Timing of Diagnosis and Intervention for Children with Hearing Loss

University of Iowa Children's Hospital
University of Iowa Health Care

Lenore Holte, PhD, Department of Communication Sciences and Disorders, and Department of Pediatrics, University of Iowa Children's Hospital;
Elizabeth Walker, PhD, Department of Communication Sciences and Disorders, University of Iowa;
Jacob Oleson, PhD, Biostatistics, University of Iowa; **Meredith Spratford**, AuD, Boystown National Research Hospital, Omaha, Nebraska;
Patricia Roush, AuD, Department of Otolaryngology, University of North Carolina, Chapel Hill, NC; **Mary Pat Moeller**, PhD, Boystown National Research Hospital, Omaha, Nebraska

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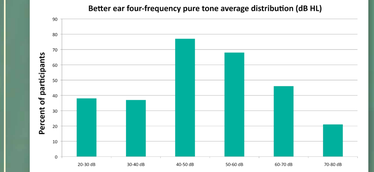
Introduction

- The Outcomes of Children with Hearing Loss (OCHL) study is an NIH-funded, multi-center study designed to explore the developmental outcomes of children who are hard of hearing (mild to severe hearing loss).
- Outcomes data on communication, academic, and psychosocial skills are gathered in an accelerated longitudinal design.
- Data on service provision is collected, including type, dosage, and specialty of provider.
- Normal-hearing control group.

Participants from a large geographic area with three research teams

Distribution of severity of hearing loss for all OCHL participants recruited to date.



Research Questions

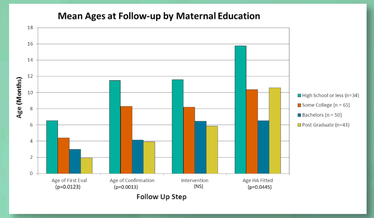
- How do family and child-specific factors such as socio-economic status (SES) and severity of hearing loss affect timely diagnosis and follow-up?
- How consistently are hard-of-hearing children receiving appropriate care and follow-up within the best-practice 1-3-6 timeline (JCIH, AAP, NIH)?
- What reasons are given by families for delays between various steps in the EHDI process?

Methods

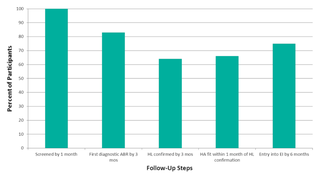
- At the initial OCHL visit, parents completed an intake interview that documented several benchmark steps toward the diagnosis of HL and the receipt of early intervention.
- For the subgroup of children who did not pass newborn hearing screening (n = 193), we explored effects of child and family variables on timeliness of follow-up steps. Linear regression models investigated the relationships among the independent predictor variables (gender, site of testing, SES, and severity of HL) and each of the dependent variables (ages at each follow-up benchmark).

Results

- Of the independent variables, only mother's education was found to be significantly related to the ages of first diagnostic audiologic evaluation (p = 0.0123), hearing loss confirmation (p = 0.0013) and hearing aid fit (p = 0.0445).
- There was no significant relationship between the predictor variables and the age at which the child entered early intervention.
- Similarly, there was no relationship between the predictor variables and the time that elapsed between confirmation of hearing loss and entry into early intervention.



Percentage of subjects meeting JCIH 1-3-6 goals for 193 children who did not pass NHS. Only 32% of children met all JCIH-recommended benchmarks on time.



Reported Reasons for Delays

- Multiple rescreenings (up to 10) or retesting.
- Family assured that failed screen was caused by something other than permanent hearing loss.
- Family told by primary care physician to wait until behavioral testing was possible.
- Family or physician did not believe child had a hearing loss due to observable responses to sound.
- Difficulty obtaining appointment for ABR, medical clearance for hearing aids or hearing aid fitting.
- Recurrent otitis media.

Conclusions

- Many families accessed care following newborn screening within recommended time frames. Specific barriers were identified, and these appear to be addressable through improved systems, services and educational efforts.
- In a group of children who are hard-of-hearing, higher maternal educational levels were significantly associated with earlier confirmation of hearing loss and fitting of amplification. Severity of hearing loss was not.
- Public awareness campaigns about newborn hearing screening and the importance of good hearing for speech and language development must continue to be developed, with particular emphasis on underserved communities.
- There remains confusion on the part of providers and families about the presence of hearing loss in infants and toddlers who display awareness of sound. Educational resources and training should address this specific gap in understanding.

OCHL Team Members

University of Iowa
J. Bruce Tomblin, Ph.D. (Co-PI)
Marlea O'Brien, Program Coordinator
Rick Arenas (IT)
John Knutson, Ph.D.
Sandie Bass-Ringdahl, Ph.D.
Ruth Bentler, Ph.D.
Lenore Holte, Ph.D.
Elizabeth Walker, Ph.D., CCC-A/SLP
Connie Ferguson, M.S., CCC-SLP
Marcia St. Clair, SLP Examiner
Wendy Fick (data entry)
Amanda Murray, M.A.
Jacob Oleson, Ph.D. (biostatistics)
Jane Pendergast, Ph.D. (biostatics)

BTNRH
Mary Pat Moeller, Ph.D. (Co-PI)
Patricia Stelmachowicz, Ph.D.
Ryan McCreery, Ph.D
Meredith Spratford, Au.D.
Lauren Berry, M.S., CCC-SLP
Emilie Sweet, M.S., CCC-SLP
Mark VanDam, Ph.D. (LENA)
Sophie Ambrose, Ph.D. (LENA)

University of North Carolina – Chapel Hill
Melody Harrison, Ph.D.
Patricia A. Roush, Au.D.
Shana Jacobs, Au.D.
M. Thomas Page, M.S., CCC-SLP

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