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Accessing the Visual Environment: Meaningful Clinical Evaluations

Presenters

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- Jodi Floyd: Project Magnify Coordinator, South Carolina School for the Deaf and the Blind

Learner Objectives

- Preparing students and families for Low Vision Evaluations (LVE)
- Explaining the difference between a low vision evaluation and a regular ophthalmological visit
- Describing components of the LVE
- Introducing students to optical devices

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Psychosocial Needs of Students with Low Vision

Fitting in and Negotiating Identities

- Somewhere between totally blind and fully sighted
- Mixed emotions, messages depending on setting
- Pressure to keep up in the classroom, the playground/commons area
- Assessment of own abilities and competence
- Concern for future goals, independence

Warming up to the Topic...

- Bring in a 3-D model of the eye; eye anatomy activities
- What's motivating outside of school?
- Identify specific tasks

"If I don't know you, I won't trust you and I won't try hard things."

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Reveal “Passing” (camouflage) Strategies:

- Relying on others to complete visual tasks
- Being a non-participant
- Choosing to go without information
- Blaming others for not adapting materials/tasks
- Delaying the task to avoid real-time visual access

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Expertise of a Low Vision Specialist

- The entire visual system is considered
- Glasses may be prescribed for special circumstances
- Handheld and spectacle-mounted optical devices are discussed
- Contact lenses may be prescribed for therapeutic purposes

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Preparing Students for Clinical Low Vision Evaluations

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Key Benefits of Preparation

- Informs a student-centered evaluation
- Helps us see real strengths and needs
- Improves reliability of results
- Improves accuracy of recommendations

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Things to Bring

Teacher

- Gather background information ahead of time
- Write a list of questions to take into the clinic appointment
- Gather examples of access challenges (e.g., sheet music, game cards)—things that are a challenge

Student

- Glasses or optical devices/ equipment
- Schoolwork or homework samples
- Any device used at school or home

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A Book for the Low Vision Evaluation

- What to Expect at the SPC Low Vision Clinic

https://www.gabmacon.org/cms/lib/GA02225912/Centricity/Domain/25/What%20to%20expect%20-%20Low%20Vision%20Exam%20appointment%20with%20picture.pdf

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Activities to Prepare

- "My Tools" Show and Tell
- Toilet Paper Roll Exercise
- Chart Practice
- Feelings Check-In
- Read a story (social story)

Device Exposure

- Awareness and exploration
- Correct placement and alignment
- Eye-hand coordination

APH Envision Kit

Magnifiers

- 4X Dome Magnobrite Optelec
- 3.5X 10D handheld Eschenbach
- 5X 20D handheld Eschenbach with stand
- 4X 12D Power Mag 70MM Optelec
- 3X 8D Mobilux Eschenbach with stand

Telescopes

- 6X Club M Slide Focus Eschenbach
- 8X 25D Adventure M Eschenbach
- 4X 12D Lighthouse Optelec

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Components of a Meaningful Evaluation

Data to Collect

Meaningful

- Supporting information that details functional, academic, behavioral, & developmental strengths/needs
- Learning profile context

Comprehensive

- Process of gathering data on strengths, weakness, needs, & functional abilities
- Multiple tools, methods, & sources

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Key Components

- Background information
- Signed permission forms
- Duration of time
- Collaboration
- Student materials

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Background Information

- Recent Eye Reports
- Medical history
- Functional Vision Learning Media Assessment (FVLMA)
- Individualized Education Plan (IEP)

Signed Permission Forms

- Authorization to Release Information
- Request for evaluation by school
- Permission to evaluate for parent/guardian
- Photo Release/Media Form

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Time for Appointment

Typical CLVE appointment can last anywhere from 60-90minutes depending on the clinic model.

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Collaboration

- Families
  - Parents/Legal Guardians
  - Students
- Clinical Specialist
  - Optometrist specialized in LV
  - Certified Low Vision Therapist
  - Occupational Therapist (OT) specialized/trained in low vision
- Educational Specialist
  - Teacher for the Visually Impaired
  - Orientation & Mobility Specialist
  - Certified Assistive Instructional Technology Specialist (CATIS)

Results Inform Accommodations & Supports

- Tailored plan to access environment
- Task analysis for effective use
- Measurable goals and objectives
- Essential AT tool box

Additional Components to Consider

- Age
- Experience
- Training

Recipe for a Comprehensive Evaluation

Exam Differentiation

Routine Clinical Exam

- Assess general eye health
- Diagnose eye diseases
- Correct vision with glasses or contacts
- 30-60 minute exam

Clinical Low Vision Exam

- Uses different charts & methods to assess extent of vision loss
- Maximizes functional vision
- Prescribe low vision aids
- 1-2 hour exam

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Step by Step Process of an Evaluation

- Introductions
- Medical History Review
- Parent, Teacher, and Student interview
- Acuity Exam: Near, Distance
- Functional Vision Usage
- Lens Refraction
- Binocular Vision and Oculomotor Skills
- Device Recommendations/ Testing

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Distance Acuity

- For a low vision exam, the chart should have small graduations instead of the ones used in a Snellen Chart
- Many Low Vision Specialists use a Fienbloom
  - Begins at 20/700 and ends at 20/10
  - Used at 10 feet
  - Numbers rather than letters and the numbers are spaced further apart
    - Individuals can read at least some of the numbers which is psychologically important

Feinbloom Visual Acuity Chart

- Acuity test
- Calibrated at 10 feet

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Near Acuity

- Near acuity is assessed at typical reading distance
- Should be measured with words or continuous text because it mimics the visual requirements for reading rather than letter recognition
- Test
  - MN Read
  - Jaeger Eye Chart for Near Vision Reading

MN Read Visual Acuity Chart

- Continuous text acuity charts
- Reading performance in relation to print size
- Standard viewing distance: 16 inches

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Contrast Sensitivity

- Contrast Sensitivity determines the lowest contrast level that can be detected by a person for a given size target
- Contrast Threshold refers to an object with the lowest contrast that a person can recognize.
- If the contrast of an object is less than the contrast threshold, the object cannot be seen
- Examples of Contrast Sensitivity Charts
  - Pelli-Robson
  - MARS Contrast Sensitivity

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Pelli-Robson Contrast Sensitivity Chart

- Letter triplets
- Various contrast

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MARS Contrast Sensitivity

- 48 different contrast levels

Color Vision

- Color Vision is tested to determine if individuals have difficulty seeing specific colors
- Numbers written in different colored dots are surrounded by dots of a different color. Individuals with color deficiency will not be able to see the number with the dots.
- Examples
  - Ishihara Test

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Visual Field

- Visual Field describes how much of the visual world a person can see while looking straight ahead
- An individual is legally blind if the visual field is 20 degrees or less in the better eye
- An individual could have 20/20 visual acuity and still have low vision
- Example
  - Confrontational Field Test

Confrontation Field Test

- Individual looks straight head at the evaluator's nose or eyes.
- One eye is tested at a time.
- The eye is covered while the doctor or evaluator holds up fingers in different quadrants.

Lighting Evaluation

- Used to determine optimal lighting for comfort and illumination
- Specifically looking for issues with glare, lighting type, intensity, and color.
  - Lighting type: LED, overhead fluorescent, task lighting, incandescent
  - Intensity: bright vs low
  - Color: warm colors (yellow, orange) vs cooler colors (daylight, blue)

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Glare

- Glare describes vision that is reduced due to brightness or reflections of light.
- Factors to consider are natural light, artificial light, light reflecting surfaces such as computer screen, polished desk surface, car parked directly outside a window, car headlights at night, etc.
- Specially designed filters are used to absorb glare causing light wavelengths, enhance contrast, block ultraviolet and blue light.
- Example: NOIR filters

Refraction Exam

- Used to determine or refine glasses or contact lens prescription
- Same as a regular eye exam
- Individual looks through Phoroptor (large mask like item with holes) while the eye doctor asks "which one is clearer, number one or number two"

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Binocular Vision

- Coordination and integration of what two eyes see separately into one image
- Necessary for good depth perception and perceiving objects in 3-dimensional space
- Example
  - Worth 4-Dot test (depth perception)
  - Titmus Fly Test (3-D space)

Worth 4-Dot Test

- Flashlight projects 4 lights
- Individual wears red/green glasses
- Individual observes dots through glasses
- If the dots are seen as fussed then the eyes are working together.
- If the dots are seen as seen as separate images then their maybe an issue with binocular vision

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Titmus Fly Test

- Individual wears a pair of polarized glasses and looks at an image of a fly in 3-D to determine the fly's distance from the individual.
- Optometrist analyzes the individual's responses to determine if there are any issues with Binocular vision.
- Designed to be used with all ages including young children

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Oculomotor

- Tests to determine the function of the eye muscles and the ability of the individual to control them.
- Types of Oculomotor tests:
  - Saccades:
  - Smooth Pursuits: tracking a moving object
  - Optokinetic Nystagmus: accessing eye movements in response to a rotating visual stimulus
  - Near Point Convergence: distance at which an individual can focus on an object close to the face without double vision
  - Vestibulo-ocular Reflex: maintain a stable eye gaze while head moves

Device Testing

- Done with activities the student would encounter in "real world"
- Optical Devices
  - Hand-held and digital magnifiers, Monocular, Near and Distance CCTV,
- Non-Optical Devices
  - Specialty lighting, Clip-on or Fit Over Filters (NOIR), Acetate Overlay to reduce glare or bring focus, Large Print
- Access Technology
    - iPad Apps or specialty technology to assist the student (foot pedal to turn music pages), Fusion Software, Text to Speech or Speech to Text software, Meta Glasses

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Tailored Recommendations

- Recommendations are specific to the student and based on the findings of the clinical low vision evaluation.
  - A backlit, portable, bluetooth enabled keyboard
  - A portable lamp with warm, natural, or cool light with dimming control
  - 3.25x25 monocular with neck strap
- Results of the exam are provided to the parent. School district, and TVI.

Preparing Families for the Evaluation

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How Educators and Parents can set expectations for students

- Explain the purpose in a way that's easy for students to understand
- Encourage students to be honest and try their best
- Help students see that using tools is normal and acceptable
- Offer emotional support to students when needed
- Share resources: What to Expect at the Low Vision Clinic and Teacher created PowerPoint

Addressing Family Concerns and Expectations

- Listen empathetically and validate feelings.
- Focus on supporting and expanding the student's abilities
- Identify strategies for the student's success.
- Clarify that recommendations aim to improve classroom access and reduce frustration.

Encouraging Active participation in Follow-up Care

Family involvement is crucial to the success of any tools or strategies introduced.

- Invite families to attend follow-up meetings or device training sessions
- Share summaries of findings in clear, parent-friendly language
- Ask how things are working at home and invite feedback
- Encourage families to support practice and consistency with tools