



Do They Come Back?

Audiology Follow-Up Trends of Oregon Health and Science University's NICU Population

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Introduction

Background:

Infants hospitalized in a Neonatal Intensive Care Unit (NICU) are at-risk for congenital, progressive, and/or late-onset hearing losses. The Oregon Health and Science University (OHSU) newborn hearing screening program recommends that infants who passed the newborn hearing screen, but have a history of NICU admission greater than 5 days or other risk-factors for hearing loss¹, have an audiologic evaluation by 6-12 months of age.

Objectives:

The goal of this quality improvement project was to two-fold:

- Describe the proportion of infants from the OHSU NICU that received a diagnostic hearing evaluation after passing an automated auditory brainstem response (AABR) newborn hearing screen.
- Identify factors associated with follow-up.

Methods

Participants:

Hearing screening and follow-up records were reviewed from a cohort of 355 infants (F=146, M=209) admitted to the NICU and born between June 1, 2018 to June 29, 2019.

Data Analysis:

- Calculate the proportion of infants who received audiologic follow-up, the timeline, and the results.
- Bivariate analyses were conducted to compare characteristics of infants with and without audiologic follow-up.

Contact Information

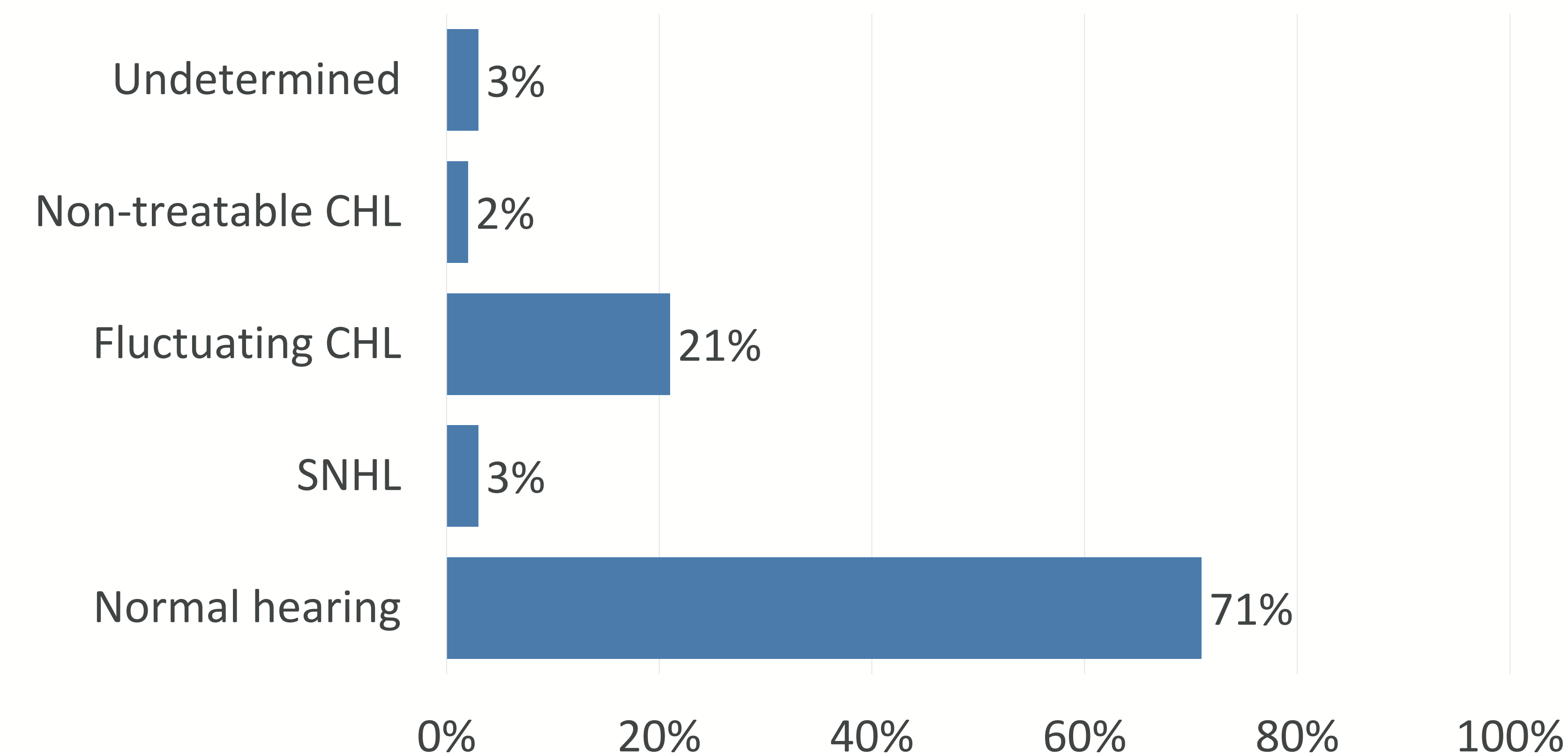
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Table 1: Subject characteristics

	Total (n=355)	Audiology Follow-up (n=99)	No follow-up (n=256)
Sex			
Female, n (%)	146 (41%)	34 (23%)	112 (77%)
Male, n (%)	209 (59%)	65 (31%)**	144 (69%)
Weeks' gestation, mean (SD)	34.42 (4.21)	32.51* (4.86)	35.17 (3.68)
Days NICU admission, mean (SD)	30.20 (36.04)	43.16 (42.86)	25.83 (33.51)
Years' maternal age at birth, mean (SD)	29.37 (6.48)	29.27 (5.74)	29.41 (6.76)
Distance from OHSU			
≤ 40 miles	216 (61%)	59 (27%)	157 (73%)
> 40 miles	139 (39%)	40 (29%)	99 (71%)
Other OHSU appointment after discharge?	247 (70%)	94 (95%)*	152 (61%)

*P<.001 **P<.05

Figure 1: Hearing outcomes of infants with follow-up



Results

A total of 99 infants (28%) received a diagnostic hearing evaluation at a mean age of 9 months. Factors associated with audiology follow-up were:

- Younger gestational age
- Male sex
- Coordination of the hearing evaluation with another OHSU appointment

Three children were identified with sensorineural hearing loss (SNHL); two had family history of hearing loss and one sustained a left temporal bone fracture at 4 months. Two children were identified with non-treatable conductive hearing loss (CHL) and both have a genetic condition associated with hearing loss.

Conclusion

Discussion:

This project determined that 28% of infants admitted to the OHSU NICU in 2018-2019 returned for recommended audiologic follow-up after passing the newborn hearing screen. Coordination with another medical visit provides an opportunity to improve follow-up care.

Limitations:

- Follow-up data was limited to information available in OHSU's electronic health records (EHR).

Future Research:

- Explore the association between male sex and gestational age.
- Explore additional risk factors (ex: cardiac conditions, genetic contributions) in association with NICU follow-up.

References

¹(2019). Year 2019 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Journal of Early Hearing Detection and Intervention, 4(2), 1-44. DOI: 10.15142/fptk-b748