract
- Retinopathy of Prematurity

Developing Nations
- Malnutrition (Vitamin A Deficiency)
- Infection
- Cataract
- Retinopathy of Prematurity
Pediatrics: Changes Lives

[Images of children]
Pediatrics: All Family Members

- Patient
- Parents
- Siblings
- Grand parents
- Foster parents
- Adoptive parents
- Parent’s S.O.
Pediatrics: All Anatomy
Pediatrics: All Ages

- Infant: Newborn to 18 months
- Toddler: 18 months to 3 years
- Pre-School: 3 to 5 years
- School Age: 5 to 11 years
- Older Child: 11 to 18 years
PEDIATRICS: Fun!

- 6,500 doctors interviewed
- Four of the top 10 medical specialties reporting the Best Job Satisfaction were in areas of pediatrics (www.aap.org)
## A Stage for Every Age

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History to Age

DOB: 01/02/2005
Blurry vision. Asthma. NKDA

DOB: 01/02/2005
Blurry vision. Asthma. NKDA
Test to Stage

\[ C_x = -C \sin(2A) \]
Testing Acuity

Acuity is child’s play!

♦ Blinks to light (BTL)
♦ Grossly follows (F gross)
♦ Fixes & follows (F&F)
♦ Central steady & maintained (CSM)
♦ Allen card near
♦ Allen figures distant
♦ Snellen chart distant
• Use your “Way to Go!” voice
• Make it safe to guess
• If the child cannot see, make failure to see your fault “oh, did I make it too hard?”
• Patch one eye if cheating
• Praise, praise, praise
Earn Trust & Allow Control
The Older Child
Validate

- Auto-refract
- Phoropter is magic (Fog the fakers)
- Suggestion is powerful
- Information is key
* Fog instead of occlude, & allow any head position
Use Trial Frame when

Oh, I forgot to mention...
- Those are her old glasses from 2 yrs ago
- We got those last month at Lenscrafters
- She lost hers, so she is wearing sister’s glasses
Check Fit

Rx = Split Pupil Bifocal
Prism Measurement
(-) shrinks  (+) magnifies
Apex Points the Way

- Apex points to image shift
- Base is opposite apex
- This Pair of Glasses: Base In

Prism Direction
5 Base In over lens
Shift is Increased

5 Base Out over lens
Shift is Corrected

Prism Amount
Stereo, 4 Dot, Color & Fields

- Fly upside down
- Count the dots
- Color by tracing
- CVF by gaze shift
Please Wait to Dilate

- Parent is overly fearful
- Bifocals
- Pupils
- Ptosis (no phenylephrine)
- Trauma
- Pre-op Strabismus
- Medical risk
The Right Drop

- Infant under 12 months
  - CM=Cyclo 0.2% + Phenyl 1%
  - Cyclopentolate 0.5%

- Age 1 and older & healthy
  - Cyclopentolate 1%

- Avoid – cardiac side effects
  - Cyclopentolate 1% under 1 year
  - Phenylephrine 10% all children
Pseudostrabismus?
Dacryocystocele?
Where is a medical dictionary?

Common Peds Pathology
“Amblyopia” refers to dimness of vision, and “ex anopsia” to the lack of use which is responsible for the dimness of vision.
Make it Easy!
Here’s How…

Common Peds Pathology
Amblyopia = Vision

- Vision is decreased
- Anatomy should allow normal vision
- Refraction
- Alignment
- Deprivation* (after cataract surgery)
Motility can be normal or restricted
Vision can be normal or reduced
Strabismus Treatment

Surgery
Strabismus Surgery

Pre Op

Post Op
Reconstructive or Cosmetic?

- Anatomy is not normal
- Function is not normal
- Goal is to bring closer to normal

- Anatomy is normal
- Function is normal
- Goal is to beautify
Strabismus Surgery
Strabismus or Pseudostrabismus?

- Corneal light reflex de-centered
- Vision often unequal
- Needs treatment
- Corneal light reflex centered
- Vision equal
- Observation alone
Congenital Ptosis or Horner’s?

- Asymmetric eyelid movement
- Symmetric pupil
- Eyelid only
- Symmetric eyelid movement
- Asymmetric pupil
- Brain, Neck, Lung

* DISTANT visual target when checking child’s pupils
Herpes or Molluscum?

- Contagious virus
- Blister like lesion
- Medical

- Contagious virus
- Wart like lesion
- Surgical
Dacryocystocele or Encephalocele?

- Cyst in nose
- Cured with probe
- Muco-purulent
- Herniated brain
- Neurosurgery
- CSF rhinorrhea
Cellulitis or Orbit Tumor?
Glaucoma or Orbit Tumor?

- Asymmetric palpebral fissure
- Asymmetric corneal diameter
- Asymmetric palpebral fissure
- Symmetric corneal diameter
Epibulbar Dermoid or Dacryoadenitis?

- Normal tissue
- Abnormal location
- Observation alone
- Abnormal tissue
- Normal location
- Needs treatment
Allergy or Infection?

- Conjunctiva
  - Itches
  - Rx = steroid
- Cornea
  - Painful
  - Rx = antibiotic
Brushfield Spots or Lisch Nodules?

Down Syndrome

Neurofibromatosis
Cataract or Camera Angle?

- Asymmetric Red Reflex
  - Camera angle
  - Anisometropia
  - Strabismus
  - Cataract
  - Retinal detachment
  - Intraocular tumor (retinoblastoma)
Pediatric Cataract: What’s Different?

- Associated with systemic diseases
- Glaucoma common
- Vitrectomy on purpose (if too young for YAG)
- A-scans under anesthesia
- Refractive target is hyperopia
- IOL age ~18mo & Up
Parents Please Understand

- Cataract surgery does not restore vision
- Years of treating amblyopia
- Refraction changes +/- 5D as child grows
- Multifocal IOL are not for children
Papilledema or Optic Nerve Drusen?

- Vessels covered by swelling
- Vessels on top of nerve are normal
Hypoplasia or High Myopia?

- Missing nerve
- Small size
- Normal refraction

- Tilted nerve
- Normal size
- Extreme myopia
Best’s or Coat’s?

- RPE malfunction
- Protein build up
- ERG normal
- EOG abnormal

- Vessels leaking
- Exudate build up
- ERG usually abnormal
- EOG usually abnormal
Detachment or Retinoschisis?
Stargardts or Retinitis Pigmentosa?

- Macula
- Central acuity loss
- Pale flecks lipofusion
- Retina only

- Periphery
- Night & side vision loss
- Bone spicule pigment
- Hearing, heart, metabolic
Rod/Cone or Malingering?
“I See Spots & Sparkles”
Retinopathy of Prematurity
Born less than 32 weeks or 3.3 pounds

5 stages of ROP
Retinopathy of Prematurity

Born less than 32 weeks or 3.3 pounds
#1 Cause Pediatric Morbidity: Trauma

Does the story match the damage?

- Accidental
- Non-Accidental

- 30% of abuse is not recognized on initial exam
- 10% are abused again
- 2% die
- Greatest risk under age 4
Doctor left the room. Mom asks more questions!
- When will the eye drops wear off?
- Will my child outgrow this condition?
- Can eye exercises help?
- How often does this need surgery?
- What are the side effects?
- Does this run in families?
- Have you seen this before?
- What are the chances of going blind?
- Is this the same as what I found on line?
- Does my insurance pay for it?
Make it Easy!
Here’s How…

Parent Questions
Address Concerns

- Acknowledge
  - “That’s a great question”

- Answer
  - When Confident

- Administrate
  - I’m not sure, but I would be happy to find out. Is it important enough that you would like us to contact you through our patient portal?
Pediatrics is Work

- Physically
  - Loud crying
  - Poopy diaper smells
  - Food spills on floor
  - Germs

- Emotionally
  - Calming fears of both patient and parent
  - Absent parents, hovering parents
  - Children who may be blind in one or both eyes
Pediatrics is Worth It!

- Physically
  - Laughter
  - Playing with toys
  - Happy dances

- Emotionally
  - Shared victories
  - Creative approaches
  - Engaged parents
  - Leaving the world a better place!
Pediatrics is Job Satisfaction
“Nothing you do for children is ever wasted.”
Garrison Keillor
Northwest Eye Surgeons is the premier eye surgical center in the Northwest and remains committed to its tradition of personalized, high quality patient care, advanced technology and excellent results.

SERVICES:
- Cataract
- Refractive Surgery
- Glaucoma
- Cornea
- Pediatrics & Strabismus
- Retina, Vitreous & Uveitis
- Eyelid Surgery & Facial Rejuvenation

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