# Do the Characteristics of Children who are Deaf/Hard of Hearing with Additional **Disabilities Differ by Race/Ethnicity or Other Demographic Factors?**

Aijiana Zanders, B.A.<sup>1,2,4</sup>, Kendra Huskey, B.S.<sup>1,4</sup>, Mallene Wiggin, Ph.D.<sup>5</sup>, Allison Sedey, Ph.D.<sup>4,7</sup>, Sandra Gabbard, Ph.D<sup>3,6</sup>, Angela Bonino, Ph.D<sup>3,4</sup>, Christine Yoshinaga-Itano, Ph.D<sup>3,5,6</sup>





## Background

According to the American Speech Language and Hearing Association (ASHA), the prevalence of congenital hearing loss is 1 to 6/1000. Research reports that 40% of 0- to 3-year-old children with hearing loss have additional disabilities (Yoshinaga-Itano, Sedey, Coulter & Mehl,

1998). Yoshinaga-Itano et al. (2017) examined vocabulary outcomes and demographic variables of children with hearing loss between 8 to 36 months of age who met the Early Hearing Detection and Intervention (EHDI) 1-3-6 guidelines. Despite meeting the 1-3-6 guidelines, vocabulary quotients were significantly lower for children with additional disabilities over those with hearing loss alone. Moreover, the gap between chronological and developmental age widened as these children aged. Currently, there is limited research describing the characteristics of children who are deaf/hard of hearing and have additional challenges.

## Purpose

The purpose of the current study is to analyze data from 13 states, using the NECAP database, to determine the proportion and demographic characteristics of children that are deaf and hard of hearing with additional disabilities. We classified children into two groups: Deaf/Hard of Hearing (DHH) and Deaf/Hard of Hearing plus an additional area of challenge (DHH+), based on parental report. Specifically, we looked across these two groups regarding degree of hearing loss, ethnicity and race, and maternal level of education.

# NECAP Database Overview

The data used for this analysis was collected using the National Early Childhood Assessment Project (NECAP) database. There are more than 1500 children from 13 states in this database. The aim of NECAP is to support interested states in implementing a standard assessment battery for children from 6 months to 4 years of age who are deaf or hard of hearing.

All children from 6 months to 4 years of age with permanent hearing loss are eligible for inclusion in the NECAP database. Eligible children may have: unilateral or bilateral loss; conductive, sensorineural, or mixed hearing loss; any degree of permanent hearing loss from mild to profound; multiple disabilities or hearing loss only; and English or Spanish, as the primary language used in the home.

States Represented in the NECAP Database	
Arizona	
California	
Florida	
Idaho	
Indiana	Table 1. States represented in
Maine	NECAP according to
North Dakota	Yoshinaga-Itano et al (2017). This
Oregon	does not include children in
Texas	Colorado. It is estimated that
Utah	Colorado performs 300
Wisconsin	assessments per year
Wyoming	(Yoshinaga-Itano, 2014).

Audiology LEND Trainee, JFK Partners University of Colorado, Denver
Diversity LEND Trainee, JFK Partners University of Colorado, Denver
3. LEND Faculty, JFK Partners University of Colorado, Denver
4. University of Colorado, Boulder-SLHS

University of Coloradó, Boulder-Institute of Cognitive Science

Marion Downs Center Colorado School for the Deaf and the Blind



n=1125

n=287



## **Discussion and Future Directions**

**Area of Secondary Concern:** For toddlers in the NECAP database, developmental/cognitive delay was the single most commonly reported area of challenge. Motor-related challenges were also common. However, few caregivers reported that their child had learning-related or behavioral challenges, or an autism spectrum disorder (ASD) diagnosis. These finds are consistent with disability data for young children, in which developmental delay is a common diagnosis for young children receiving early intervention services (CDC, 2017), while disorders related to learning or behavior as well as ASD are more prevalent in the school-aged population (CCBD, 2017; CDC, 2016; NICHD, 2016).

**Degree of Hearing Loss:** The DHH and DHH+ groups have similar proportions of children for each severity category of hearing loss. Children with minimum/mild hearing loss account for nearly half (~45%) of children in both the DHH and DHH+ groups.

Ethnicity and Race: The ethnicity and racial characteristics are broadly similar for the D/HH and D/HH+ groups. There are two trends that need to be explored further: (1) a small decrease of children who are Hispanic in the D/HH+ group (27.7% vs. 33.1%), and (2) a slight increase of children who are Black in the D/HH+ group (6.4% vs. 3.7%) relative to the D/HH group.

**Maternal Education:** Maternal education level appears to be similar for the D/HH and D/HH+ groups. This will be an important variable to consider in future analyses because maternal education has been shown to be related to both amplification usage and language outcomes (Walker et al 2013).

**Future Directions:** This poster is an exploratory analysis. Further research and analysis needs to be conducted to better understand the interaction of these factors, and how they relate to outcomes for children who are deaf/hard of hearing with additional areas of challenge.

#### Acknowledgements

This project was supported, in part, by the Health Resources and Services Administration (HRSA) under the Leadership Education in Neurodevelopmental Disabilities (LEND) Grant T73MC11044 and by the Administration on Intellectual and Developmental Disabilities (AIDD) under the University Center of Excellence in Developmental Disabilities (UCDEDD) Grant 90DDUC0014 of the U.S. Department of Health and Human Services (HHS). This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.

#### References

- American Speech-Language-Hearing Association. The Prevalence and Incidence of Hearing loss. https://www.asha.org/public/hearing/Prevalence-and-Incidence-of-Hearing-Loss-in-Children/
- Center for Disease Control and Prevention: Autism Spectrum Disorder Data and Statistics (2016). Retrieved from https://www.cdc.gov/ncbddd/autism/data.html Center for Disease Control and Prevention: Facts About Developmental Disabilities (2017).
- https://www.cdc.gov/ncbddd/developmentaldisabilities/facts.html Council for Children with Behavioral Disorders: Behavior Disorders (2017). Retrieved from http://www.ccbd.net/about/ebddefintion
- National Institute of Child Health and Human Development: Learning Disabilities (2016). Retrieved from https://www.nichd.nih.gov/health/topics/learning/conditioninfo/default NECAP: National Early Childhood Assessment Project (2008)
- https://www.mariondowns.com/necap-national-early-childhood-assessment-project • Walker, E., Spratford, W., Moeller, M., Oleson, J., Ou, H., Roush, P., & Jacobs, S. (2013) Predictors of hearing aid use time in children with mild to severe hearing loss. American
- *Speech-Language- Hearing Association*, 44, 73-88. • Yoshinaga-Itano, C., Sedey, A., Coulter, D., Mehl, A. (1998). Language of early- and later-identified children with hearing loss. *Pediatrics*, 102 (5), 1161-1171.
- Yoshinaga-Itano, C. (2014). NECAP: Language Outcome of Young Children who are Deaf/hard of Hearing across 11 states: Strengths, Limitations and Predictors and Success.
- https://www.asha.org/Events/convention/handouts/2014/1321-Yoshinaga-Itano/ • Yoshinaga-Itano, C., Sedey, A., Wiggin, M., Chung, W. (2017) Early hearing detection and vocabulary of children with hearing loss. *Pediatrics*, 140 (2), 1-10.

JFK Partners