

Unilateral Hearing Loss in Children Early History: What's the Problem?

Anne Marie Tharpe
October 23, 2017



Preview

Background

Outcomes:
Unilateral
Hearing Loss

Management
Options

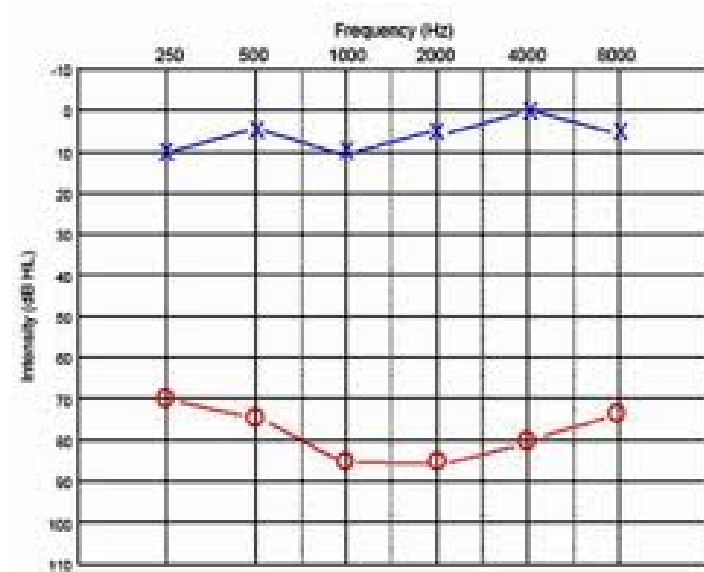
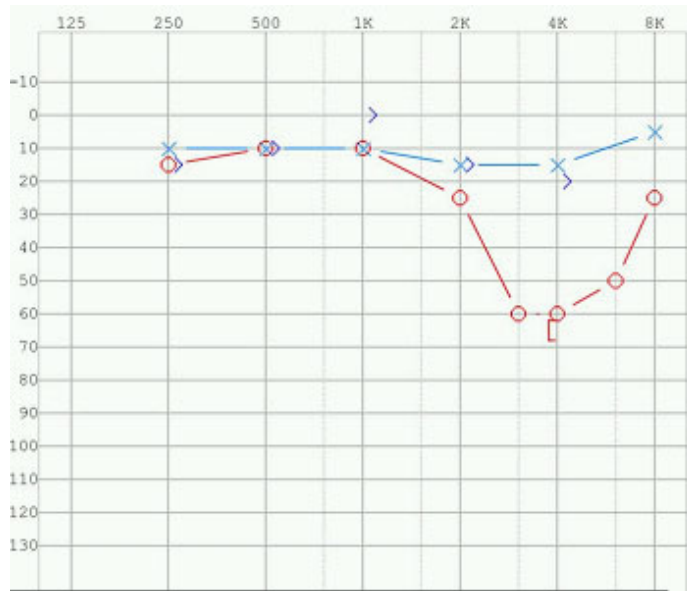
What Awaits
Us?



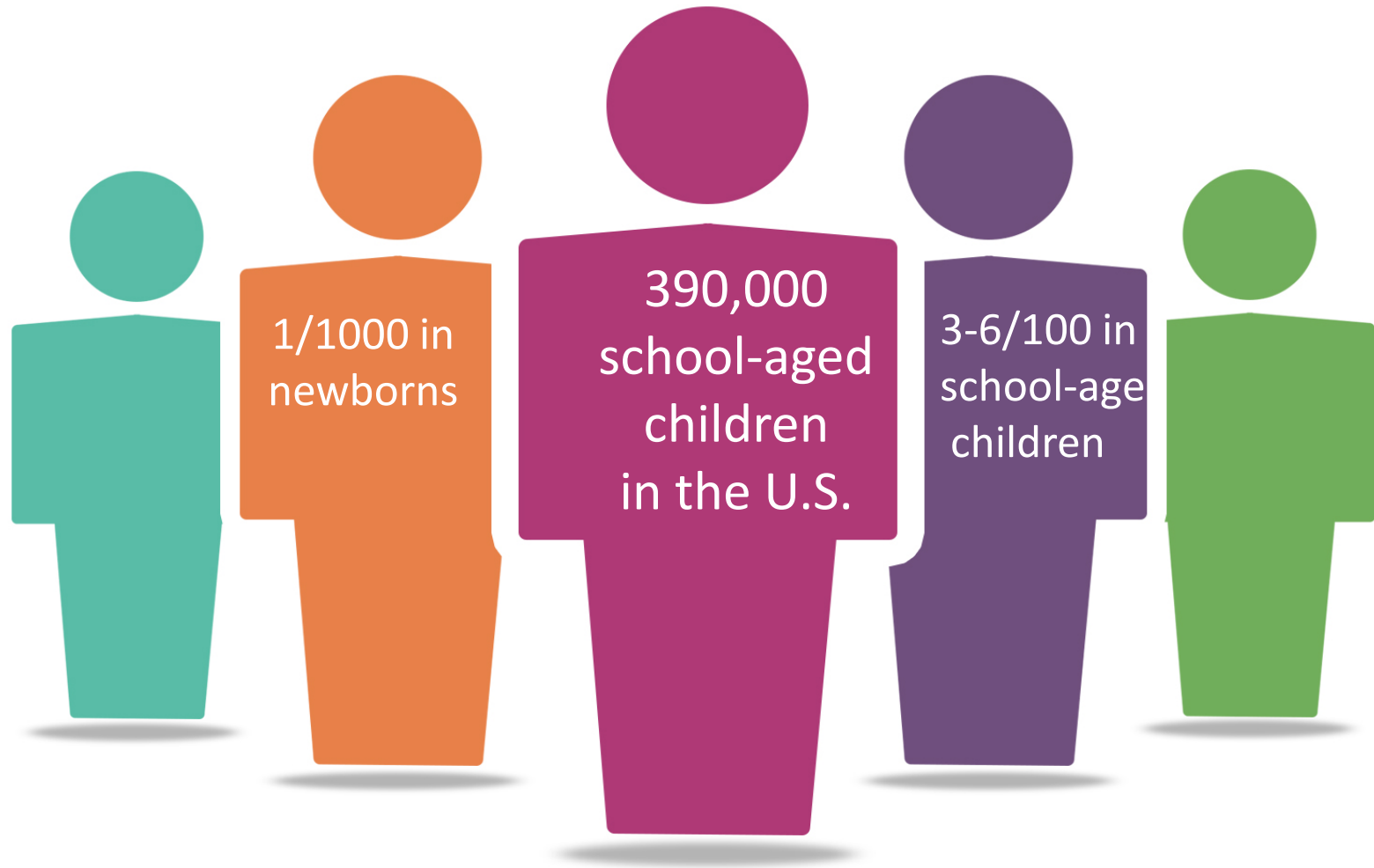
Definitions of Unilateral Hearing Loss

Loss of any degree in one ear (Bess et al., 1986)

Non-functional hearing in one ear: Single-Sided Deafness

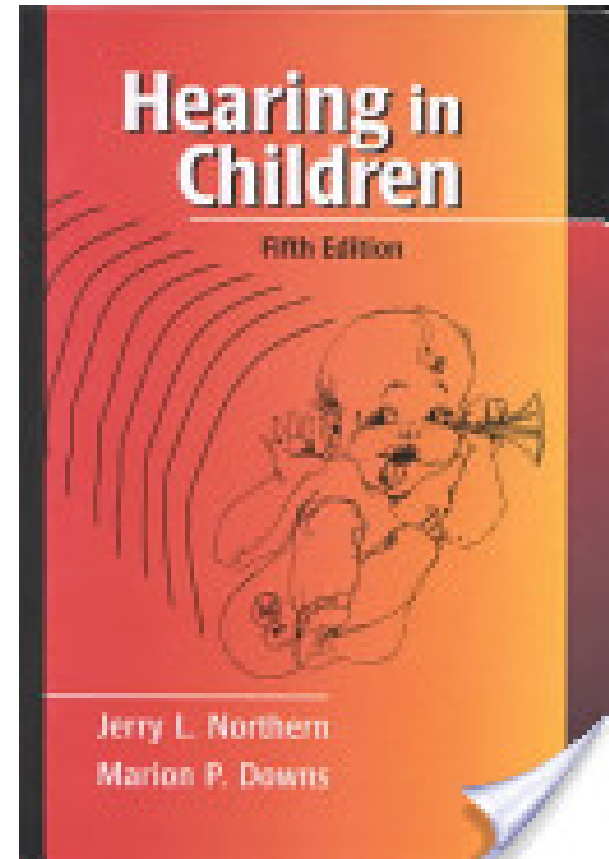


Prevalence Estimates



“...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.”

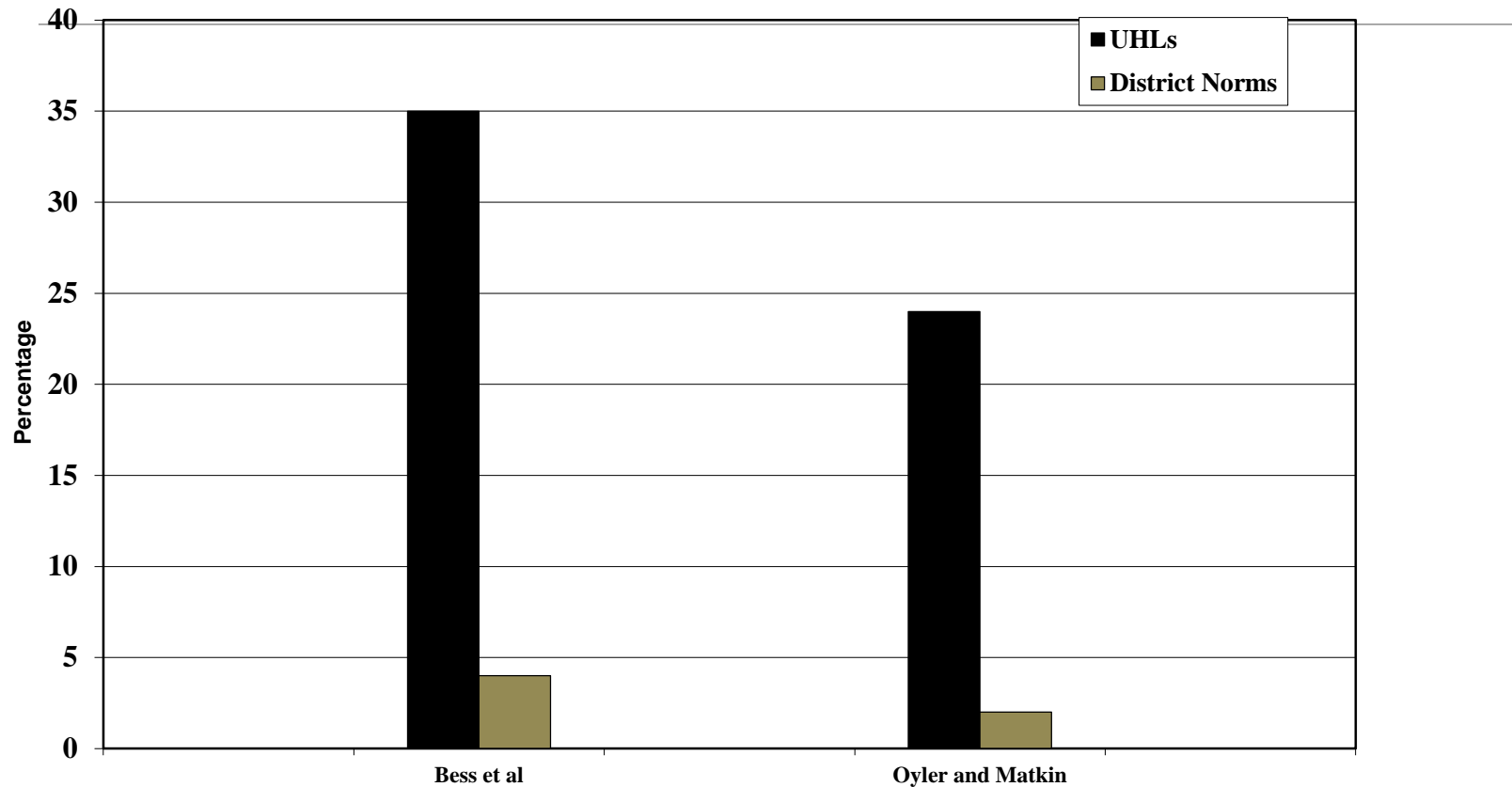
Northern & Downs, 1978



Psychoeducational Outcomes



Grade Failure Rate



(Bess & Tharpe, 1986)



Speech/Language Battery:



- Those who failed in school exhibited verbal I.Q.s significantly lower than those who succeeded in school
- Few differences found between groups on other standardized tests

Consequences of UHL on Language & School Performance

Reviews published
research in speech-
language, education,
and behavioral
consequences of
children with UHL.



Judith Lieu

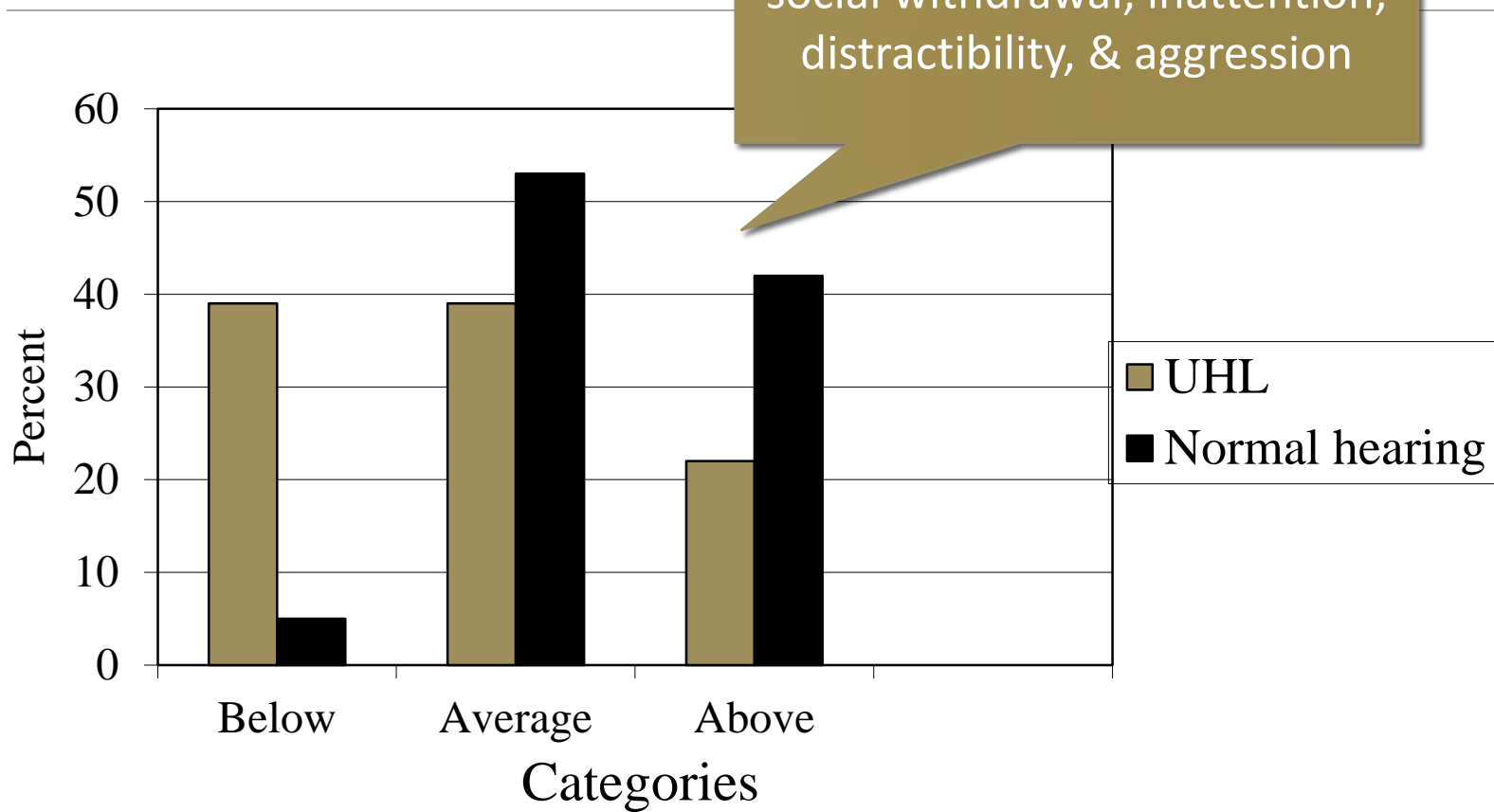
Predictors of Language Development of Children with UHL

To provide longitudinal
speech-language data on
young children with UHL



Christine Yoshinago-Itano

Teacher Behavior Rating



Self-Esteem & Self-Advocacy

The effects of UHL on self-esteem of one child will be addressed with a discussion of recommendations.

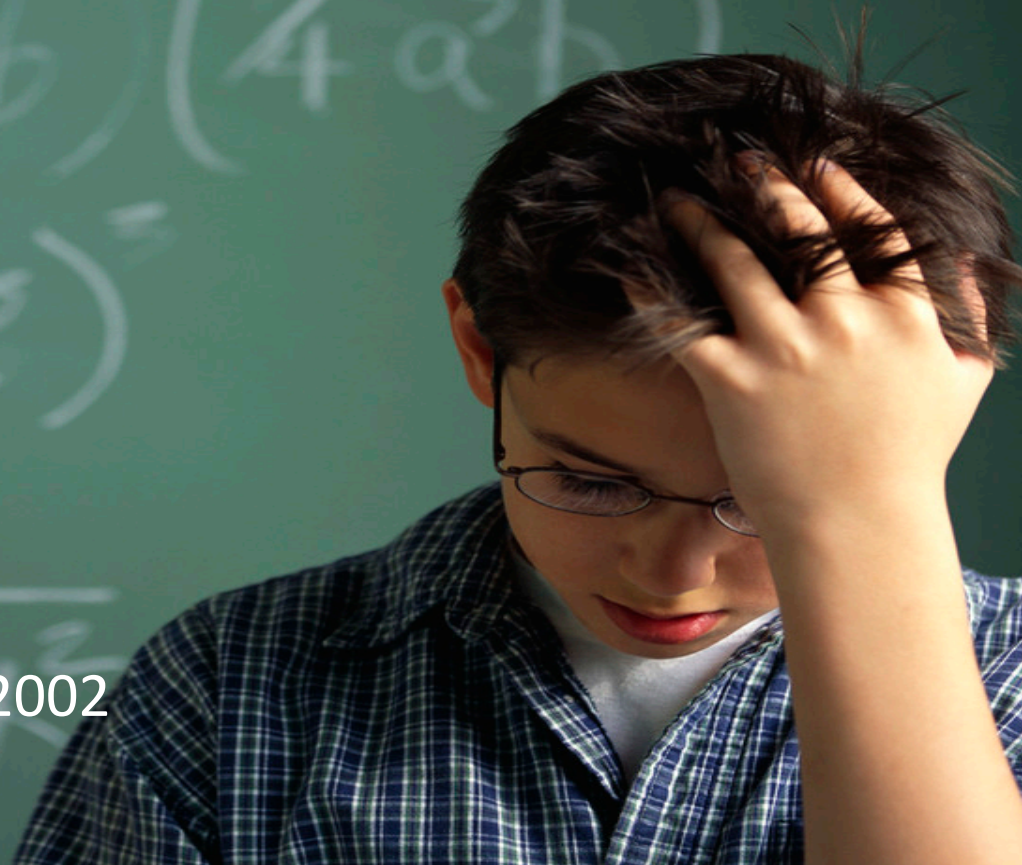


Cheryl Deconde Johnson

Listening Effort and Fatigue?



Assuming a limited effort capacity, will performance on a secondary task decrease when the primary listening task is made more difficult?

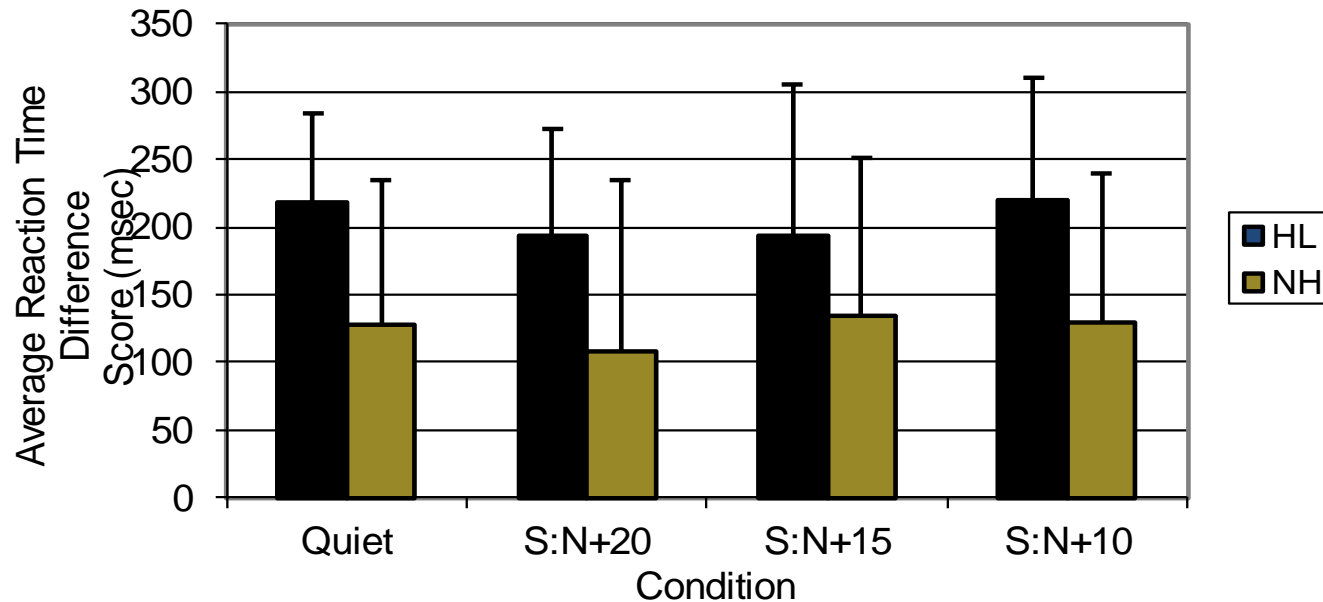


Bourland-Hicks & Tharpe, JSHLR, 2002

Dual-Task Paradigm

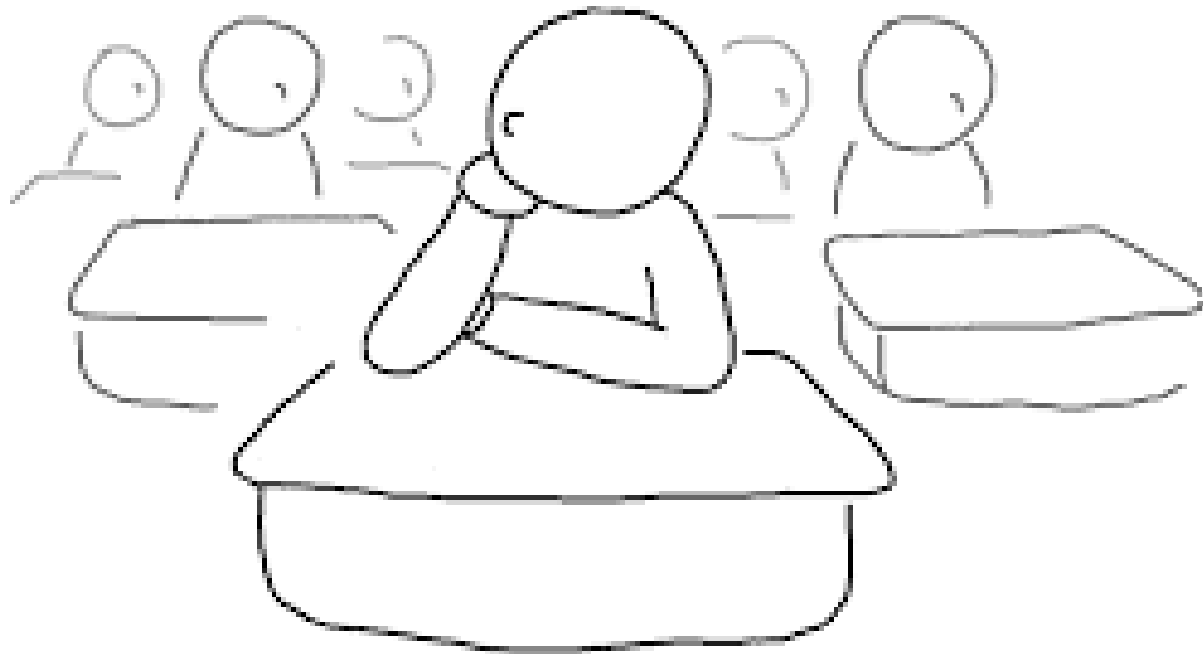
- Primary task: speech recognition in noise (PBK)
- Secondary task: button push to random presentations of probe light

Dual Task Paradigm



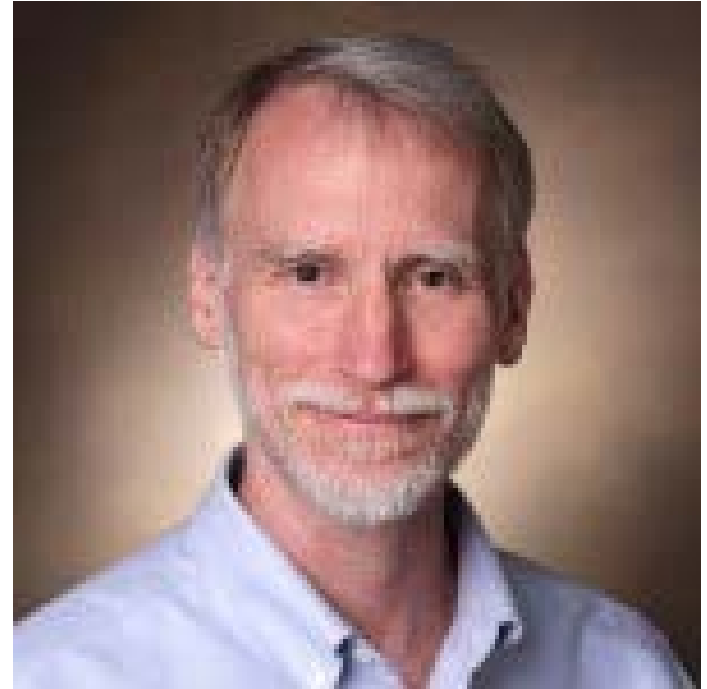
No difference in baseline RTs between groups

What does this mean for children in the real world?



Effort and Fatigue in Children with Unilateral Hearing Loss: What's the Risk?

Examines the construct of fatigue and its relation to effort and hearing loss.



Ben Hornsby

Effects of UHL on Children's Speech Understanding in Complex Environments

Examines the difficulties children with UHL experience understanding speech in environments they frequent.



Dawna Lewis

Management Options



Hearing Technology Options for UHL/SSD

- Traditional hearing aids
- Contralateral Routing of Signal (CROS) hearing aids
- Frequency modulated (FM) systems
- Bone-conduction devices
- Implantable devices

Fitzpatrick et al. (2010). Clinical Practice for Children with Mild Bilateral and Unilateral Hearing Loss, Ear & Hearing

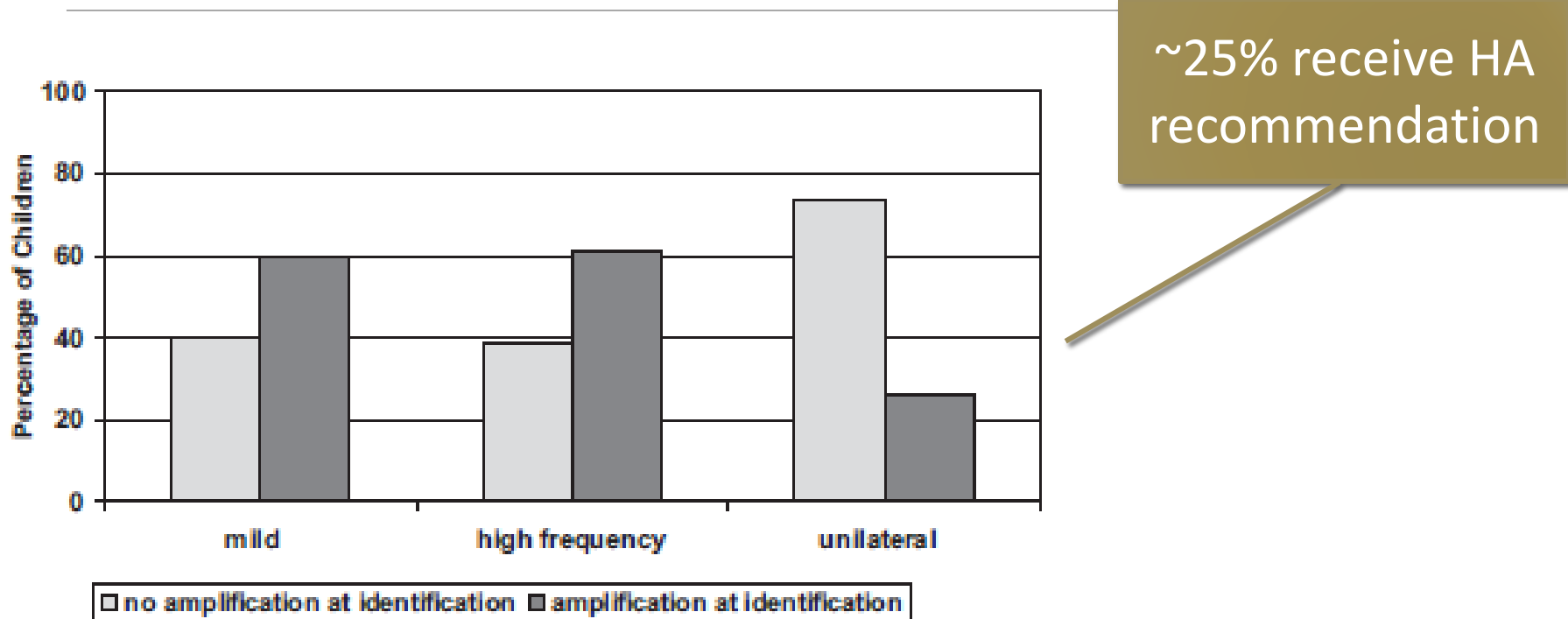


Fig. 2. Amplification recommendation by hearing loss at identification (N = 255).

Children with UHL: A Glimpse at Clinical Practice, Outcomes, and Parent Experiences

To present an overview of prevalence of UHL from a newborn screening cohort of about 170,000 children and their management.



Elizabeth Fitzpatrick

Mothers of children with mild HL reported difficulty accepting the need for amplification because their infants responded to many sounds with or without amplification

Moeller, Hoover, Peterson, & Stelmachowicz (2009)



Parents Unplugged: A Panel Discussion About the SSD/UHL Journey

Parents will share their personal stories from their journeys and that of their children who have UHL.



Janet DesGeorges



What are the predictors of hearing aid use time in children with hearing loss? And, what are the challenges?

Examining Recommendations for Hearing Aid Use in Children with UHL

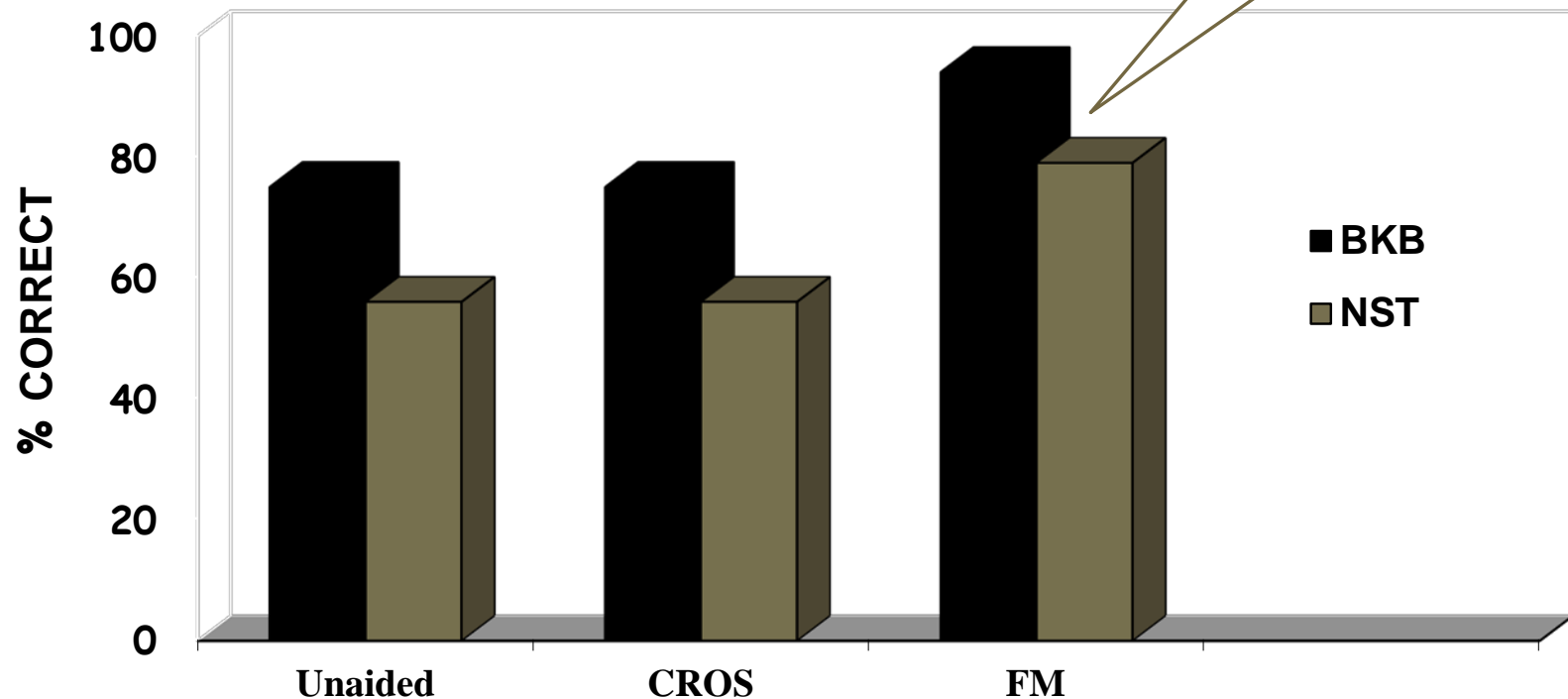
Examines the factors to be considered for fitting a hearing aid on the impaired ear of infants and children.



Marlene Bagatto

Which Type Amplification Provides the Best Speech Understanding? (Kenworthy, Kle...

Only 6 subjects!

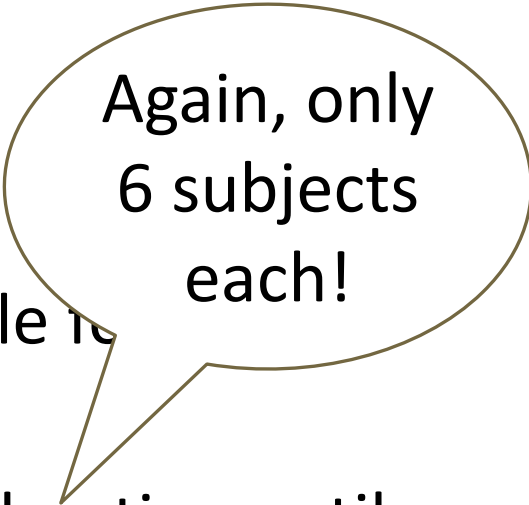


CROS HAs for UHL

CROS HAs are considered for those ineligible for FM technology

CROS HAs are not recommended for consideration until child is able to control his/her communication environment (Kenworthy et al., 1990; Updike, 1994)

Useful for children who do not have access to FM or need assistance outside of school



Again, only
6 subjects
each!

Can CROS Aids Improve Speech Comprehension & Listening Effort in the Classroom?

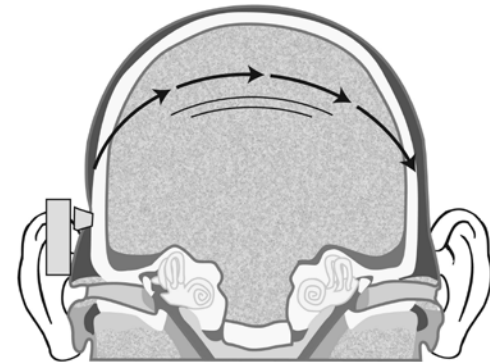
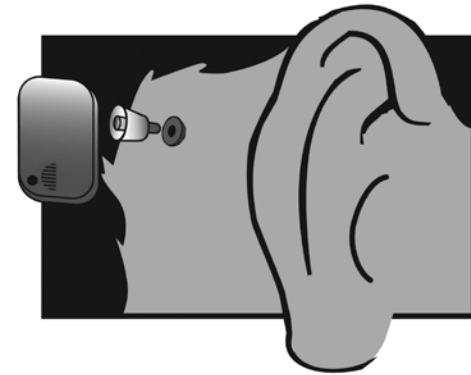
Examined CROS and remote
microphone options in
dynamic and realistic
classroom listening situations
for school-age children.



Erin Picou

Bone Conduction Devices

BAHA can be considered at age 5 years and above; however, data from the pediatric population are lacking (AAA, 2003)



Evaluation & Management of SSD Using Bone Conduction Devices

Presentation will review
evaluation and
management strategies for
use of bone conduction
devices in children with
SSD.



Hillary Snapp

Cochlear Implantation for SSD

Most work has been done on adults as tinnitus-reduction treatment

Recent systematic review of literature (17 studies, Vlastarakos et al., 2013)

- Post-lingually deafened adults and children only
- Tinnitus improvement
- Wider use of implantation in SSD

Better outcomes with shorter length of deafness

Cortical Neuroplasticity in UHL

To discuss impact of cochlear implantation on cortical development and neuroplasticity in children and adults with UHL.



Anu Sharma

Cochlear Implantation as a Treatment Option for UHL

Examined speech recognition performance and listening effort in adults and children with SSD who use cochlear implants.



Douglas Sladen

Expert Clinician Panel



Hilary Snapp



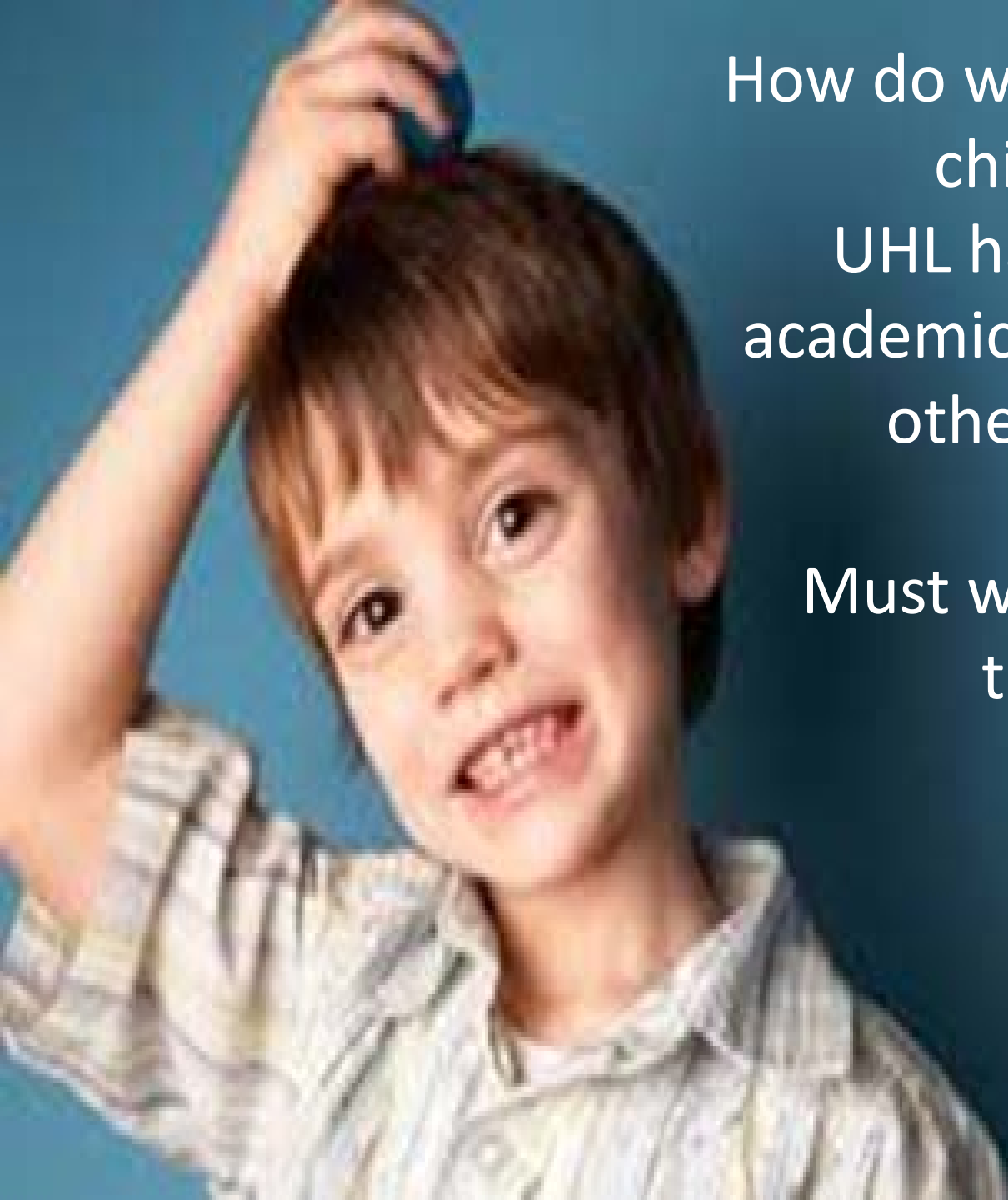
Sarah McKay



Pat Roush

What Awaits Us?

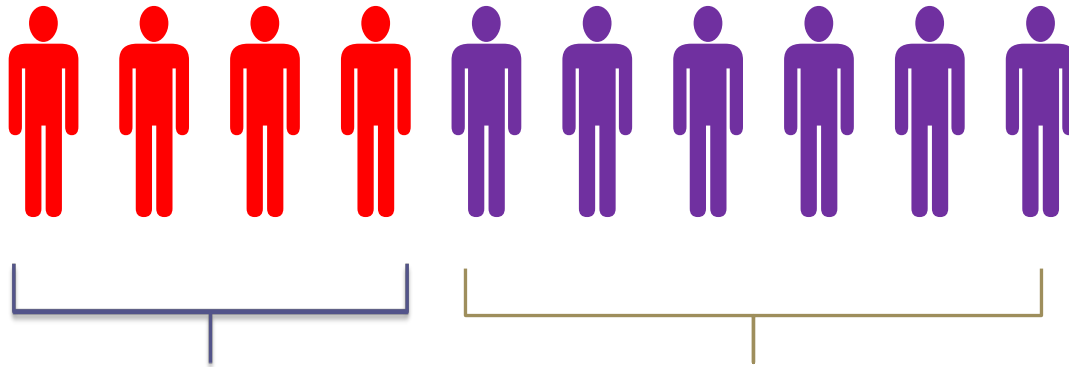




How do we manage if some children with UHL have significant academic difficulties while others do not???

Must we treat them all the same?

What distinguishes

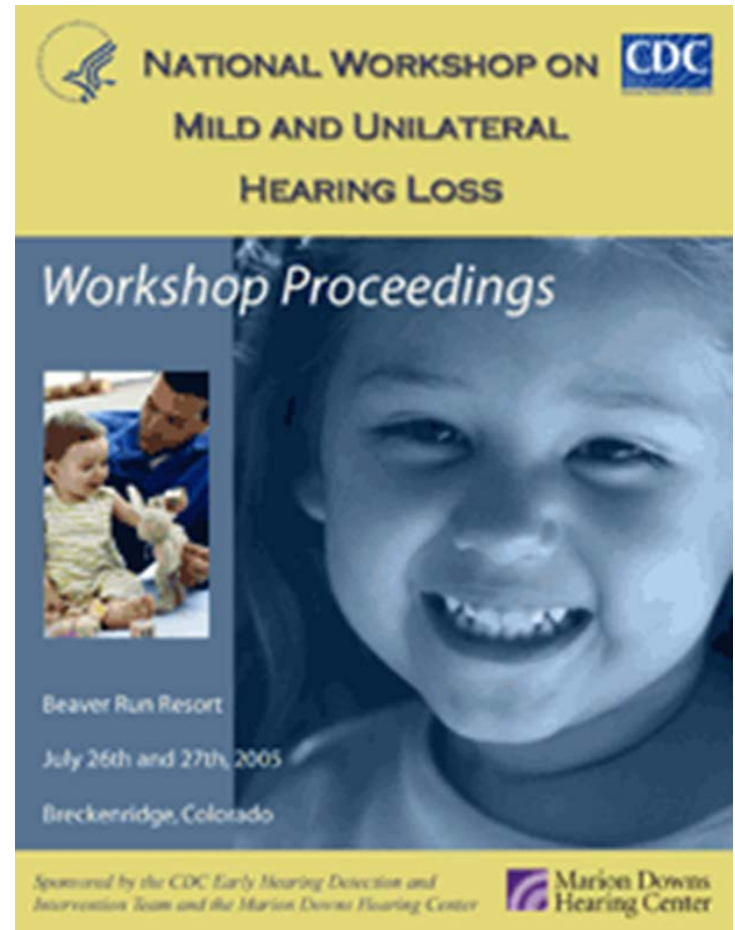


These children from these children?

Centers for Disease Control & Prevention 2005

- 50 national & international experts gathered
- Presented data on identification, assessment, & intervention
- Break-out groups for discussion
- Publication of proceedings

www.cdc.gov/ncbddd/ehdi/



Unilateral Hearing Loss Consensus Meeting

PHILADELPHIA, PA
OCTOBER 24, 2017



Consensus Panel Participants

Marlene Bagatto (Canada)

Janet DesGeorge (USA)

Alison King (Australia)

Padraig Kitterick (United Kingdom)

Diana Lournagaray (Argentina)

Dawna Lewis (USA)

Pat Roush (USA)

Doug Sladen (USA)

Anne Marie Tharpe (USA)

From Phonak:

Evert Dijkstra

Angela Pelosi

Kelly Wassell



We still have much to discover!

