

# What Can Newborn Screening Data Tell Us About Factors Associated With Loss to Follow-Up?

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## INTRODUCTION

The Department of Hearing and Speech Sciences at Vanderbilt University Medical Center screens approximately 4500 newborns a year across the neonatal intensive care unit (NICU) and the well baby nurseries. These large numbers afford us the opportunity to examine our screening practices for research and quality improvement purposes.

This project had two purposes:

- 1) to create a data repository for tracking infant demographic and EHCI data
- 2) to determine if a change of oversight of the WBN hearing screening program from pediatric nurses to audiologists would change the referral rates

## METHODS

### Data Repository

A data repository was created through RedCap database. Recorded information included demographic data, maternal factors, newborn hearing screening results, risk factors for hearing loss.

### Data Sources

Data on all babies born or transferred to Vanderbilt's WBN or NICU between August 2015-2016 were entered into the Vanderbilt NHS data repository (n=4,430).

### Procedures

The investigators entered new medical record numbers into the data repository and completed the demographic and hearing screening information with the help of three other graduate students. Each student received training from the principal investigators to ensure consistency of data entry. No changes to the screening process, equipment, or protocols were implemented during the project period.

Example of Biological Mother and Family Information Fields

## RESULTS

Descriptive Info:	English as primary language	Public Assistance Programs	Infant's mother eligible for WIC services	C-section delivery	NICU stay (of any duration)
Percentage:	85%	54%	54%	39%	29%

Figure 1. Select Demographic data for initial 870 infants across both nurseries

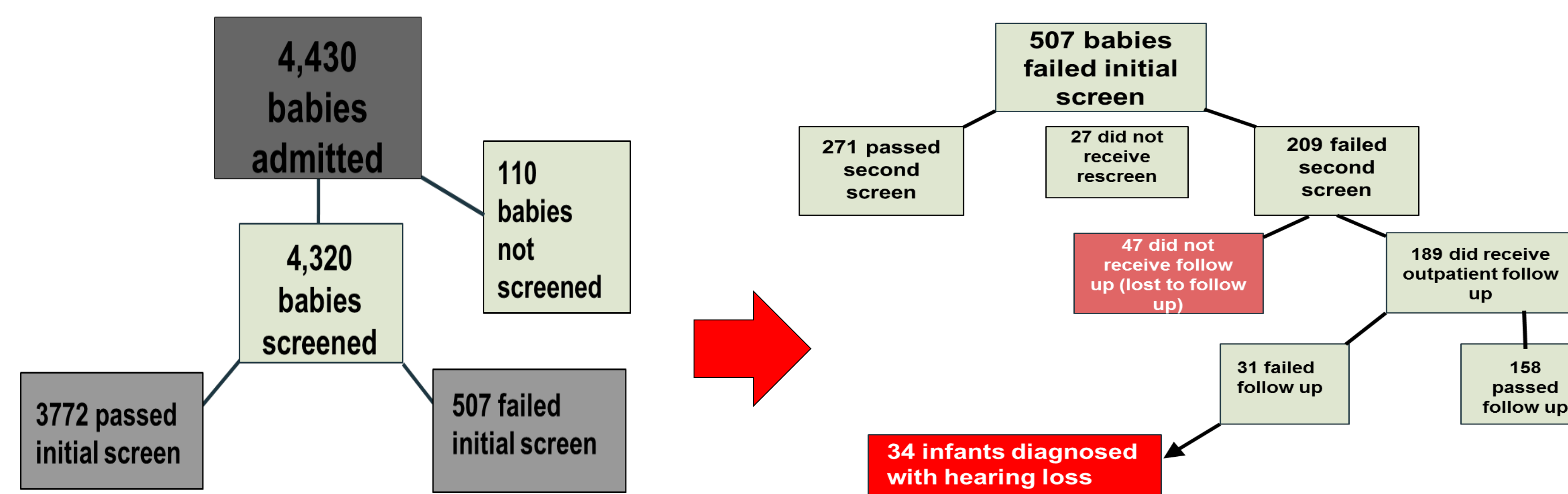


Figure 2. Screening results. Overall failure rate for the WBN was 4.7%. Failure rate for the NICU was 3.9%.

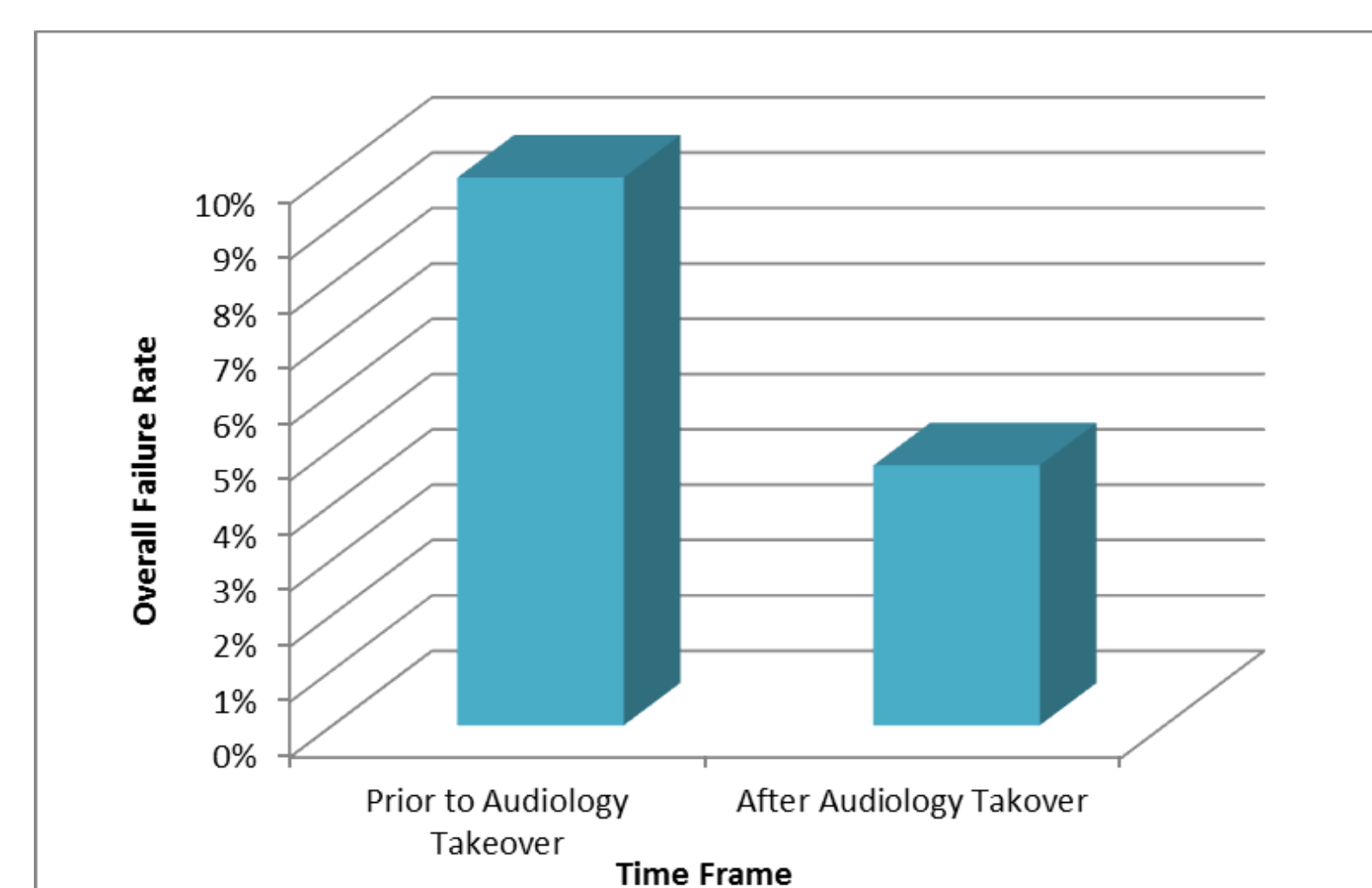


Figure 3. Failure rate prior to audiology takeover of WBN vs. after takeover.

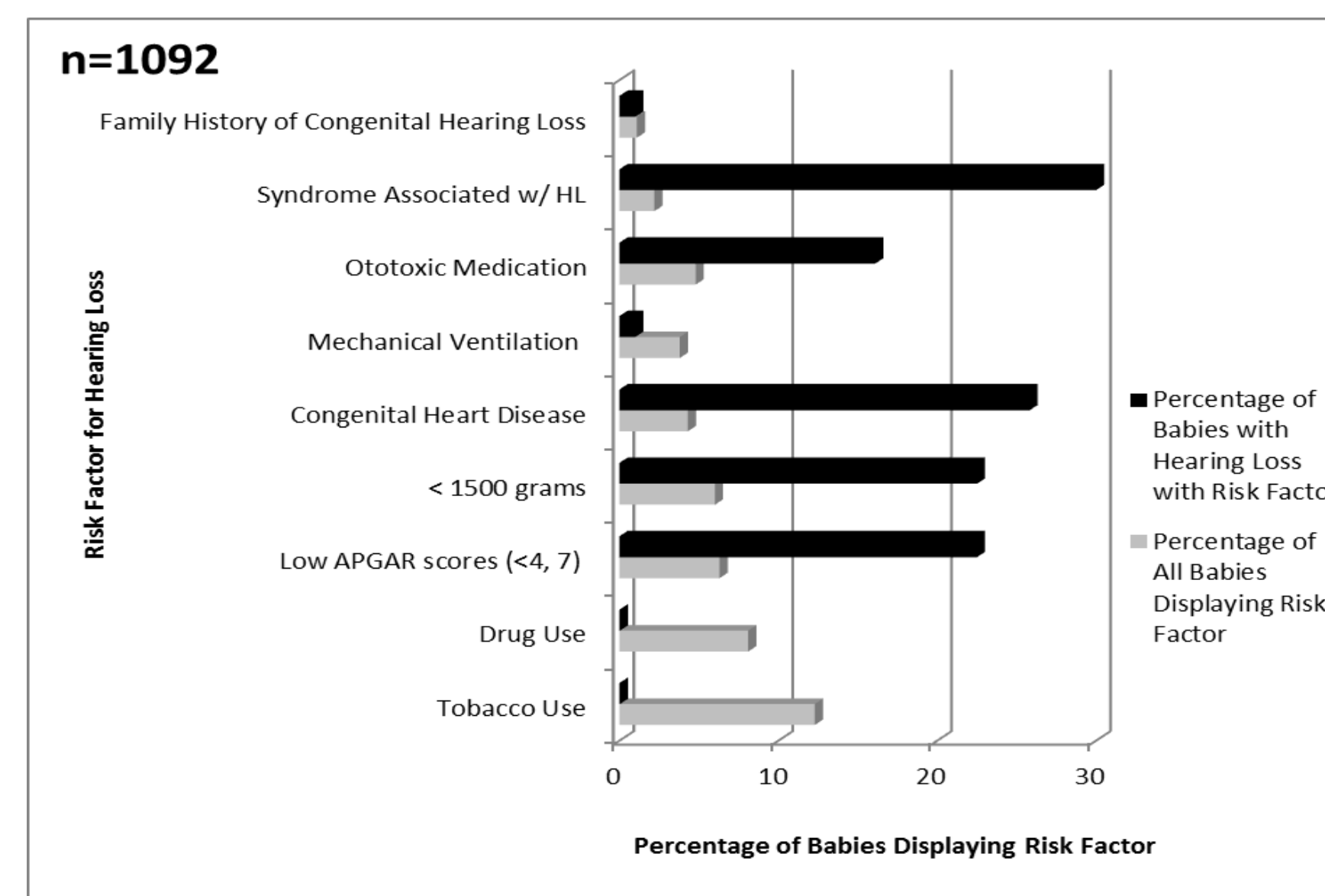


Figure 4. Comparison of the percentage of infants with recorded risk factor of those who passed vs. those diagnosed with hearing loss.

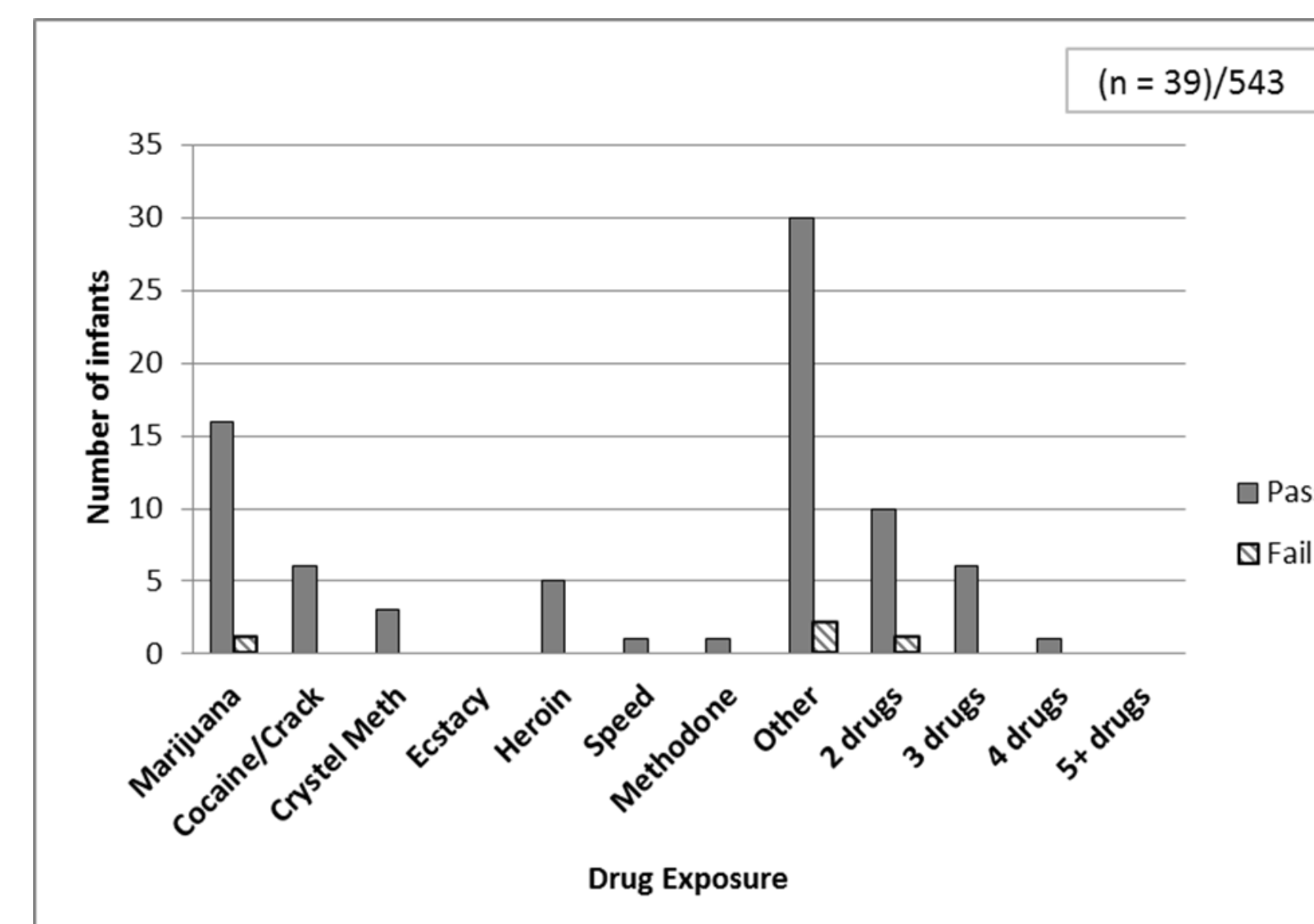


Figure 5. Drug use and relationship to pass-fail rate. The "other" category is primarily composed of babies exposed to opiates. (n=select 543 babies with maternal drug use).

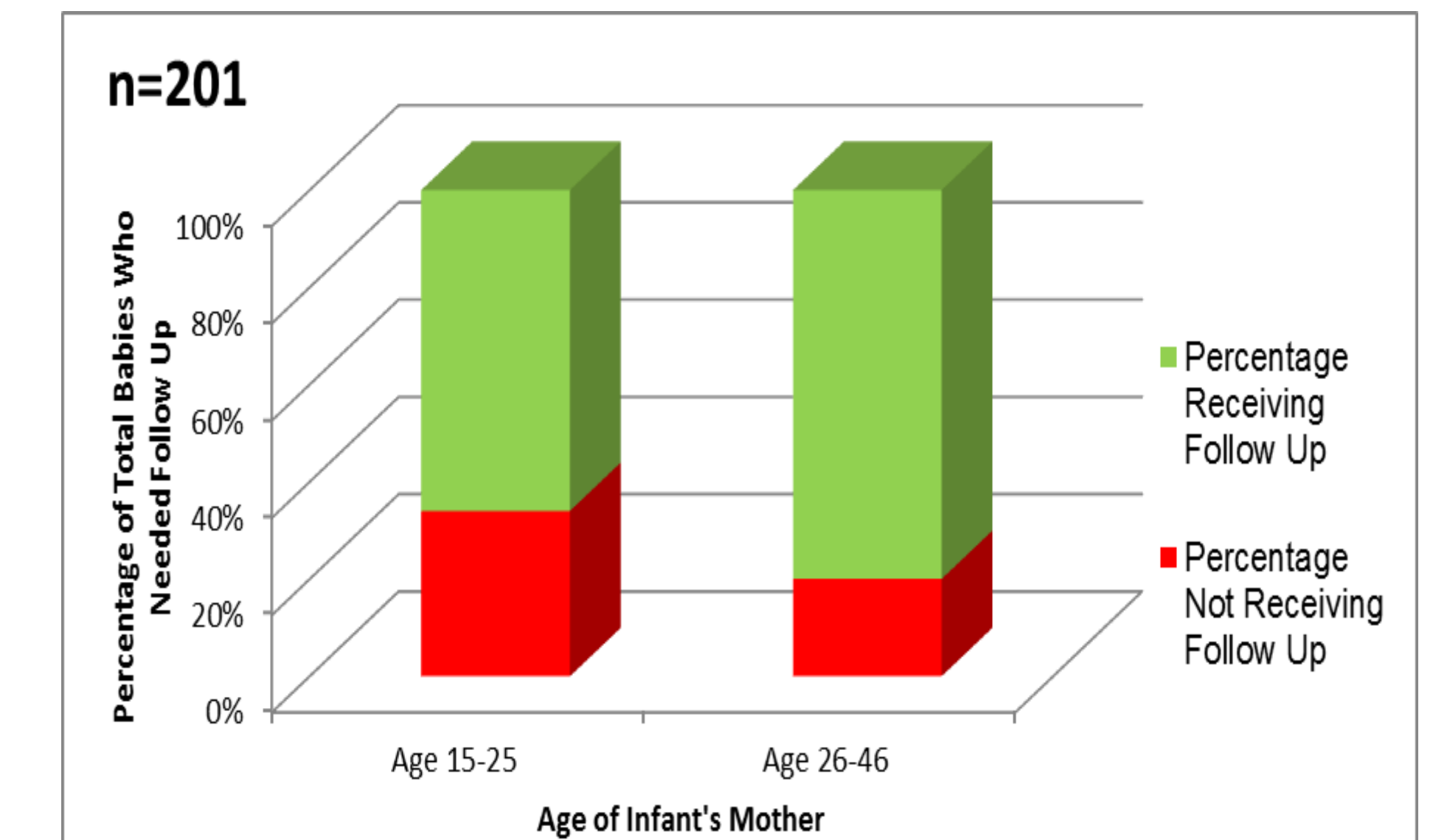


Figure 6. Maternal age as a contributor to loss to follow up (p<.04).

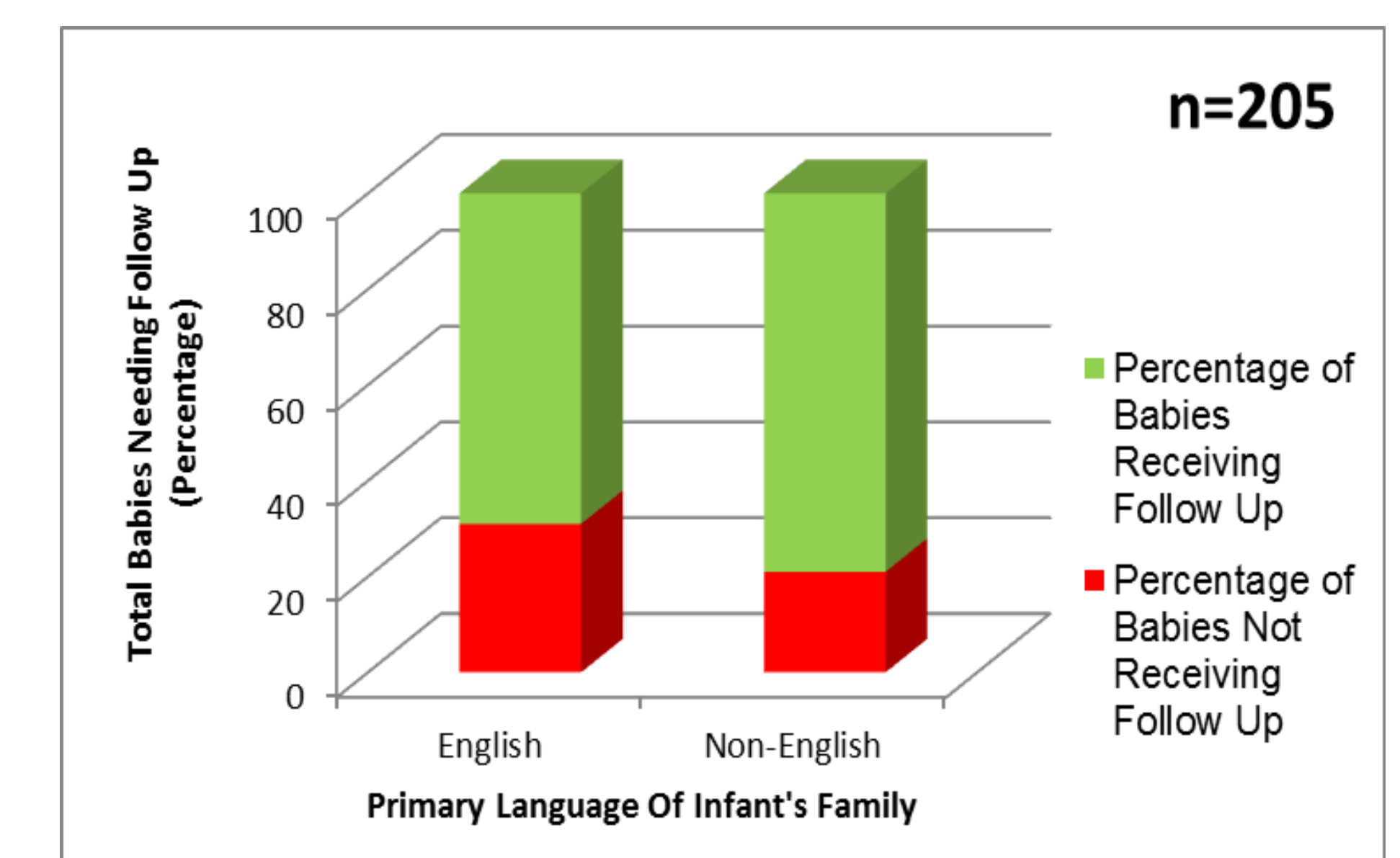


Figure 7. Primary language of family as contributor to loss to follow up.

## SUMMARY

Examination of NBHS data can reveal patterns that can improve program quality. In this one year study, we found that program supervision by audiologists, rather than pediatric nurses, lowered the screening failure rate significantly. In contrast to previous studies, we found that primary language of the family was not a contributor to loss to follow up. This might be because of the availability of interpreters in our medical center as well as educational materials on newborn hearing screening available in several languages. Finally, similar to other studies, we found a significant relationship between maternal age and loss to follow up. This finding suggests that a different approach to counseling younger mothers might be warranted.

## ACKNOWLEDGEMENTS

We would like to thank Drs. Alison Kempf and Andrea Hillock-Dunn for their assistance with this project. We also appreciate our fellow graduate students who assisted with data entry, and the Tennessee Newborn Hearing Screening Program that provided advice to the project.

This project was supported in part by the Maternal Child Health Bureau (T83MC00008, T73MC00050, AUCD Pediatric Audiology Supplement) and the U.S. Department of Education (H325K120305).