Perspectives on Deafness With Autism:  
Changing How We Think

Deafness with Autism:  
*A School Age Communication Perspective*

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Housekeeping

- You must stay logged in for the duration of this course in order to be eligible to earn CEU credit.
- This course is offered for Continuing Education Units (CEUs) from AudiologyOnline if you are a CEU Total Access member.
- Be sure to take the exam following course completion to earn credit.
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Learning Objectives

- List components of a thorough case history review and list unique assessment strategies to use during evaluations in order to write appropriate intervention goals.
- List unique intervention strategies that can be used to meet success during therapy sessions.
- Describe the importance of interdisciplinary referral, evaluation, and collaboration to meet the needs of children with deafness and ASD.

Autism Spectrum Disorder

- Autism spectrum disorder is marked by:
  - Extreme unresponsiveness to other people – deficits in social-emotional reciprocity
  - Severe communication deficits
  - Highly rigid and repetitive behaviors, interests, and activities
- Symptoms must be present in multiple settings
- Symptoms appear early in life, before age 3
- Symptoms must cause clinically significant impairment in social, occupational, or other areas of functioning
Incidence and Prevalence of ASD

- According to the CDC, approximately 1 out of 68 children in the US have ASD.

- Males have a greater likelihood than females of developing ASD.
  - Ratio is as high as 5:1 (1 in 42 boys; 1 in 189 girls).

- Over 2 million individuals in the US are affected by ASD.

Data obtained for the CDC website (http://www.cdc.gov/ncbddd/autism/data.html).

Hearing Loss & ASD Comorbidity

- Data from the 2004-2010 Annual Survey of DHH Children and Youth.
- 37,828 deaf and hard of hearing children.
- 39.9% of all deaf children had an additional disability.
- Significant difference in the severity of hearing loss for children with ASD.
- Disproportionate number of profoundly deaf children having a co-existing diagnosis of ASD (35.4%).


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- 1% of children who are deaf also have ASD.
  - Rosenhall et al., 1999
  - 1.6% unilateral
  - 7.9% mild to moderate
  - 3.5% profound

- Jure et al., 1991 - 5.3%
- Levy et al., 2010 - 1.7%
Hearing Loss and ASD Comorbidity

• With the implementation of newborn hearing screening in the United States, the age of diagnosis of hearing loss has decreased

• With up to 40% of children with hearing loss exhibiting an additional disability, early identification of autism in this population is crucial as language development can be significantly impacted

• Making an additional diagnosis of autism in a child who is deaf can be challenging as the complexities of determining whether the delays in communication abilities are the result of the hearing loss or a comorbid diagnosis of autism.

Jareen Meinzen-Derr et al. (2014) International J of Ped Oto. 48, 112-118

Hearing Loss and ASD Comorbidity

Although there is a scarcity of literature regarding this population, Meinzen-Derr et al. (2014) reported:

• 2008 report by CDC reported average age of diagnosis of autism in children with normal hearing to be 48 months

• Delayed diagnosis of autism in children with hearing loss, with this study reporting the average age of diagnosis to be 66.5 months

• Children with more profound hearing loss and cochlear implants were diagnosed sooner than children with lesser degrees of hearing loss

Jareen Meinzen-Derr et al. (2014) International J of Ped Oto. 48, 112-118

Communication Assessment

Review of case history information prior to the evaluation session:

• Medical history, inclusive of pregnancy and birth history

• Hearing history and amplification
  – Tactile defensiveness
  – Increased perception of loudness

• Vision testing/screening

• Previous evaluations, including additional diagnosis

• Educational history
Communication Assessment

• Developmental Milestones
  – Special attention to social and emotional development:
    • Relationships
      — Eye contact
      — Physical contact
      — Interacting with other children
    • Initiation of play activities
    • Use of objects symbolically
    • Development of pretend play

Communication Assessment

• Developmental Milestones
  – Special attention to communication development:
    • Use of non-verbal communication strategies
      — Gestures, pointing
      — Joint attention
      — Initiation of communication
      — Communication of feelings
    • Use of social language
      — Initiation of communication
      — Taking turns in a conversation
      — Ending a conversation

Communication Assessment

• Developmental Milestones
  – Special attention to behavior:
    • Strong reactions to changes in routine
    • Fixated on objects / interests
    • Tantrums / self injuring behavior
    • Self-stimulating behavior
    • Avoidance of or preference to certain textures, smells, lights, sensations
Communication Assessment

Considerations for assessment:
– Information from multiple sources and settings
– Role of observation in the assessment process
– Role of criterion referenced evaluation measures
– Role of standardized evaluation measures
  • Flexibility
  • Consideration of listening age vs. chronological age

Communication Assessment

Areas of assessment:
• Language comprehension and expression
  – PLS-5, CELF-5, EOWPVT, ROWPVT
• Listening
  – IT-MAIS
  – Cottage Acquisition Scales for Listening, Language, and Speech
  – Functional Auditory Performance Indicators (FAPI)

Communication Assessment

• Social language assessment for the child who is pre-verbal or nonverbal:
  – Do, Watch, Listen, Say by Kathleen Quill, 2000
    • Social skills (general play, behavior)
    • Solitary play (use of objects, scripts, creative play)
    • Social play (parallel play, turn-taking, cooperative play)
    • Group skills (attending, waiting, following directions)
    • Community social skills (shopping, safety, recreation)
  – The Social Play Record by Chris White, 2006
Communication Assessment

– Communicative Intent – does the child want to communicate? Communication Temptations (Weatherby and Prizant)

– Functional observations
  • Does the child understand cause and effect?
  • Does the child initiate communication?
  • What form does the child’s communication take?
  • What is the function of the child’s communication?

Communication Assessment

• Social language skills for the child who is verbal: standardized tests

  – Children’s Communication Checklist-2 Psycorp: Harcourt Assessment
    • Ages 4:0 through 16:11
    • Identification of pragmatic language assessment, may be useful to identify children who need additional evaluation for ASD
    • Measure used with teachers and caregivers that assesses: language content, language form, pragmatics, behavior

Communication Assessment

– Comprehensive Assessment of Spoken Language
  • Ages 3:0 through 21:11
  • Pragmatic judgment subtest
  • Supralinguistic subtest (abstract language)

– Test of Problem Solving (LinguaSystems)
  • TOPS-3 Ages 6:0 through 11:11
  • TOPS-2 Adolescent Ages 12.0 through 17:11

– Social Language Development Test (LinguaSystems)
  • Ages 6:0 through 17:11
  • Examines social language skills needed to take another’s perspective, predict consequences, use social grace to get along with peers
Communication Assessment

- Social language skills for the child who is verbal: informal checklists and rating scales
  - The Social Play Record by Chris White
    - Ages 8 years and above
    - Assessment of higher level social thinking skills and enhancing perspective taking of others
    - Evaluator tools for analyzing each area and tools for remediation

Communication Assessment

- Discussing your concerns with the family
- Documenting your concerns from the evaluation
- Discussing the child’s strengths as well as areas of need
- Suggesting referrals to additional professionals

Therapy and Interventions
Three core symptoms of ASD are:

1. Deficits in social interactions
2. Communication impairments
3. Restricted or repetitive behaviors

What is Communication?

Setting the Stage for Therapy

• Dynamic assessment
• Determine rate of growth:
  • Auditory skills
  • Communication skills
Prognosis for Language Development

- Many parents of children with autism have been told that if their child isn’t speaking by age 4 or 5, he/she isn’t likely to ever do so.
- Current study published in *Pediatrics* (2013):
  - Children with ASD who present with severe language delays at 4 years can be expected to make notable language gains.
  - 535 children, ages 8 to 17, diagnosed with ASD and with severe language delays at age 4.
  - 47% became fluent speakers.
  - 70% could speak in simple phrases.
  - Children who developed language had higher IQs and lower social impairment.
  - Stereotyped behavior/repetitive interests and sensory interests were not associated with delayed speech acquisition.


Primary predictors of language development in children with ASD:
- Non-verbal intelligence scores
- Social engagement
- Repetitive/stereotypically abnormal sensory behaviors are not predictors

Non-Verbal Intelligence:
- Children within 1 SD of the mean (IQ > 85) attained language earlier than those below the -1 SD mark (borderline to low average range). 
- Children with borderline to low average range are at similar risk as those whose levels are consistent with intellectual disability.


Intervention Implications

- Consider non-verbal intelligence
- Consider social communication
- Development of social cognition strategies/theory of mind/perspective taking
- Expect progress at a slower pace for lower functioning children (lower non-verbal, more impaired social functioning)
- Developmental language progress
Prognosis for Auditory Development

  - 24 children with dual diagnosis
  - Children completed comprehensive autism evaluation, including ADOS
  - Mean age of hearing loss diagnosis: 14 months
  - Mean age of autism diagnosis: 66.5 months
  - 41 months between ASD and hearing loss diagnosis
  - 67% had severe-profound hearing loss
  - 58% had received a cochlear implant
  - 38% used speech as their mode of communication
  - 33% of children who had a CI used some form of augmentative communication (PECS system)


Intervention Implications

- Outcomes with cochlear implants are variable
- Not all achieve speech perception/spoken language
- Adapt ‘typical goals’ to include visual support systems
- Build a communication program that supports use of sound and speech
- Establish functional auditory goals
- Focus on connecting with environmental sounds
- Recognizing familiar voices

Timelines and Goal Planning

- Differ significantly from typically developing children or children with only one diagnosis
- Functional goals based on assessment
- Cross disciplinary planning and co-treatment
Communication Goals

• Non-verbal communication skills
  – Joint attention
  – Emotions
  – Body language, gestures, posture
  – Point of view
• Social communication skills
  – Initiation of communication
  – Topical conversational skills
  – Maintaining conversations
  – Prograsability
• Grammar & Syntax
• Academic language based concepts
  – Understanding of abstract ideas, as they relate to communication
• Vocabulary
• Auditory skill development

Intervention Strategies

• Deaf and hard of hearing children and ASD children have communication impairments
• Language interventions must go beyond amplification and speech-language therapy
• Language interactions require adaptations to make communication and socialization accessible
• Evidence based practices (EBP) for children with deafness and ASD don’t exist
• Borrow EBP’s from the field of autism

5 Core Strategies for a child with dual diagnosis:
  1. Conduct a functional behavior assessment (FBA) to identify the communicative intent of a child’s behavior - what is the child trying to tell you?
  2. Teach functional communication - communicate in a socially acceptable way; emphasis of communication is on the function NOT the form (oral versus sign)
  3. Identify effective reinforcers – anything that increases a positive behavior, think outside the box
  4. Use visual strategies and environmental supports – children with deafness and ASD understand the world through their eyes
  5. Provide choice making opportunities

Functional Behavior Assessment

- Identify the communicative intent behind the behavior
- Plan interventions that match communicative intent of the behavior

Functional Communication

- Forms of behavior used to express wants, needs, feelings and preferences that others can understand
- Allows a child to express self without resorting to a problem behavior or communication breakdown


Functional Communication

Understandable | Directed towards a person | Appropriate to situation & context
Examining the Functionality of Communication

**SETT Framework**
(Zabala, 2010)

- Student
- Environment
- Task
- Tools


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<tr>
<th>Student</th>
<th>Abilities</th>
<th>Needs</th>
<th>Motivation</th>
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<table>
<thead>
<tr>
<th>Environment</th>
<th>Who?</th>
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Task

- Successful and active communication with others
- What are the specific communication requirements?

Tool

- Matching the right communication tool
- Consider multi-modality
- Model the communication system
- Use the system across environments
- Use across tasks
- Meaningful

Assessing Reinforcers

- Observe and ask what is motivating
- Child specific motivators
- Think outside the box
- Tangible and edible
- Activities
- Re-assess frequently
Assessing Reinforcers

- Choose five at a time
- Chart the items and responses
- Place them on the table
- Which one was chosen first
- Record response
- Remove and replace

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Use Visual Strategies to Support Communication

- Objects (3D)
- Object wrappers
- Photographs
- Color pictures
- Color line drawings
- Black & white line draw
- Consider size, number and arrangement

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Symbol Systems
Communication


Learning to Listen

The Developmental Model

• DETECTION of sound
• DISCRIMINATION BETWEEN SOUNDS
• IDENTIFICATION OF SOUNDS
• COMPREHENSION OF auditory information
• No matter the age!!!

What does therapy look like?

• Think outside “the norm”
• May require supports with visual, tactile or augmented communication
• Move away from the therapy room or table
• Ask family to bring items from home
• Picture schedules
• Experience books
  – Picture Exchange Communication System (PECS)
  – Other Augmentative Communication
IEP Goals and Collaboration

- Collaborate with family and team to identify goals together
- Include functional communication goals
- Include functional auditory goals
- Assessment of auditory skills and speech and language skills to assist in setting appropriate goals.
- Routine programming of child's device for optimal sound
- Assess child's educational setting for acoustic environment and integration of auditory input
- Provide inservice to school professionals as needed/requested

Parents and school professionals should be clear about what expectations they have for performance

✓ Communication Mode
✓ Classroom Setting
✓ Support Services

These expectations should be documented clearly within the child's IEP

Write down something new that you learned from today's presentation.