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UNIVERSITY OF
SOUTH DAKOTA

Grand Rounds: A Series of Unfortunate Events, presented in partnership with the University of South Dakota

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Lindsey E. Jorgensen, AuD, PhD

Jennifer Phelan, AuD

Rachel Barrett, AuD

Gabriella Emme, BA

Jacynda Gellhaus, MS

Jessica J. Messersmith, PhD



Jessica J. Messersmith is a Professor at the University of South Dakota where she is the Associate Dean for the College of Arts and Sciences and the Faculty Athletics Representative; she also is an active faculty member in the Department of Communication Sciences and Disorders where she teaches, does research, and sees patients. Her research focuses on clinical practices that hinder or improve outcomes of pediatric patients in the audiology clinic, with a specific focus on cochlear implants and infant hearing detection and intervention. Through her clinical, research, and teaching duties she continually strives to improve access to care for pediatric patients in underserved, rural, and impoverished areas.

Lindsey E. Jorgensen, AuD, PhD



Lindsey E. Jorgensen is a Professor and serves as Department Chair and Clinic Director in the Communication Sciences and Disorders Department at the University of South Dakota; she also holds a position as a Research Audiologist for the Department of Veterans affairs. At the University of South Dakota Lindsey teaches, conducts research, and provides clinical services in the area of hearing aids and hearing assistive technology. Her research focuses on how to best personalize hearing technologies for patient individual cognitive, psychological, physical, and social needs.



Jennifer Phelan, AuD

Jennifer Phelan is an Assistant Professor of Practice and Audiology Clinic Coordinator at the University of South Dakota. Her clinical interests include diagnostics and treatment within pediatric audiology. As clinic coordinator, she strives to continually support the development of graduate clinicians and clinical educators.



Rachel Barrett, AuD

Rachel Barrett is an audiologist at Professional Hearing Care in La Crosse Wisconsin. She completed her AuD from the University of South Dakota in 2023. She completed her fourth-year placement at a private practice in London, UK.



Jacynda Gellhaus, MS

Jacynda Gellhaus is currently enrolled in the AuD program at the University of South Dakota where she is expected to receive her doctoral degree in 2025. She received her MS from Arizona State University in neuroscience where she investigated music perception in cochlear implant users.



Gabriella Emme, BA

Gabriella Emme is currently enrolled in the AuD program at the University of South Dakota where she is expected to receive her doctoral degree in 2025. She currently serves as the graduate teaching assistant where she teaches the undergraduate audiology courses.

The Presenters

- Lindsey Jorgensen, AuD PhD
- Jessica Messersmith, PhD
- Jennifer Phelan, AuD
- Rachel Barrett, AuD
- Gabriella Emme, BA
- Jacynda Gellhaus, MS

Disclosures

- Presenter Disclosure: Financial: Jessica Messersmith is employed by the University of South Dakota. Non-financial: Jessica Messersmith has served as past president of the South Dakota Speech-Language Hearing Association. She is chair of the AAA Task Force on Cochlear Implant Practices. She provides educational series for several CI companies. Financial: Lindsey Jorgensen is employed by the University of South Dakota. Non-financial: Lindsey Jorgensen has various relationships with HA and verification companies for research and product development. Financial: Jennifer Phelan is employed by the University of South Dakota. Non-financial: Jennifer Phelan has no relevant non-financial relationships to disclose. Financial: Rachel Barrett has no relevant financial relationships to disclose. Non-financial: Rachel Barrett has no relevant non-financial relationships to disclose. Financial: Jacynda Gellhaus has no relevant financial relationships to disclose. Non-financial: Jacynda Gellhaus has no relevant non-financial relationships to disclose. Financial: Gabriella Emme has no relevant financial relationships to disclose. Non-financial: Gabriella Emme has no relevant non-financial relationships to disclose.
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- Various relationships with hearing aid and verification manufacturers for research

Learning Outcomes

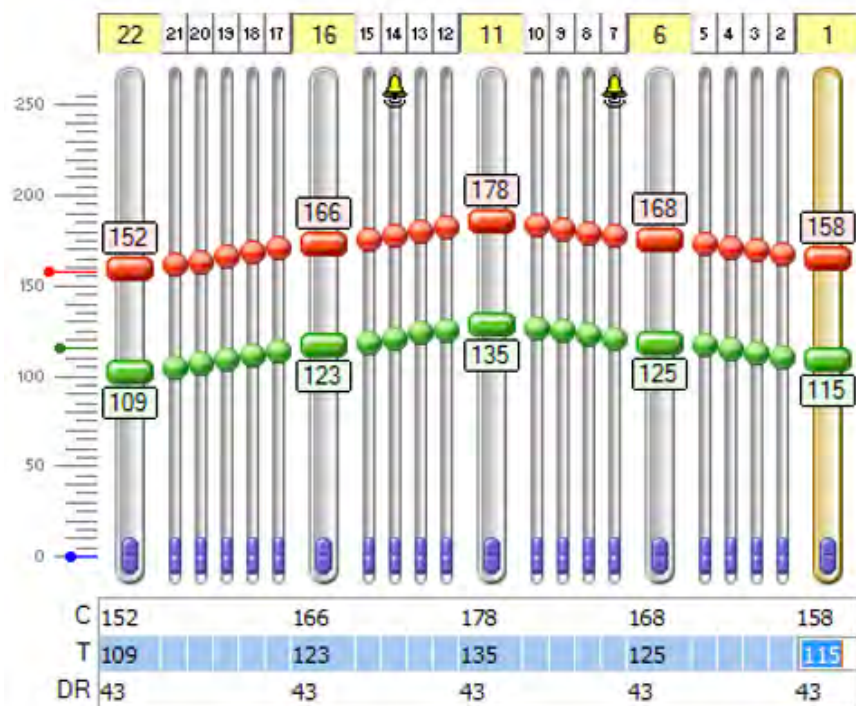
After this course, participants will be able to:

- Describe best practices related to the care of patients with a hearing aid or an implantable device.
- Describe how to interact with device manufacturers and educational and penal systems to improve patient outcomes.
- Explain how to implement a method of providing patient services and continuation of care after an unfortunate event.

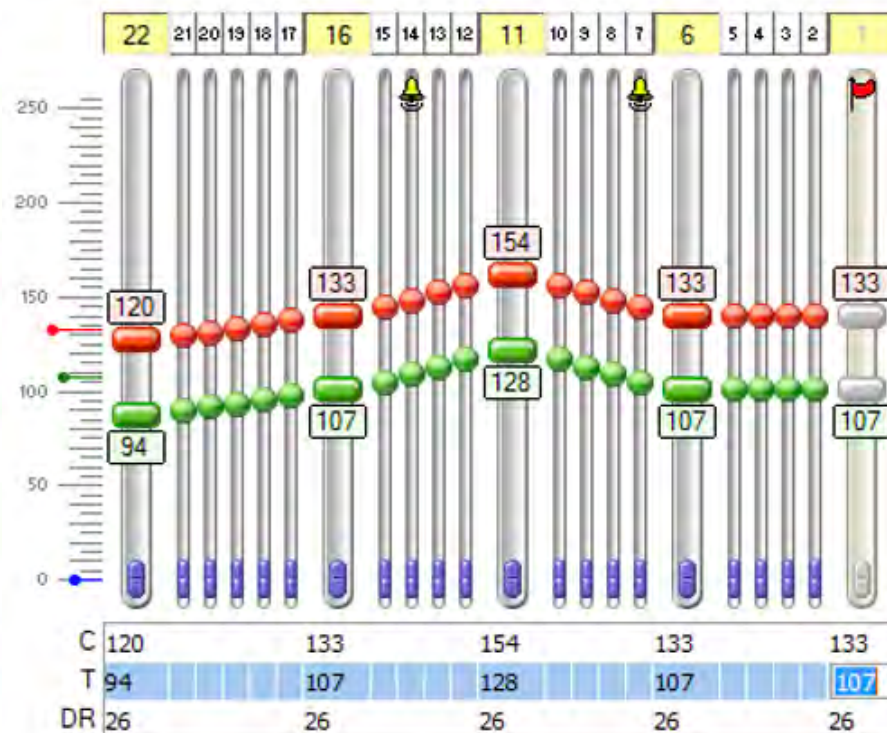
Tigger

- Background:
 - HL Dx profound SNHL Au @ 3 moa
 - Fit w/ HA Au
 - CI Au @ 13 moa
- Implant info:
 - Internal: CI 512
 - SP: N6 initially; N8 now

M levels- Behavioral



A_s

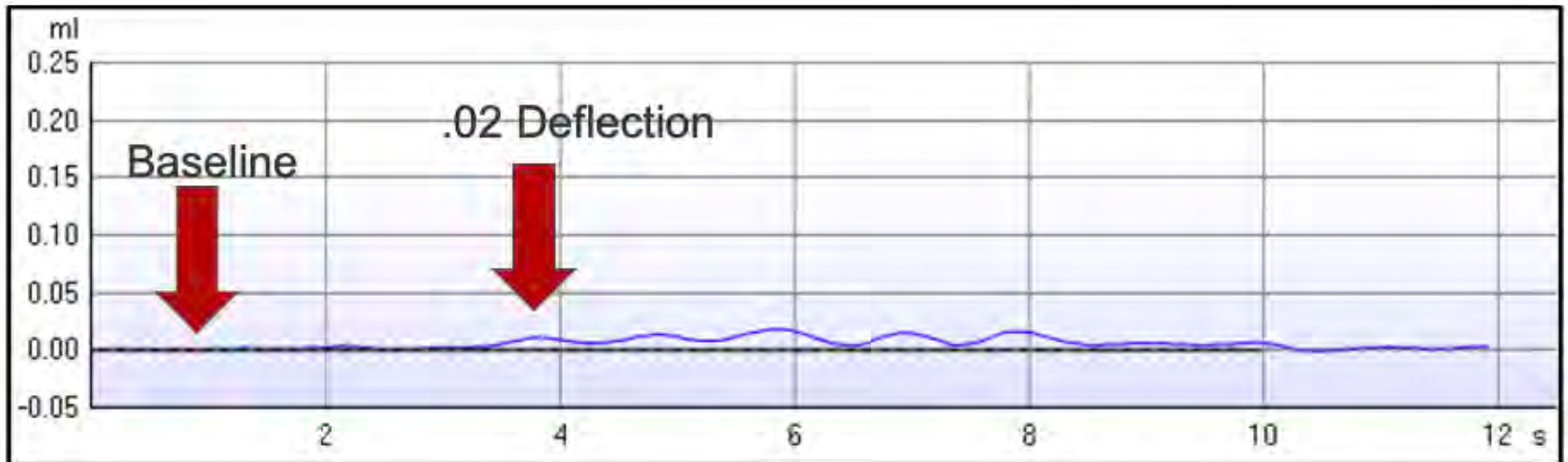


A_D

ESRT

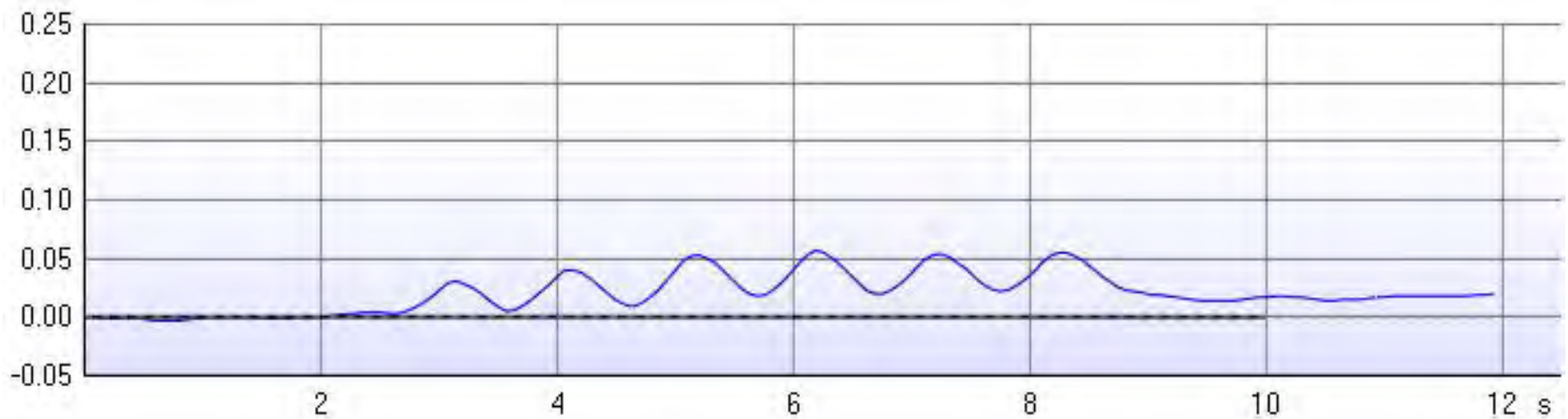
- Correlates well with C/M levels
 - ESRT levels are usually within 6-20 clinical units of behavioral upper stimulation levels (e.g., de Andrade et al, 2018; Mishra & Nandurkar, 2019; Spivak, Chute, Popp, & Parisier, 1994)
- Comparable speech perception results using ESRT-based MAP (Spivak & Chute, 1994)
- Some listeners even show preference towards ESRT based maps (Hodges, et al., 1997)
- On whom should we do ESRT ?
 - Everyone with a cochlear implant who has a measurable ESRT

ESRT Deflection

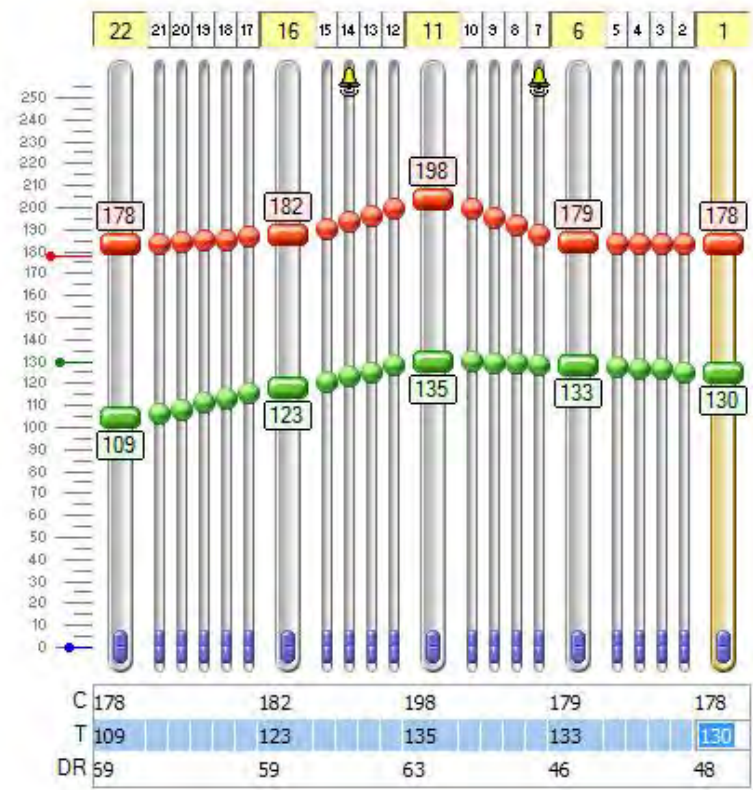
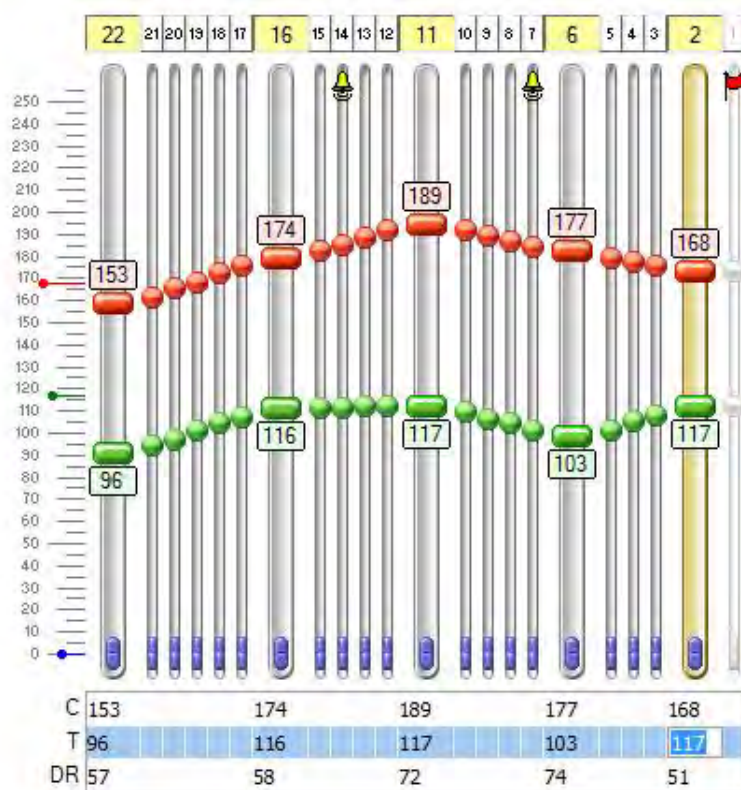


** FIND BASELINE FIRST- THEN STIMULATE THE CI VIA THE SOFTWARE- LOOK FOR .02 DEFLECTION. IF YOU CAN NOT FIND THE DEFLECTION INCREASE THE C/M LEVEL

ESRT Growth of Response

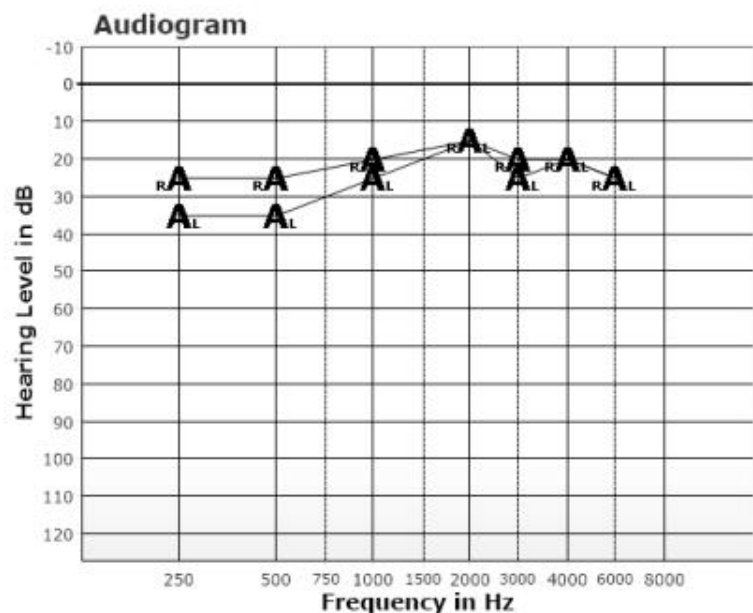


M levels- ESRT



Outcomes- Now age 14 yrs

- Validation scores (ESRT-based MAP)



Assessment	Presentation	Ear	Score
Az Bio	60 dB SLP A (+10 dB SNR)	Left	97%
	60 dBA (+10 dB SNR)	Right	98%
	60 dBA (+10 dB SNR)	Both	99%

Tigger

What comes next?

TED

BACKGROUND

- 76-year-old retired male
 - Very active and social
- RIC hearing aids with open domes
 - Devices 1 year old
- National Health Service (NHS) devices and services – FREE
 - On the waitlist for nearly 2 years

INTERVIEW

WHY IS HE HERE?

- Cannot get follow-up appointment at NHS hospital for adjustments
- Frustrated with devices and doesn't feel that he's getting benefit
- Reports having a very difficult time hearing in noise

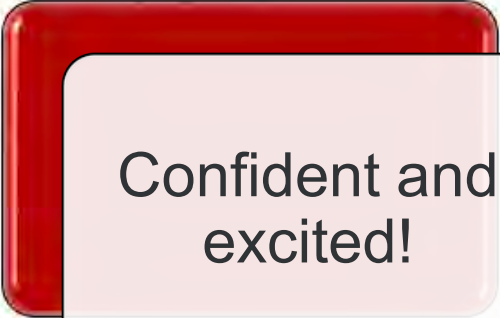
NEXT STEPS:

- Explain testing procedures, the cost and WHY they're important
 - Patient weary at first – start with hearing test

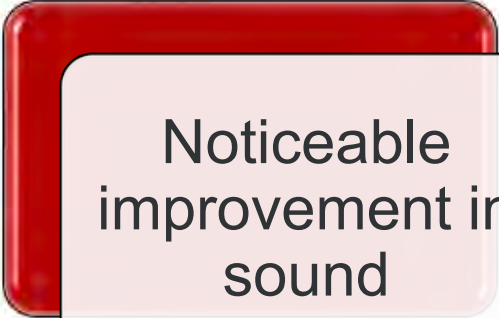
TESTING

- Standard audiologic test battery
 - Moderate sloping to severe sensorineural hearing loss bilaterally
 - Counseled and educated on results
- Aided Speech-in-Noise testing (pre)
 - 10 dB SNR loss
 - Explained the benefits of real ear measurements and costs associated with it
- Real-ear measurements and acoustic modifications
- Aided Speech-in-Noise testing (post)
 - 6 dB SNR loss
- Counseled on program/volume change, care and maintenance

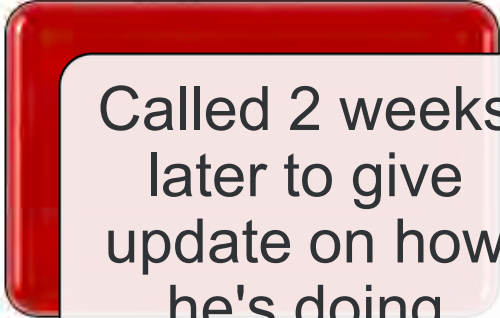
OUTCOMES



Confident and
excited!



Noticeable
improvement in
sound



Called 2 weeks
later to give
update on how
he's doing

TAKEAWAYS



Meet the patient
where they are

Active listening



Explain the value of
you and your testing

Also explain associated
costs



Importance of follow-up care

John

CASE History

- 17-year-old
- Left AB Naida CI M90
- Late identification of hearing loss
- Impact of hearing loss was minimized
- Special education classroom

USD Case History

- First seen at the USD Clinic for a CI evaluation
- Post implantation: behaviors decreased for a period of time, but subsequently increased up to 2019.
- Patient was hospitalized for depression and anxiety.
- When a parent has a concern look for:
 - The root of their concern and do a hearing screening
 - Look at previous hearing screenings
 - Look at academic and behavioral reports

Fast forward

- USD was notified by the family that the patient was now in a local juvenile detention center.
- Outreach appointment for CI programming for upgraded device by CI audiologist and graduate clinician

School to Prison Pipeline

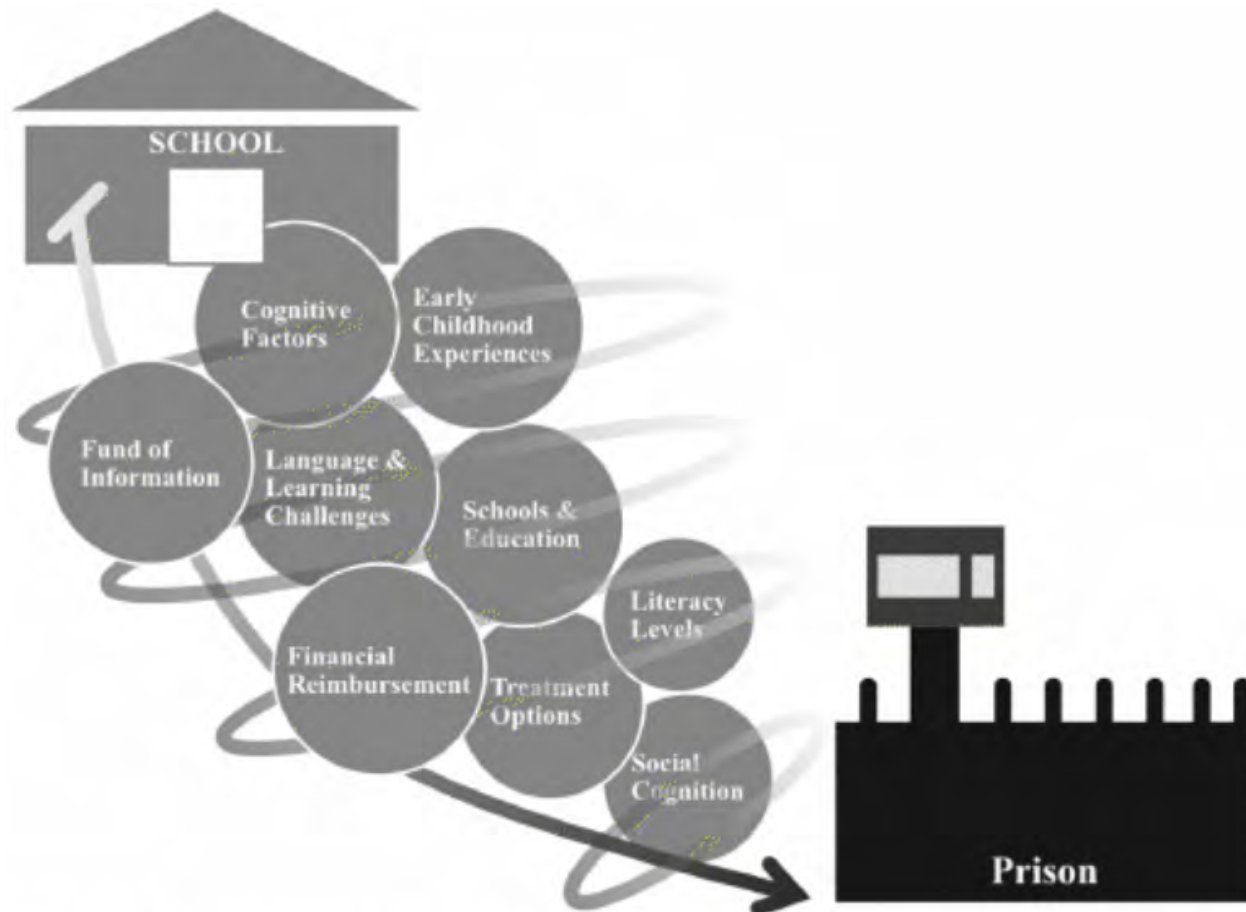


FIGURE 2. Nexus points in the school-to-prison pipeline.

Hearing Loss and Juvenile Incarceration

- Approximately 1% of children between 10 and 17 years old are served in correctional facilities (Youth and the Juvenile Justice System 2022 Report; Office of Juvenile Justice and Delinquency Prevention Statistics)
- About 8% of youth 10 years and above who are deaf or hard of hearing (DHH) are served in correctional facilities. (National Institute on Deafness and other Communication Disorders, 2016).
- Confining youth can increase their likelihood of being incarcerated as adults by more than 20 percent and can also significantly reduce their chances of completing high school (Seigle et al, 2014)
- Median literacy rates of deaf high school graduates are around the fourth grade (Lederberg, 2012)

Takeaways

Advocate for our patients

Early identification and
intervention

School to prison pipeline

Alejandra

BACKGROUND

- Seen in Guatemala during a service trip
- 3-year-old girl
- At one year old her family reported a head injury to the left side of her side (almost two years from the visit)
 - Went to doctor, treated for surface injuries
 - No CT, X-ray; family reported did not think skull fracture
- Limited verbal language- babble
 - Observed use of gestures and independence in retrieving items to communicate needs

Guatemala

- Currently, no legislation requiring newborn hearing screening
- In Jan. 2018 pilot program created by the Rotary and Fundación Sonrisas que Escuchan (Smiles that Listen)
- There is only one practicing audiologist in the country



Testing/Results

- Behavioral testing
 - Completed with fair reliability
 - Eye shift to pulsed tones
- Recommended ABR
 - To support behavioral results and make appropriate recommendations
 - Completed the same day!! 😊
 - Vivosonic unit used
 - Plan was to complete an unsedated ABR with her being quiet, thankfully she fell asleep after lunch!
 - Findings
 - Right ear flat, moderate SNHL
 - Left moderately-severe to profound

Recommendation –

- Right hearing aid fitting on this visit
- Continue to monitor, behaviorally test
- Determine if left hearing aid is appropriate with follow up testing

Take Aways

- Newborn hearing screening programs are important, but they do pose challenges to countries without the infrastructure for follow up care
- There is a lot we can do even in what might be considered less than optimal testing environments
- REM!! If real-ear measures can be done on a three-year-old in a “pop-up” clinic in Guatemala, we can do them in our clinics in the US!
- Obtaining info from the family, peer-reviewed research, and getting medical records if available is key if you see a patient with a diagnosis you haven’t seen before.

Meet Harry

History

- 9 yo male, bubbly personality, loves music
- Seen on USD's bi-annual Rapid City outreach trip
- Conductive hearing loss, utilizes a Cochlear BAHA 6 Max w/ soft band
- Lives in rural South Dakota

Additional Diagnoses

- Goldenhar Syndrome
- Craniofacial anomalies – cleft lip and palate, and tracheal stenosis

Care Giver Reports

- Significant hx of trauma
- Harry had not been to school or worn his hearing aid in 8 months

Cumulative Effects of Trauma and Disruption for Children with Multiple Disabilities

THE IMPACT OF:

- Trauma
- Education
- Home Environment
- Money
- Complexities of the Medical System
- Relationship(s)

Road map to success

Sensitive Communication

- Non-threatening, use of AAC, respect boundaries, create a safe environment

Interdisciplinary Approach

- SD Services for the Deaf, speech-language pathology, craniofacial team, school system (teachers, principals)

Trauma Informed Care

- Intergenerational trauma, incorporating sensory regulation techniques, integrating behavioral supports

Supporting Resilience and Healing

- Fostering caregiver trust with providers, Non-judgment, family-centered approach

Harry's Plan

- Family Support and Engagement
- Multidisciplinary Approach
- Connection to Services
 - South Dakota Services for the Deaf
 - Transportation Supports
 - Caregiver Mental Health Supports
- Follow up with Craniofacial Team
- Establishing a medical 'home'

Shyloh

BACKGROUND

- 74-year-old person
- Small curvy ear canals
 - Tympanometry ECV: 0.4 bilaterally
- RIC hearing aids
 - Open domes
 - Low power receiver
- Complaints
 - Aids won't go into ears
 - Aids won't stay in ears
 - Not getting benefit

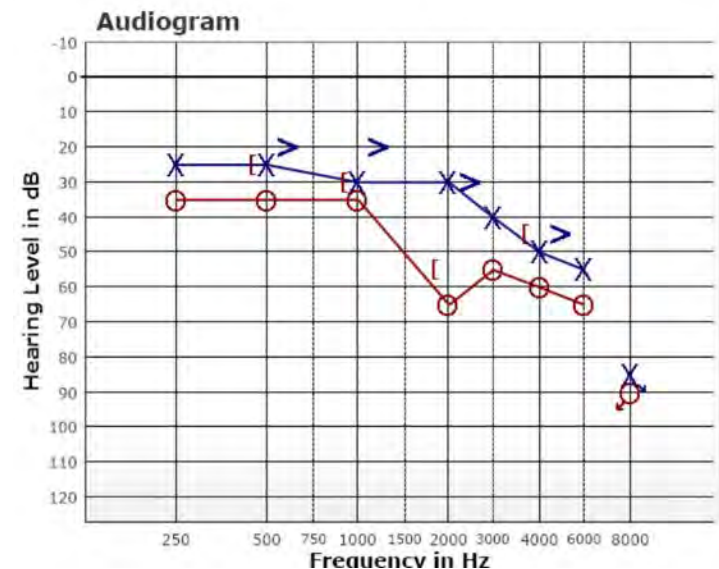
Testing

INTERVIEW

- Very nervous and anxious
 - Sat up very very straight in the chair
- Got aids for “free”
- Felt that they were a burden and that they should not be disappointed as aids were a gift

TESTING

- WRS: 100% AU
- SIN:
 - Left: 8.5 dB Loss
 - Right: 15.5 dB Loss



What do they want?

TALKING WITH THE PATIENT

- What were their goals?
- What does they need?
- Found out things about them and connected
 - Watched them relax
- What was the problem?
 - Didn't know how to use them
 - Felt dismissed because aids were “free”

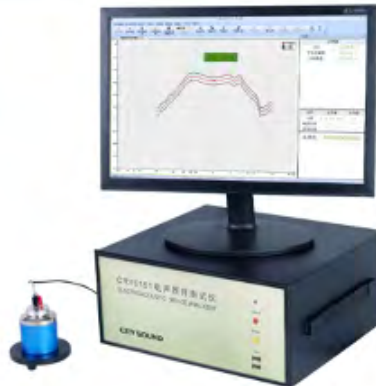
Plan

HEARING AID CLEAN AND CHECK

- These are good aids!
- Molds for insertion and retention
- Reprogramming
 - Aids were not programmed to “them”
 - Name on aids was “Offline Patient”
 - Correct receiver in the software
 - What is the impact of receiver strength?



Billing



- We need to be paid for our services
- Billing for:
 - Hearing aid service
 - Levels of hearing aid service
 - Electroacoustic analysis
 - ANSI
 - D-mics
 - Reprograming
 - Conformity evaluation (REM)
 - Education and training
- Rehabilitative Audiology Comprehensive Care Plan

Shyloh

Shyloh is no longer shy 😊

Just because they are free should not
get sub-par care!

What is next?

Wow, that was interesting!
But I have a few questions.

We appreciate you coming!!!

If you have any questions or would like to chat
about any of these cases

Lindsey Jorgensen

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