

Equipping Parents to Navigate the Challenges of Single Sided Deafness (SSD) from a Speech-Language Perspective

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Introduction

- Single Sided Deafness (SSD) at birth or in early childhood presents unique developmental and communication challenges during a critical period for speech, language, and listening skill acquisition.
- SSD is defined as unilateral hearing loss (UHL) that is severe to profound and sensorineural in nature with normal or near normal hearing in the contralateral ear.
- Historically, bone anchored hearing aids (BAHA), CROS hearing aids, or behind-the-ear (BTE) aids have been used. There is an increase in cochlear implants (CIs) for this population.
- Binaural hearing is important for auditory development and hearing in various environments.
- Because of the options for amplification and the recent development of CI use for SSD, parents of children with SSD are faced with amplification decisions.
- Regardless of the path that families choose for their child with SSD, speech-Language Pathologist's (SLP) role in aural habilitation and follow-up includes parent education/guidance surrounding communication milestones, therapy options, potential impacts of SSD, and home carryover strategies.



Typical Speech, Language and Listening Development Milestones

Birth-12 months (0-1):

Speech: • crying • blowing raspberries • starts to change duration, pitch, and intensity (prosody features) • babbling includes CVCV productions • imitates patterns of intonation • uses suprasegmental features • uses mostly plosives and nasals (p, b, d, m)
Language: • quietens with familiar voice • cries to express hunger and anger • begins to vocalize to express pleasure • vocalizes in response to singing • occasionally responds to their name • recognizes names of family members • beginning to stop activity in response to "no" • repeats CV syllables in babble • begins singing • calls to get attention • occasionally gives items upon verbal request • uses jargon of 4 or more syllables • may use first words "bye bye, mama"
Listening: • Auditory awareness to sound—indicated by smiling, head turning, stilling or startling • starts to localize sounds • discriminates speaker's voice from competing stimuli

13 months-36 months (1;1-3;0):

Speech: • uses vowels consistently • consonants include: plosives (b, p, d), nasals (m, n), fricatives (h),
Language: • follows 1 step directions during play • understands simple questions • imitates new words spontaneously • develops category vocabulary • decrease use of gesture • imitates words heard • begins to understand personal pronouns • uses 2-3 word phrases with nouns, some verbs, and some adjectives
• understands functions • asks and answers wh-questions • understands about 1,000 words • uses about 500-1,000 words
Listening: • auditory memory of up to 3 items • follows two-three step directions • listens from a distance

37 months-60 months (3;1-5;0):

Speech: • uses some blends • most consonants are established • fewer omissions and substitutions • rate and rhythm are normal • approximately 75-90% intelligible to unfamiliar listeners
Language: • understands quality, texture, and quantity concepts • understands locational prepositions • describes object function • attempts to answer problem solving questions • understands approximately 7,500 to 10,000 words • uses approximately 1,000 to 2,500 words
Listening: • auditory memory for about 5 items • retells a short story • follows directions with multiple components and steps • listens in noisy environments with limited distractibility

The expectation is that these foundational speech, language, and auditory skill milestones are targeted and met with early intervention.

App to track developmental milestones:
[MedEl Milestone Tracker](#)

Home Activities for Families

Auditory Training Apps

- Advanced Bionics Baby Beats
- Advanced Bionics vocAB Scenes
- Advanced Bionics AB Listening Adventures

Online Resources

- [Advanced Bionics HearingSuccess](#)
- [Cochlear Sound Foundation for Babies](#)
- [Cochlear Sound Foundation for Toddlers](#)
- [Advanced Bionics Tools for Toddlers](#)
- [MED EL Lesson Kits for Babies](#)
- [MED EL Lesson Kits for Children](#)

Listening Practice

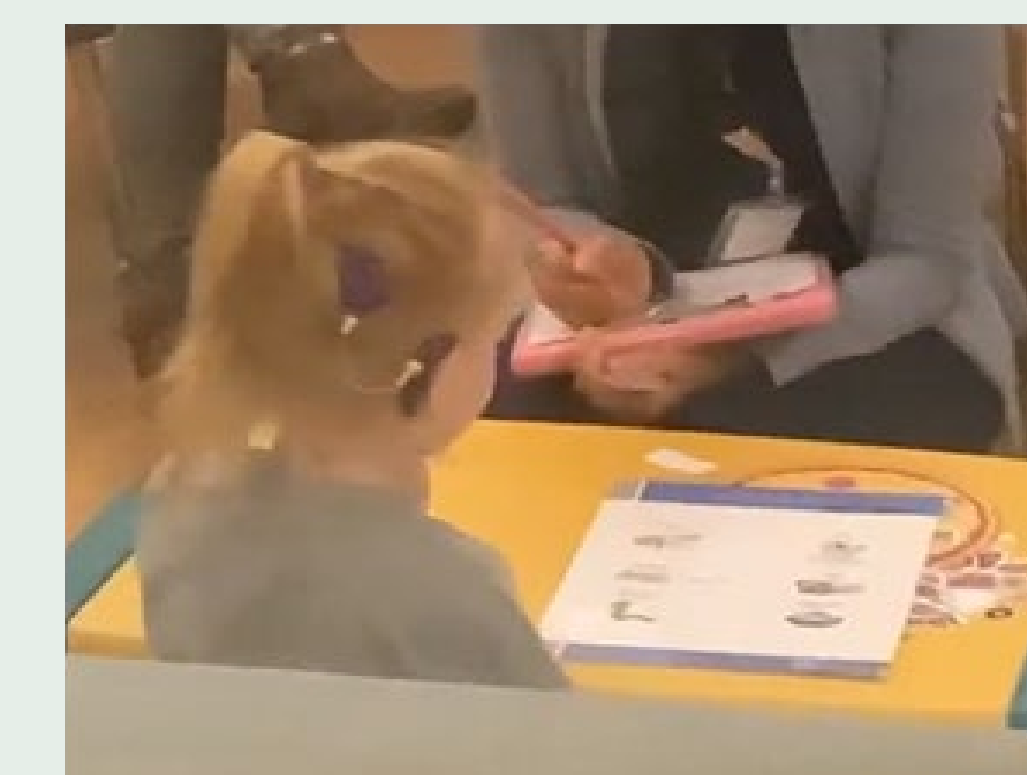
- Listening Checks- [Ling's 6 Sounds from Hearing First](#)
- Following directions in quiet and noise- "Bring me your shoes and jacket." "Get the small blue circle."
- Practice with rhyming words- blue, shoe, two
- Practice listening for smaller parts of speech- plurals, possessives, past tense —ed
- Language rich environment for everyday routines and events- meals, bath time, reading stories, outings, etc.
- Create songs for routines and sing nursery rhymes
- Sound and Seek for localization-Finding source of sound and identifying (washing machine, doorbell, microwave)

Environmental Modifications

- Reduce auditory distractions for better access to spoken signal
- Use of visual supports such as ASL, gestures, pointing, pictures
- Provide preschool/daycare teacher with a mini microphone
- Ensure child's active attention before presenting directions

If your child wears a CI, use DAI at home:

- Video calls to grandparents
- Watching their favorites shows
- Following directions/completing listening tasks from various rooms in the home



Strategies for Intervention

Therapeutic Strategies

- Maximize wear time
 - Develop wear time schedule
 - Identify preferred or distracted activities for amplification use
 - Discuss retention options
- Isolate the cochlear implant through Direct Audio Input (DAI)- complete auditory training activities
 - Bluetooth, mini mic, iPad, phone
 - Complete listening tasks from a separate
- Use of ear plug or muff during auditory training if DAI is not available for CI
- Remote wireless microphone with CI- Helps in noise and distance
- Bluetooth connections for improved sound- use with tablet, phone, computer, tv, etc.
- Binaural hearing- Best for learning speech and language!
 - Goals for speech sounds, receptive/expressive language, literacy
- [Hearing First Listening & Spoken Language Strategies](#)
 - Acoustic highlighting, auditory space, choices, auditory closure, rephrasing, say before show, auditory only, auditory sandwich
- Use of songs and music
- Listening in noise- following directions



Potential Impacts of SSD on Listening, Speech and, Language

While overall hearing will often appear adequate in day-to-day interactions, the loss of binaural hearing can impact the following areas:

- Listening
 - Hearing in Noise
 - Sound Localization
 - Listening fatigue
 - Greater effort to understand speech
- Speech/Language
 1. Incidental speech and language acquisition (receptive/expressive language, vocabulary knowledge)
 2. Learning fatigue
 3. Social language
 4. Learning difficulties in a classroom
- Other areas
 1. Behavior
 2. Quality of Life (withdrawing from social events/peer interaction.
 3. Attention for learning - Children with UHL are at risk for failing a grade. 35% of children failed 1 or more grades and up to 60% required special education services.



Conclusions

The options for children with SSD are ever changing. Preparing and equipping families to navigate the journey requires an individualized approach based on the family's priorities, realistic expectations, and evolving evidence-based practice. By integrating these strategies into a family-centered framework, professionals can significantly improve outcomes for children with SSD.

A central focus in the therapeutic process is placed on parent education and guidance, equipping caregivers with the tools needed to support their child's communication development across home and educational settings.

References—scan QR code for references



Acknowledgments

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