When We Know Better & When We Don't:

Preventing Complicity in Diagnostic Errors in Pediatric Audiology

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Director, Children's Hearing Program

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DISCLOSURES

Employed by the University of Miami
Research grant – Cochlear Americas

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MEDICAL ERRORS WILL OCCUR IN YOUR CLINICAL PRACTICE

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Understanding the root causes

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Discussing institutional responses & obligations

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MEDICAL ERRORS WILL OCCUR IN YOUR CLINICAL PRACTICE

We will explore medical errors in pediatric audiology, with a focus on:

Identifying common mistakes
Understanding the root causes
Discussing institutional responses & obligations

We will look at real-world examples from a major medical center to highlight how errors occur and the strategies for addressing them.

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IMPORTANCE & SIGNIFICANCE

Pediatric audiology is critical because early detection & intervention are essential for a child's language and social development.

While errors in audiology are generally low-risk, they can **have long-term consequences on a child's quality of life and overall development.**

Discussing and addressing errors is key to improving practices, enhancing patient safety, and ensuring the best outcomes for children with hearing loss.

LEARNER OUTCOMES

1. Recognize the type of medical errors encountered in pediatric audiology
2. Identify systemic issues contributing to medical errors and evaluate the ethics related to the management of medical errors
3. Learn effective strategies for fostering a culture of transparency and accountability

MEDICAL ERRORS

Medical errors exist in many different forms and severities

Administrative errors 

- Failure of communication
- Equipment failure
- Record keeping
- Facility issues

Clinical errors 

- Error or delay in diagnosis
- Failure to employ indicated tests
- Use of outdated tests or therapy
- Failure to act on results of testing or provide accurate information

Treatment errors 

- Error in the performance of a procedure
- Error in administering treatment
- Avoidable delay in treatment or in response to abnormal test

Preventative errors 

- Failure to provide prophylactic treatment
- Inadequate monitoring or follow-up

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MEDICAL ERRORS

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MEDICAL ERRORS
within audiology

Low Risk — *RISK* — *High Risk*

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MEDICAL ERRORS
within audiology

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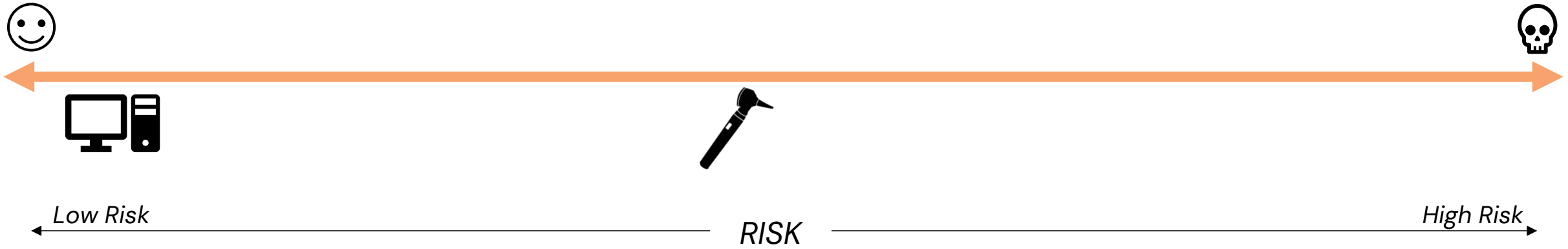
MEDICAL ERRORS
within audiology



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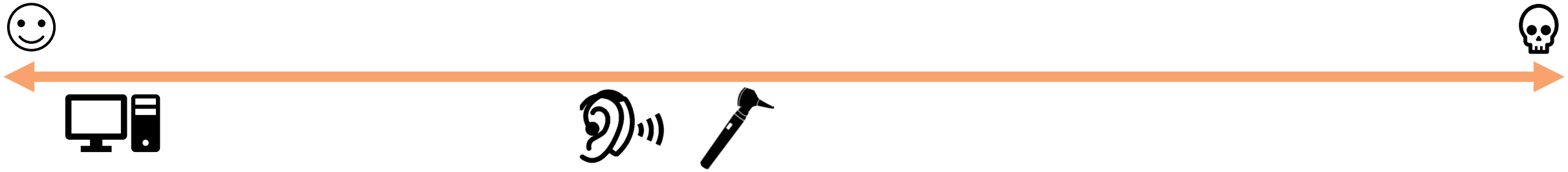
MEDICAL ERRORS
within audiology



Low Risk — *RISK* — *High Risk*

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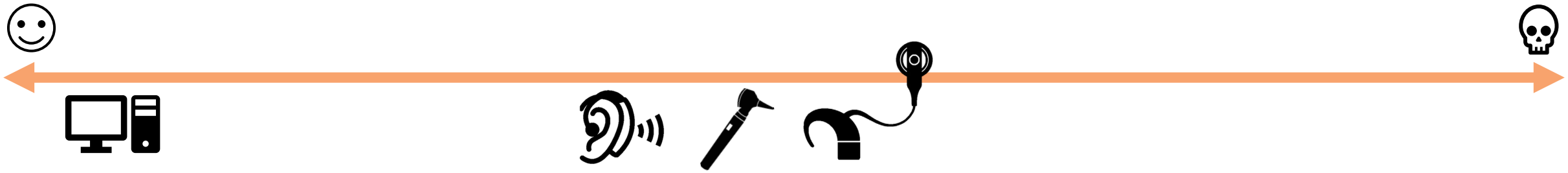
MEDICAL ERRORS
within audiology



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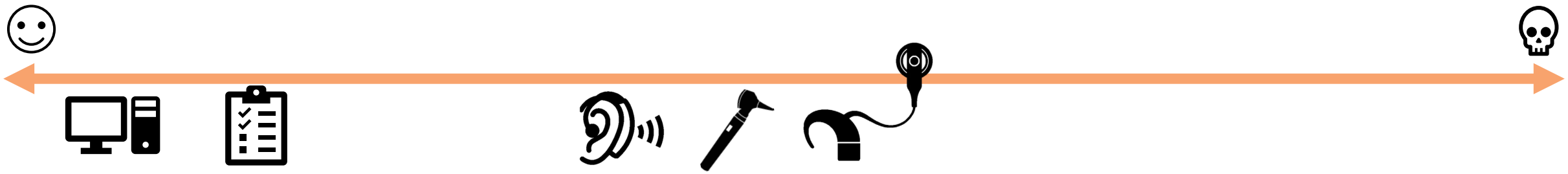
MEDICAL ERRORS
within audiology



Low Risk — *RISK* — *High Risk*

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MEDICAL ERRORS

within all medicine

Low Risk — *RISK* — *High Risk*

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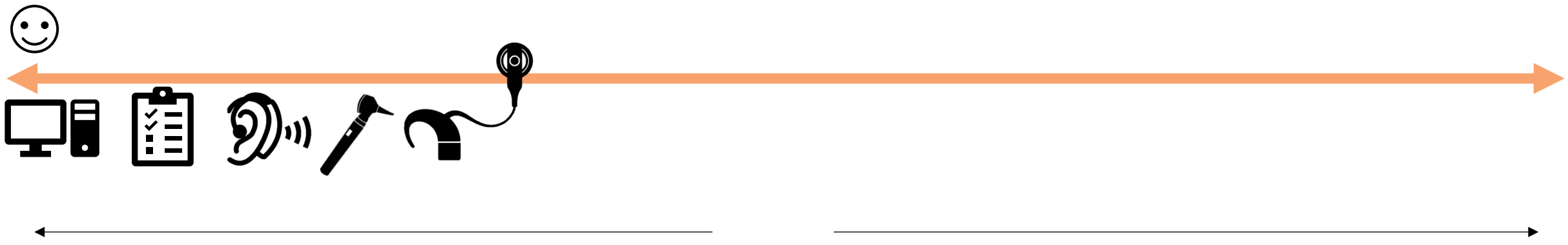
MEDICAL ERRORS



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MEDICAL ERRORS

Low Impact

LIFE IMPACTING

High Impact

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MEDICAL ERRORS

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MEDICAL ERRORS

Low Impact — *LIFE IMPACTING* — *High Impact*

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MEDICAL ERRORS

Low Impact — *LIFE IMPACTING* — *High Impact*

THE REALITY?

MEDICAL ERRORS IN PEDIATRIC AUDIOLOGY CAN PREVENT CHILDREN WITH HEARING LOSS FROM REACHING THEIR FULL POTENTIAL

COMMON MEDICAL ERRORS

IN PEDIATRIC AUDIOLOGY

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COMMON MEDICAL ERRORS

IN PEDIATRIC AUDIOLOGY

MISDIAGNOSIS

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COMMON MEDICAL ERRORS

IN PEDIATRIC AUDIOLOGY

DELAYED TREATMENT

MISDIAGNOSIS

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COMMON MEDICAL ERRORS

IN PEDIATRIC AUDIOLOGY

DELAYED TREATMENT

MISDIAGNOSIS

INAPPROPRIATE TEST BATTERY
&/OR TEST CONDITIONS

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INADEQUATE FOLLOW-UP

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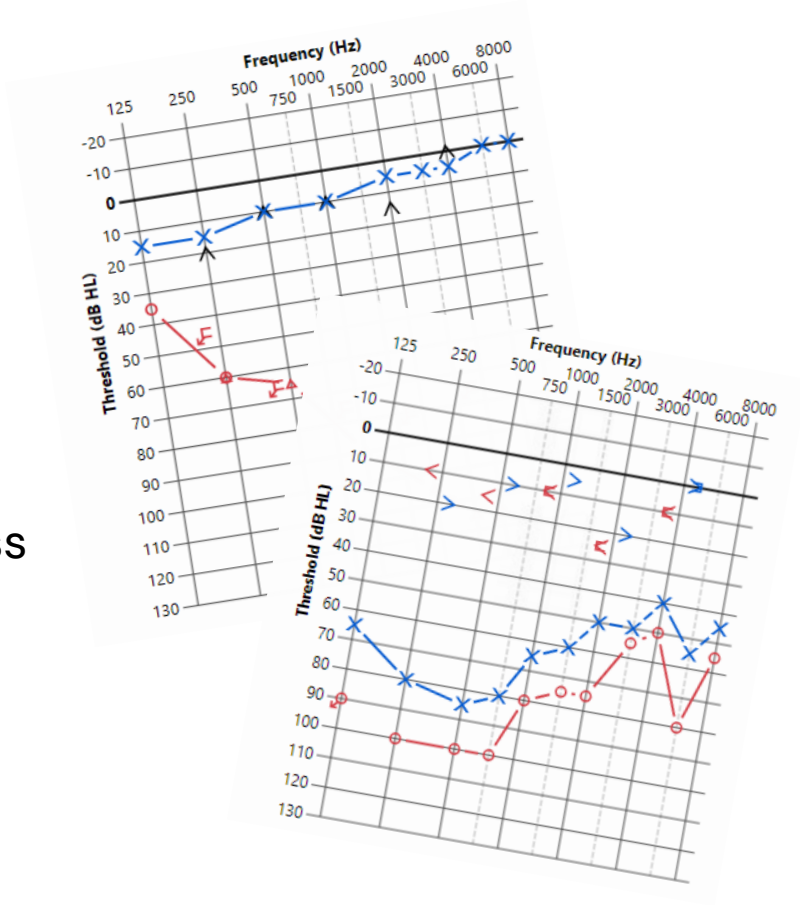
COMMON MEDICAL ERRORS

MISDIAGNOSIS

How do children get misdiagnosed?

Behavioral Audiogram

- Inadequately identifying a malingerer or nonorganic hearing loss
- Incomplete test battery
  - No word recognition
  - No bone conduction
- Incorrect assessment
  - Ineffective or no masking
- Lack of comprehensive battery
  - No ear-specific information
  - No objective information to support behavioral findings
    - DPOAEs
    - Acoustic Reflexes
- Lack of support in the booth leading to inaccuracies



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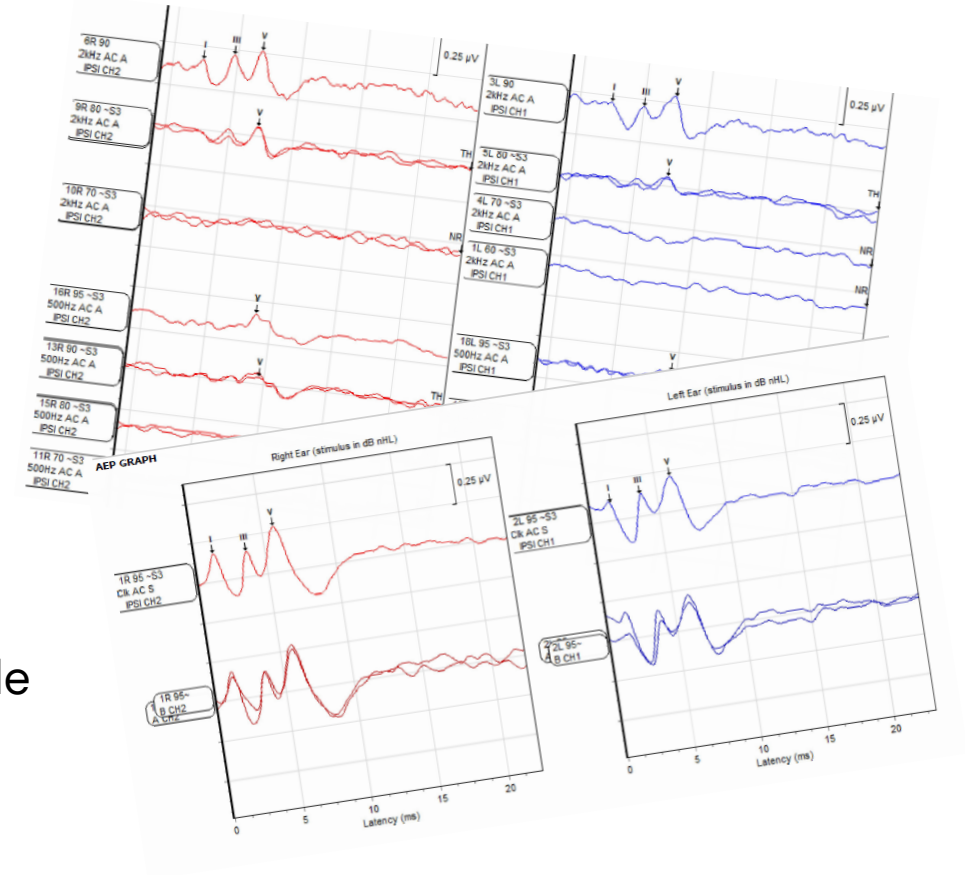
COMMON MEDICAL ERRORS

MISDIAGNOSIS

Auditory Brainstem Response (ABR)

- Inappropriate test set-up
  - Electrodes, patient set-up
  - Noise reduction strategies
  - ABR parameters and protocol
- Inadequate identification of waveforms
  - Misunderstanding intensity vs. latency vs. amplitude
  - No collection of repeatable responses
  - No suprathreshold collection
- Lack of a minimum discharge protocol
  - Only utilizing a click threshold
  - No additional testing, no bone conduction
    - Tympanograms
    - DPOAEs
- No differential diagnosis to rule out ANSD
  - Changing polarities
  - Checking for artifact, noise, and a 0 dB run



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COMMON MEDICAL ERRORS

MISDIAGNOSIS

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- DELAYED TREATMENT
- INADEQUATE FOLLOW-UP

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COMMON MEDICAL ERRORS

ACCURATE DIAGNOSIS

- DELAYED TREATMENT
- INADEQUATE FOLLOW-UP

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RESPONSE TO MEDICAL ERRORS

Now what?

Not every error in pediatric audiology warrants a high level of oversight, correction, or management
Identification of the errors is the most important step that leads to a corrective action plan

Responses to medical errors should be categorized by:

- Severity
- Risk
- Frequency*

*While the goal is to mitigate errors and prevent the *same* error from occurring over and over, certain quality initiatives can identify patterned errors that would require serious intervention

Regardless of whether these errors have the potential of causing patient harm, they require **awareness, correction, & preventative measures.**

MEDICAL ERROR IDENTIFIED 🚨

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Assess Severity of Error

MEDICAL ERROR IDENTIFIED 🚨

Assess Severity of Error

MINOR ERROR

MODERATE ERROR

SEVERE ERROR

MEDICAL ERROR IDENTIFIED 🚨

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MEDICAL ERROR IDENTIFIED 🚨

Assess Severity of Error

MINOR ERROR

LOW RISK, NO HARM

Examples:

- Documentation mistake
- Incorrect device order
- Forgetting to record tymp
- Forgetting to run feedback
- Delayed or missed non-urgent follow-ups

MODERATE ERROR

SEVERE ERROR

MEDICAL ERROR IDENTIFIED 🚨

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MODERATE ERROR

POTENTIAL HARM

Examples:

- Incorrectly programmed HA
- Failure to conduct comprehensive testing
- Misinterpretation of findings, affecting treatment

SEVERE ERROR

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SEVERE ERROR

HIGH RISK, SIGNIFICANT HARM

Examples:

- Misdiagnosis, failure to identify significant HL
- Delay treatment of HL
- Physical harm during procedures

MEDICAL ERROR IDENTIFIED 🚨

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MINOR ERROR

LOW RISK, NO HARM

Correct
Document internally
Inform staff
Implement prevention

MODERATE ERROR

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MEDICAL ERROR IDENTIFIED 🚨

Assess Severity of Error

MINOR ERROR

LOW RISK, NO HARM

Correct
Document internally
Inform staff
Implement prevention

MODERATE ERROR

POTENTIAL HARM

Inform patient
Inform supervisor
Document
Correct
Implement prevention –
Corrective Action Plan

SEVERE ERROR

HIGH RISK, SIGNIFICANT HARM

Examples:

- Misdiagnosis, failure to identify significant HL
- Delay treatment of HL
- Physical harm during procedures

MEDICAL ERROR IDENTIFIED 🚨

Assess Severity of Error

MINOR ERROR	MODERATE ERROR	SEVERE ERROR
LOW RISK, NO HARM	POTENTIAL HARM	HIGH RISK, SIGNIFICANT HARM
Correct Document internally Inform staff Implement prevention	Inform patient Inform supervisor Document Correct Implement prevention – Corrective Action Plan	Immediate intervention Full disclosure Risk Management Formal review Report Quality improvement Corrective Action Plan

WHAT MAKES ME QUALIFIED TO TALK ABOUT MEDICAL ERRORS?

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WHAT MAKES ME QUALIFIED TO TALK ABOUT MEDICAL ERRORS?

This scenario is not one to be taken lightly, and my intent is not to sensationalize it, but rather to use it as an opportunity to share a crucial lesson learned. The purpose of this presentation is to highlight the importance of awareness, vigilance, and improvement in healthcare practices, with the aim of preventing similar outcomes in the future.

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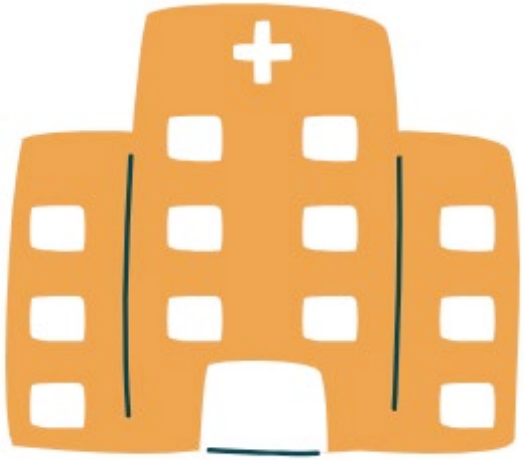

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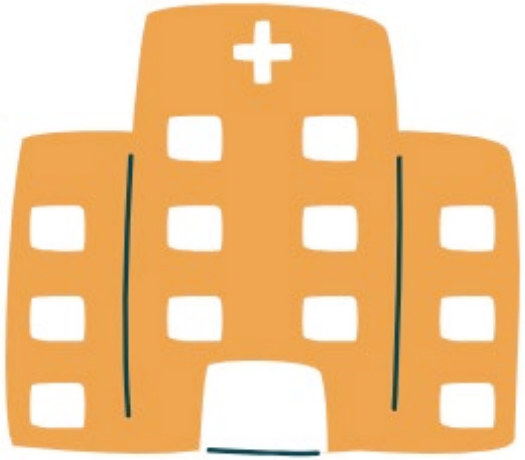

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MAJOR DIFFERENCES:

- Services offered
- Different billing structure
- Different physical locations
- Hospital vs. private clinic model
- Different leadership organization/reporting structure

QUALITY CONTROL REVIEW

QUALITY CONTROL REVIEW

ADMIN FLOW:

- No templated schedules, any appt on any day “free for all”
- Patients leave with no appointment scheduled
- Inconsistencies with billing
- Charting completed on different floor, no computers with EMR on clinic floor

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CLINICAL OPERATIONS & PROTOCOLS:

- No set protocols available for review
- Outdated equipment and booths
- Non-traditional stimuli being used for booth testing (squeaky toys and horns)
- No discharge criteria: patients discharged with soundfield and no ear-specific information
- Inefficient use of EMR, using Word to write notes and sending results through mail
- Lack of consistent documentation via the EMR – using paper audiograms, no clear notes, no documentation of orders placed, telephone calls, etc.
- No scanning of records (no ABR waves, no audiograms, no DPOAEs scanned)

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QUALITY CONTROL REVIEW

INAPPROPRIATE TEST BATTERY & TEST CONDITIONS
↓
MISDIAGNOSIS
↓
DELAYED TREATMENT
↓
INADEQUATE FOLLOW-UP

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Is the call coming from inside the house?

RISK MANAGEMENT

ME, THE AUDIOLOGIST

- CHAIRMAN OF ENT
- DIRECTOR OF OTOLOGY
- CHIEF OF AUDIOLOGY
- ME, THE AUDIOLOGIST 

- CHIEF AMBULATORY OFFICER
- CHIEF OPERATING OFFICER

- DEAN
- CHAIRMAN OF ENT
- DIRECTOR OF OTOLOGY

- CHIEF OF AUDIOLOGY

- ME, THE AUDIOLOGIST 

- CHIEF MEDICAL OFFICER
- CHIEF OF RISK MANAGEMENT
- CHIEF AMBULATORY OFFICER
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- DEAN
- CHAIRMAN OF ENT
- DIRECTOR OF OTOLOGY
- CHIEF OF AUDIOLOGY
- ME, THE AUDIOLOGIST 

CHIEF AMBULATORY OFFICER

CHIEF MEDICAL OFFICER

CHAIRMAN OF ENT

DIRECTOR OF OTOLOGY

CHIEF OF RISK MANAGEMENT

CHIEF OF AUDIOLOGY

ME, THE AUDIOLOGIST 

ACTION PLAN

Reviewed hundreds of patient charts:

- Objective testing to corroborate findings
- Because documents were not scanned, had to search the software and equipment

As a result:

Only able to able to review ABR waveforms as all other testing was influenced by tester bias:

- Audiograms
- DPOAEs being classified as present or absent without emission values
- Tympanograms being labeled with Jerger types without values

ACTION PLAN

Diagnosis	Comprehensive History Obtained	Extensive NICU stay (>5 days)

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ACTION PLAN

Test Conditions appropriate without obvious artifact	Waveforms Repeatable?	Agreement with Wave V Selection	If yes, appropriate latency intensity function?

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ACTION PLAN

DPOAEs	Tymps	Urgency level for re-test	Scheduled for diagnostic ABR/repeat testing?	Reference ABR Case

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ACTION PLAN

D	E	F	G	H	I	J	K	L	M	N	O
Diagnosis	Comprehensive History Obtained	Extensive NICU stay (>5 days)	Test Conditions appropriate without obvious artifact	Waveforms Repeatable?	Agreement with Wave V Selection	If yes, appropriate latency intensity function?	DPOAEs	Tymps	Urgency level for re-test	Scheduled for diagnostic ABR/repeat testing?	Reference ABR Case

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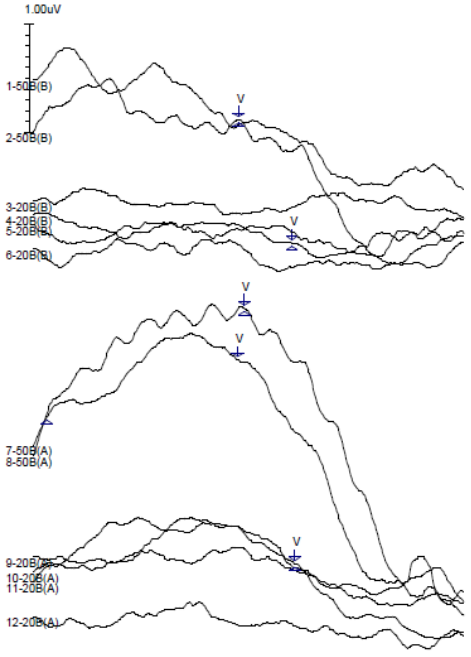
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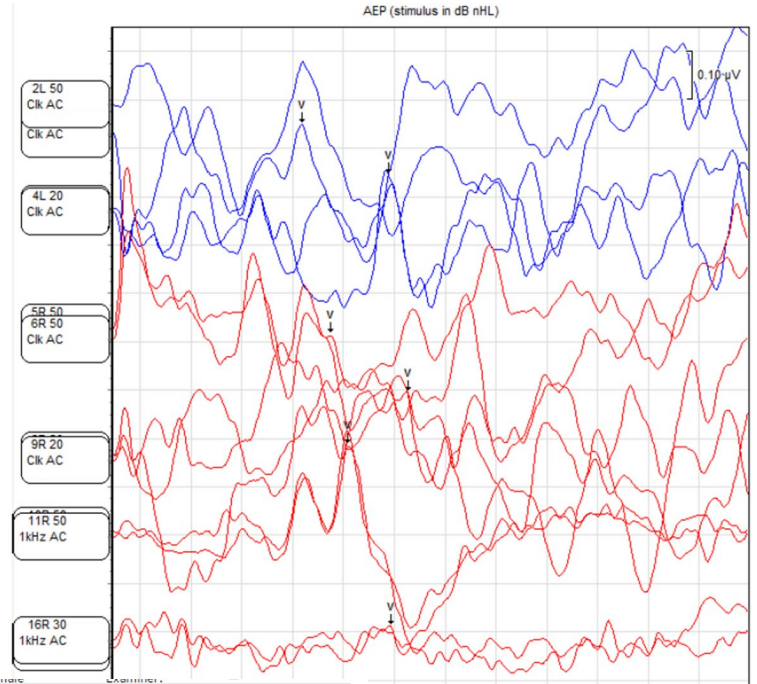
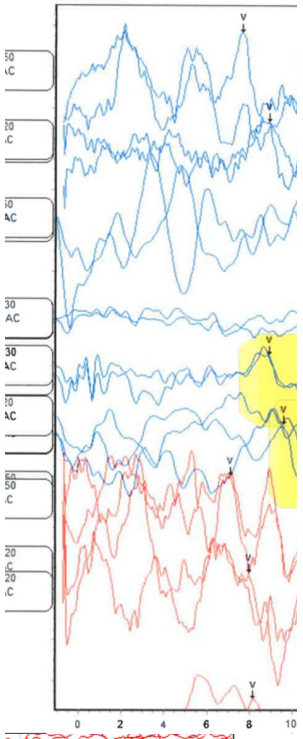
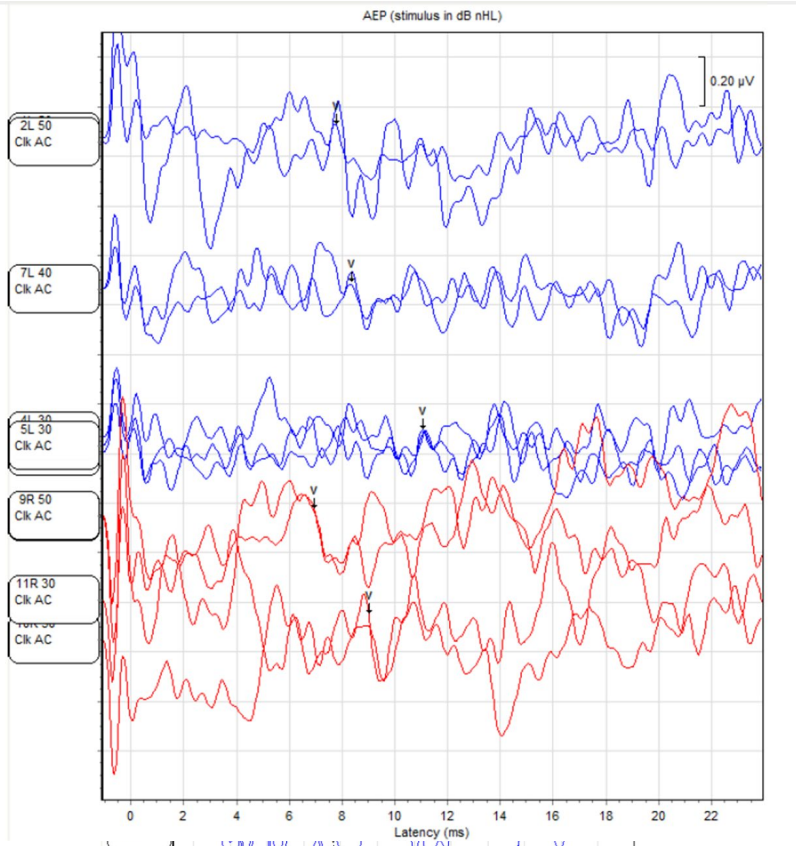
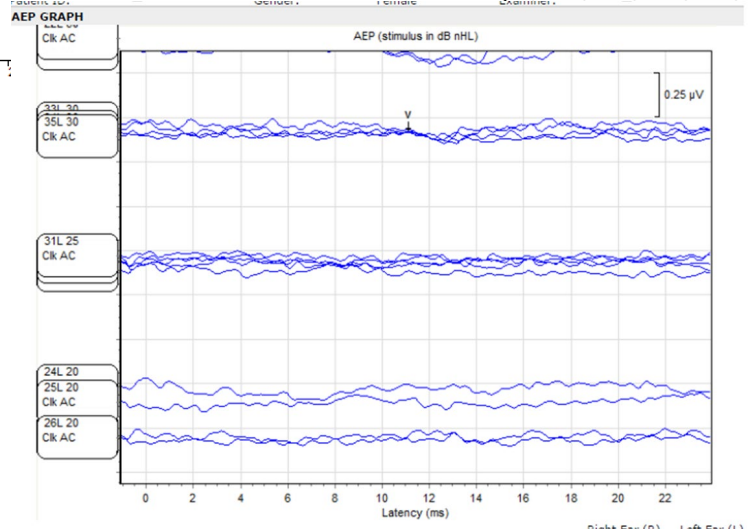
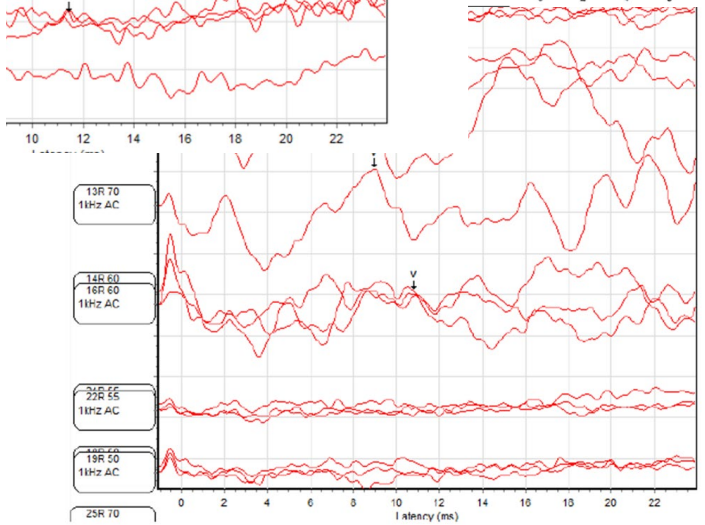
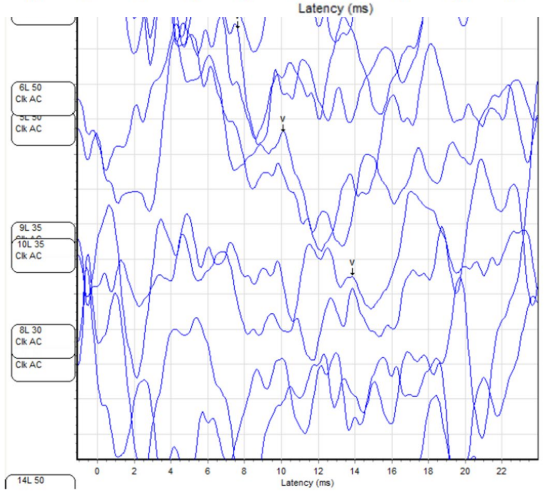

AEP (stimulus in dB nHL)
0.10 µV
2L 50
Clk AC
4L 20
Clk AC
6R 50
Clk AC
9R 20
Clk AC
11R 50
1kHz AC
16R 30
1kHz AC

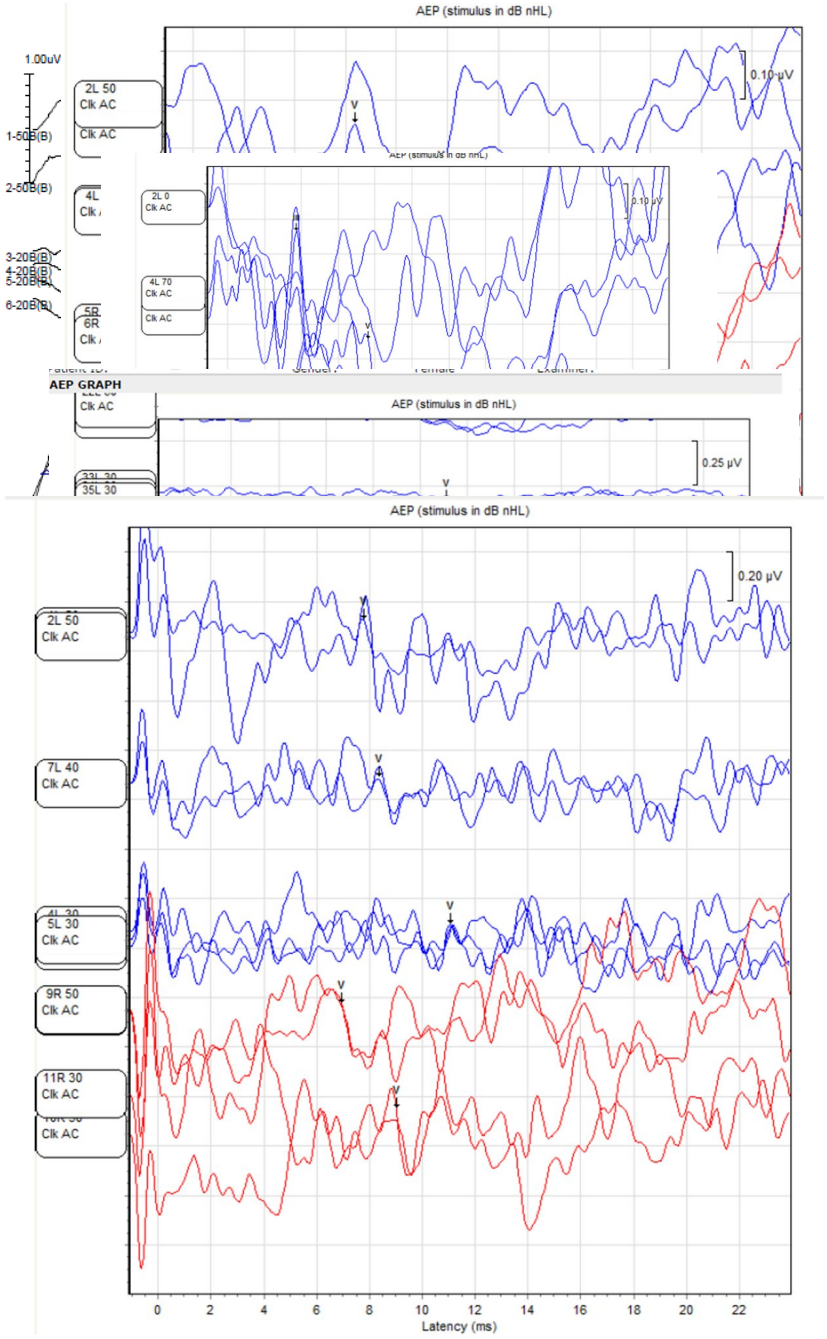

AEP (s
Latency (ms)


AEP (stimulus in dB nHL)
0.20 µV
2L 50
Clk AC
7L 40
Clk AC
5L 30
Clk AC
9R 50
Clk AC
11R 30
Clk AC
Latency (ms)


AEP GRAPH
AEP (stimulus in dB nHL)
0.25 µV
35L 30
Clk AC
31L 25
Clk AC
24L 20
25L 20
Clk AC
26L 20
Clk AC
Latency (ms)

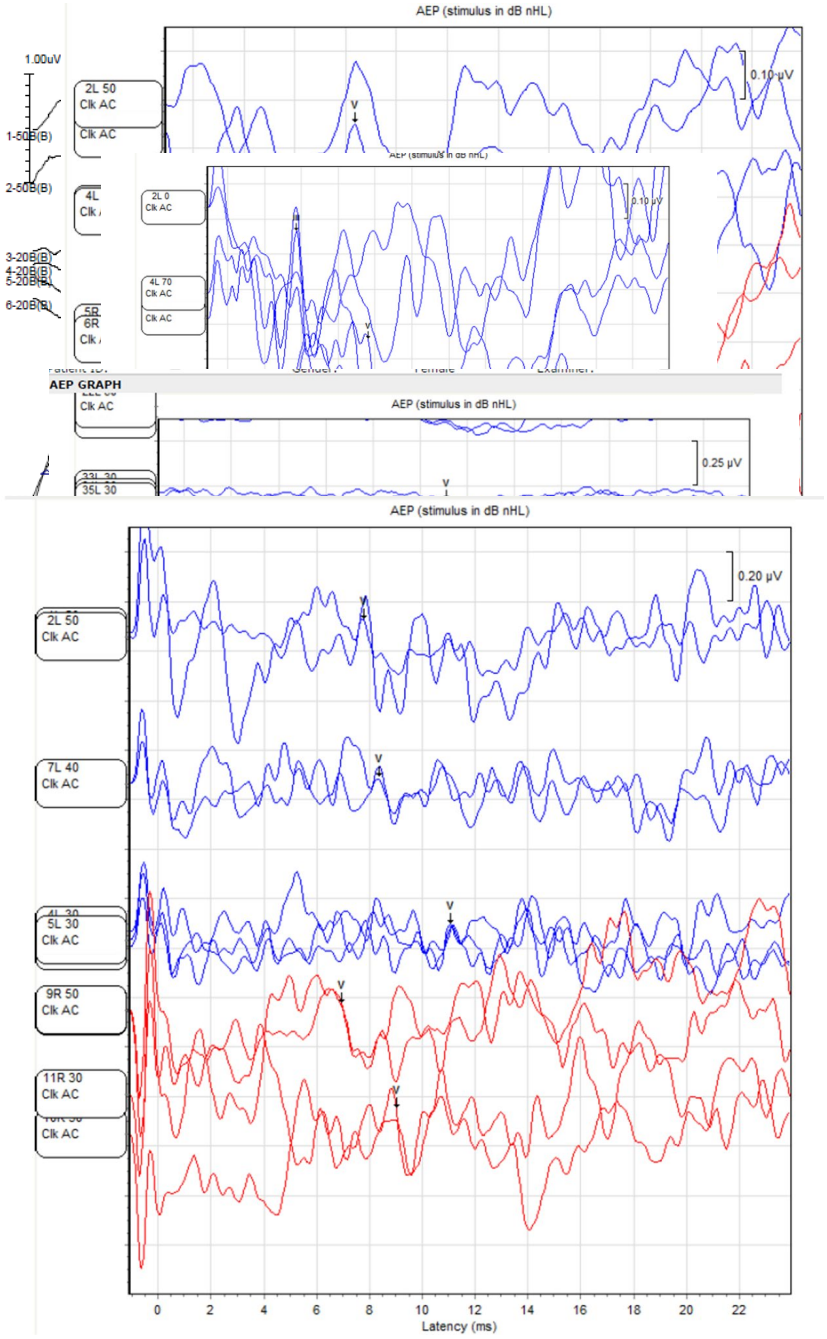

13R 70
1kHz AC
16R 60
1kHz AC
22R 55
1kHz AC
19R 50
1kHz AC
Latency (ms)


6L 50
Clk AC
10L 35
Clk AC
8L 30
Clk AC
Latency (ms)



INSTITUTIONAL RESPONSE

- Suspend all clinical practice at that facility immediately
- Notify all patients, encourage repeat testing at no charge
- Review competencies and skills of those team members
- Notify all MD partners
    - ENTs willing to overbook to manage ME pathology
    - Order testing under anesthesia if warranted



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Over 60% of children re-tested had some level of permanent hearing loss

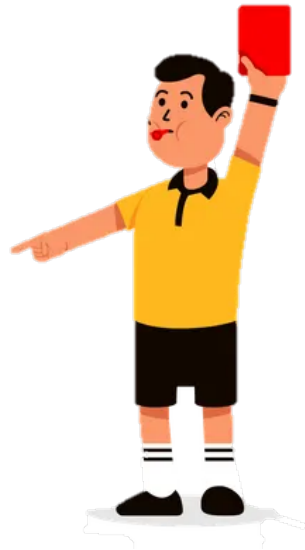
WHISTLEBLOWING

An individual who reports or exposes unethical practices, medical errors, or violations of safety standards within a healthcare organization.

- In the context of pediatric audiology, a whistleblower is someone who identifies and brings attention to mistakes or systemic issues that negatively affect patient care, safety, and outcomes – particularly surrounding pediatric hearing health.

Ethical Responsibility:
Whistleblowers are ethically driven to speak out when patient safety or well-being is at risk. This is often grounded in the principle of **DO NO HARM**, ensuring children receive the best care.

WHISTLEBLOWING



What are the challenges?

- Speaking out about medical errors can be difficult
  - May involve challenging the actions of colleagues, supervisors, or the organizations

Whistleblowers may face:

- Fear of retaliation
- Moral distress
- Legal concerns

Generally speaking, the fear of not being believed

However, whistleblowers are essential to raising awareness related to systemic concerns

CASE 1

CONTRIBUTION TO MEDICAL ERRORS

9 month old referred from an outside ENT surgeon for audiological services related to CI

History is significant for:

- Profound SNHL with no response via ABR at limits of equipment
- Absent DPOAEs
- No reaction or response or progress with hearing aids
- Otherwise unremarkable birth and medical history

Outside ENT reports normal imaging (present auditory nerves) and to proceed with CI counseling

We counsel on realistic expectations:

- Outcomes should be fairly positive, given her anatomy and her age
- Family is resistant at first but then feels like bilateral simultaneous CI is the best way forward given all of the compelling evidence we provided

CASE 1

CONTRIBUTION TO MEDICAL ERRORS

Undergoes bilateral CI

Activation resulted in no obvious reaction or response to sounds 🚩

- Perceived to be related adaptation needs
    - Provided progressive maps to increase levels and to return for follow-up within 1 month

1 month follow-up: Parents report no response or auditory progress
Attempt comprehensive neural testing using the advanced software which yielded **no response** 🚩

Immediate referral back to ENT to confirm placement

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Incidentally: While the CT scan confirmed CI placement, we also gained access to the original MRI report which revealed **bilateral cochlear nerve aplasia**

Key points? While the error did not occur with audiology, we unknowingly contributed to this error by counseling the family incorrectly

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CASE 2

ASSUMING PATIENT ABILITIES – COULD NOT TEST VS. DID NOT TEST

4 year old referred for hearing evaluation

Complex medical history:

- Cerebral palsy
- Born at 24 weeks gestation, NICU stay of 200 days
- Passed NBHS, passed subsequent follow-up

Passed screenings at the pediatrician; **child has been consistently cleared by audiology as behavioral testing is "impossible" and he has present and robust DPOAEs**

CASE 2

ASSUMING PATIENT ABILITIES – COULD NOT TEST VS. DID NOT TEST

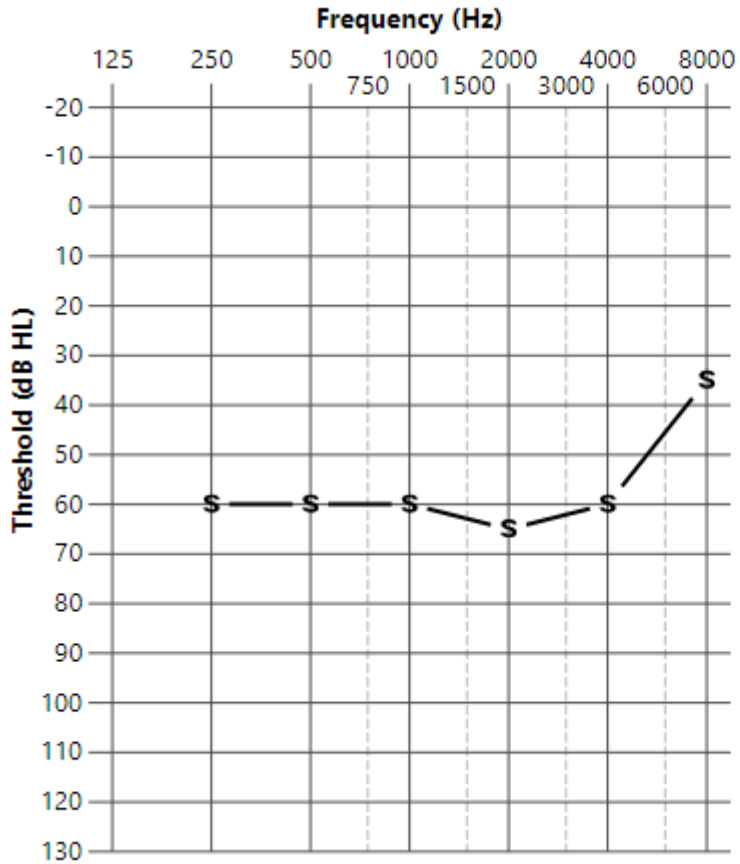
Otoscopy and tympanograms: WNL
DPOAEs: Present and robust bilaterally

Patient sways his head repeatedly so mom needs to hold his head very still for DPOAEs and tymps then we proceeded with behavioral testing

Behavioral testing?

CASE 2

ASSUMING PATIENT ABILITIES – COULD NOT TEST VS. DID NOT TEST



	R	L	U
Sound Field			S

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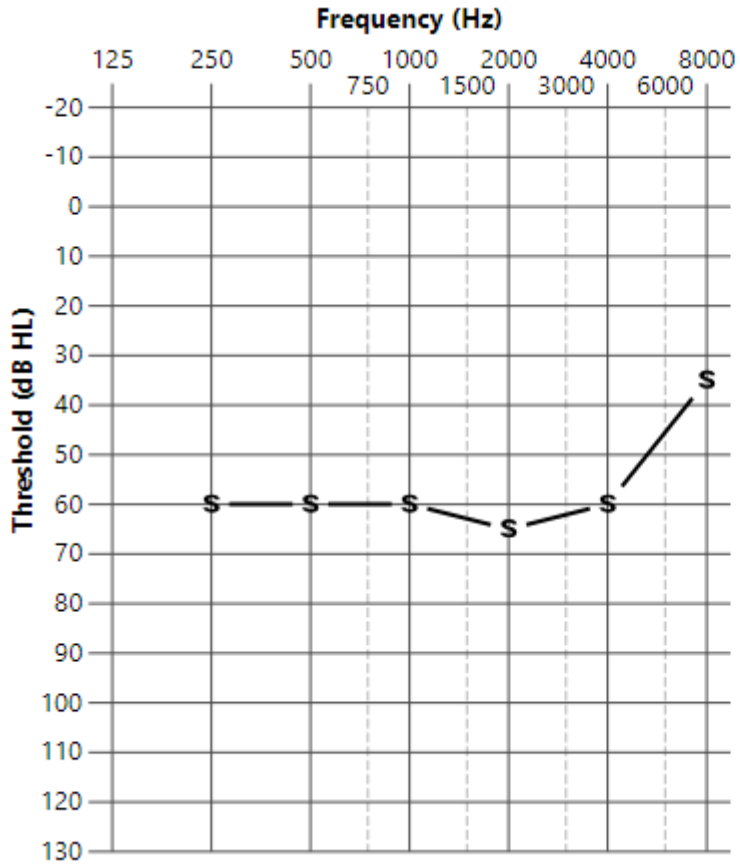
CASE 2

ASSUMING PATIENT ABILITIES – COULD NOT TEST VS. DID NOT TEST



These are not the results that we would expect from a child with present DPOAEs

I, too, gave in to the thought that given his global delays, behavioral responses are going to obviously be limited and these are "minimum response levels"

I was *about* to counsel mom that these results may be secondary to all of his other medical complexities and that his **hearing is likely better than this**

Acoustic reflex? **My first thought? There is NO way**
After 15 minutes…. No response ipsi broadband

	R	L	U
Sound Field			S

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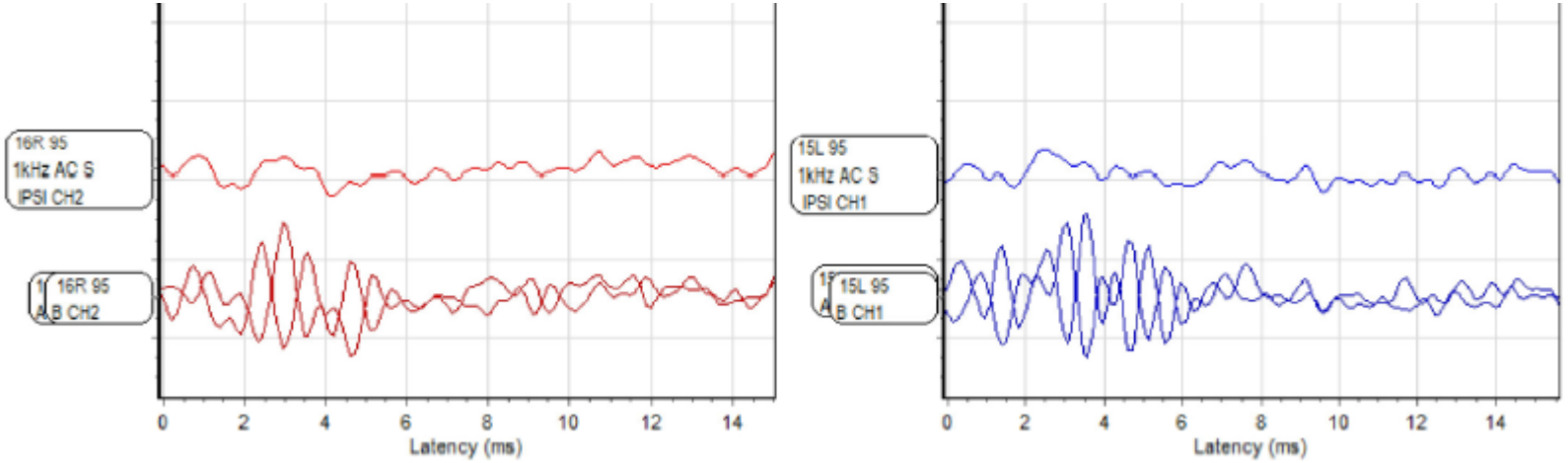
CASE 2

ASSUMING PATIENT ABILITIES – COULD NOT TEST VS. DID NOT TEST



Key points? It's easy to say "CNT" for children based on assumptions

- **Trust the risk factors**
- **Make the referral and inform the families on why further testing is needed and not make assumptions**

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HOW COULD THIS HAPPEN?

Is this really so rare?

Updated: Thousands of deaf babies misdiagnosed due to errors

News | Medical Negligence

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Updated
25th February 2025

Senior paediatrician will lead review of "unacceptable" hearing test failures

BMJ 2025 ; 389 doi: https://doi.org/10.1136/bmj.r776 (Published 16 April 2025)
Cite this as: *BMJ* 2025;389:r776

Report highlights systemic failings in "Cinderella" children's hearing service

BMJ 2025 ; 391 doi: https://doi.org/10.1136/bmj.r2378 (Published 11 November 2025)
Cite this as: *BMJ* 2025;391:r2378

ROOT CAUSE ANALYSIS

UNDERSTANDING THE WHY AND HOW – CONTRIBUTING TO MEDICAL ERRORS

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ROOT CAUSE ANALYSIS

UNDERSTANDING THE WHY AND HOW - CONTRIBUTING TO MEDICAL ERRORS

LACK OF STANDARDIZED PROTOCOLS & OVERSIGHT

- Inconsistent or absent evidence-based clinical guidelines and protocols can cause variability in how hearing tests are performed, interpreted, and followed up on.
- **Impact:** Without standardized protocols, clinical decisions can become inconsistent, leading to errors in diagnosis and management that affect patient outcomes.

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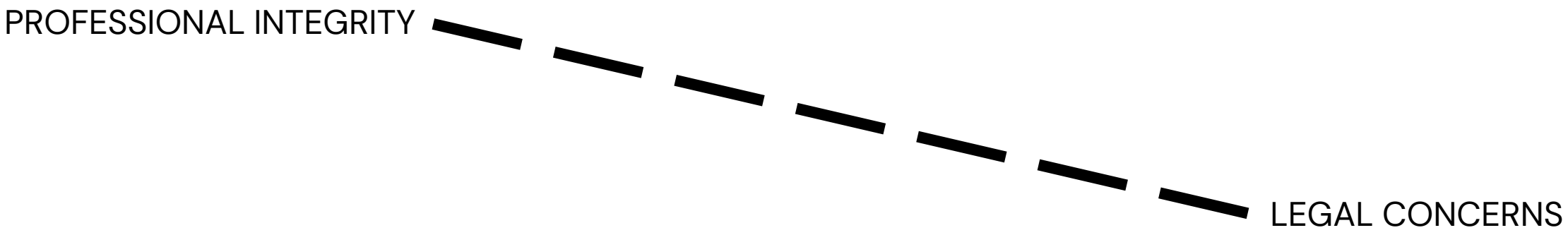
WORKFLOW & CLINICAL PRACTICE INEFFICIENCES

- Refers to processes that are not optimized, leading to mistakes or delays. This can include bottlenecks in patient intake, inadequate time for diagnostic testing, and the lack of streamlined follow-up procedures.
- **Impact:** Increase the chance of errors, lead to delays in critical hearing assessments, and often affect the overall quality of patient care.

ETHICAL CONSIDERATIONS

What is our ethical responsibility?
Healthcare providers have an obligation to disclose in a clear and honest manner



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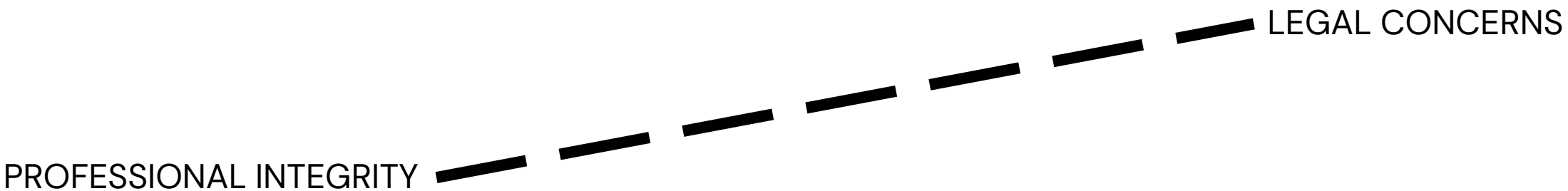

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PROFESSIONAL INTEGRITY — — — — — — — LEGAL CONCERNS

Disclosing significant errors is critical for maintaining trust, addressing harm, and ensuring corrective measures are put in place.
It helps maintain the ethical integrity of the healthcare provider & the clinical practice.

LESSONS LEARNED

EARLY & ACCURATE DIAGNOSIS IS CRITICAL

Delays or misdiagnoses in pediatric hearing healthcare can have **lifelong consequences** on the global development of a child

STANDARDIZED PROTOCOLS IMPROVE PATIENT SAFETY

Implementing and following clear, evidenced-based protocols for screening, diagnosis, and treatment can prevent errors

EFFECTIVE COMMUNICATION IS ESSENTIAL

Clear, consistent communication among audiologists, pediatricians, ENT, speech therapists, and families ensures timely intervention and reduces errors.

LESSONS LEARNED

ONGOING EDUCATION AND TRAINING ARE ESSENTIAL

Continuous learning ensures audiologists stay updated on best practices, technology, and protocols to minimize errors.

ACCURATE DOCUMENTATION PREVENTS MISCOMMUNICATION

Clear, thorough patient records help ensure proper follow-up, reduce diagnostic mistakes, and improve coordination among providers.

A CULTURE OF TRANSPRENCY LEADS TO SAFER CARE

Encouraging open discussion about errors—without fear of blame—helps identify systemic issues and improves patient safety.

LESSONS LEARNED

THE COURAGE TO SPEAK UP CAN HAVE THE GREATEST IMPACT

Whistleblowing is essential for patient safety. Creating a supportive environment where healthcare professionals feel safe reporting errors leads to system-wide improvements and prevents future harm.

FAMILIES NEED SUPPORT, NOT JUST ANSWERS

When medical errors occur, families experience grief, frustration, and uncertainty. Open communication, emotional support, and clear corrective actions help rebuild trust and provide a path forward.

CORRECTING ERRORS CAN BE JUST AS EMOTIONALLY HEAVY FOR THE TEAM

Providers correcting mistakes they didn't make often bear the weight of restoring trust and repairing harm. They need institutional support, clear protocols, and a collaborative approach to ensure the best patient outcomes.

CONCLUSION

- Medical errors are very real in pediatric audiology, and they can have long-term consequences for patients and their families.
- Children are one of the most vulnerable populations we serve, it's important to be their voice since they often cannot speak for themselves.

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I am incredible grateful to work with a team that is dedicated to
DOING THE RIGHT THING,
even if that is the most difficult thing you can do.

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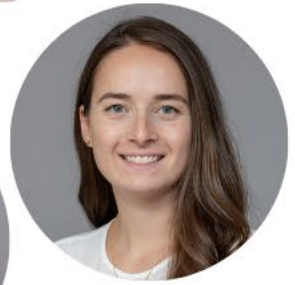
Children's Hearing Program

OUR TEAM



AUDIOLOGY

PSYCHOLOGY

SOCIAL WORK

FAMILY NAVIGATOR

DEAF EDUCATION

AUDITORY VERBAL THERAPY

THANK U

CMSANCHEZ@MED.MIAMI.EDU

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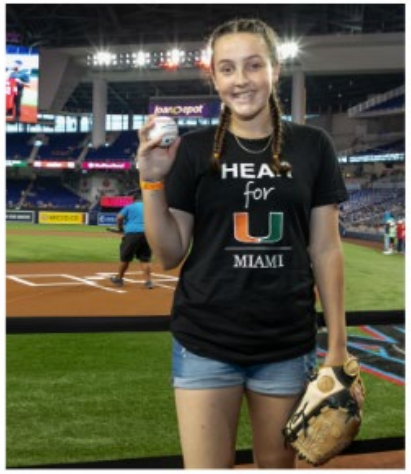

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