



## Background

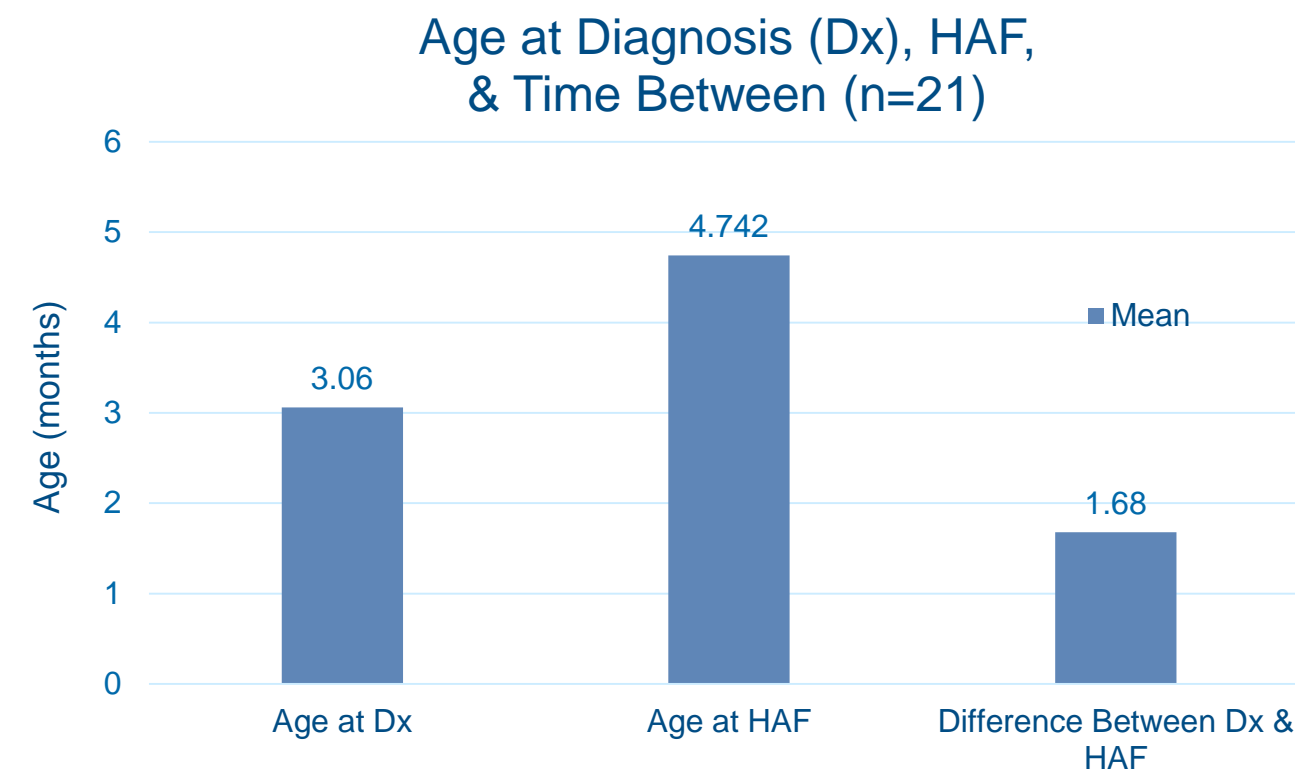
- Joint Committee on Infant Hearing (JCIH) standards<sup>1</sup>:
  - Hearing screen by age 1 month
  - Audiologic evaluation by age 3 months
  - Hearing aid fitting (HAF) within 1 month of diagnosis, if chosen
  - Early intervention (EI) services by age 6 months
- Completing JCIH standards by age 3 months → better language outcomes at preschool and elementary school ages<sup>2,3</sup>
- All 3 JCIH milestones must be met to obtain EI benefits<sup>4</sup>
- Barriers to meeting JCIH standards: provider-, patient-, family-related<sup>5,6,7</sup>
- Purpose:
  - Identify age infants are diagnosed & fit with hearing aids
  - Examine if meeting JCIH standards
  - Identify variables impacting these standards
  - Address barriers to minimize delays & decrease parental stress with diagnostic process

## Methods

- Retrospective chart review of infants <6 months of age
  - initial diagnostic evaluation between July & December 2014 (n=141)
  - diagnosed with bilateral hearing loss (n=34)
  - fit with hearing aids at our facility (n=21)
- Primarily descriptive analysis
- Age at screen could not be evaluated – not a birthing facility

## Results

### 1. Age at diagnosis of hearing loss (HL) & HAF



### 2. Are we meeting JCIH standards?

JCIH standards			
1 month (screen)	3 months (diagnose)	6 months (HAF fit/EI)	<1 month between dx & HAF
Not evaluated	3.06	4.74	1.68

### 3. Variables that impacted age at Dx & HAF

Variables	Statistical Analysis	p value
Appointment (Appt) cancellations	r=0.482	p=0.015
Middle ear (ME) pathology	t=-2.208	p=0.049
Visit type		p=0.989

Note, no relationship between NICU stay or insurance type & age at HAF

## Conclusions

- On average JCIH standards not met
  - 62% of infants identified by age 3 months
  - 48% of infants fit with hearing aids within 1 month of Dx
- Infants with more cancelled appts &/or presence of middle ear pathology were diagnosed & fit with hearing aids later
- Infants who had a hearing aid consult (HAC) in conjunction with the diagnostic evaluation were fit ~3 weeks sooner
- Delays in Dx & HAF are similar to previous research<sup>5,6,7</sup>

## Challenges

- Cancelled/missed appts:**
  - Provide additional information
  - Additional appt options
  - Multiple sites for scheduling
- ME pathology:**
  - Collaborate with ENT to manage ME health
  - Conservative loaner HAF until ME pathology is addressed
- Number of appts needed:**
  - Adjustments to audiologic practices
  - HAC with diagnostic evaluation
  - Increase community collaboration

## Future Directions

- Prospective study with more subjects, investigating additional variables
- Investigating alternative service provision options
- Effects of timeliness on family stress levels

## Disclosures

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## References:

- JCIH. (2007). Year 2007 position statement: Principles and guidelines for early hearing detection and intervention programs. *Pediatrics*, 120(4), 898–921.
- Vohr B., Topol D., Girard N., St. Pierre L., Watson V., Tucker R. (2012). Language outcomes and service provision of preschool children with congenital hearing loss. *Early Human Development*, 88(7),493-498.
- Vohr, B. R., Topol, D., Watson, V., St Pierre, L., & Tucker, R. (2014). The importance of language in the home for school-age children with permanent hearing loss. *Acta Paediatrica*, 103(1), 62–69.
- Yoshinaga-Itano, C., Sedey, A. L., Wiggin, M., & Chung, W. (2017). Early hearing detection and vocabulary of children with hearing loss. *Pediatrics*, 140(2), 1–10.
- Holte, L., Walker, E., Oleson, J., Spratford, M., Moeller, M. P., Roush, P., ... Ou, H. (2012). Factors influencing follow-up to newborn hearing screening or infants who are hard-of-hearing. *American Journal of Audiology*, 21(2), 163–174.
- MacNeil, J. R., Liu, C., Stone, S., & Farrell, J. (2007). Evaluating families' satisfaction with early hearing detection and intervention services in Massachusetts. *American Journal of Audiology*, 16, 29–56.
- Munoz, K., Blaiser, K., & Barwick, K. (2013). Parent Hearing Aid Experiences in the United States. *Journal of American Academy of Audiology*, 24(1), 5–16.

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