### Children with Special Needs

- Learning Disability
- ADHD
- Cerebral Palsy
- Down Syndrome
- Fragile X Syndrome

### Children with Special Needs

- Autism
- Mental Retardation/Intellectual Disability
- Acquired/Traumatic Brain Injury
- Mental Illness/Psychiatric Illness

### Cerebral Palsy

**What is it?**
- What is it's etiology?
- What is it's prevalence/incidence?
- How is it classified?
- What are it's visual characteristics?

**Classifications**
- Spastic - 70-80%
- Dyskinetic/Athetoid - 10-15%
- Ataxic - <5%
- Mixed

**Interaction Tips**
- Positioning
- Right tools (objective)
- No sudden movement
- No loud, unexpected noises
- Speak smoothly, soothingly, softly….if appropriate, sing to the patient!
- Smile, smile SMILE!!!
Fragile X Syndrome

**Characteristics**

**Gaze Avoidance**

How do you conduct an examination on an individual that won't look at you?

**Diagnosis**

- **Genetics**
  - Triplet nucleotide repeated sequence
  - cytosine, guanine, guanine (CGG)
  - 0-50 CGG repeats normal, 50-200 premutation, > 200 full syndrome
  - Fragile site on X chromosome (band q27.3)

**Ocular Findings**

- Strabismus (33-50%)
- Nystagmus
- Refractive error
- Accommodative dysfunctions?
- Oculomotor anomalies
- Ocular Health?
- Perceptual dysfunction

**Autism**

The incidence of autism has increased from 1 in 10,000 in the 1970s to 1 in 110 today, an increase of over 6,000%.

**Andrew Wakefield**

(rel 1956) is a British former surgeon and researcher best known for his discredited work regarding the MMR vaccine and its claimed connection with autism. Wakefield was the lead author of a 1998 study, published in The Lancet, which reported bowel symptoms in twelve children diagnosed with autism spectrum disorders, to which the authors suggested a possible link with the MMR vaccine. Though stating "We did not prove an association between measles, mumps, and rubella vaccine and the syndrome described," the paper tabulated parental allegations, and adopted these allegations as fact for the purpose of calculating a temporal link between receipt of the vaccine and the first onset of what were described as "behavioural symptoms".

**Mental Retardation without Specific Etiology**

Most frequently encountered form of Intellectual Disability

4000 known Online Mendelian Inheritance in Man


10 times that are unknown!

**Acquired/Traumatic Brain Injury**

Neuroplasticity


http://www.revoptom.com/continuing_education/tabviewtest/lessonid/106025/
Acquired/Traumatic Brain Injury

Post Trauma Vision Syndrome  
Symptoms/Signs

- Double vision
- Headaches
- Blurred vision
- Dizziness or nausea
- Light sensitivity
- Attention or concentration difficulties

Acquired/Traumatic Brain Injury

- Staring behavior (low blink rate)
- Spatial disorientation
- Losing place when reading
- Can’t find beginning of next line when reading
- Comprehension problems when reading
- Visual memory problems

Acquired/Traumatic Brain Injury

- Pulls away from objects when they are brought close to them
- Exotropia or high exophoria
- Accommodative insufficiency
- Convergence insufficiency
- Poor fixations and pursuits
- Unstable peripheral vision

Acquired/Traumatic Brain Injury

- Associated neuromotor difficulties with balance, coordination and posture
- Perceived movement of stationary objects

Visual Midline Shift Syndrome

- Dizziness or nausea
- Spatial disorientation
- Consistently stays to one side of hallway or room
- Bumps into objects when walking

Visual Midline Shift Syndrome

- Poor walking or posture: leans back on heels, forward, or to one side when walking, standing or seated in a chair
- Perception of the floor being tilted
- Associated neuromotor difficulties with balance, coordination and posture

Diagnosis and Management:  
Patients with Special Needs

Assessment Techniques for Special Populations

- Use everything you know, be creative, and trust your objective evaluation skills!

Diagnosis

- Preparing for the examination
- Great patient by name
- Position yourself at patient’s eye level
- Be on schedule
- Consider patient’s wishes about family/friends in exam room
- Direct initial comments to patient
- Treat patient as a person first, then as an individual with a disability
Diagnosis

- Preparing for the examination
  - Speak clearly
  - Infat carefully
  - Use short command sentences
  - "Look here"
  - "Do this"
  - "Watch my light"

Remember the 10 Commandments

1. Speak directly to the person rather than thru a companion or sign language interpreter.
2. Always offer to shake hands when introduced.
3. Always identify yourself and others who are with you when meeting someone who is blind.
4. If you offer assistance wait until the offer is accepted, then listen and wait for instructions.
5. Treat adults as adults.
6. Do not lean against or hand on someone's wheelchair or cart.
7. Listen attentively when talking to people who have difficulty speaking and wait for them to finish.
8. Place yourself at eye level when talking to someone in a wheelchair.
9. Tap a person who is deaf on the shoulder or wave your hand to get their attention.
10. Relax. Don't be embarrassed if you use common expressions that seem to relate to a person's disability.

The Ten Commandments of Communicating with People With Disabilities

Case History

- Demographic Information
- Medical history including their disability
- Typically taking many medications
- Visual history
- Educational history
- Rehabilitation history
- Vocational history
- Recreational history

Visual Acuity

- Snellen
- Broken Wheel
- HOTV
- Lea Symbols
- Teller Acuity Cards
- OKN

Refractive Error

Mohindra Dynamic Retinoscopy
- Lens bars, 50 cm working distance
- Dark, pt looks at light
- Neutralize primary meridians
- Write in sphero-cylindrical form
- Add a (-) minus 1.25 to the sphere

Binocular Vision Assessment

- Observation
- Cover Test
- Bruckner
- Angle Kappa
- Hirschberg
- Krimsky

Ocular Health

- Hand held devices
- Slit lamp
- Tonopen/Perkins
- BIO/MIO/direct

http://opt.pacificu.edu/ce/catalog/14041-GO/14041-GO.html

Diagnosis and Management of Special Populations

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Tangential Penlight Angle Estimation

- Penlight at temporal aspect of cornea
- Angle between 20-35 degrees to the facial plane
- Maximum brightness
- Open angle = nasal illumination at least 75% as bright as temporal illumination

Special Testing

- VEP, ERG, EOG
- Sweep VEP
- Ultrasound (A/B scan)
- TOVA
- Visagraph

Assessment

- Working with incomplete or “fuzzy” clinical data
  - “Get over it!”
  - Seek help
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Treatment

- Refractive
  - Patient’s cognitive level
  - Patient’s motor ability
  - Patient’s therapy goals
  - Patient’s vocational goals
  - Patient’s self abusive behaviors
  - Living conditions
  - Past success

- When Do You Correct Refractive Error?
  - Myopia > 1.00D
  - Hyperopia > 2.00D
  - WR Astig > 1.00D
  - AR Astig > 1.00D
  - Oblique Astig > 1.00D
  - Anisometropia > 1.00D

- Binocular Vision Dysfunction
  - Strabismus
  - Rx, VT, surgery
  - Amblyopia
  - Rx, VT
  - Accommodation dysfunction
  - Rx, VT
  - Oculomotor anomalies
  - Rx, VT

Ocular Health

Treat as you would any other patient. May even be more aggressive in your treatment

GLC
- Treat/Refer
- Many need surgical intervention

Summary

- All deserve optometric vision care
- If all you do is take a detailed case history, it’s probably more than any have even attempted before
- Do not underestimate the power of glasses
- Be creative, use what you know, invent!
- Treat (optically, functionally, medically) because we do it all!