




# Unilateral hearing loss in children: Characteristics, clinical management, and outcomes



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CAA, Halifax, Canada, October 30, 2019



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- **MUHL Team:** A. Durieux-Smith, I. Gaboury, D., D. Coyle, J. Olds, M. Pigeon, D. Neuss

- **CHEO Audiology Team**



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CIHR IRSC  
Canadian Institutes of Health Research  
Instituts de recherche en santé du Canada

Ontario Ministry of Industry  
and Innovation  
Early Researcher Award

CAA 2019

In the olden days...



[https://sv.wikipedia.org/wiki/Fil:Research\\_design\\_and\\_evidence\\_-\\_Capho.svg](https://sv.wikipedia.org/wiki/Fil:Research_design_and_evidence_-_Capho.svg)

# Effects of unilateral hearing loss

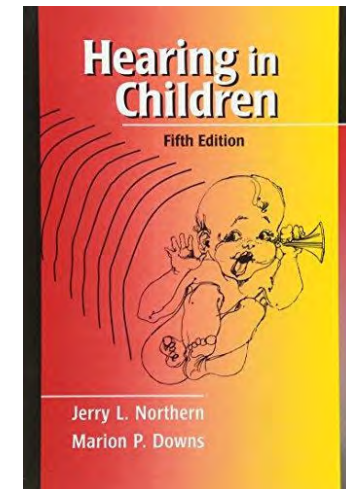
## In the olden days...



- In the early 1980s, audiologists learned there were no effects:

*“...audiologists and otolaryngologists are not usually concerned over such deafness, other than to identify its etiology and assure the parents that there will be no handicap.”*

*(Northern & Downs, 1978 textbook)*





# Topics



- Characteristics of mild/unilateral hearing loss
- Clinical practices
- Consequences
  - outcomes
  - parents' experiences/preferences



# Unilateral hearing loss is not part of target disorder everywhere



**informa**  
healthcare

International Journal of Audiology 2015; 54: 353–358


*International  
Journal of  
Audiology*

Original Article

**Performance and characteristics of the Newborn Hearing Screening Programme in England: The first seven years**

Sally A Wood\*, Graham J Sutton† & Adrian C Davis\*

\*NHS Newborn Hearing Screening Programme, Public Health England, London, UK, †Formerly of NHS Newborn Hearing Screening Programme, Public Health England, London, UK

A world map is located on the right side of the article preview, showing various countries highlighted in different colors, likely representing different screening programs or regions.

*“While many North American screening programmes include babies with permanent mild and **unilateral** hearing loss in their target group, NHSP does not: it aims to identify all children with a moderate-profound PCHL in the better hearing ear.*

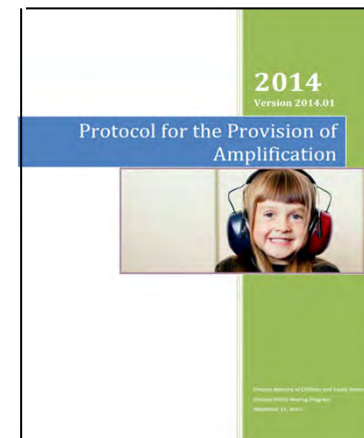
***As a by-product**, the screen will also identify a number of babies who have unilateral and in some cases mild permanent hearing loss, as well as temporary hearing loss.”*



# Ontario Infant Hearing Program target disorder



*"It is appropriate to include in the IHP target definition children with unilateral PCHI because: (i) they are at risk for bilateral PCHI, (ii) they are at risk for increased disability should the normal ear acquire a conductive disorder, even if transient, and (iii) specific strategies are indicated to enhance hearing and/or communication development in such children. "*



# Prevalence of UHL



- About 1 in 1000 newborns (Lieu, 2010)
- .6 to .7 in 1000 newborns (CDC, 2014)
- Prevalence increases with age to about 2.5 per 100 in adolescents (Shargorodsky et al, 2010)



# New challenges from newborn hearing screening



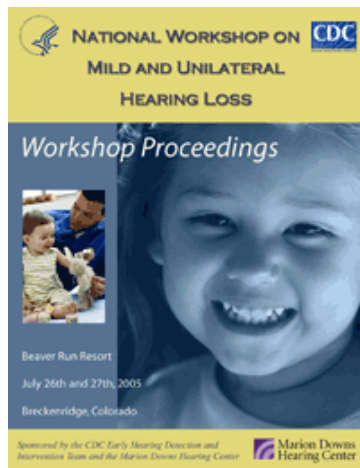
## Consequences of childhood mild bilateral and unilateral hearing loss loss (MUHL)



E. Fitzpatrick, A. Durieux-Smith, I. Gaboury, D. Coyle

# Defintion of **unilateral** / mild bilateral hearing loss

- **Unilateral** refers to a pure-tone air average  $\geq 20$  dB or thresholds  $> 25$  dB at two or more frequencies in one ear only
- **Mild** refers to an average pure-tone air conduction threshold between **20 and 40 dB HL** or thresholds  $> 25$  dB HL at two or more frequencies above 2000 Hz



National Workshop on  
Mild and Unilateral Hearing Loss (2005)

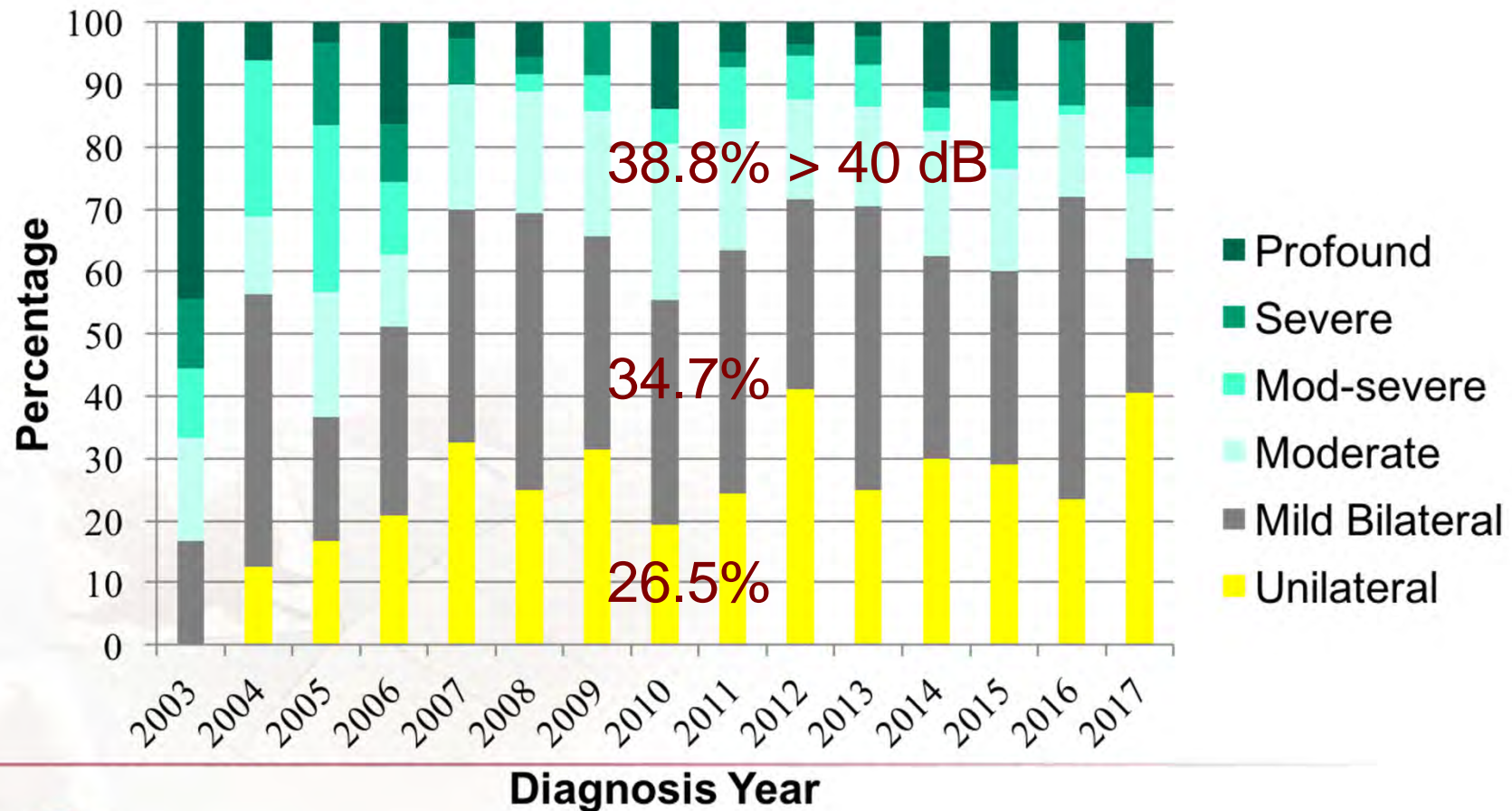
## Ottawa / Ontario context



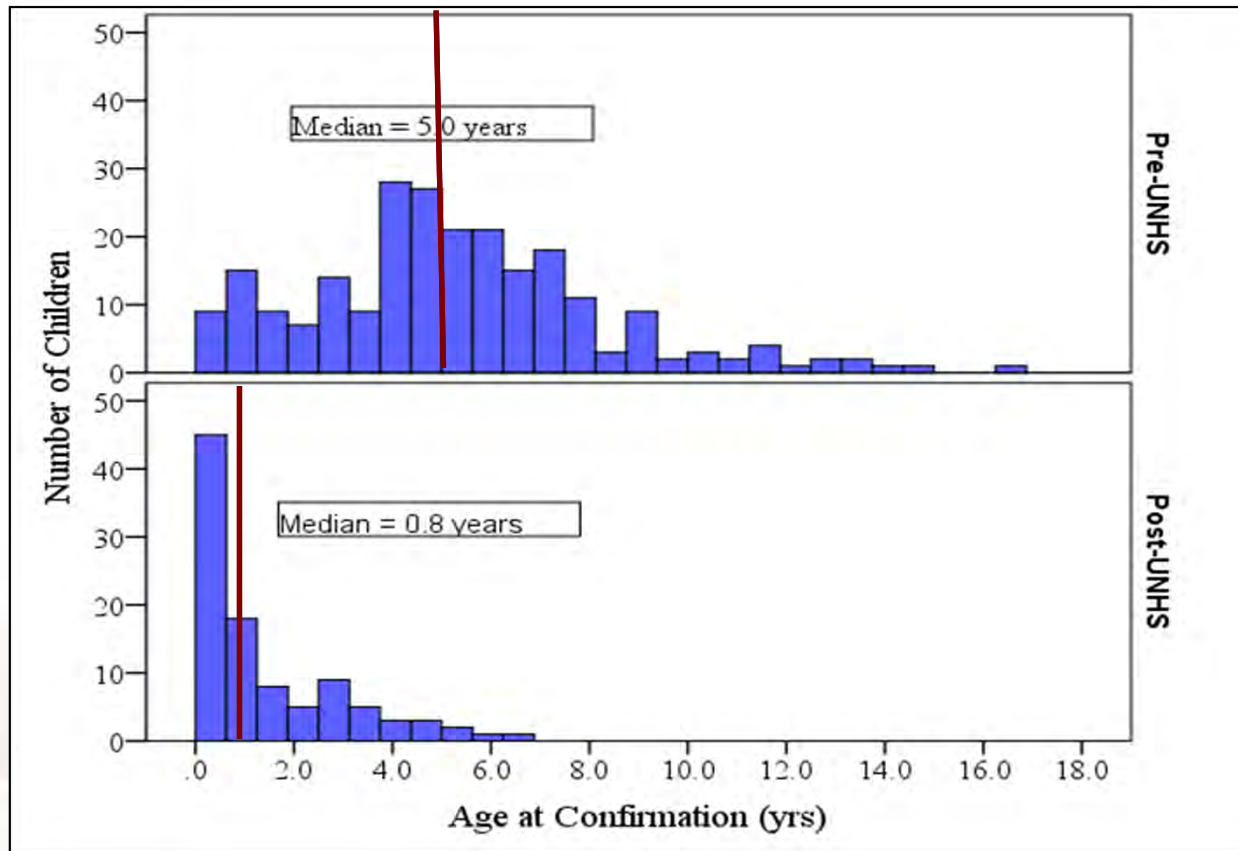
- Screening/Early Hearing Detection and Intervention 2003
- Ontario protocol – 2 stage screen - hospital / community
- ~14,000 babies annually
- > 95% coverage
- Diagnostic audiology/follow-up
  - CHEO-(publicly funded pediatric hospital)



# Severity of hearing loss for children diagnosed at CHEO (n=635) 2003-2017

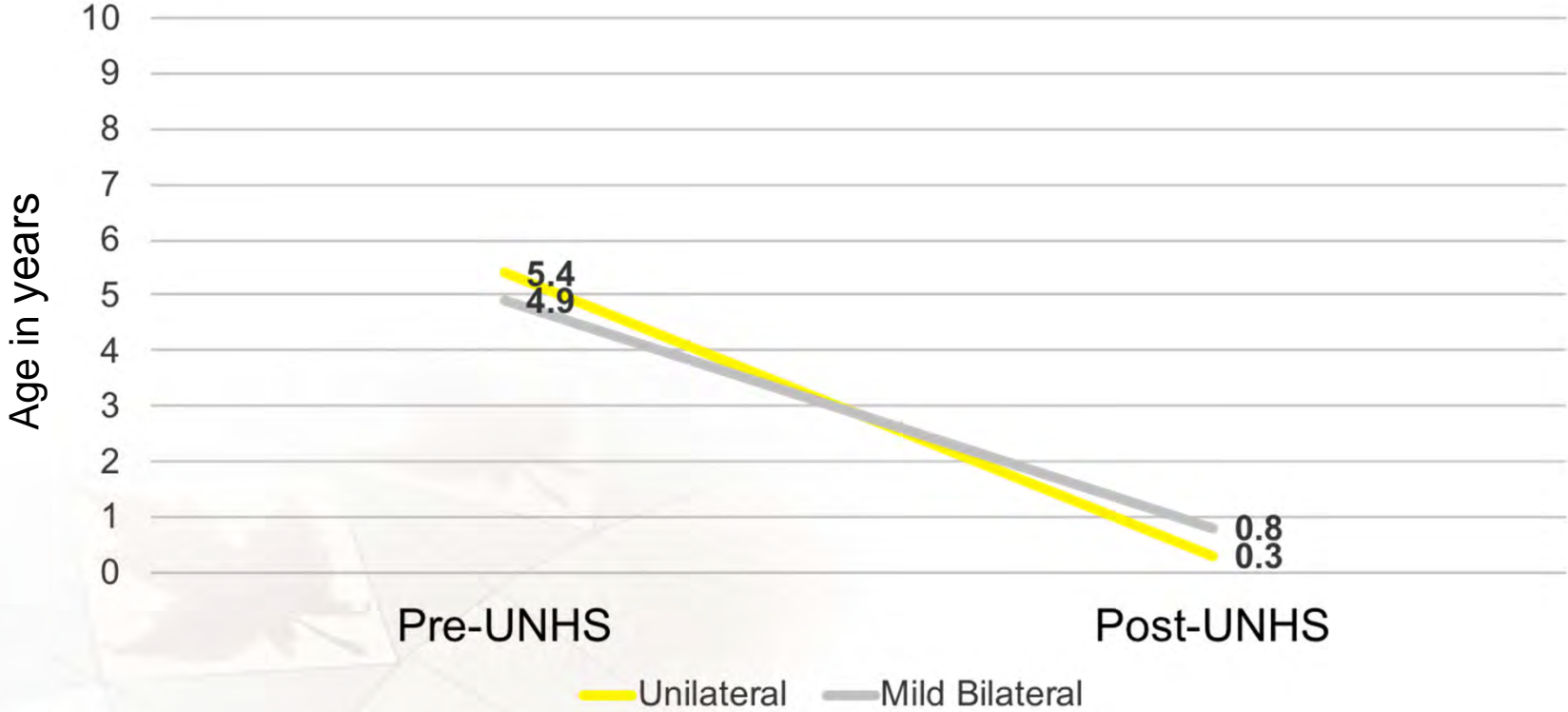


# Age of confirmation pre and post-UNHS (n=337)



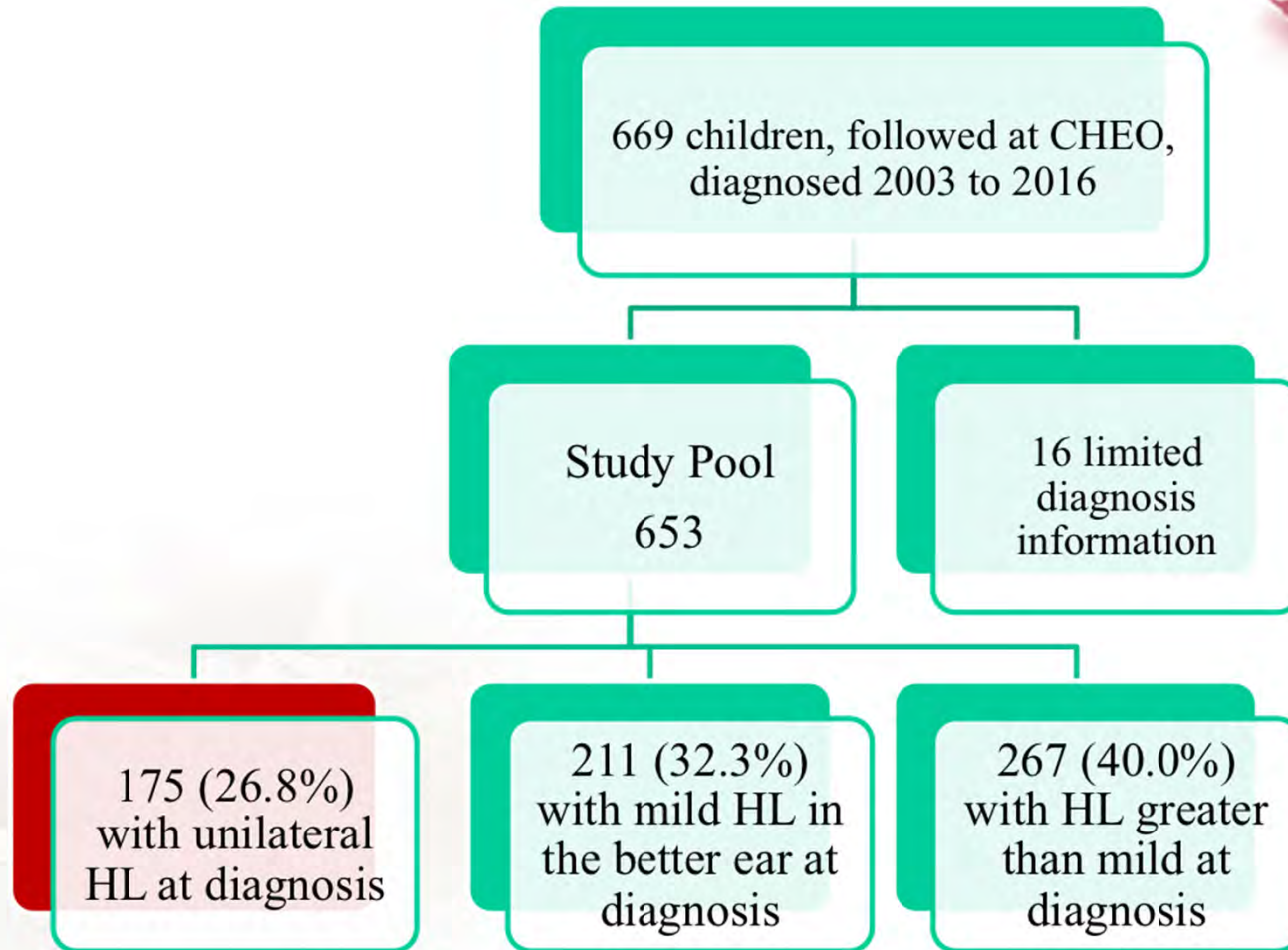
*Fitzpatrick et al. 2014. Mild bilateral and unilateral hearing loss in childhood: A 20-year view of hearing characteristics, and audiological practices before and after newborn hearing screening. Ear and Hearing, 35, 10-18.*

# Age at diagnosis pre vs post-UNHS

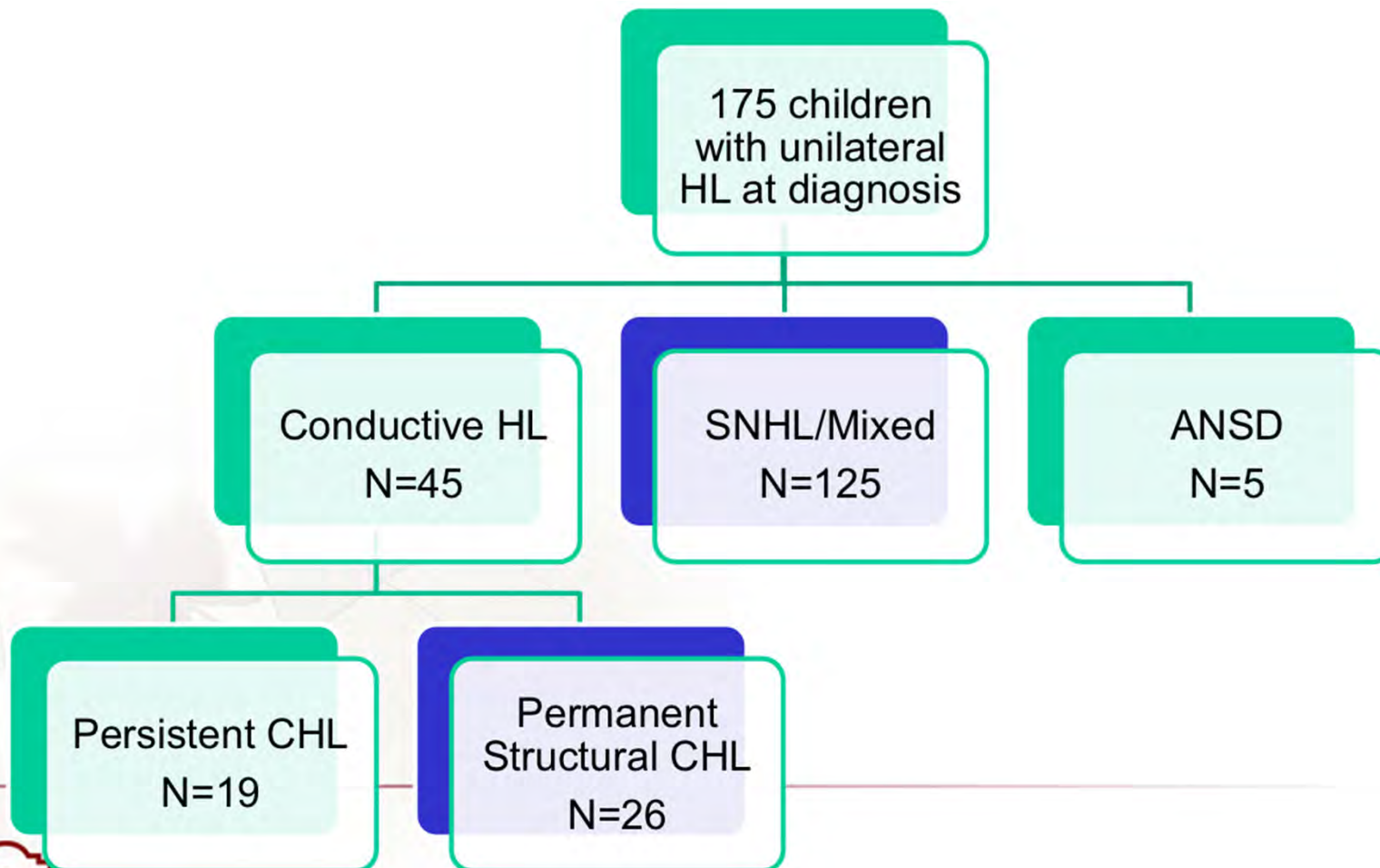




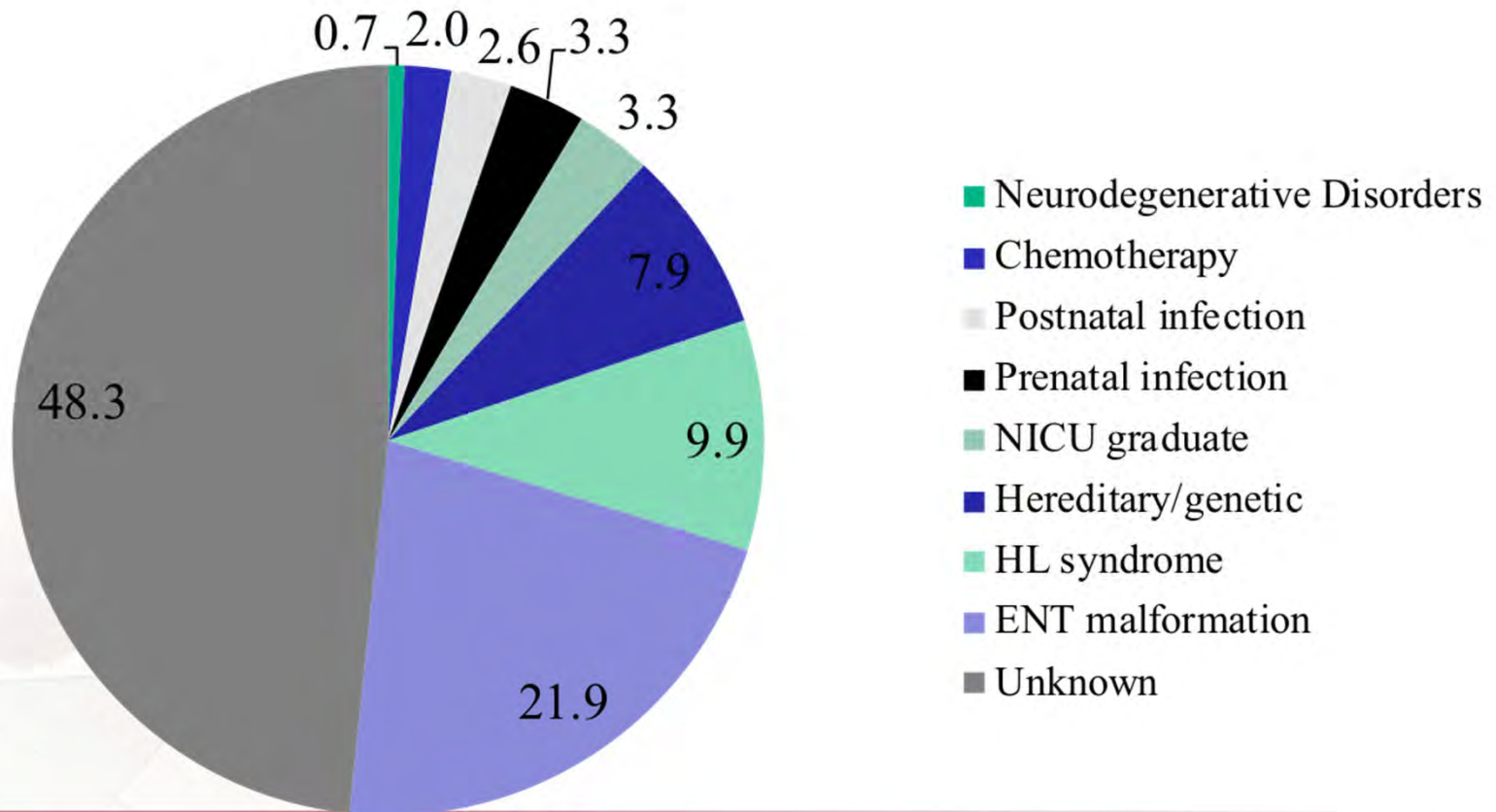
# Study Selection



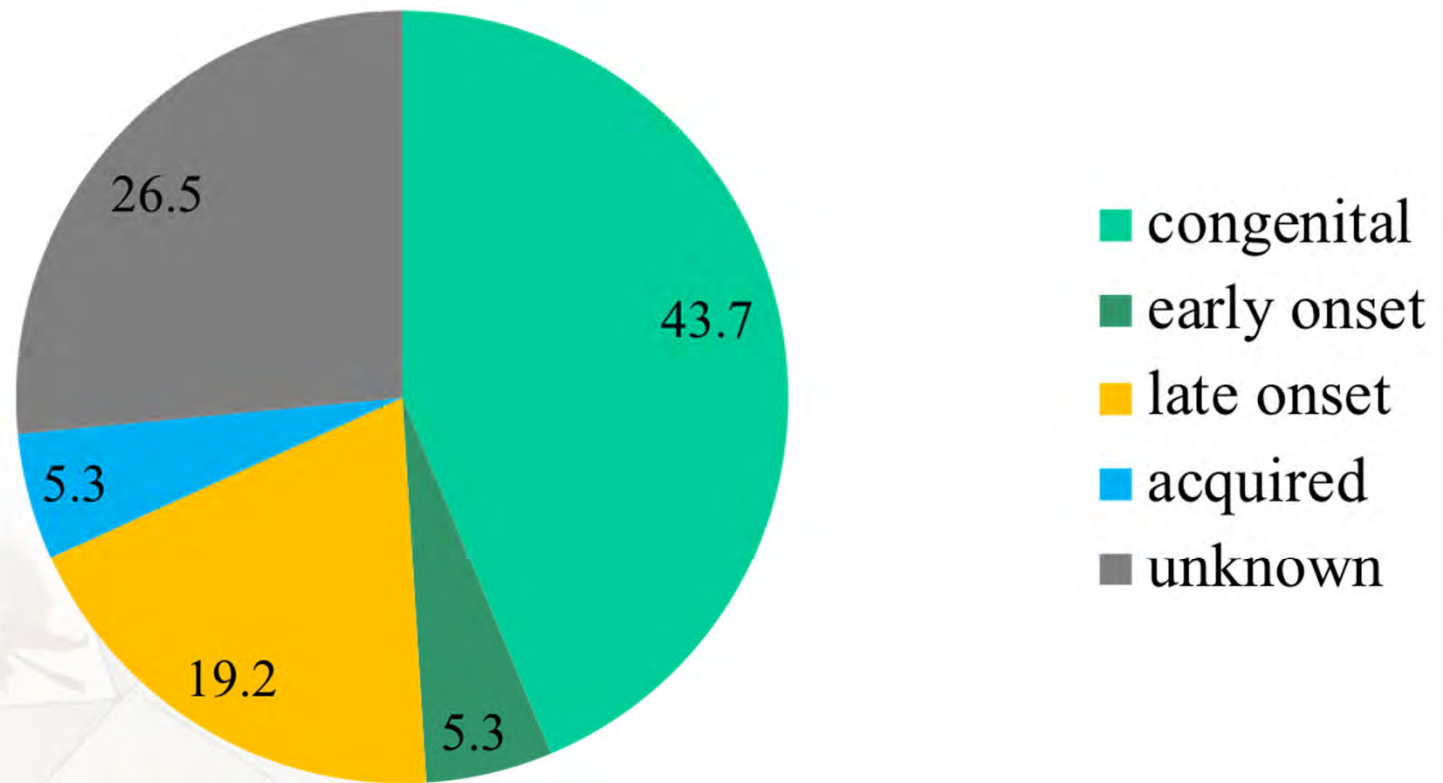
# Children with UHL at diagnosis



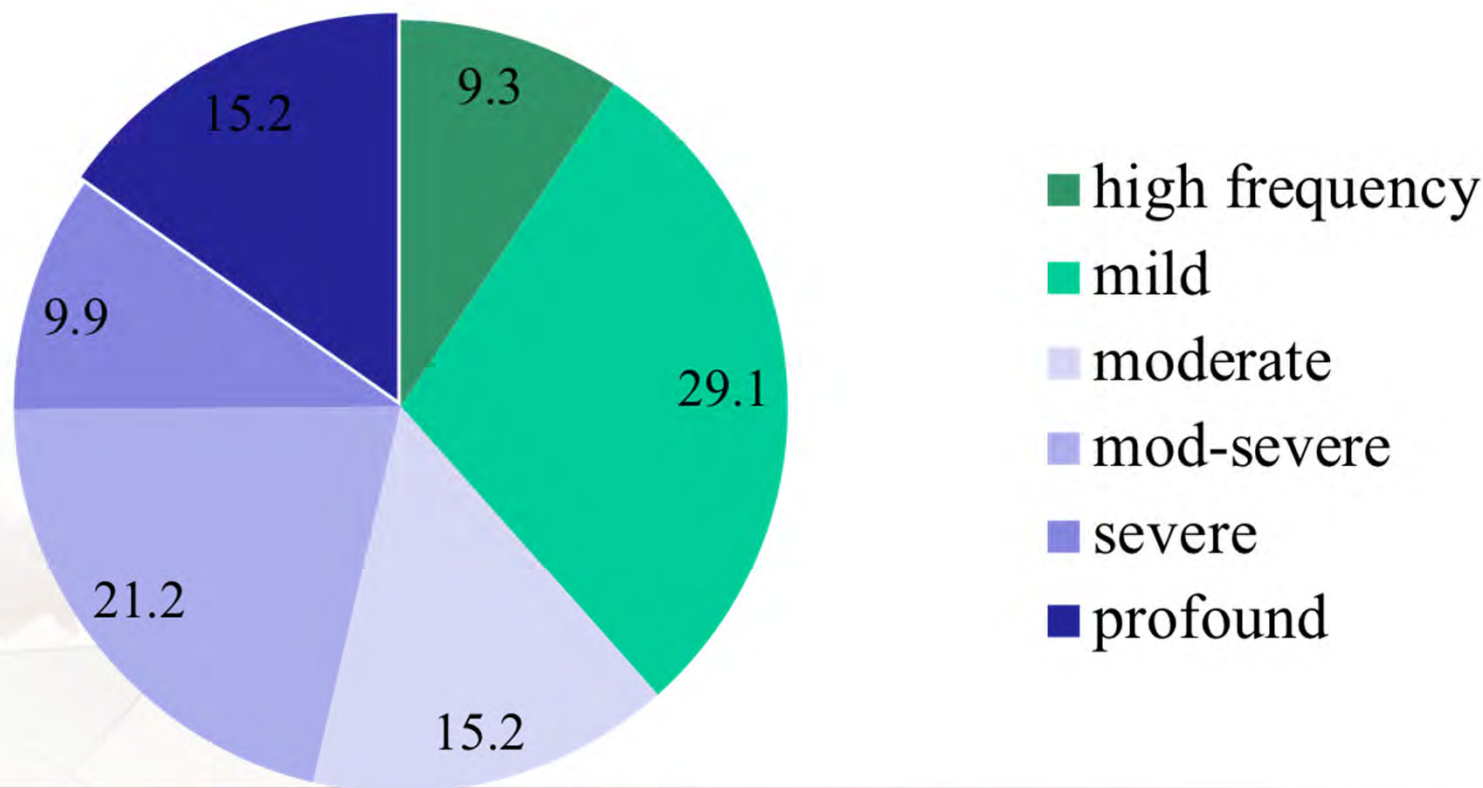
# Children with Unilateral HL (n=151) Etiology of HL



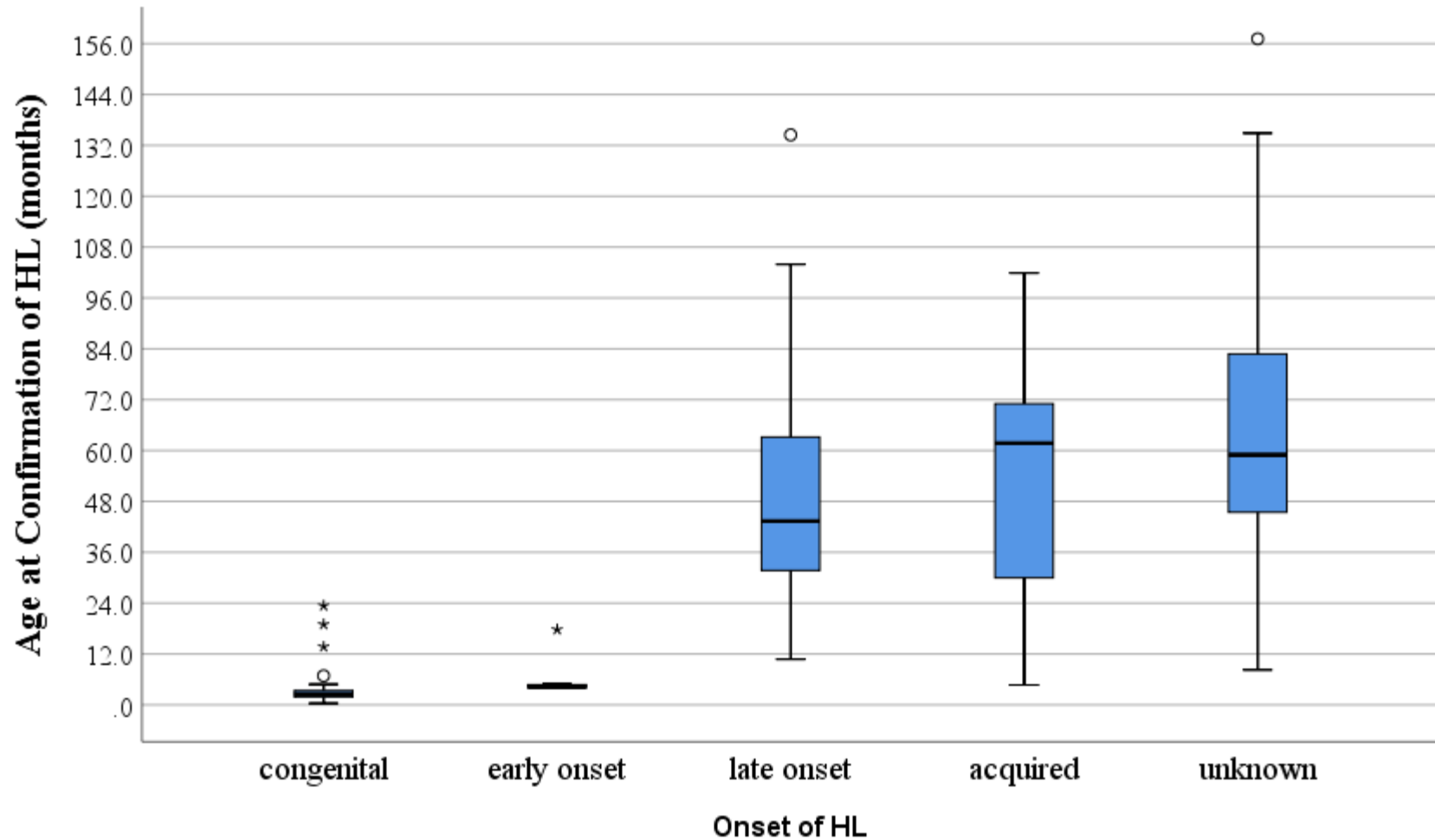
# Children with Unilateral HL (n=151) Onset of HL



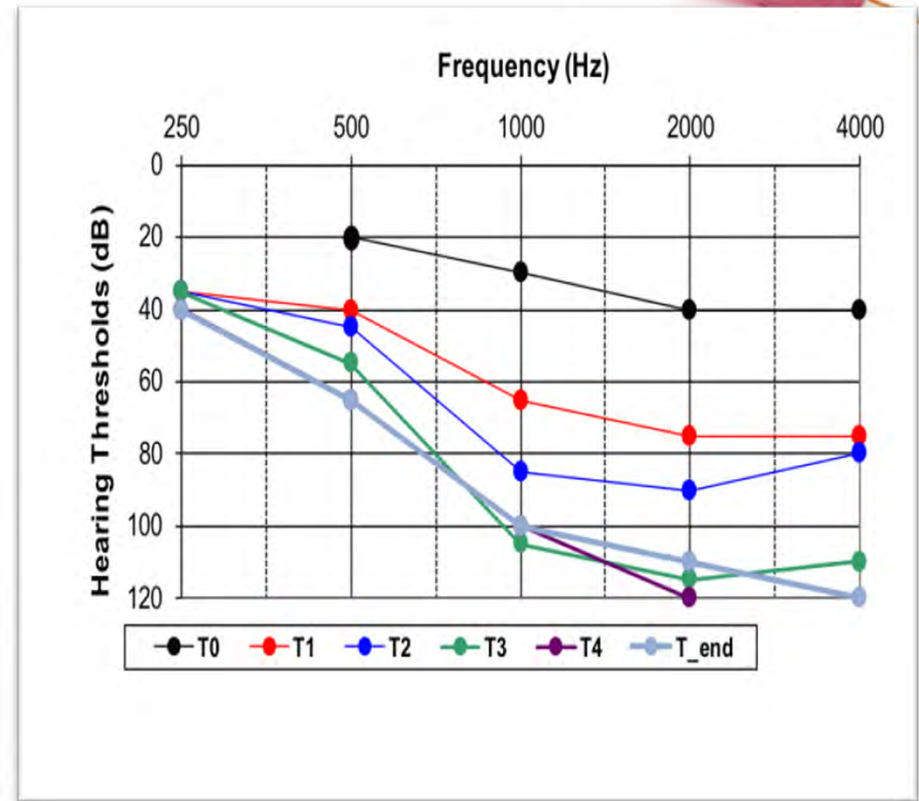
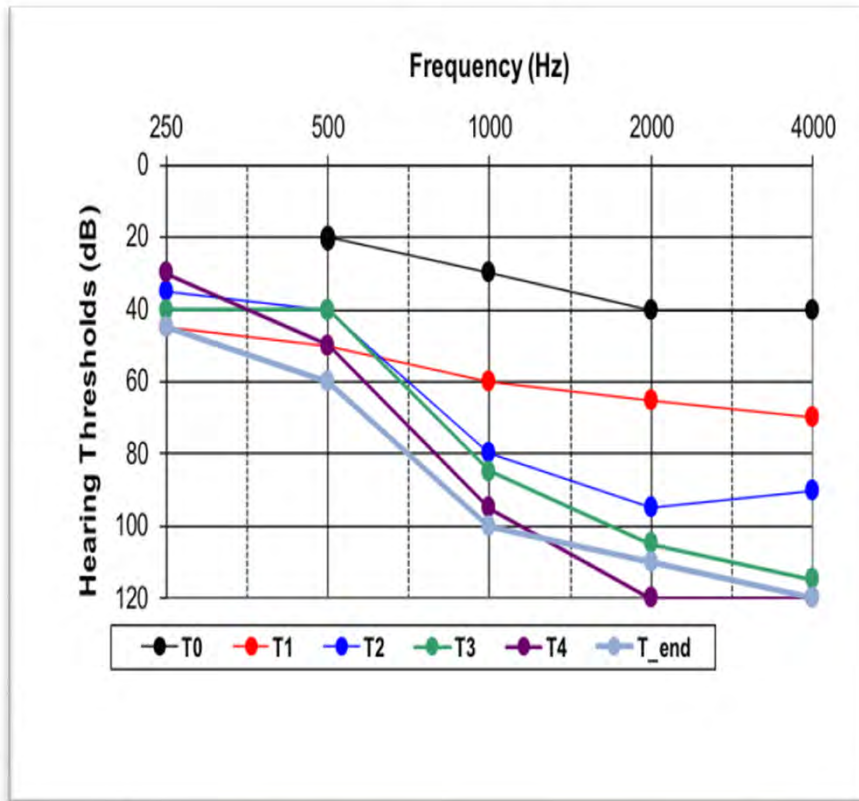
# Children with Unilateral HL (n=151) Degree impaired ear at confirmation



# Children with Unilateral HL (N=147) Age at Diagnosis by Onset



# Progressive hearing loss –traditional definition

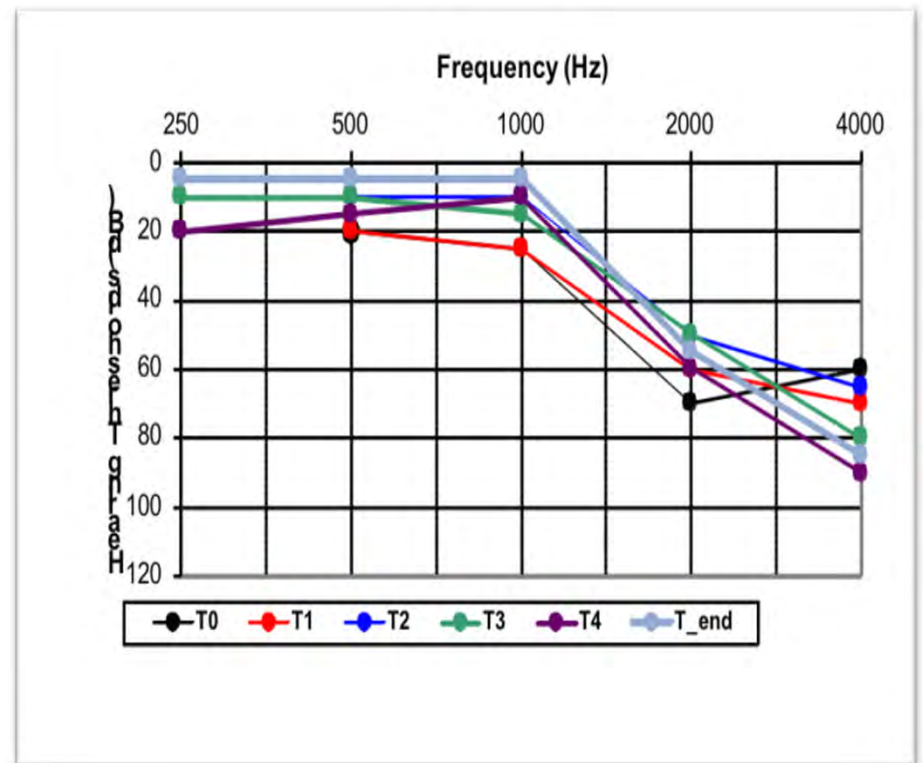
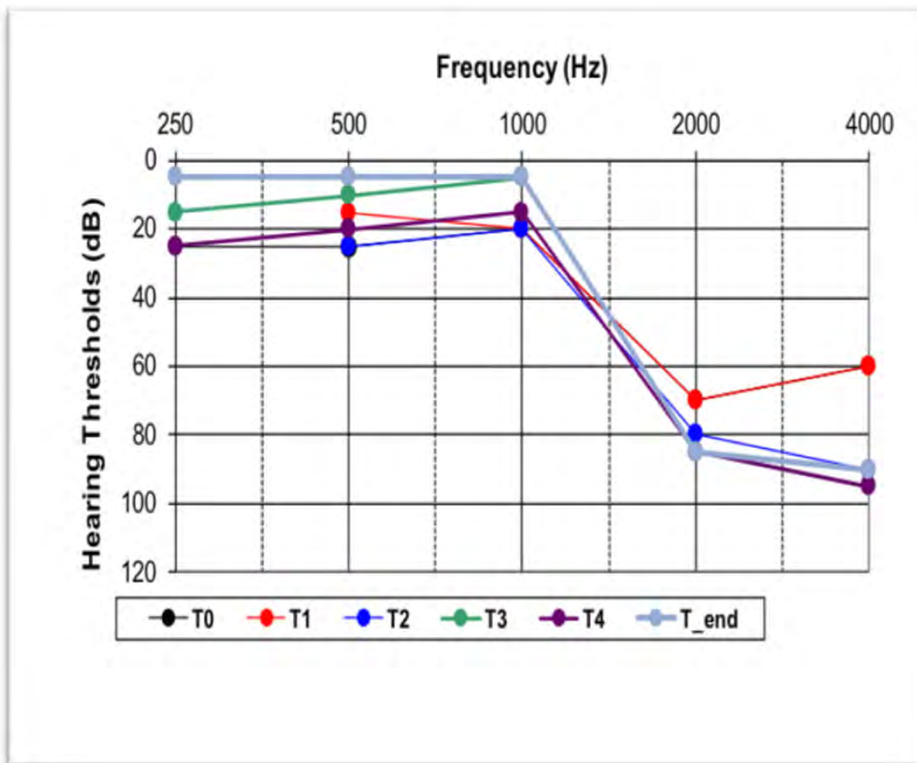


Right Ear PTA Change in 3 frequency  
PTA = 60 dB, Mild to Severe - 36 months

Left Ear PTA Change in 3 frequency  
PTA = 61.7 dB



# Progressive hearing loss (Dahl et al, 2013)



Decrease of  $\geq 10$  dB at two or more adjacent frequencies between 500 and 4000 Hz or decrease in 15 dB at one octave frequency



# Progressive HL: Children with unilateral HL (2003-2015)

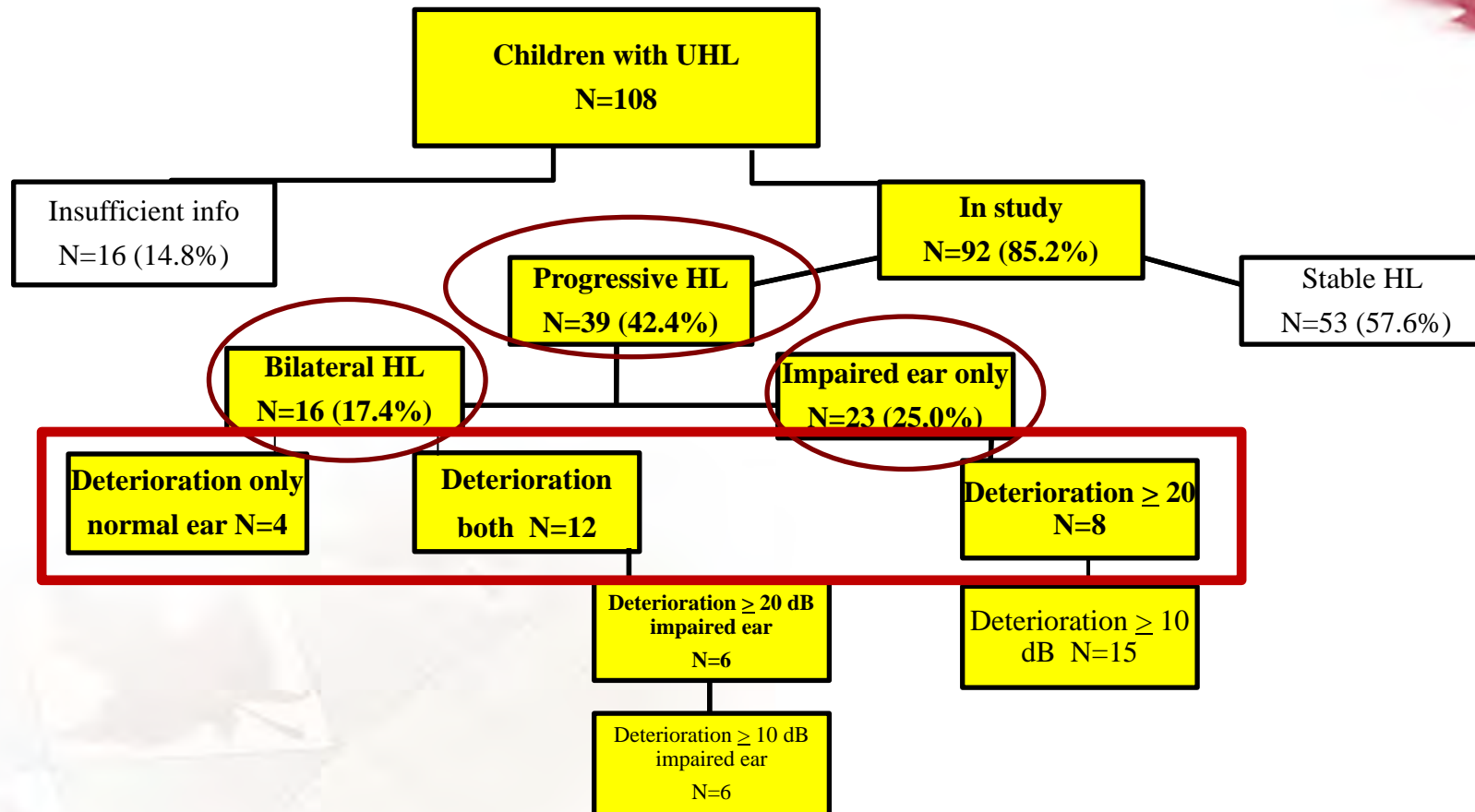
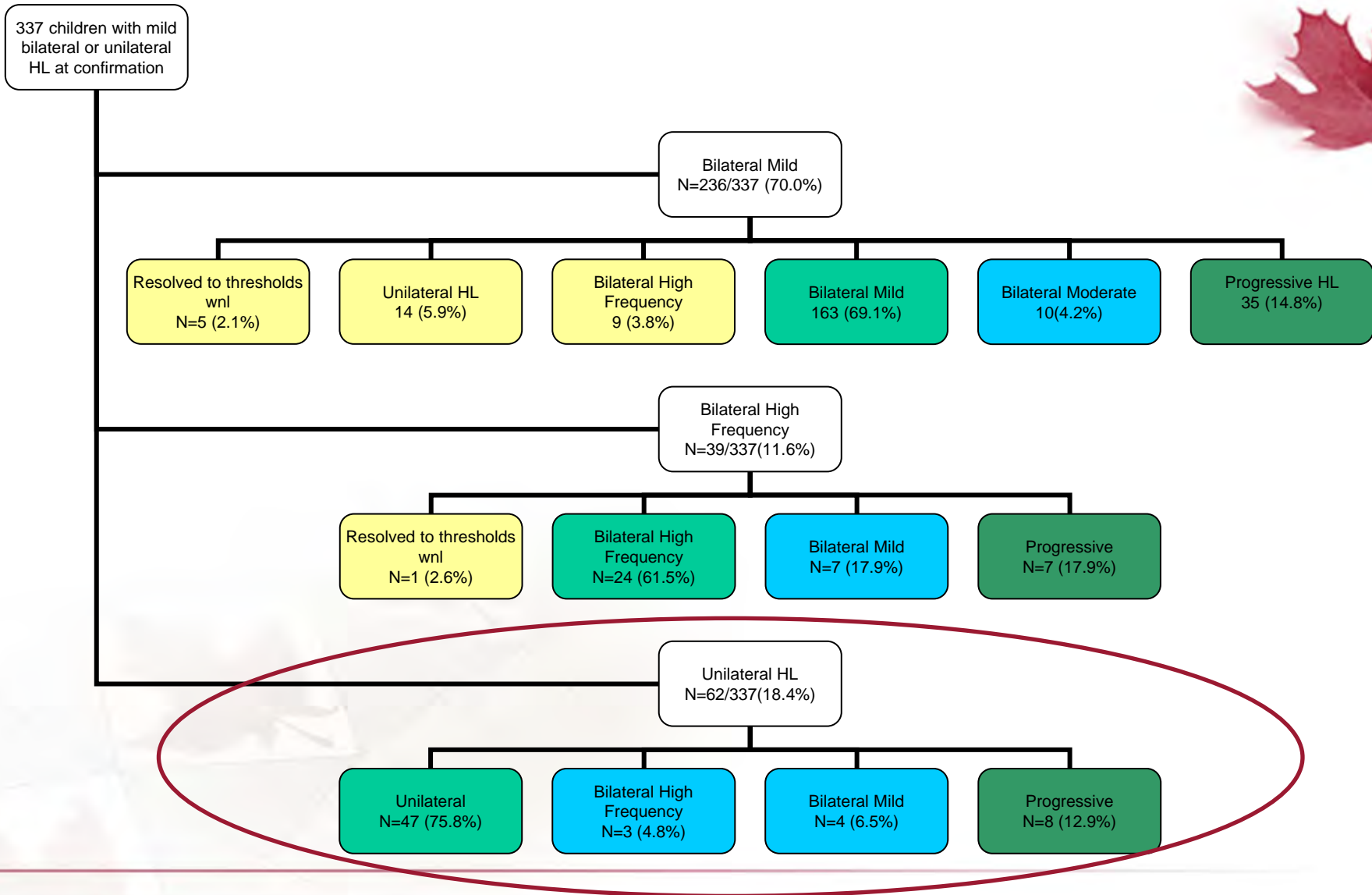


Figure 1. Children with progressive hearing loss in impaired and normal hearing ear  
Fitzpatrick et al 2017, *International Journal of Audiology*



# Clinical practice



*“The timely fitting of appropriate amplification to infants and children with early loss is one of the most important responsibilities of the pediatric audiologist.”*

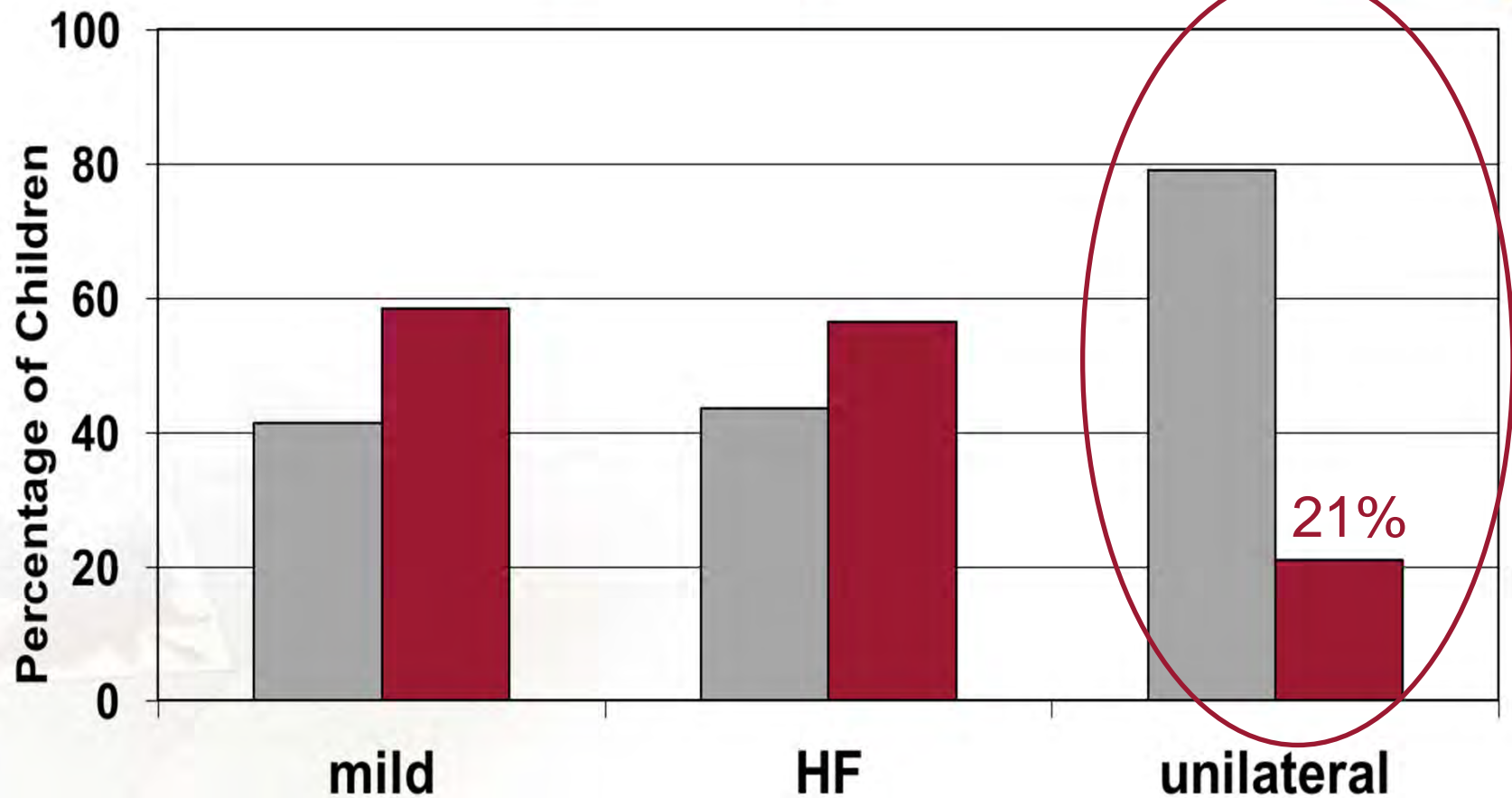
Pediatric Working Group of the Conference on Amplification for infants and children with hearing loss. 1996. Am J Audiol, 5, 53-68, p. 53.



*“There is some uncertainty over optimal treatment for children with **unilateral** loss, **mild** loss, or **auditory neuropathy**.”*

Dillon, H. 2012. Special hearing aid issues for children, *Hearing aids*. New York: Thieme, p. 469.

# Amplification recommendation by HL at identification (n=337)



# Why the uncertainty?



- Lack of evidence of benefit
- Concerns about masking ‘good’ hearing’ particularly in young children
- Not so ‘successful’ with amplification use





## Amplification use

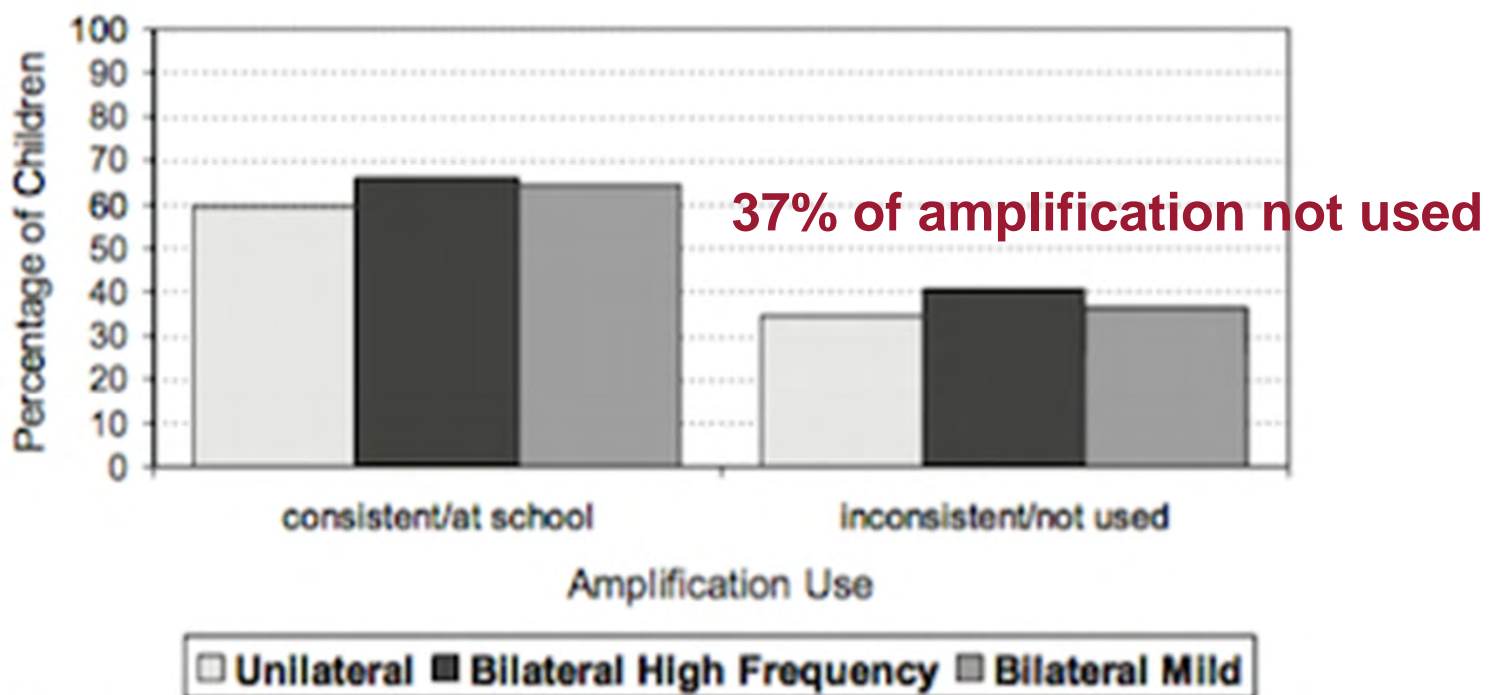
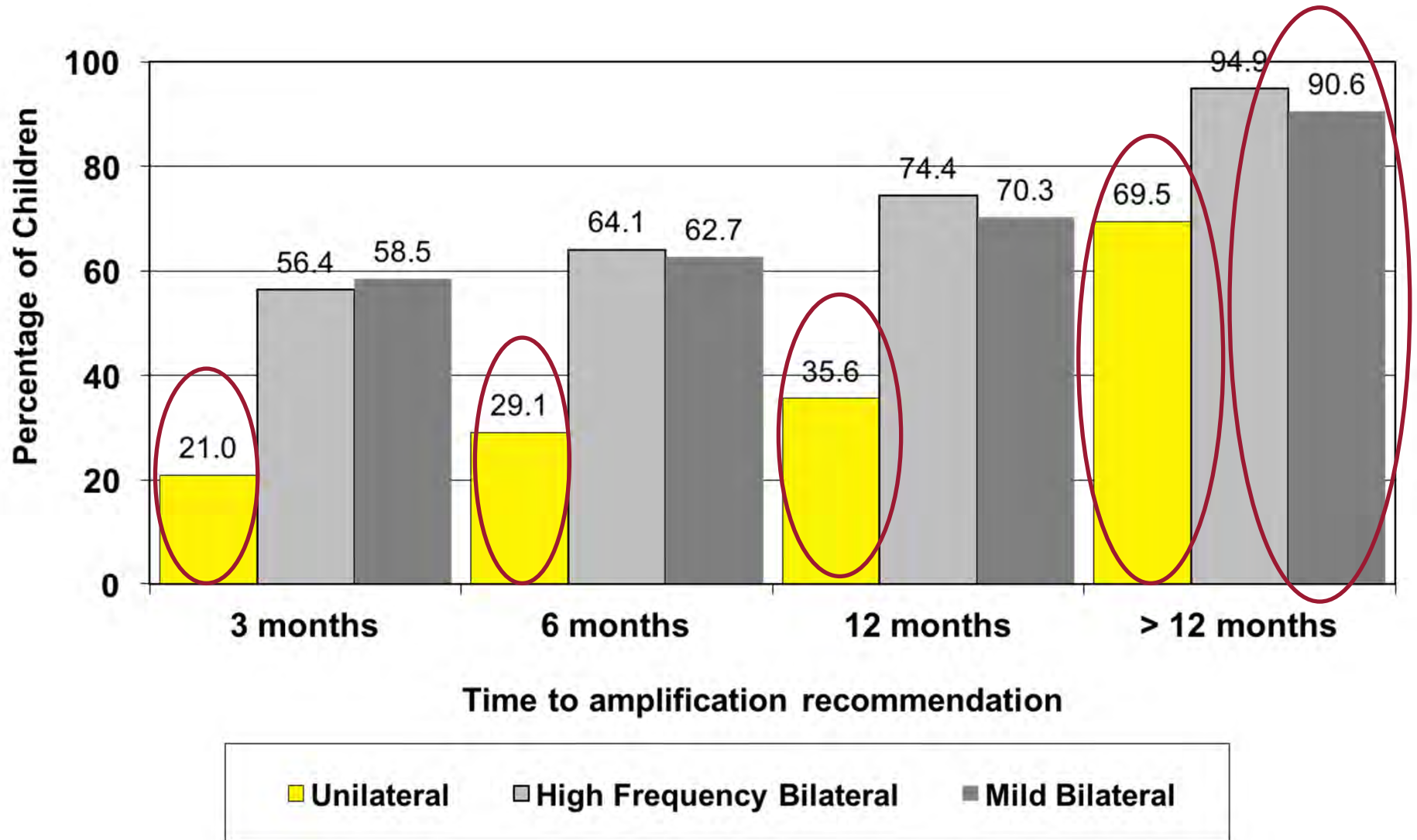


Fig. 7. Amplification use by degree of hearing loss (at most recent audiogram).

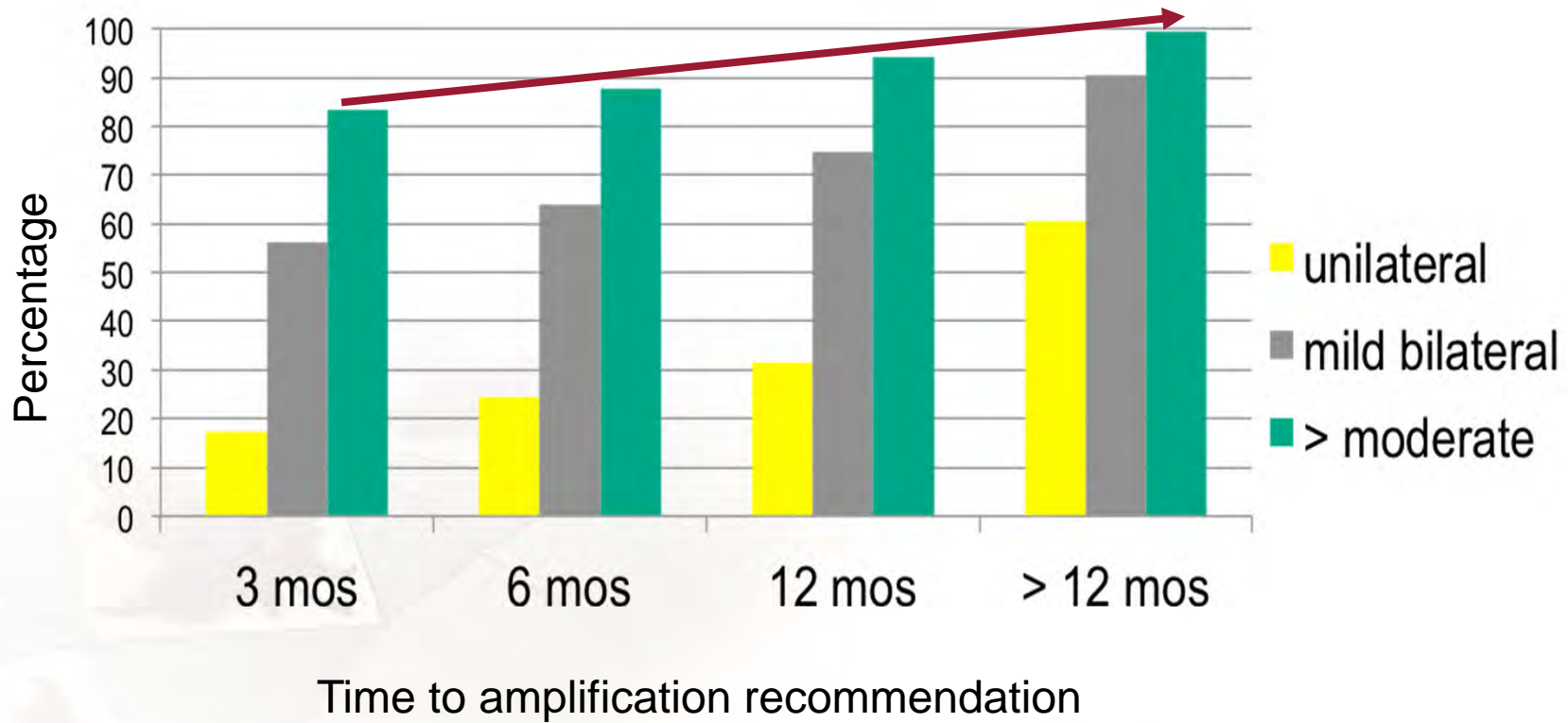


# Time to amplification (Post UNHS)






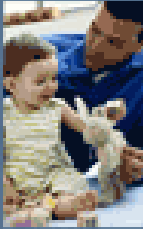

# Hearing aid recommendations (post UNHS)






 NATIONAL WORKSHOP ON  
MILD AND UNILATERAL  
HEARING LOSS

*Workshop Proceedings*



Beaver Run Resort  
July 26th and 27th, 2005  
Breckenridge, Colorado

Sponsored by the CDC Early Hearing Detection and Intervention Team and the Marion Downs Hearing Center

 Marion Downs  
Hearing Center

<https://www.cdc.gov/ncbddd/hearingloss/conference.html>

Unilateral Hearing Loss in Children  
Conference 2017

International Pediatric Conference 2017

Date: October 22 - 24,  
2017

Location: Philadelphia,  
USA

<https://www.phonakpro.com/ca/en/training-events/events/past-events/2017/uhl-in-children-conference-philadelphia.html>

# Quick Practice Guideline

May 2018



## Tools and considerations for assessing and managing unilateral hearing loss in children

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### Introduction

Unilateral hearing loss (UHL), once considered to be a nuisance and not taken seriously by hearing professionals, has been shown in recent decades to be associated with academic, speech and language, and social/behavioral deficits in children (Bess & Tharpe, 1986; Lieu, 2004; Lieu, 2013). Despite increased understanding of these problems, there exists little evidence of effective interventions that can ameliorate these deficits.

The following summary of tools available to audiologists for the assessment and management of children with UHL is based on a review of the extant literature and, when evidence was not available, on expert opinion.<sup>1</sup>

### Principles of identification and assessment

Numerous published guidelines by various national organizations have outlined recommendations for newborn hearing screening and assessment of hearing loss in children (American Academy of Pediatrics (AAP), 2007; American Academy of Audiology, 2012; American Speech-Language-Hearing Association [ASHA], 2004; AAP, 2003; Ontario Infant Hearing Program Audiologic Assessment Protocol, 2008). These guidelines, as well as additional guidance in the provision of family-centered early intervention should be considered by audiologists who provide services to children. Specifically, the authors of this Quick Practice Guideline support the recommendation that hearing be screened by 1 month of age, hearing loss identified by 3 months of age, and intervention provided by 6 months of age. These recommendations hold true for all forms of permanent




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Bagatto et al., 2018, (Phonak Conference, Philadelphia, 2017)

CAA 2019

## Consensus practice parameter: audiological assessment and management of unilateral hearing loss in children

Marlene Bagatto<sup>a</sup>, Janet DesGeorges<sup>b</sup>, Alison King<sup>c</sup>, Pdraig Kitterick<sup>d</sup> , Diana Lurnagaray<sup>e</sup>, Dawna Lewis<sup>f</sup>, Patricia Roush<sup>g</sup>, Douglas P. Sladen<sup>h</sup> and Anne Marie Tharpe<sup>i</sup>

<sup>a</sup>School of Communication Sciences and Disorders, Western University, London, Canada; <sup>b</sup>Hands & Voices, Boulder, CO, USA; <sup>c</sup>Australian Hearing, Paediatric Services, Box Hill, Australia; <sup>d</sup>Hearing Sciences, University of Nottingham; <sup>e</sup>Neonatology Service, Hospital Privado del Sur; <sup>f</sup>Center for Hearing Research, Boys Town National Research Hospital; <sup>g</sup>Department of Otolaryngology, University of North Carolina; <sup>h</sup>Department of Communication Sciences and Disorders, Western Washington University; <sup>i</sup>Department of Hearing and Speech Sciences, Vanderbilt University School of Medicine

### ABSTRACT

**Objective:** Provide recommendations to audiologists for the management of children with unilateral hearing loss (UHL) and for needed research that can lend further insight into important unanswered questions.

**Design:** An international panel of experts on children with UHL was convened following a day and a half of presentations on the same. The evidence reviewed for this parameter was gathered through web-based literature searches specifically designed for academic and health care resources, recent systematic reviews of literature, and new research presented at the conference that underwent peer review for publication by the time of this writing.

**Study sample:** Expert opinions and electronic databases including Cumulative Index to Nursing and Allied Health Literature (CINAHL), Cochrane Library, Education Resources Information Centre (ERIC), Google Scholar, PsycINFO, PubMed, ScienceDirect, and Turning Research into Practice (TRIP) Database.

**Results:** The resulting practice parameter requires a personalised, family-centred process: (1) routine surveillance of speech-language, psychosocial, auditory, and academic or pre-academic development; (2) medical assessments for determination of aetiology of hearing loss; (3) assessment of hearing technologies; and (4) considerations for family-centred counselling.

**Conclusions:** This practice parameter provides guidance to clinical audiologists on individualising the management of children with UHL. In addition, the paper concludes with recommendations for research priorities.

### ARTICLE HISTORY

Received 16 October 2018

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Accepted 2 August 2019

### KEYWORDS

Unilateral hearing loss; remote microphone systems; CROS hearing aids; single-sided deafness; children with hearing loss



# Consensus practice parameter



The resulting practice parameter requires a personalised, family-centred process:

1. routine surveillance of speech-language, psychosocial, auditory, and academic or pre-academic development;
2. medical assessments for determination of aetiology of hearing loss;
3. assessment of hearing technologies;
4. considerations for family-centred counselling.

INTERNATIONAL JOURNAL OF AUDIOLOGY  
<https://doi.org/10.1080/14992027.2019.1654620>

REVIEW ARTICLE

**Consensus practice parameter: audiological assessment and management of unilateral hearing loss in children**

Marlene Bagatto<sup>a</sup>, Janet DesGeorges<sup>b</sup>, Alison King<sup>c</sup>, Pdraig Kitterick<sup>d</sup>, Diana Lournagaraye<sup>e</sup>, Dawna Lewis<sup>f</sup>, Patricia Roush<sup>g</sup>, Douglas P. Sladen<sup>h</sup> and Anne Marie Tharpe<sup>i</sup>

# Recommendations for amplification

- 26 unique sources 1996 to 2014 - guidelines, protocols, for children with unilateral hearing loss.
- Reflected the notion that amplification 'may' be beneficial or should be considered on a trial and/or a case-by-case (or individual) basis taking into account parent preferences.
- 5 documents referred to specific audiometric levels for UHL candidacy for UHL separately from bilateral loss
  - >20 dB HL (n=1), 25 dB HL (n=2), >30 dB HL (n=2)

## **Candidacy for amplification in children with hearing loss: A review of guidelines and recommendations**

E. M. Fitzpatrick, E. Cologrosso, L. Sikora *Am J of Audiology, In Press*

CAA 2019



# Consequences of childhood mild bilateral and unilateral hearing loss loss (MUHL)





Bess & Tharpe (1984) highlighted ‘the problem’

- 1/3 of children with UHL failed a grade
- 50% either failed or required resource support

### Unilateral Hearing Impairment in Children

Fred H. Bess, PhD, and Anne Marie Tharpe, MS

*From the Division of Hearing and Speech Sciences, Vanderbilt University School of Medicine, and The Bill Wilkerson Hearing and Speech Center, Nashville, Tennessee*

**ABSTRACT.** An overview and update are offered on difficulties experienced by children with monaural sensorineural deafness. It is the general consensus that children with unilateral hearing loss experience few, if any, communication and/or educational problems. The medical and educational status of a group (N = 60) of children with unilateral, hearing impairment are described. In addition, the auditory, linguistic, and behavioral manifestations of unilateral hearing impairment were studied in considerable detail for a subsample of these 60 children. The results revealed that approximately one third of the children with unilateral hearing loss had failed at least one grade. Nearly 50% of the group had either failed a grade and/or needed resource assistance in the schools.

most nonexistent. To the contrary, studies on adults with monaural deafness suggest that this type of hearing loss can produce a variety of communication difficulties.<sup>2,3</sup> Furthermore, there is indirect evidence to suggest that longstanding unilateral hearing losses in children can present some educational problems.<sup>4,5</sup> The emergence of recent research on monaural deafness, however, demonstrates more conclusively that some children with this type of hearing condition exhibit deficits in auditory and psycholinguistic skills as well as experience considerable difficulty in the schools.<sup>6-9</sup>



# Effects of UHL



- “The majority of recent studies suggest poorer speech and language testing results, especially for patients with severe to profound unilateral hearing loss.” (Anne, Lieu, & Cohen et al. 2017)

*Systematic Review/Meta-analysis*

**Speech and Language Consequences of Unilateral Hearing Loss: A Systematic Review**

Samantha Anne, MD, MS<sup>1</sup>, Judith E. C. Lieu, MD, MSPH<sup>2</sup>, and Michael S. Cohen, MD<sup>3</sup>

*Sponsorships or competing interests that may be relevant to content are disclosed at the end of this article.*

**Abstract**  
*Objective.* Unilateral hearing loss has been shown to have negative consequences for speech and language development in children. The objective of this study was to systematically review the current literature to quantify the impact of unilateral hearing loss on children, with the use of objective measures of speech and language.

**AMERICAN ACADEMY OF OTOLARYNGOLOGY—HEAD AND NECK SURGERY FOUNDATION**  
Otolaryngology—Head and Neck Surgery  
2017, Vol. 157(4) 572–579  
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DOI: 10.1177/0194599817726326  
http://otojournal.org  
**SAGE**

**U**nilateral hearing loss (UHL) affects nearly 3% to 6% of school-age children, with rates varying per the audiologic criteria used to define hearing loss.<sup>1</sup> Some studies in the literature from the 1980s suggested that there are no negative sequelae from untreated UHL in terms of educational outcomes.<sup>2,3</sup> Since then, evidence is burgeoning that shows that UHL does affect educational outcomes, behavioral evaluations, and speech and language development. A 2004 systematic review on the consequences of UHL among children showed an increased rate of grade failures, need for additional educational assistance, per-

- 7 showed poorer skills compared to normative scores
- 2 poorer, then progressed, but not comparable to normal hearing
- 4 showed no difference compared to normal hearing

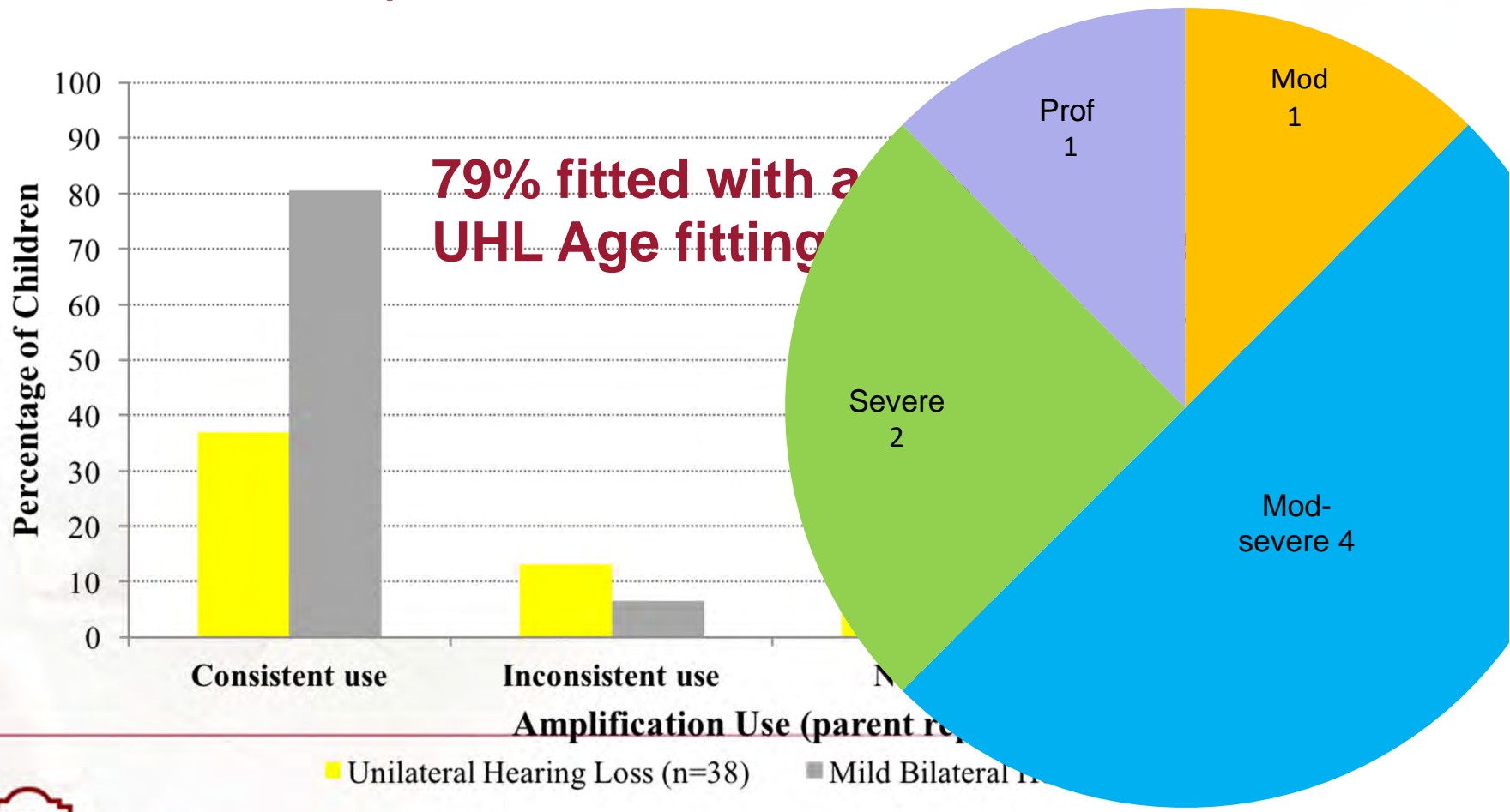
## Key characteristics



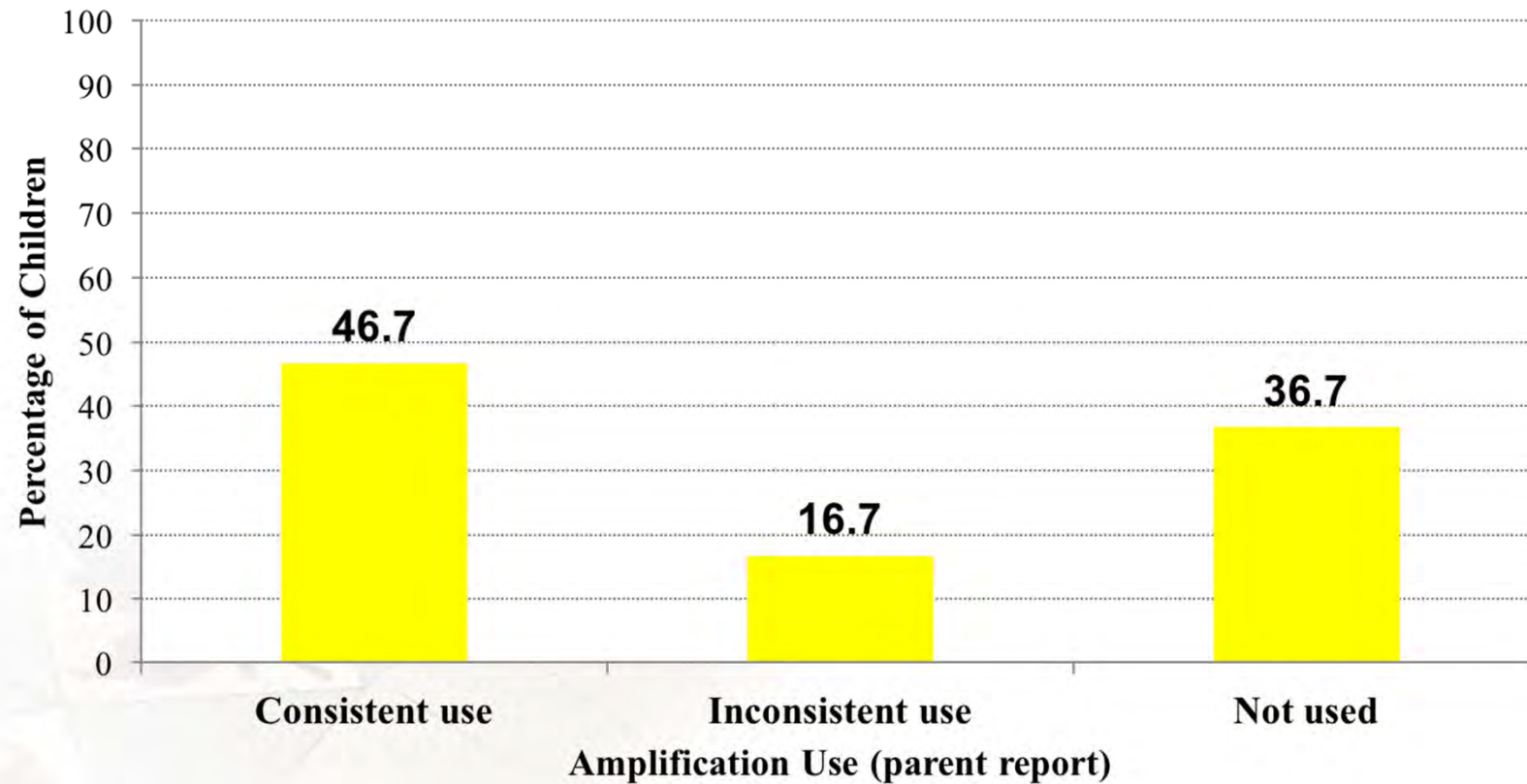
- **69 children** HL; 38 **unilateral**, 31 **bilateral**
  - 63/69 (91.3%) congenital/< 6 months onset
  - Age diagnosis = **3.5 m** (IQR 2.0, 5.5)
  - Age assessment = **47.8 m** (IQR 38.88, 48.5)
  - Maternal education = 17.2 years (SD 3.4)
- 
- **51 children** with **normal hearing** – comparable characteristics



# Amplification recommendations/use



# Amplification use at age 4 years – UHL





Contents lists available at ScienceDirect

## Hearing Research

journal homepage: [www.elsevier.com/locate/heares](http://www.elsevier.com/locate/heares)



Research Paper

# Auditory and language outcomes in children with unilateral hearing loss<sup>☆</sup>



Elizabeth M. Fitzpatrick<sup>a, b, \*</sup>, Isabelle Gaboury<sup>c</sup>, Andrée Durieux-Smith<sup>a, b</sup>, Doug Coyle<sup>d</sup>, JoAnne Whittingham<sup>b</sup>, Flora Nassrallah<sup>a, b</sup>

<sup>a</sup> Faculty of Health Sciences, University of Ottawa, Ottawa, Ontario, Canada

<sup>b</sup> Children's Hospital of Eastern Ontario Research Institute, Canada

<sup>c</sup> Department of Family Medicine and Emergency Medicine, Université de Sherbrooke, Canada

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### ARTICLE INFO

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#### Keywords:

### ABSTRACT

**Objectives:** Children with unilateral hearing loss (UHL) are being diagnosed at younger ages because of newborn hearing screening. Historically, they have been considered at risk for difficulties in listening and language development. Little information is available on contemporary cohorts of children identified in the early months of life. We examined auditory and language acquisition outcomes in a contemporary cohort of early-identified children with UHL and compared their outcomes at preschool age with peers with mild bilateral loss and with normal hearing.

**Design:** As part of the Mild and Unilateral Hearing Loss in Children Study, we collected auditory and

# PEACH



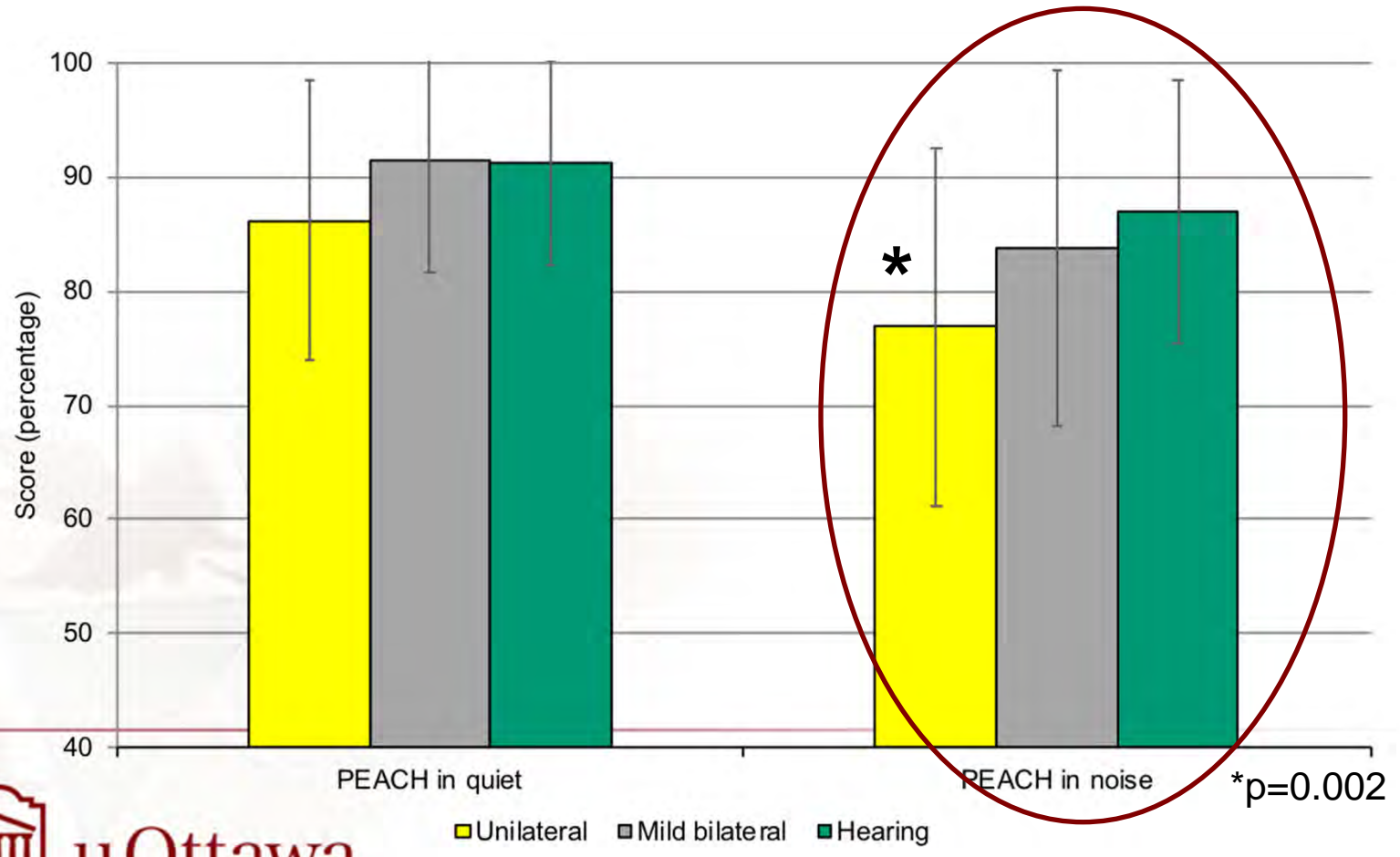
## Parents' Evaluation of Aural/Oral Performance of Children (P.E.A.C.H.)

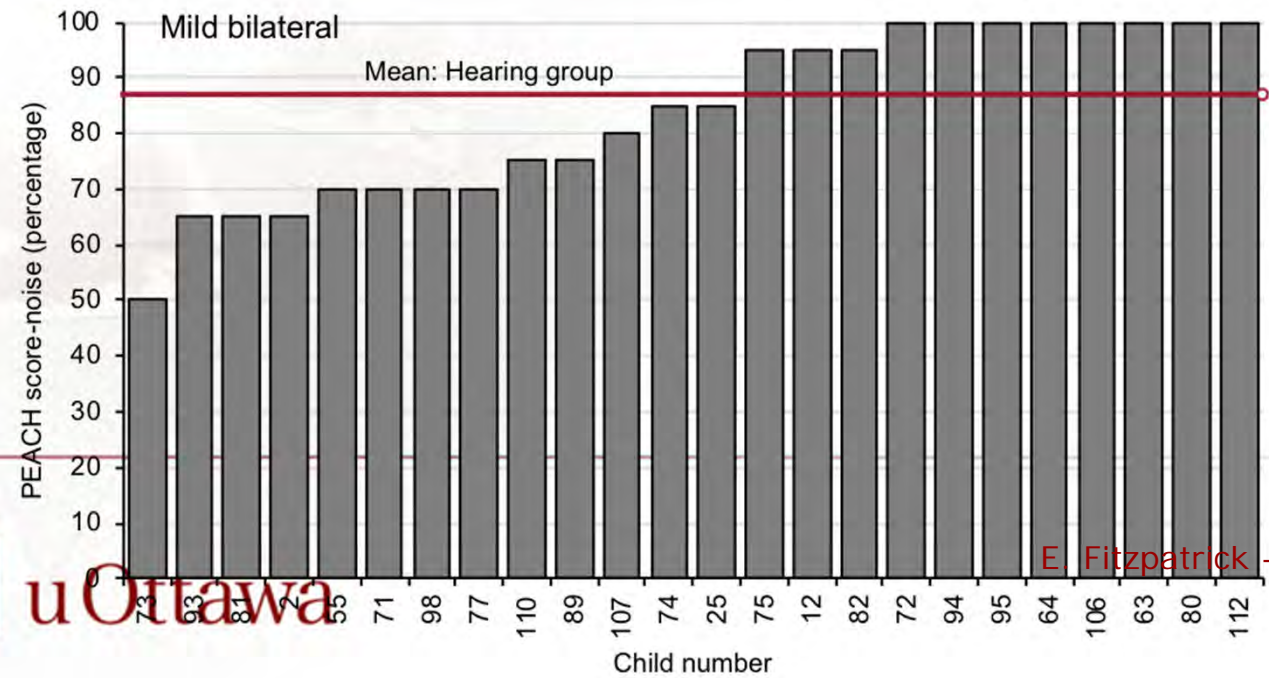
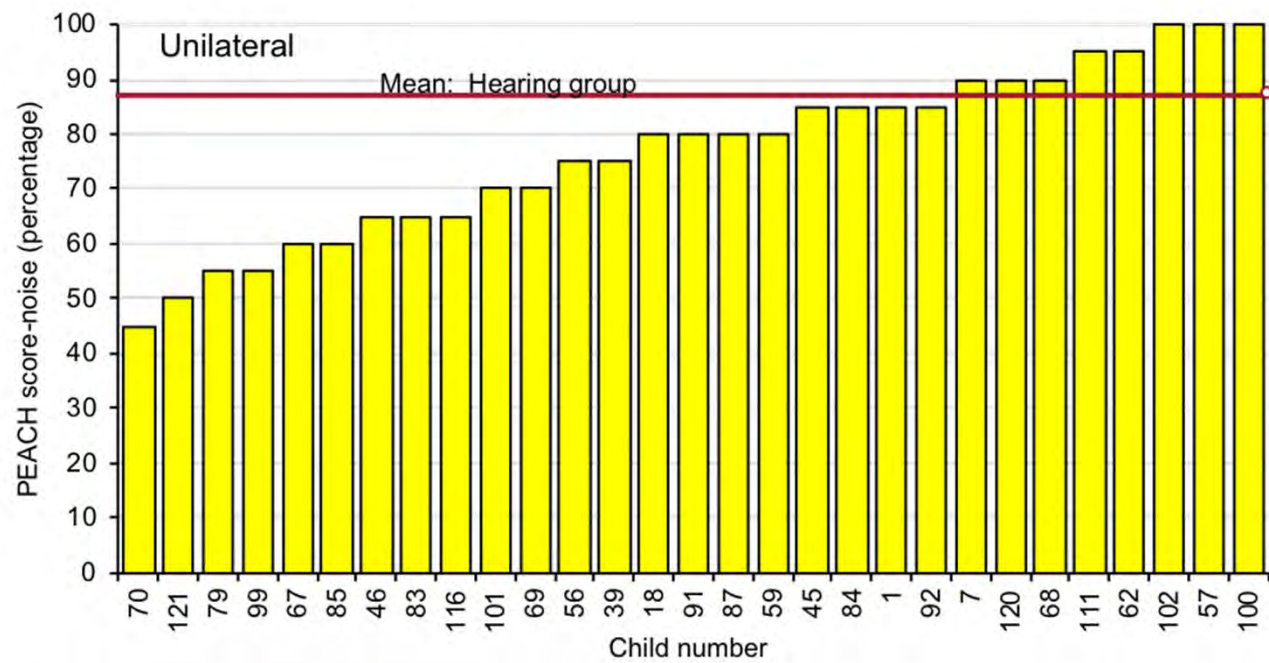
Developed by Teresa Ching & Mandy Hill

	Question	Never 0%	Seldom 1 - 25%	Sometimes 26 - 50%	Often 51 - 75%	Always 75-100%
1.	How often has your child worn his/her hearing aids and/or cochlear implant?	0	1	2	3	4
2.	How often has your child complained or been upset by <b>loud</b> sounds?	4	3	2	1	0
3.	When you call, does your child respond to his/her name in a <b>quiet</b> situation?	0	1	2	3	4
4.	When asked, does your child follow simple instructions or do a simple task in a <b>quiet</b> situation?	0	1	2	3	4
5.	When you call does your child respond to his/her name in a <b>noisy</b> situation when he/she can't see your face? (examples of responses include looks up, turns, answers verbally)	0	1	2	3	4



# PEACH scores – UHL, mild bilateral, normal hearing at age 4 years





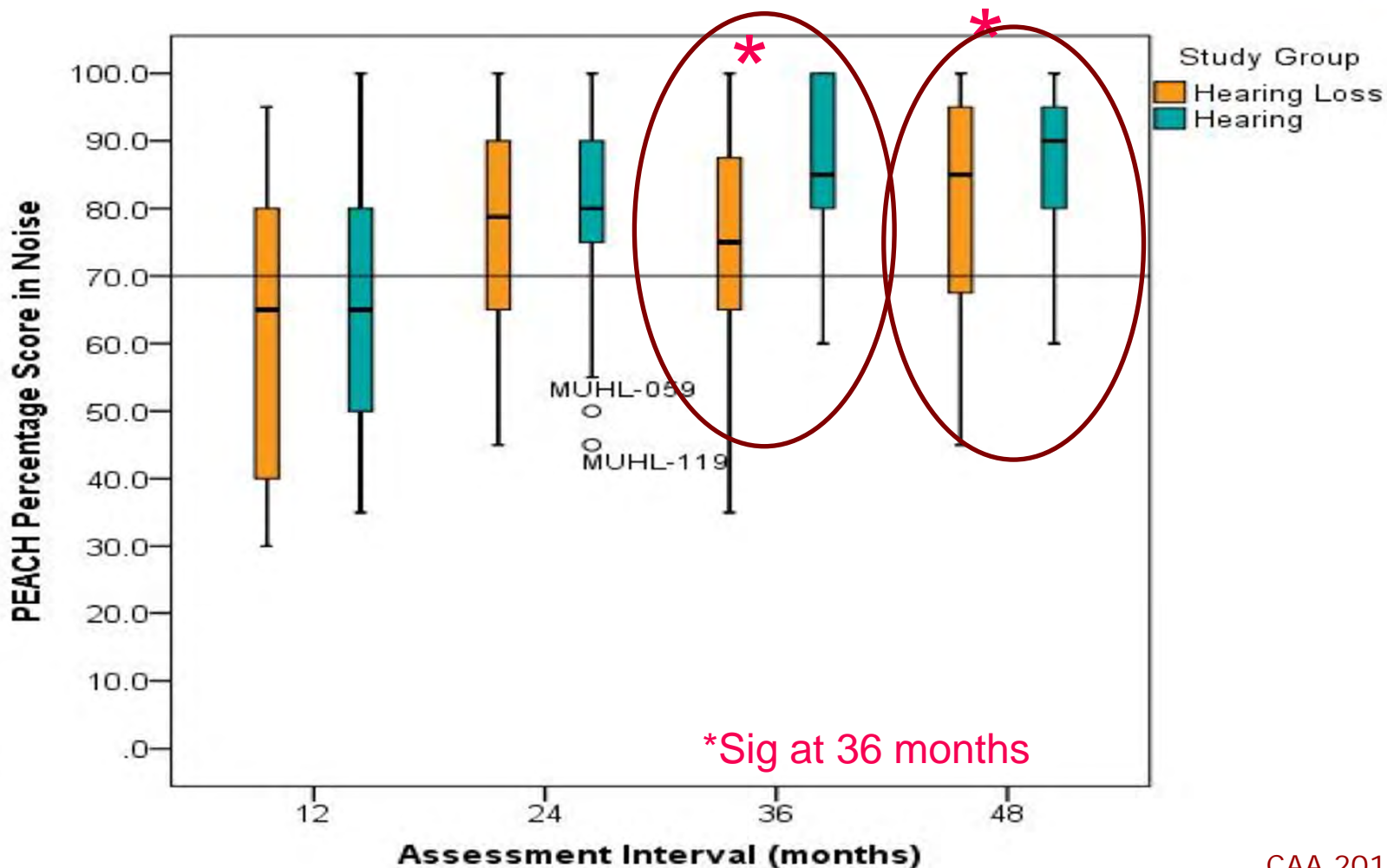
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E. Fitzpatrick - NASLPA 2018



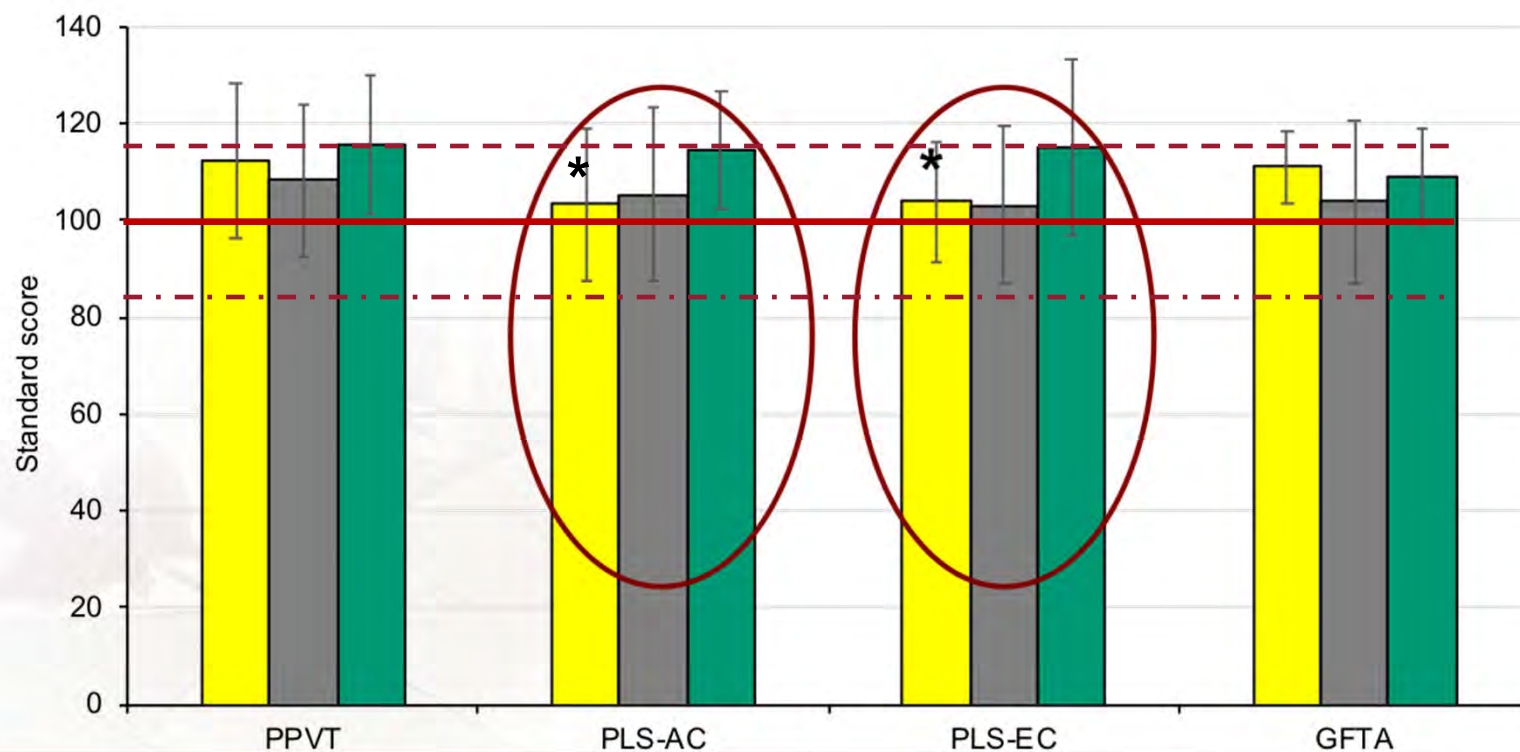


# PEACH – Noise





# Speech-Language scores – unilateral, mild bilateral, normal hearing at age 4



\* p=0.02; p= 0.04  
■ Unilateral ■ Mild bilateral ■ Hearing



Does degree in impaired ear affect outcomes for preschool age children with UHL?



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# UHL - effect of severity of hearing loss



- Results showed no relationship ( $p=0.12$ )
  - small sample





Does amplification affect  
auditory/ language outcomes for  
preschool-age children with  
UHL?



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## UHL - effect of amplification

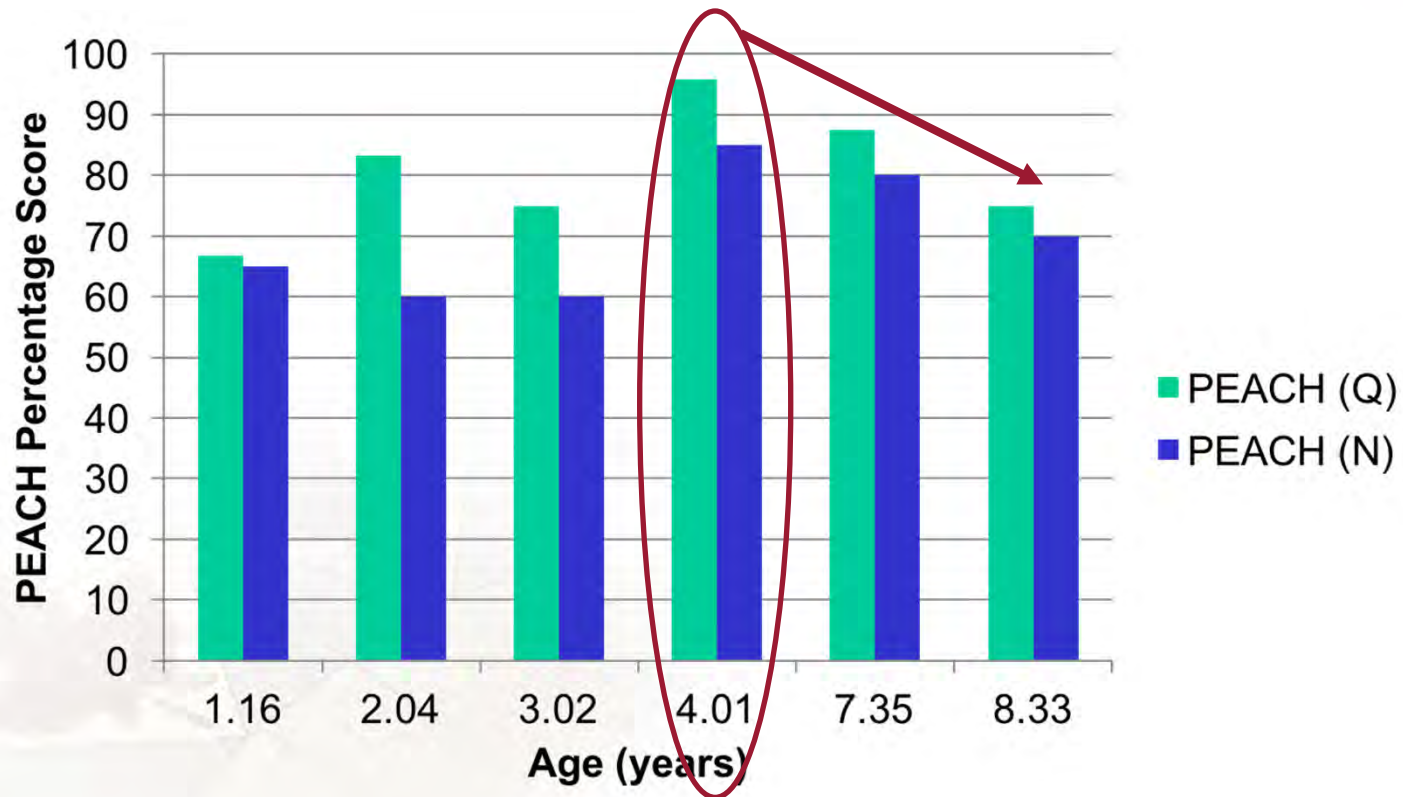
- Results showed no relationship ( $p=0.49$ )
  - small sample
  - parent report
- May see effect as children age or on other types of outcomes



# Long-term impact of mild bilateral and unilateral HL in children

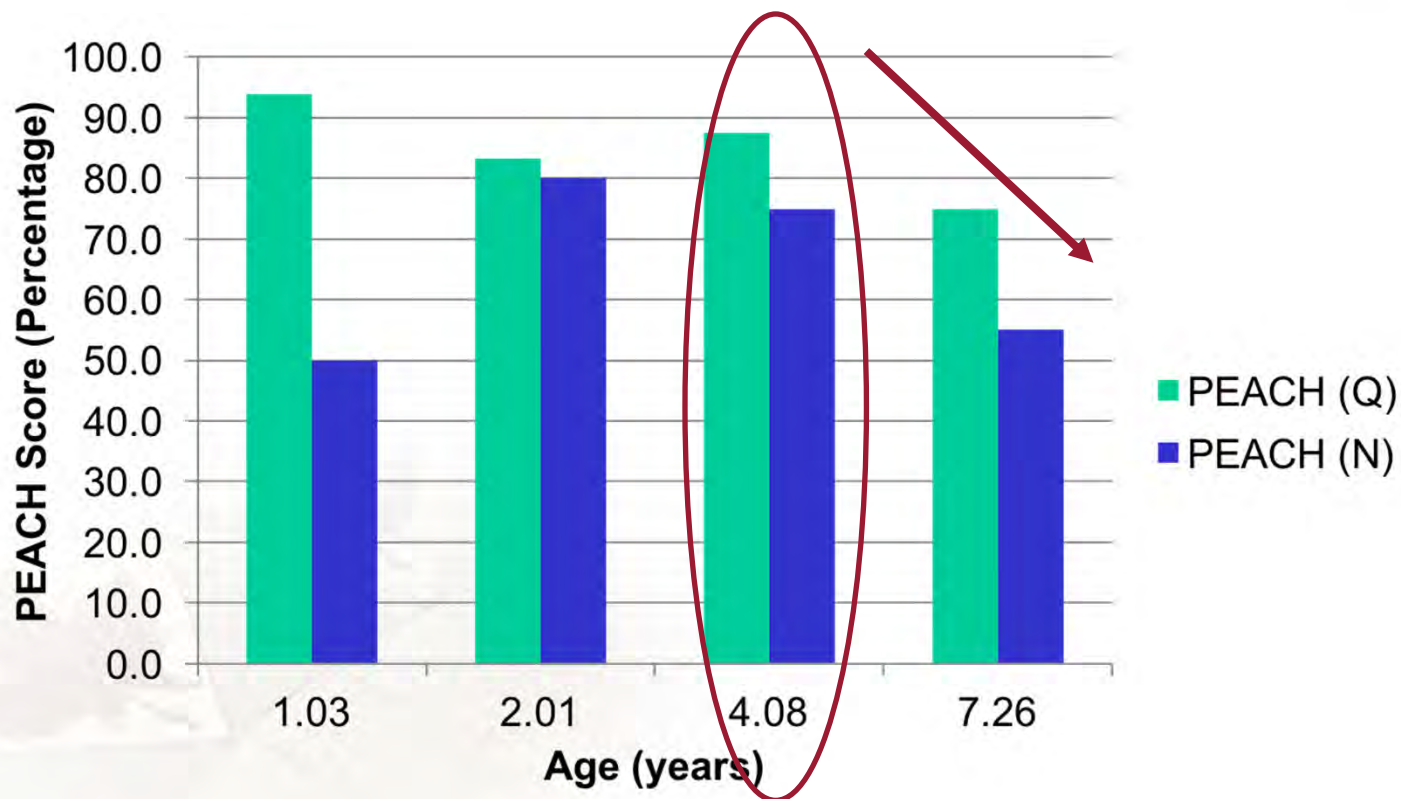


# MUHL-001 – Peach Scores over time





# MUHL-044 – PEACH Scores over time



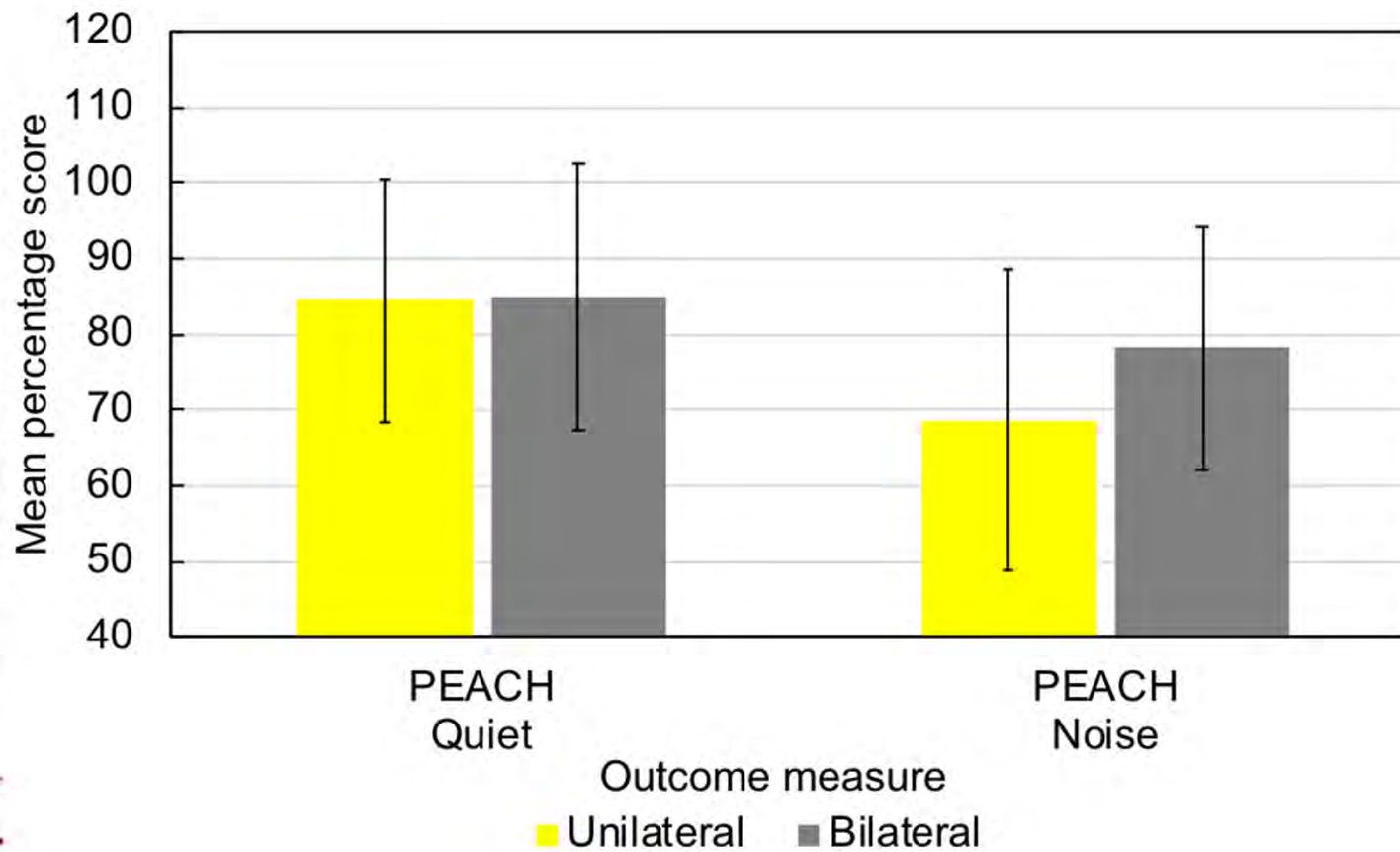
## 2017 Study: Early School Years



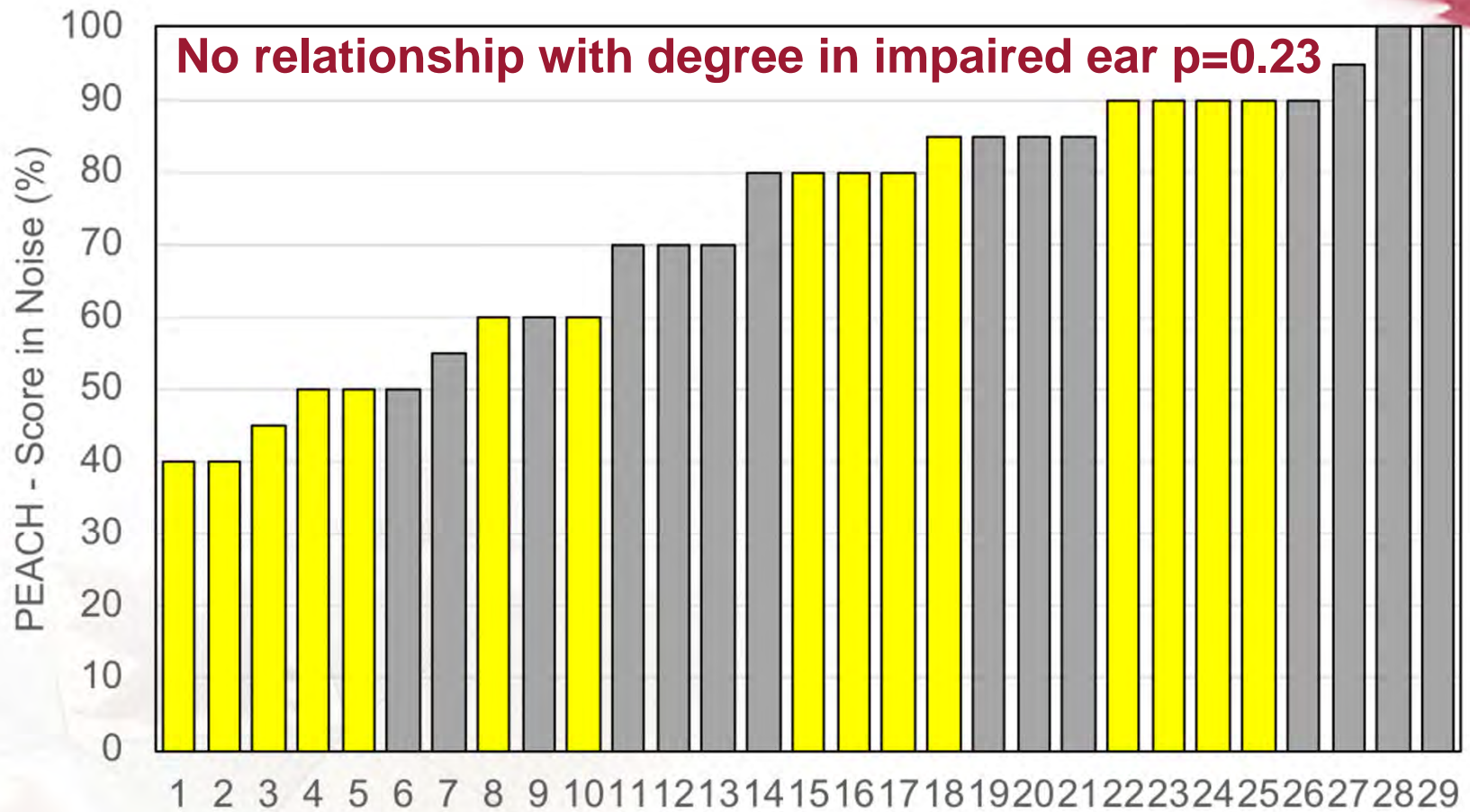
- **N=32: 16 UHL; 16 mild bilateral**
- Age diagnosed median **5.0 months** (IQR: 4.0, 35.3)
- Age amp fitted: median **37.4 months** (IQR: 28.8, 44.0)
  - 7 Hearing aids
  - 7 FM – school
  - 1 no amplification, 1 unknown
- Assessed: CA 6 – 8 years



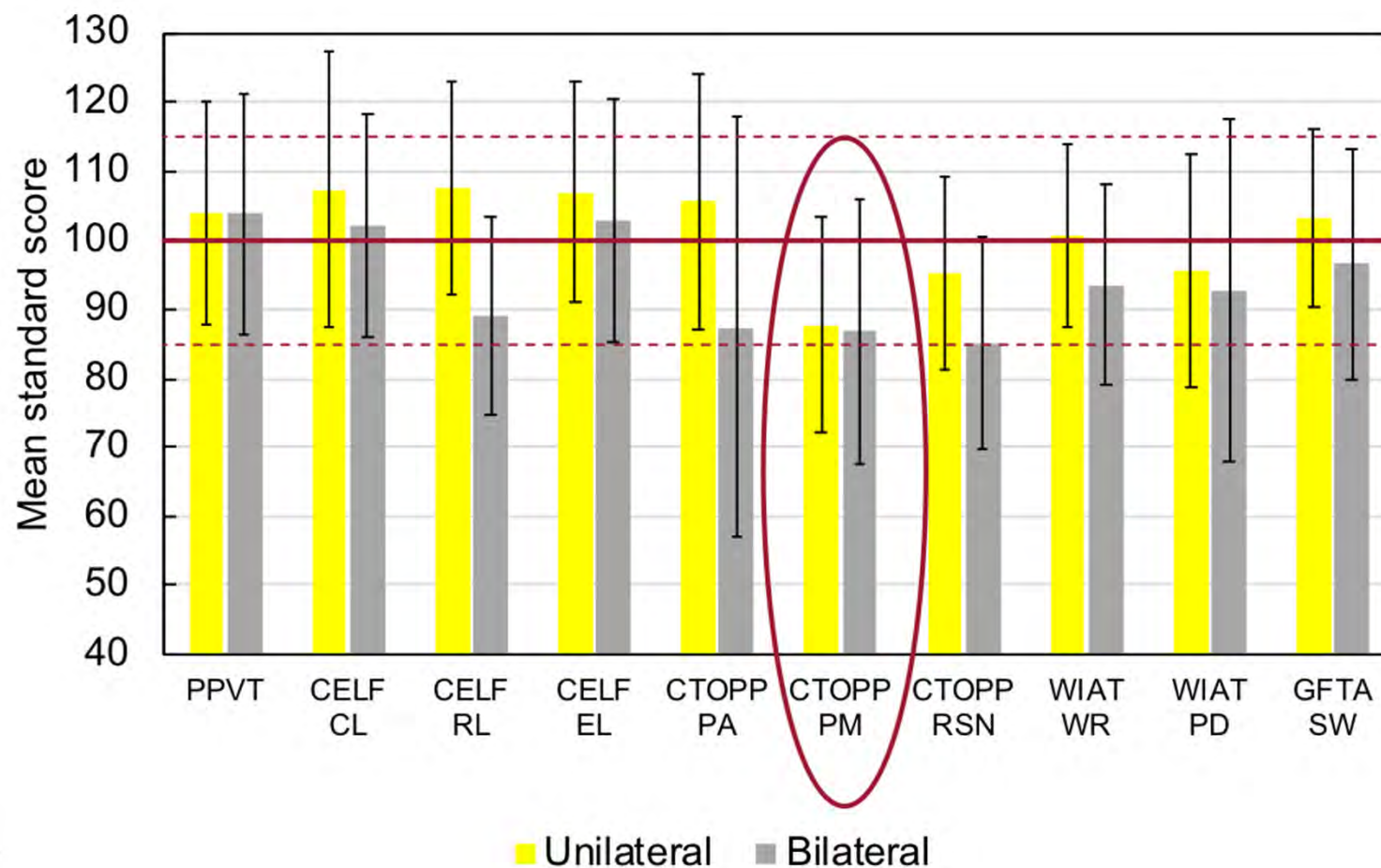
## PEACH scores



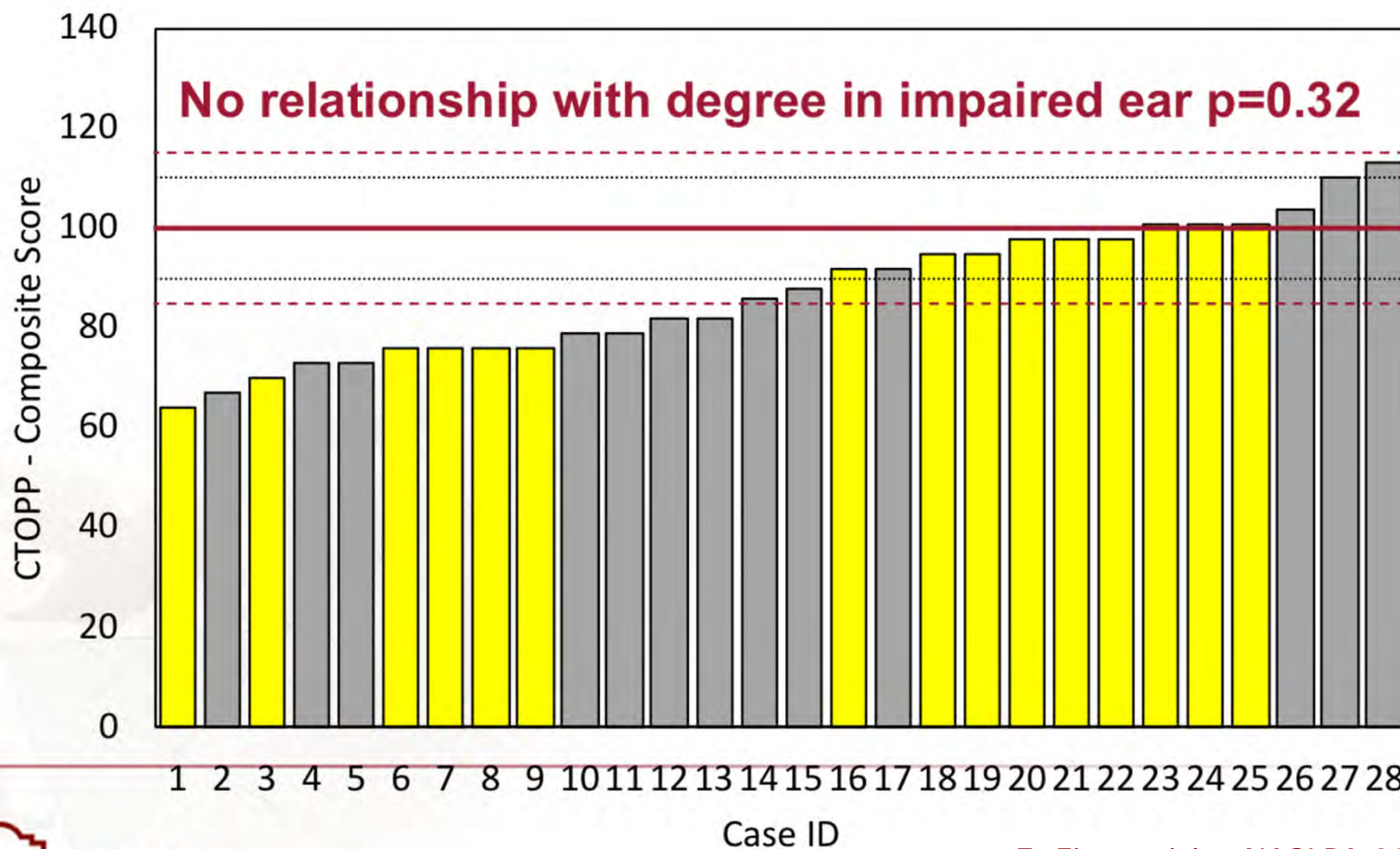
# PEACH - Noise Individual scores



# Language / Literacy outcomes



# CTOPP Phonological Memory Individual scores





## Parent Perspectives



- Interviews completed with subset of 20 parents
- Themes:
  - Lacking information at diagnosis
  - Concern about language development long-term
  - Need professional support (emotional care)
  - Hearing aid use and support



## Parent perspectives



*So, they said - adequate hearing for speech, and sent us away. And it's hard because I know... they have a huge caseload, and yes the hearing losses are more severe, but it's my kid, but to them, it's just one ear...*





## Parent perspectives



*The audiologist said, if we like, we can go ahead and get the hearing aid, he's doing fine, but just to be sure, go ahead and get a hearing aid. But we started his daycare, and that was already a big transition for him, so we didn't want to introduce the hearing aid right then...*



# Service Preferences of Parents of Children With Mild Bilateral or Unilateral Hearing Loss: A Conjoint Analysis Study

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**Objective:** Universal newborn hearing screening results in substantially more children with mild bilateral and unilateral hearing loss identified in the early years of life. While intervention services for children with moderate loss and greater are generally well-established, considerable uncertainty and variation surrounds the need for intervention services for children with milder losses. This study was undertaken with parents of young children with permanent mild bilateral and unilateral hearing loss to examine their preferences for characteristics associated with intervention services.

**Key words:** Children, Conjoint analysis, Discrete choice experiment, Hearing loss, Qualitative research, Questionnaire.

(*Ear & Hearing* 2018;XX;00-00)

## INTRODUCTION

There is heightened interest in the service needs of children with mild bilateral and unilateral hearing loss (McKay et al.

# Scenarios - Example

<i>Scenario 1</i>	<b>Service A</b>	<b>Service B</b>
Support for amplification use	Regular visits to the clinic for the first year after the child gets hearing aids or an FM <u>plus</u> the audiologist checks in with the parents regularly	Regular visits to the clinic for the first year after the child gets hearing aids or an FM
Support for speech-language development	Therapy sessions at the clinic or at home with the child and parent	Parent information sessions
<u>Emotional support</u>	Regular part of service	Parents <u>seek support independently</u>
Professional communication	Warm and <u>supportive</u>	Business-like <u></u>

Which service do you prefer?



<i>Scenario 2</i>	<b>Service A</b>	<b>Service B</b>
	Regular visits to the clinic for the	Regular visits to the clinic for the

# Findings



- Parents valued all 4 attributes of services ( $p < 0.01$ )
  - ✓ support for amplification use
  - ✓ support for speech-language development
  - ✓ emotional support
  - ✓ communication from professionals
- Within the attributes, parents preferred-
  - ✓ Regular audiology clinic visits with email/telephone contact over regular clinic visits only
  - ✓ Regular therapy sessions home/clinic over information sessions only (2.8 times more likely)

# Key findings



- Between attributes:
  - ✓ There was clear preference for **enhanced level of support for speech-language development** over enhanced support for amplification use (*OR 2.8 vs. 1.4*)
  - ✓ Also, preferences for **emotional support and communication** from professionals were greater than for support for hearing aid use (*OR 2.1 vs. 1.4*)
- No **difference** in results after controlling for child characteristics: laterality, sex, age diagnosis, hearing aid use

## What we know ...

- Represent ~20% of all children diagnosed with permanent hearing loss
  - ✓ 30-40% show deterioration in hearing over time
  - ✓ ~20% with UHL will develop bilateral hearing loss
- Now fitted early with amplification
- Amplification use in early years is a challenge
- Perform below their peers in some auditory/language areas despite early identification
- **Parents prefer a preventative model with direct services AND want support**



# Audiologists' perspectives



*I would say that my concept of the impact of unilateral hearing loss has really changed. I treat unilaterals more seriously than I ever used to. We used to kinda say, oh, unilateral, he'll compensate, he'll compensate...*

*Now I tell parents, ... they will develop speech and language just like a child with two ears, generally speaking. but I do tell the parents that they are more at risk, certainly at school and in acquiring language because they are going to have much more trouble in noise and much more trouble with distance.*

## Parent concerns...



"...so it wasn't really a good fit ...there was a meeting last week, the Toronto chapter was meeting just to look at, [ ], what they're doing, what they're not, and I kind of thought I should have gone because I really did want to say... I'm not upset but you know, there really isn't a place for me, you know.

Yeah, they're different, uh, not *that much* different but yeah, everybody talks about, [ ] even some of the workshops they're doing all this stuff on cochlear, they're having a workshop and they're going to talk about cochlear, doesn't relate to me..."





*“So I think what we have here is a lot of questions”*  
*Yoshinaga-Itano, Phonak, 2017*



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Towards understanding  
the consequences  
of mild bilateral  
and unilateral hearing loss (MUHL)

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Thank you to Collaborating Centers

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