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Single Sided Deafness and CIs: Pre- and post-operative evaluation and outcomes, in partnership with the American Academy of Audiology

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Disclosures

- **Presenter Disclosure:** Financial: Jerome Evans was paid an honorarium for this course and is employed at the Cochlear Hearing Center. Non-financial: Jerome Evans has no relevant non-financial relationships to disclose. Financial: Maryann Flores Zurriga was paid an honorarium for this presentation and is an employee at the Cochlear Hearing Center. Non-financial: Maryann Flores Zurriga has no relevant non-financial disclosures.
- **Content Disclosure:** This learning event does not focus exclusively on any specific product or service.
- **Sponsor Disclosure:** This Course is presented by American Academy of Audiology in partnership with AudiologyOnline.
- **Special Thanks:** Dr. Terry Zwolan is not presenting with us today but have attributed greatly to this presentation.

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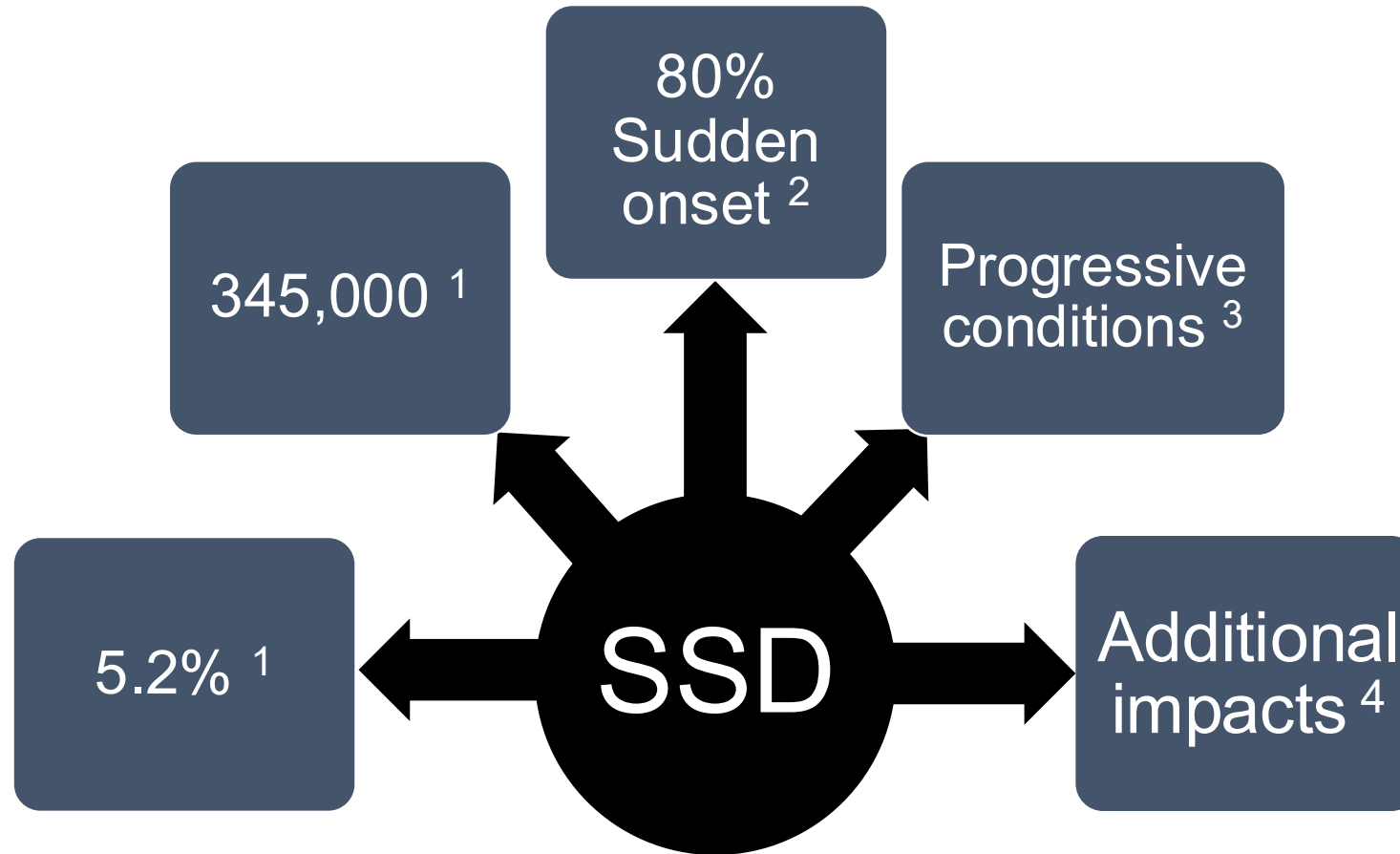
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- Providers should always evaluate the limitations of diagnostic and screening tools, considering their potential for false results as well as any ethical implications.
- It is the responsibility of course participants to critically evaluate the evidence from multiple sources to guide professional practice.

Learning Outcomes

After this course, participants will be able to:

- Identify the procedures used to determine cochlear implant (CI) candidacy for patients with Single Sided Deafness (SSD).
- List 3 factors that should be discussed during the SSD CI candidacy evaluation.
- Describe typical outcomes received by patients with SSD who receive a CI.

Unilateral Hearing Loss and Single-Sided Deafness in Adults



1. Kay-Rivest, E, Irace, AL, Golub, JS, and Svirsky, MA. Prevalence of single-sided deafness in the United States. *Laryngoscope*. (2022) 132:1652–6. doi: 10.1002/lary.29941
2. Hansen MR, Gantz BJ, Dunn C. Outcomes after cochlear implantation for patients with single-sided deafness, including those with recalcitrant Ménière's disease. *Otol Neurotol*. 2013 Dec;34(9):1681-7. doi: 10.1097/MAO.000000000000102. PMID: 24232066; PMCID: PMC3866094.
3. Friedmann, David R.; Ahmed, Omar H.; McMenomey, Sean O.; Shapiro, William H.; Waltzman, Susan B.; Roland, J. Thomas Jr.. Single-sided Deafness Cochlear Implantation: Candidacy, Evaluation, and Outcomes in Children and Adults. *Otology & Neurotology* 37(2):p e154-e160, February 2016. | DOI: 10.1097/MAO.0000000000000951
4. Dillon MT, Cocharyan A, Daher GS, Carlson ML, Shapiro WH, Snapp HA, Firszt JB. American Cochlear Implant Alliance Task Force Guidelines for Clinical Assessment and Management of Adult Cochlear Implantation for Single-Sided Deafness. *Ear and Hearing* 2022; 43; 1605-1619.

Unilateral Hearing Loss and Single-Sided Deafness in Pediatrics

1 in
1000

Infants born with unilateral hearing loss¹

40%

Risk of hearing loss progression in the poorer ear
(progression of bilateral hearing loss approaches 20%)²

SSD

Implications for speech-language development, cognition, and quality of life³



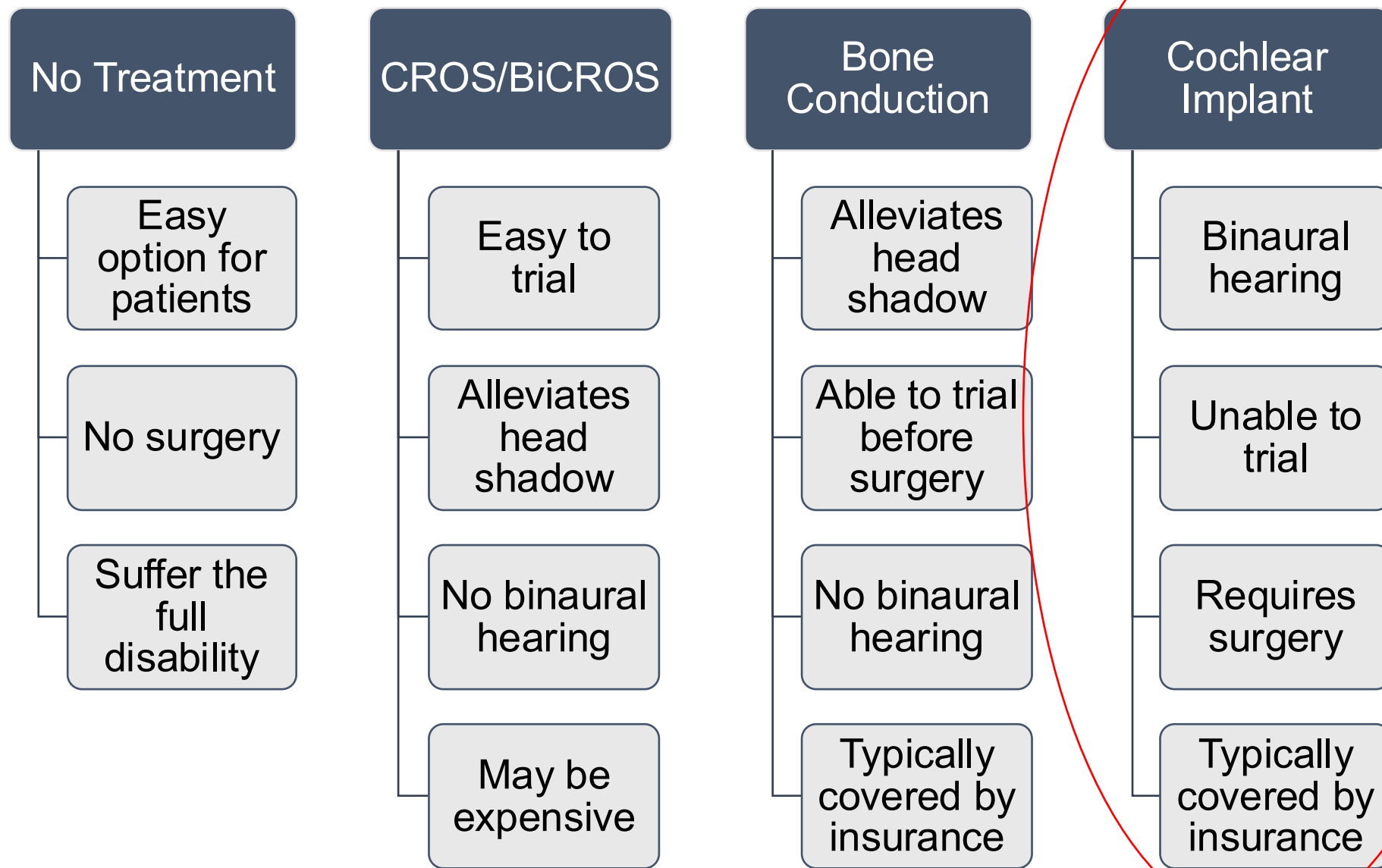
Increased risk for psychosocial and behavioral issues and difficulty in school³

1. Barsky-Firkser L, Sun S. Universal newborn hearing screenings: a three-year experience. *Pediatrics*. 1997;99(6):E4. doi: 10.1542/peds.99.6.e4. [DOI] [PubMed] [Google Scholar]

2. Lieu JEC. Permanent unilateral hearing loss (UHL) and childhood development. *Curr Otorhinolaryngol Rep*. 2018;6(1):74-81. doi:10.1007/s40136-018-0185-5

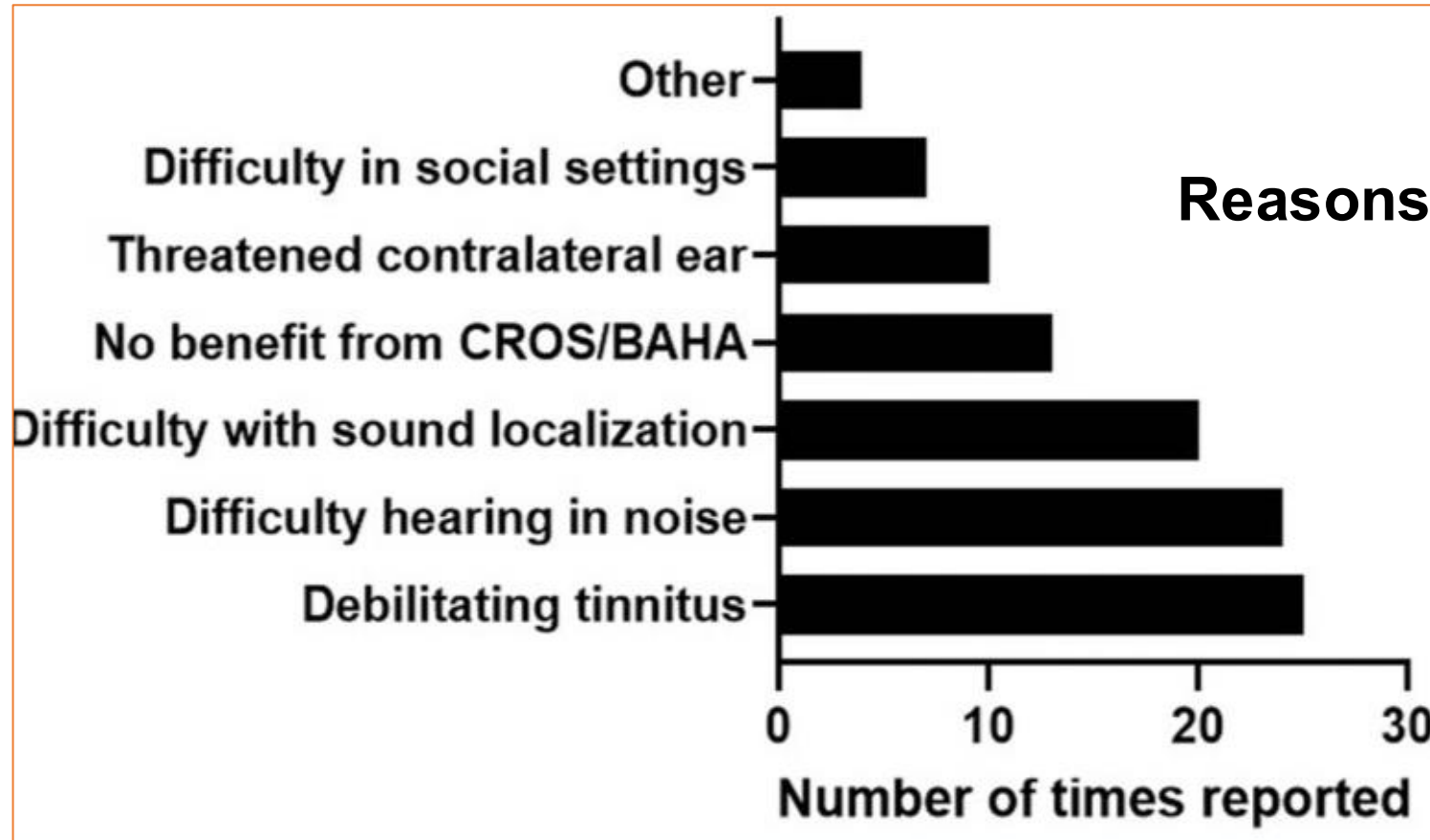
3. Benchetrit L, Ronner EA, Anne S, Cohen MS. Cochlear Implantation in Children With Single-Sided Deafness: A Systematic Review and Meta-analysis. *JAMA Otolaryngol Head Neck Surg*. 2021 Jan 1;147(1):58-69. doi:10.1001/jamaoto.2020.3852. PMID: 33151295; PMCID: PMC7645748.

Treatment Options



**Why consider a CI for
patients with SSD?**

Reasons Patients with SSD Pursue a Cochlear Implant¹



Reasons for SSD CI (n=53)

Permission for use provided by NYU Langone Health

1. Deep NL, Spitzer ER, Shapiro WH, Waltzman SB, Roland JT Jr, Friedmann DR. Cochlear Implantation in Adults With Single-sided Deafness: Outcomes and Device Use. *Otol Neurotol*. 2021 Mar 1;42(3):414-423. doi: 10.1097/MAO.0000000000002955. PMID: 33555747.

Impacts of patients with SSD



Auditory

Poorer sound
localization ²

Poorer hearing in
noise⁴

Tinnitus⁴



Behavioural

Embarrassment,
frustration³

Withdrawal³

Fatigue⁵



Quality of Life¹

Safety concerns,
stress³

Social isolation³

Difficulty at work⁶

1. Jakob TF, Speck I, Rauch A-K, Hassepass F, Ketterer MC, Beck R, et al. Bone-anchored hearing system, contralateral routing of signals hearing aid or cochlear implant: what is best in single-sided deafness? European archives of oto-rhino-laryngology : official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFOS) : affiliated with the German Society for Oto-Rhino-Laryngology - Head and Neck Surgery [Internet]. 2022;279(1): 149–58.
2. Dorbeau C, Galvin J, Fu Q-J, Legris E, Marx M, Bakhos D. Binaural Perception in Single-Sided Deaf Cochlear Implant Users with Unrestricted or Restricted Acoustic Hearing in the Non-Implanted Ear. Audiology & neuro-otology [Internet]. 2018;23(3):187–97.
3. Lucas L, Katiri R, Kitterick PT. The psychological and social consequences of single-sided deafness in adulthood. International Journal of Audiology [Internet]. 2018;57(1):21–30.
4. Pierzycki RH, Edmondson-Jones M, Dawes P, Munro KJ, Moore DR, Kitterick PT. Associations Between Hearing Health and Well-Being in Unilateral Hearing Impairment. Ear and hearing. 2020;42(3):520-530.
5. Alhanbali S, Dawes P, Lloyd S, Munro KJ. Self-Reported Listening-Related Effort and Fatigue in Hearing-Impaired Adults. Ear and hearing [Internet]. 2017;38(1):e39–48.
6. Wie OB, Pripp AH, Tvete O. Unilateral deafness in adults: effects on communication and social interaction. The Annals of otology, rhinology, and laryngology [Internet]. 2010;119(11):772–81.

Evidence for CI in patients with SSD

Binaural Hearing

(Tavora-Vieira et al, 2013; Arndt et al, 2017; Buss et al, 2018; Tavora-Vieira et al, 2019; Daher et al, 2023; Mitton et al 2023)

- Hearing in noise improved
- Localization improved
- Decreased listening effort

Tinnitus Suppression

(Tavora-Vieira et al, 2013; Levy et al, 2019; Häußler et al 2019; Idriss et al, 2022; Borges et al, 2021)

- Tinnitus suppression in 50-90% of cases
- THI score decreased by 23 points

Quality of Life

(Tavora-Vieira et al, 2013; Arndt et al, 2017; Dillon et al, 2017; Tavora-Vieira et al 2019; Daher et al, 2023; Mitton et al 2023)

- Improved overall subjective performance
- Scores similar or better than traditional CI patients
- Improved SSQ and CIQOL-35

Perimodiolar

(Danielian et al, 2020; Peters et al, 2019)

- Equivalent spiral ganglion coverage
- Reduced pitch mismatch

Treatment Pathway: Candidacy and Evaluation

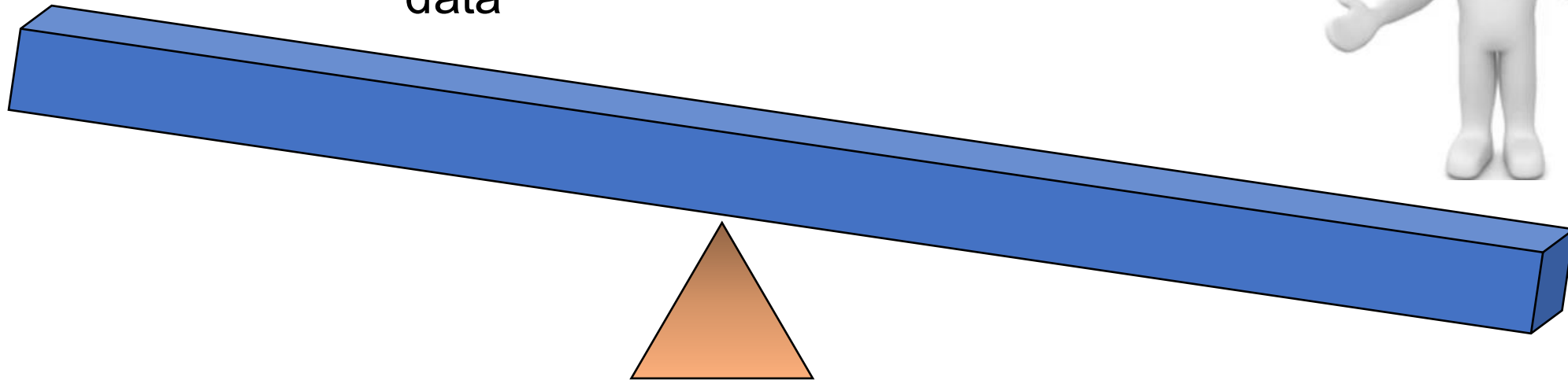


Indication

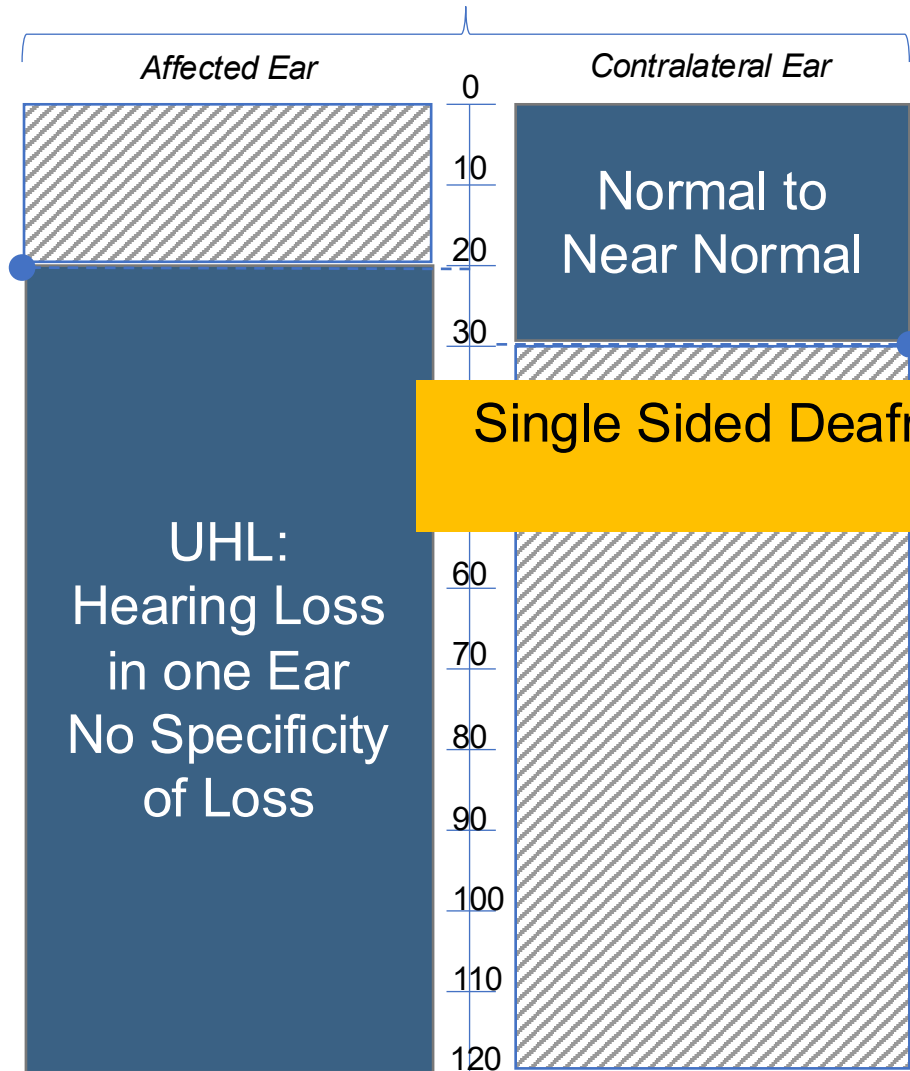
Guideline based
primarily on
audiometric and
speech perception
data

Candidacy

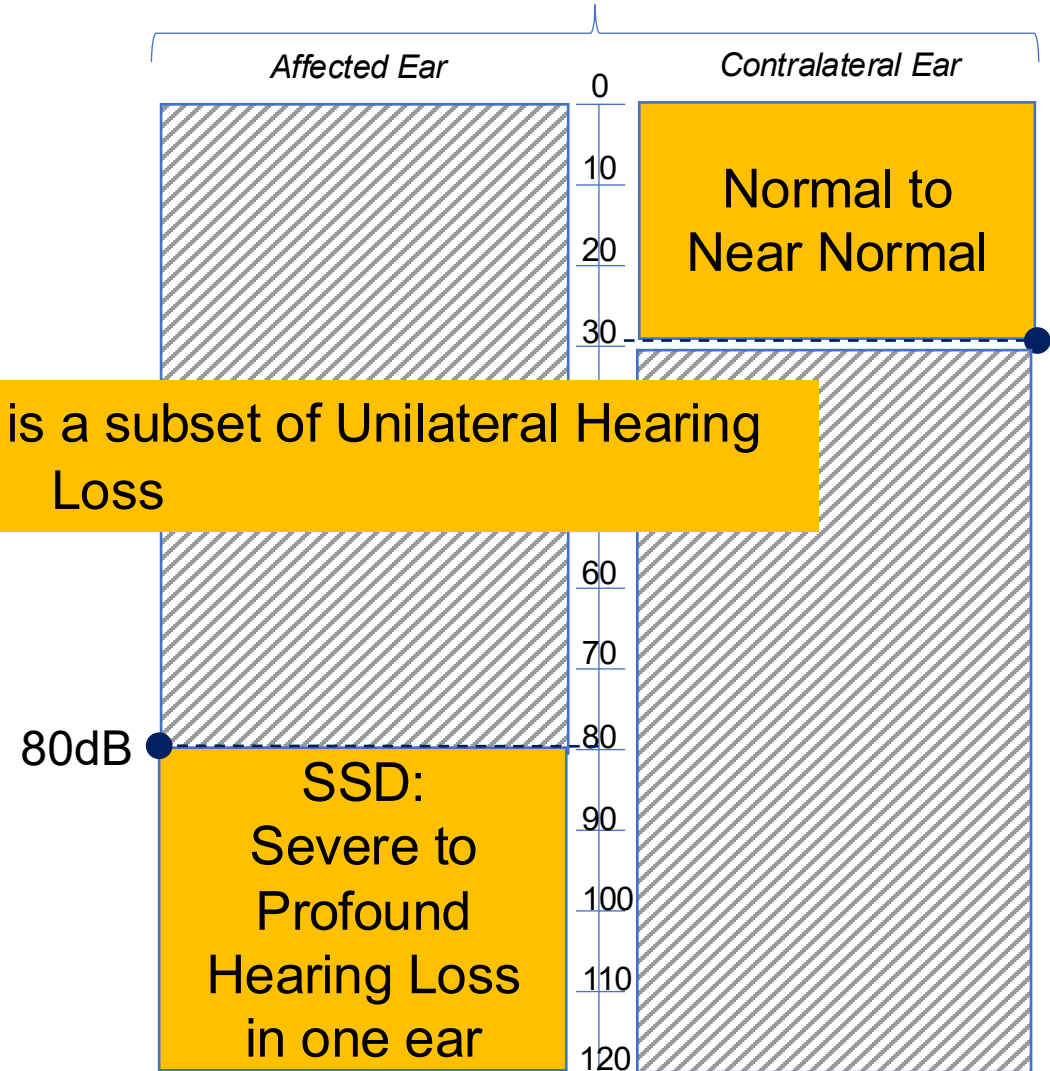
Considers the
whole patient



Unilateral Hearing Loss



Single Sided Deafness



Single Sided Deafness is a subset of Unilateral Hearing Loss

UHL/SSD CI: Contraindications



- **Ear to be implanted:**
 - ❑ Severe to profound sensorineural hearing loss defined as: Pure-tone average at .5, 1, 2, 4 kHz >80 dB HL
 - ❑ Aided CNC word score or developmentally appropriate word test $\leq 5\%$
- **Contralateral Ear:**
 - ❑ Normal or near normal hearing defined as: Pure-tone average at .5, 1, 2, 4 kHz ≤ 30 dB HL
- It's recommended prior to CI surgery that individuals with SSD have at least 2 weeks to 1 month experience wearing appropriately fit CROS hearing aid or other suitable hearing device

Contraindications

A Cochlear™ Nucleus® cochlear implant is not suitable for individuals with the following conditions:

- Absence of cochlea development
- Absence of a cochlear nerve
- Active middle ear infections
- Tympanic membrane perforation in the presence of active middle ear disease

For individuals with **single sided deafness** the following contraindication is also applicable:

- Duration of profound sensorineural hearing loss greater than ten years

UHL/SSD CI: Contraindications



This approval comes with removal of the following contraindication:

- “Deafness due to lesions of the acoustic nerve or central auditory pathway”
- This allows surgeons to consider CI at time of tumor removal if nerve is viable

CI for SSD Audiological Evaluation

- ☐ Routine audiometric testing
- ☐ Aided speech testing
 - Plug and/or mask better hearing ear
 - Best aided condition is in ear to be treated
 - CNC in quiet
 - AzBio in noise (signal at 65 dBA from front with 60-65 dBA to the normal hearing ear)
- ☐ Subjective questionnaires



 *Refer to MSTB-3 resources online regarding questions related to testing/setup¹*

SSD Medical Evaluation



Physical examination

Middle ear function
Cochlear
anatomy/neural
integrity



Imaging

Consider MRI due to
asymmetry
Rule out cochlear
nerve deficiency or
retrocochlear pathology



Patient variables

Duration of profound
SNHL < 10 yrs
Tinnitus
QoL impacts
Motivation

Counseling During CI Evaluation

Consider the Whole Patient



Cochlear Implant Quality of Life (CIQOL) Profile¹

- Measures **outcomes for 6 domains** (communication, emotional, entertainment, environment, listening effort, and social)



Speech, Spatial, and Qualities of Hearing Scale (SSQ-12)²

- 12 questions designed to assess **hearing abilities in everyday situations**



Tinnitus Handicap Inventory (THI)³

- Provides quick evaluation of the **impact of tinnitus** and can be used pre- and post-implantation

1. McRackan TR, Hand BN; Cochlear Implant Quality of Life Development Consortium; Velozo CA, Dubno JR. Cochlear Implant Quality of Life (CIQOL): Development of a Profile Instrument (CIQOL-35 Profile) and a Global Measure (CIQOL-10 Global). J Speech Lang Hear Res. 2019 Sep 20;62(9):3554-3563. doi: 10.1044/2019_JSLHR-H-19-0142. Epub 2019 Sep 4. PMID: 31479616; PMCID: PMC6808347.

2. Noble, W., Sogaard Jensen, N., Naylor, G., Bhullar, N. & Akeroyd, M. (2013) A short form of the Speech, Spatial and Qualities of Hearing scale suitable for clinical use: The SSQ12. Int J Audiol 52(6), 409-412.

3. Newman, C. Jacobson, G. Spitzer, J. Development of the Tinnitus Handicap Inventory. Arch Otolaryngol Head Neck Surg. 1996;122(2):143-148.

Other important questions to consider

- Is there known risk for progression of hearing loss in the better ear?
- Is vestibular function a concern?
- Are goals and expectations reasonable for the treatment solution being considered?
- Is the patient willing to participate in daily rehabilitation?

Pre-Operative Counseling

Realistic expectations

- Utilize QoL or other subjective measures to ensure there is alignment with expectations and treatment option. Consider patient's duration of HL and medical history.

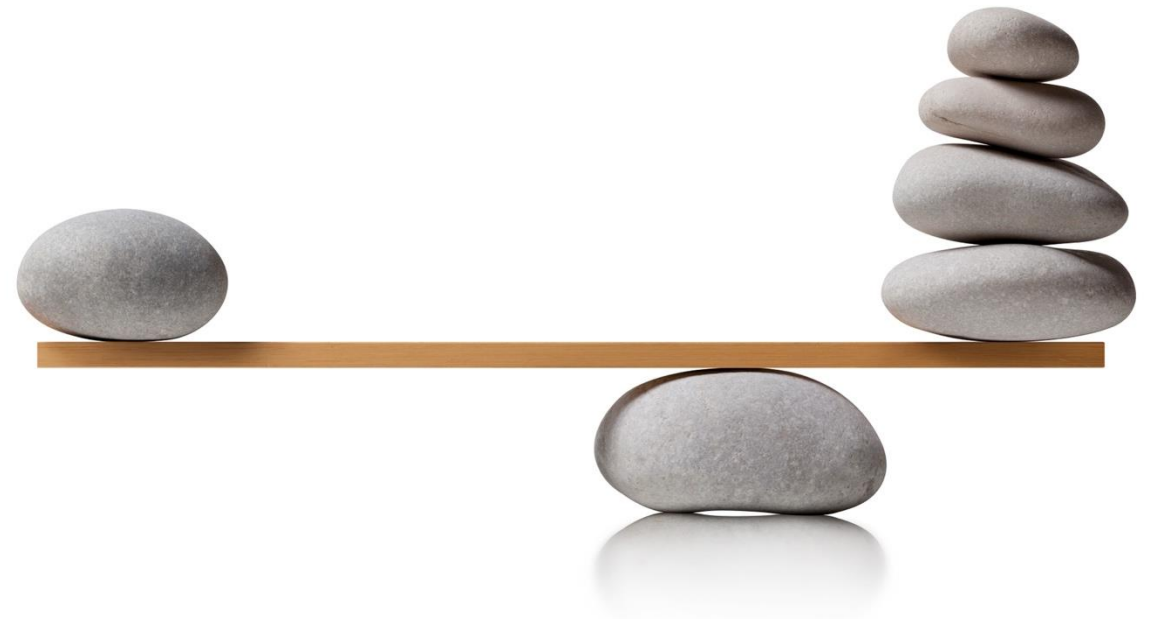


Willingness to complete rehabilitation (CI)

- 10-12 hours of daily use
- Direct streaming for 30-60 min, 5 days/week

Key Takeaways for Candidacy Selection

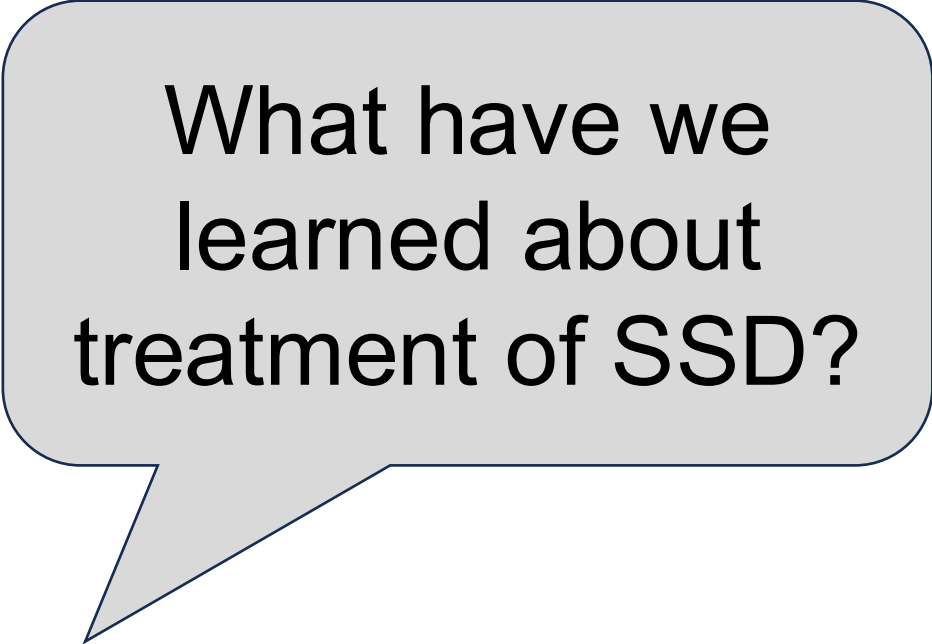
- ✓ Determine the right candidate for the right solution
- ✓ QoL measures should be considered
- ✓ Motivation is critical



SSD patients are unique

SSD patients may rely less on their implant than a traditional patient with bilateral hearing loss

Rehabilitation is not well defined



What have we learned about treatment of SSD?

Performance may not be tied to satisfaction

There are overlapping indications and different options for SSD

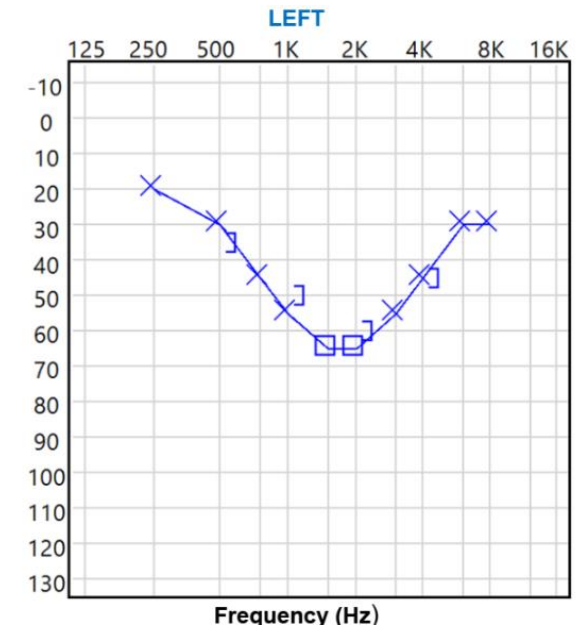
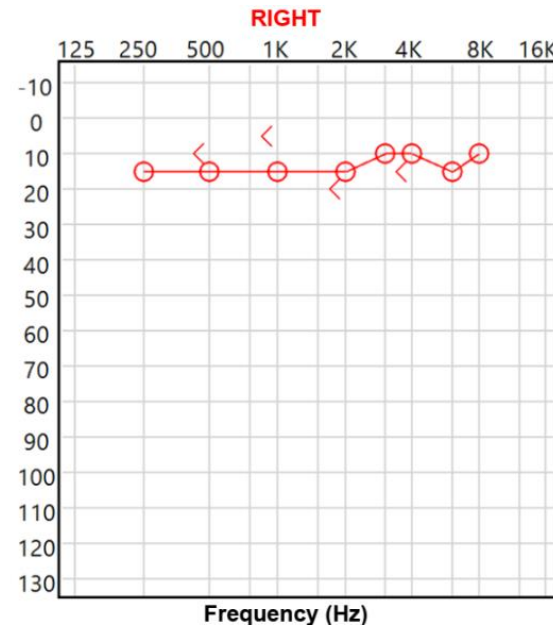
Motivation may be different for SSD patients

SSD with CI patients will compare sound quality to a normal hearing ear

Clinical Cases

SSD case 1

- Age: 40's
- Tinnitus and dizziness
- Diagnosed with vestibular schwannoma (SV in left ear)
- Duration of HL- 1 year and 3 months
- Prior to surgery, patient wore hearing aid in left ear
- Planned concurrent translabyrinthine surgery for VS removal and CI
- Surgery will result in total loss of hearing



SPEECH RECEPTION THRESHOLD

	PTA	SAT	SRT	Mask
Right	15		15	
Left	50		50	
Soundfield				
SF Aided				

WORD RECOGNITION SCORE

Materials	NU-6 WRS 1			NU-6 WRS 2		
	dBHL	%	M	dB	%	Ma
Right	55	100				
Left				80	48	50
Soundfield						
SF Aided						

CI Evaluation

CNC words:

- LEFT= 60% (right masked)

AzBio sentences in quiet:

- LEFT= 88% (right masked)

Does not meet indications
now
BUT remember the whole
patient approach!

Patient is highly
motivated to
seek CI

Hearing satisfaction in everyday listening conditions

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Understanding what is on TV	☐	☐	☒	☐	☐
Talking with small groups (3–5 people)	☐	☐	☒	☐	☐
Hearing in background noise	☐	☐	☐	☐	☒
Listening to and appreciating music	☐	☐	☒	☐	☐
Talking on the telephone	☐	☐	☒	☐	☐

Special SSD Report and Pre-Auth Letters Were Required

“Unaided and aided test results were reviewed, and implications of a significant unilateral hearing loss were reviewed. Although the patient does not presently meet candidacy criteria for implantation, her ENT surgeon plans to complete a translabyrinthine tumor resection in her left ear. This will likely result in complete loss of hearing in her left ear and she will likely meet Single Sided Deafness (SSD) candidacy for a cochlear implant in her left ear, which requires a pure-tone average (PTA) >80 dB HL and a CNC word score $\leq 5\%$ in the EAR TO BE IMPLANTED and a pure-tone average (PTA) ≤ 30 dB HL in the BETTER ear.”

Pre-CI Counseling

- Realistic expectations
- Importance of aural rehabilitation, residual hearing and use of HA
- Engagement manager
- Volunteer connection
- Insurance
- Medical history (vestibular schwannoma)

Post-op Aided Results

Tested with left CI and right ear properly masked:

	3 MONTH	6 MONTH
CNC words	96%	90%
AZBIO sentences	98%	86%
Data logging	8.2 hrs./day	8.2 hrs./day

Hearing satisfaction in everyday listening conditions

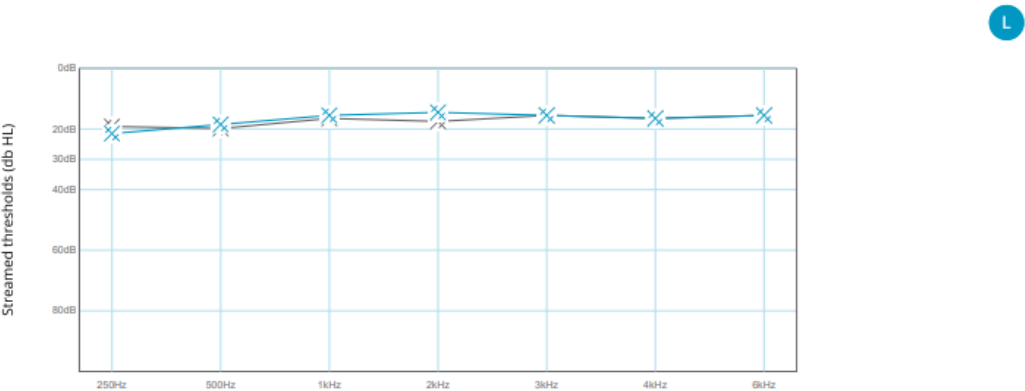
	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Understanding what is on TV	☒	☐	☐	☐	☐
Talking with small groups (3-5 people)	☒	☐	☐	☐	☐
Hearing in background noise	☐	☒	☐	☐	☐
Listening to and appreciating music	☒	☐	☐	☐	☐
Talking on the telephone	☐	☐	☒	☐	☐

***Note: eSRT could not be collected**

Post-op Aided Results

- Remote check baseline completed 1 week post activation
- Repeated 1 year post activation, results below:

Audiogram



Compare previous results

- ☒ Aug 14, 2023
- ☒ Jan 31, 2024 (Current check)

Legend

- Current Remote Check
- No response measured
- Previous Remote Check
- Missing threshold

SPEECH IN NOISE

L



Previous check (Baseline) Aug 14, 2023

USAGE DATA (last month's average)

Time on Air

Time on air

6 hrs/Day



Time in default volume

Volume

98 %



Time in speech

Speech

2 hrs/Day



Programs



SCAN (1) 5.5 hrs

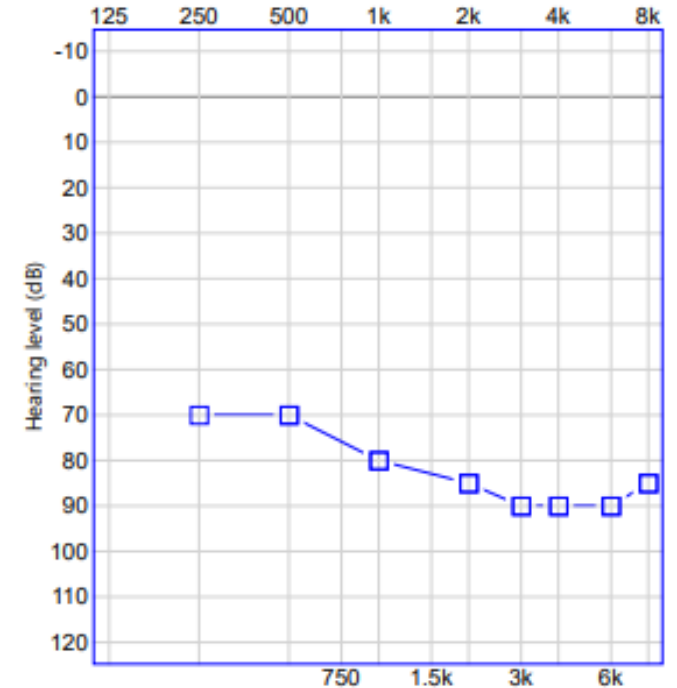
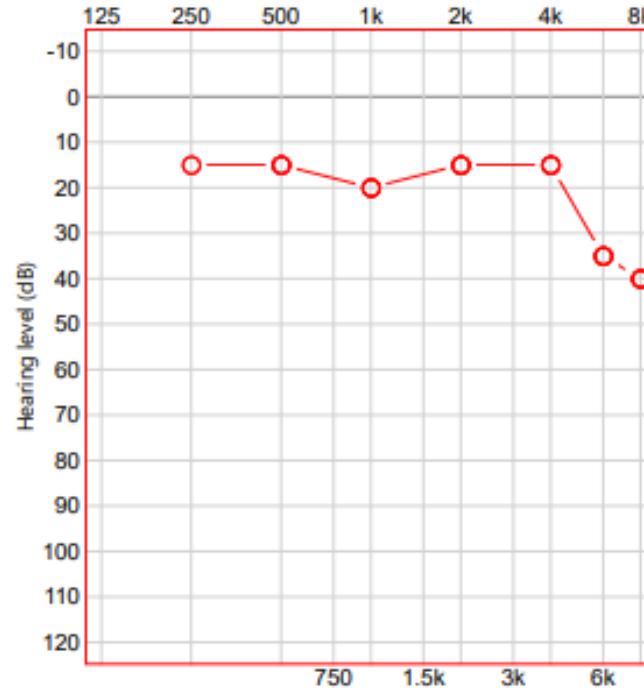
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Post CI Counseling

- Recommended increase wear time (12+ hrs.)
- Use of CI streaming for aural rehabilitation
 - Note patient prefers to talk on the phone using her “good” ear
 - Hearing therapy book
- Use of mini microphone for noisy situations
 - Patient reported improvement after using it

SSD Case 2

- Age: 54
- Tinnitus (disruptive)
- Sudden left ear SSD
- Duration of HL: 4 months
- Aural and intratympanic steroids had no effect
- No benefit with HA or CROS
- Difficulties in noisy environments; no localization



PTA (dB HL) / AI (%)

	AC	BC	AI
Right	17		93
Left	78		0

Evaluation

CNC words:

- LEFT= 4% (right masked)

AzBio sentences in quiet:

- LEFT= 20% (right masked)

Hearing satisfaction in everyday listening conditions

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Understanding what is on TV	☐	☒	☐	☐	☐
Talking with small groups (3–5 people)	☐	☒	☐	☐	☐
Hearing in background noise	☐	☐	☐	☐	☒
Listening to and appreciating music	☐	☒	☐	☐	☐
Talking on the telephone	☐	☒	☐	☐	☐

Pre-CI Counseling

Insurance

Low residual
hearing

Realistic
expectations

Aural
rehabilitation

Medical
history

Engagement
manager

Volunteer
connection

Post-op Aided Results

- Using eSRT MAP: Tested with left CI and right ear properly masked:

	3 MONTH	12 MONTH
CNC words	48%	78%
AZBIO sentences	68%	80%
Data logging	9.6 hr/day	14.2 hr/day

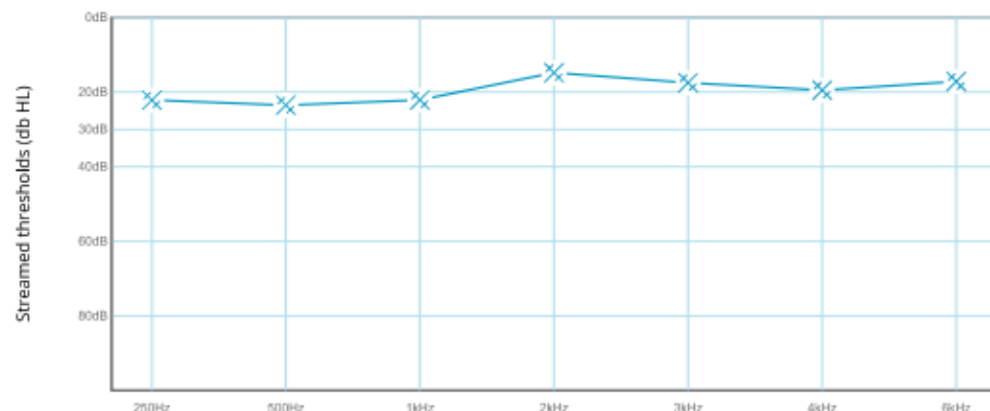
Hearing satisfaction in everyday listening conditions

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Understanding what is on TV	☐	☒	☐	☐	☐
Talking with small groups (3–5 people)	☒	☐	☐	☐	☐
Hearing in background noise	☐	☐	☒	☐	☐
Listening to and appreciating music	☒	☐	☐	☐	☐
Talking on the telephone	☐	☐	☒	☐	☐

Post-op Aided Results

Completed remote check 2 months after activation

Audiogram



SPEECH IN NOISE

-6.1 dB

USAGE DATA (last month's average)

Time on Air
8.9 hrs/Day

Time in speech
3.1 hrs/Day

Time in default volume
100 %

Programs



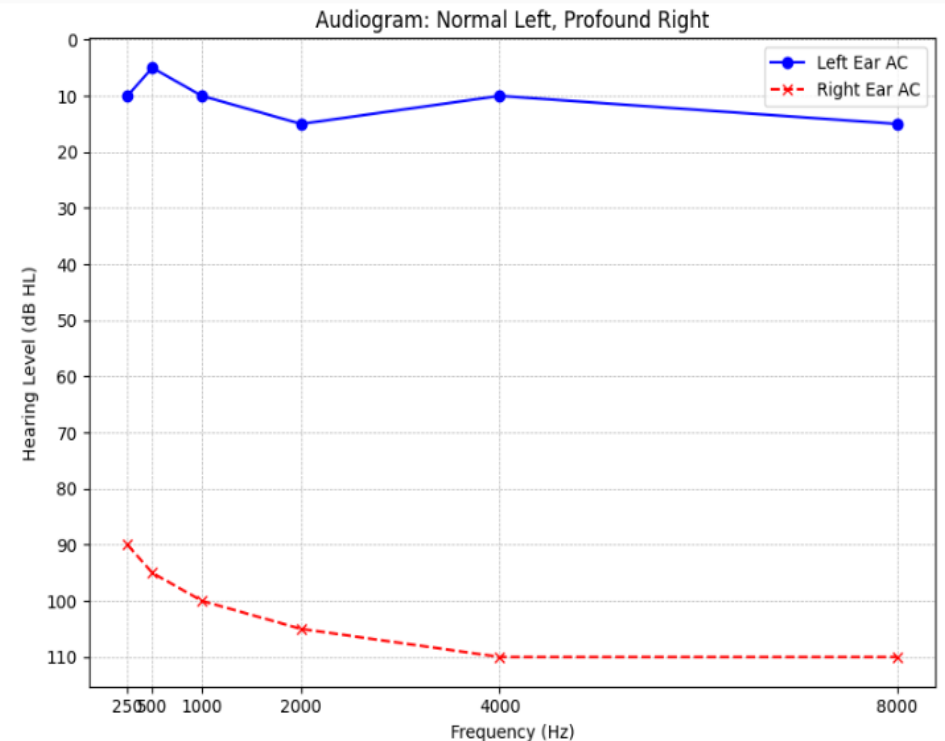
See more +

Post CI Counseling

- Recommended use of accessories and aural rehabilitation
- Reminder about listening effort in this population
- Regarding concerns:
 - Use of TV streamer and mini microphone
 - Importance of streaming with phone via CI only
 - Review programs:
 - FAT changed
 - Use of SCAN 2 FF vs SCAN 2 vs no noise filter program

SSD Case 3

- Deaf in the right ear for 10 years
- Utilized CROS hearing aid for 2 years
 - Still needed repetitions of speech
 - Still dependent on the normal left ear to communicate
- CI EVAL performed at another facility
 - 0% CNC words in the right ear



SSD CI hearing Journey

- Initial activation appointment
 - Met the patient for the first time
 - Counseled on realistic expectations
 - Created progressive maps for comfort
- 1 month post initial activation
 - Datalog revealed 13.5 hours
 - Positive feedback: Can understand speech after 2 weeks!
 - Rehab was primarily with the TV streamer

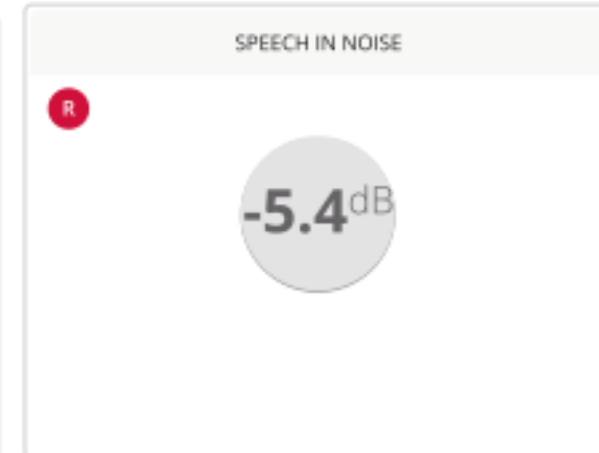
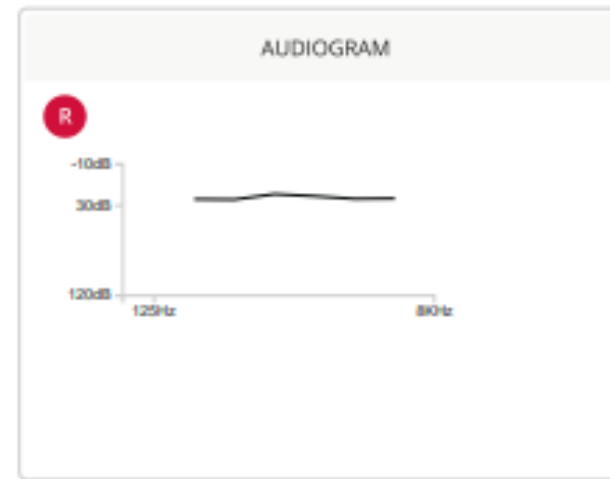
Right ear CI hearing Journey

- **3 months post initial activation**
 - Used the TV streamer for rehab and can understand speech
 - Complained of difficulty understanding speech in noisy environments
- **6 months post initial activation**
 - Complained that ALL speech had a cartoon sound quality and still struggled in noise.
 - **Mapping was done to help with overall satisfaction and to reduce discomfort**

	3 MONTH	6 MONTH
CNC words	66%	DNT
AZBIO sentences	76%	DNT
Data logging	13.7 hr/day	8.1 hr/day (stream 5.3hrs/day)

Right ear CI hearing Journey

- 7 month: Remote Check
 - Objectively everything looks positive.....
 - Patient feedback: *Every sound is accompanied by static, and voices are all high pitched in my cochlear ear. These sounds do not match what my hearing ear hears making it hard to decipher sounds*
- She is dissatisfied and ready to give up



R

Time on air

10 hrs/Day



Time in default volume

Right ear CI hearing Journey

1 year post initial activation

- Patient continues to be frustrated
 - All background noises like the air conditioner were too loud
 - Abnormal static sounds all the time
 - All speech had a cartoon sound quality
 - Struggled in noisy environments

	3 MONTH	1 YEAR
CNC words	66%	62%
AZBIO sentences	76%	83%
Data logging	13.7 hr/day	12.3 hr/day

Right ear CI hearing Journey

1 YEAR AND 4 MONTHS

- Still complained that the processor picked up every noise and that voices still had a high pitch/cartoon sound quality
- Getting more miserable with the processor
- Overall pleased with her ability to understand speech when watching television with the TV streamer
- After mapping
 - Encouraged to use the remote mic
 - Demonstrated using the remote mic in office
 - Continued to be optimistic with her hearing journey

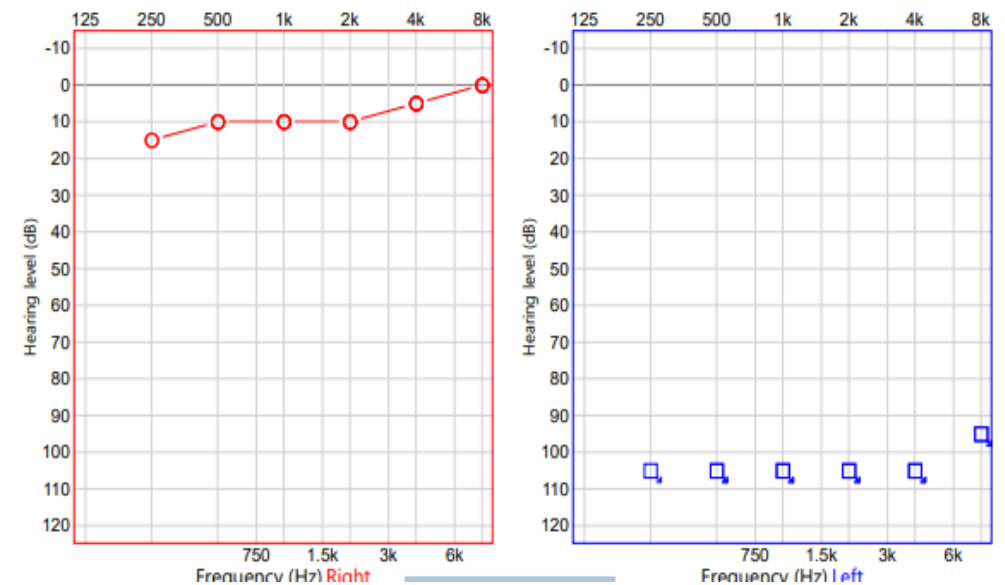
Right ear CI hearing Journey

SUMMARY:

- Duration of deafness was 10 years
- Booth testing supported optimal benefits with the cochlear implant
- Positive subjective feedback
 - She can understand speech when using the TV streamer
- Negative subjective feedback
 - Too many ambient sounds were bothersome - she was ready to give up
- Mapping was done at every appointment
 - Does mapping help motivate the patient to keep wearing the processor?

SSD Case 4

- 7 years (2017)
- Failed NBHS and aided at 7 months
- Birth history included FAS
- Diagnosed as Type 1 Diabetic
- In 2023, diagnosed with profound SNHL of the left ear
- Parents noticed struggles with localization



CI hearing Journey

- Baha/CI Evaluation
 - Child and his parents were referred to the CHC in 2024 for a Baha Evaluation
 - After case history, discussed cochlear implants and determined he was a good candidate for CI
 - Counseled on anticipated benefits and challenges for the child

SSD Case 4: CI hearing Journey

- CI initial activation (2025)
 - Complained of LOUD buzzing sounds that were uncomfortable
 - Progressive maps were created
 - Emphasized wear time and use of streaming
 - Counseling – used hobbies as an analogy
- 1 month appointment
 - Wears at school, listening breaks at home
 - Reported that he likes his new ears!
 - Parents felt that story time has improved

CI hearing Journey

- 1 month post initial activation
 - Datalog 11 hours per day
 - After mapping
 - Initially complained that sounds were too loud, but quickly adapted
- 3mo appt
 - Loves his new way of hearing, but hated when others made fun of him
 - Enjoyed taking listening breaks at home
- 9mo appt
 - Continues to love wearing his processor
 - Took ownership of his equipment

CI hearing Journey

- 3 Months CI audiogram

	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	6000 Hz	250 Hz
Left CI	30	30	25	35	30	30	30

- 6 Months CI Audiogram

	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	6000 Hz	250 Hz
Left CI	35	35	25	35	45	35	35

	CI EVAL	1 MONTH	3 MONTH	9 MONTH
PB-K words	0%	DNT	0%	0%
BABY BIO sentences	0%	DNT	0%	0%
Data logging	N/A	11.0 hr./day	N/A	8.3 hr./day

CI hearing Journey

- SUMMARY
 - He loves his CI and it's a part of his everyday listening
 - Parents and the child are noticing subjective improvements
 - Objective testing indicates he has not obtained speech understanding
 - What carries more weight?
 - Subjective or objective measures
 - Counseling is powerful

Resources

MSTB-3 | Institute for Cochlear Implant Training



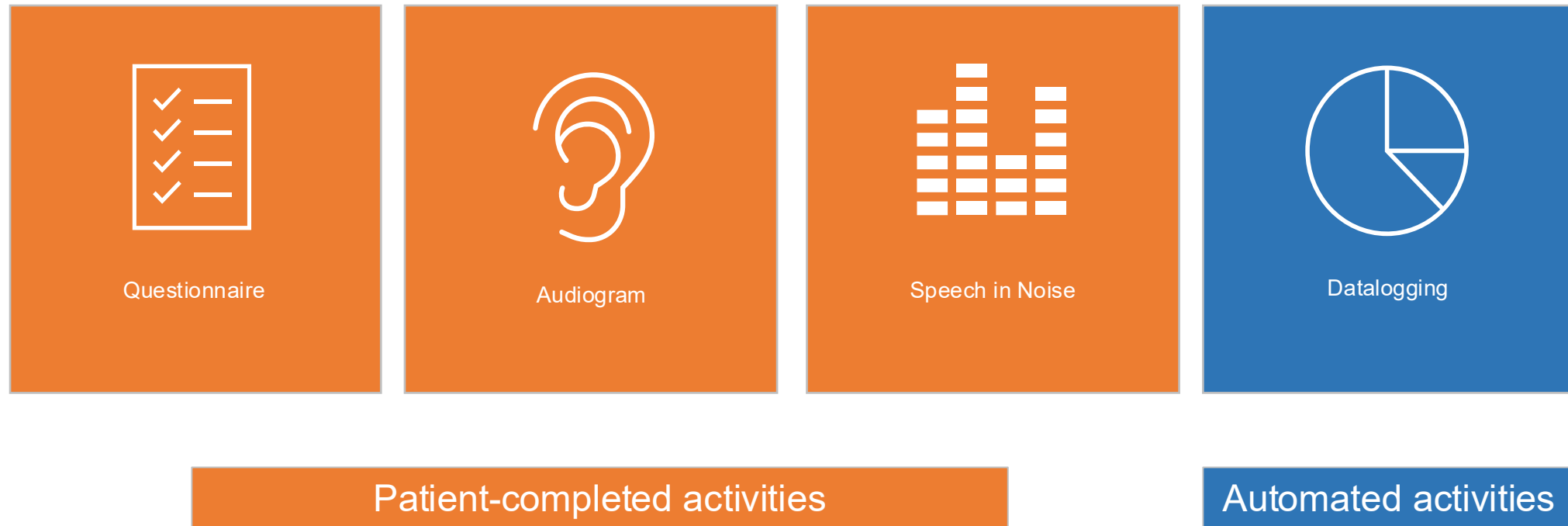
Clinical Focus

A Consensus to Revise the Minimum Speech Test Battery–Version 3

Camille C. Dunn,^{a,b}  Teresa A. Zwolan,^{a,c,d} Thomas J. Balkany,^a Heather L. Strader,^a Allison Bieber,^{a,e} René H. Gifford,^{a,f}  Melissa W. Hall,^{a,g} Meredith A. Holcomb,^{a,h} Heidi Hill,^{a,i} English R. King,^{a,j} Jannine Larky,^{a,k} Regina Presley,^{a,l} Meaghan Reed,^{a,m} William H. Shapiro,^{a,n} Sarah A. Sydlowski,^{a,o} and Jace Wolfe^{a,p,q}

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Implant Training

Isolating the Implanted Ear with Remote Check¹



1. Remote Check and Remote Assist for Nucleus sound processors are intended for ages 6 and older. Remote Check and Remote Assist features are only visible and accessible if they are enabled by a clinician. Clinicians should consider the suitability of the feature before enabling Remote Check and Remote Assist. Remote Check does not replace clinical care and does not involve remote programming of the sound processor. Only available at clinics that have enrolled in Remote Care.

CI for SSD Resources

FOR PROFESSIONALS

Treatment of unilateral hearing loss and single-sided deafness with Cochlear™ Nucleus® Implants







Exploring proven hearing solutions for single-sided deafness

2024 Clinical Recommendations for the Treatment of Unilateral Hearing Loss/Single-Sided Deafness with Cochlear Implantation

In collaboration with participants of the Cochlear sponsored UHL/SSD Thought Leadership Conferences

When to consider a hearing implant evaluation for single sided deafness (SSD)*

Does your patient meet any of these criteria?



	 Poor ear	 Good ear	Age	Daily interactions ^{1,2}
Cochlear implant Pure Tone Average (AC @ 500, 1000, 2000, 4000 Hz)	greater than 80 dB HL	less than or equal to 30 dB HL	5 years and older	Patient experiences ANY of the following: ☐ Unhappy with hearing aids ☐ Has tinnitus with hearing loss ☐ Favors one ear ☐ Struggles localizing sounds ☐ Withdraws from social events ☐ Often needs others to repeat themselves
Bone conduction Pure Tone Average (AC @ 500, 1000, 2000, 3000 Hz)	greater than or equal to 80 dB HL	less than or equal to 20 dB HL	surgical: 5 years and older non-surgical: any age	

* This provides a recommendation only of when to refer for a cochlear implant or bone conduction evaluation, but does not guarantee candidacy based on indications. For more information on candidacy criteria, please visit <https://www.cochlear.com/us/en/home/diagnosis-and-treatment/how-cochlear-solutions-work>

1. Firsiroti JB, Reeder RM, Holden LK, Dwyer NY. Asymmetric Hearing Study T. Results in adult cochlear implant recipients with varied asymmetric hearing: a prospective longitudinal study and participant report. Ear Hear 2018;39:845–862.

2. Alhanbali, S., Dawes, P., Lloyd, S., & Munro, K. J. (2017). Self-Impaired Adults. Ear and Hearing, 38(1), e39–e48. <https://doi.org/10.1593/earh.16-001>

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FUN4637 ISS1 MAR22

 Scan to learn more about when to refer

www.cochlear.us/SSD

Reimbursement resource hub

The Cochlear™ Reimbursement Hub is designed to assist healthcare professionals and facilities with access to tools and resources to address insurance questions and optimize patient support.

Local Support Starts with Your Consumer Engagement Manager

- Connect with your patients who are considering a hearing implant in one-to-one and group settings
- Connect them with other recipients and their families
- Invite and/or register them for Cochlear's educational events
- Help complete order forms

A yellow rectangular graphic with a thin horizontal line at the top. On the left, the text "Questions about implantable hearing solutions?" is in a dark font, flanked by horizontal lines. On the right is the Cochlear logo, consisting of a stylized ear icon and the text "Cochlear®" with the tagline "Hear now. And always" below it. At the bottom, the text "I am here to help." is written in a large, bold, dark font.

Questions about implantable hearing solutions?

Cochlear®
Hear now. And always

I am here to help.



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Considerations for Clinician During CI Evaluation:

- Prevent lack of CI use or low Data Logging
 - Assess patient's motivation at evaluation
 - Emphasize need for aural rehabilitation
 - Offer resources
- There are measurable benefits with CI
- While insurance may seem daunting, proactive pre-auths and appeals can open the door to coverage

About Cochlear Hearing Centers

- The Cochlear Hearing Centers proudly serve our communities—in Houston and San Antonio—as outpatient hearing implant technology programs. Our primary goal is to improve the lives of patients through better hearing.
- We provide evaluations and treatment for hearing loss using evidence-based protocols for patients through the lifespan. Although our specialty area(s) include hearing implant technologies, we aim to help patients with varying degrees of hearing loss on their journey to better hearing.



Bellaire, TX



San Antonio, TX

Audiological Services

- Hearing implant candidacy evaluations
- Initial activation and follow-up programming of implantable hearing solutions
- Bimodal Hearing Aid Services (as needed)
- Rehabilitation services
- Telehealth services
 - Connected Care – Remote Check and Remote Assist*
 - Full-on remote programming
- Fully bilingual Spanish Care Models



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Thank You!

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