



Which infants in NYS receive diagnostic testing after failing hearing screening? The influence of mother's race, ethnicity and location



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Introduction

The New York State Early Hearing Detection and Intervention (EHDI) Program has been working to ensure that infants with hearing loss are identified and provided necessary diagnostic and medical care since October 2001.

The EHDI Program works to ensure that all infants receive hearing screening by one month of age, those who fail the screening have diagnostic testing by three months of age, and those with diagnosed hearing loss are enrolled in appropriate early intervention services by six months of age.¹ These guidelines are very important because "hearing loss can affect a child's ability to develop communication, language, and social skills."²

NYS staff have worked with EHDI coordinators at birth hospitals statewide to increase the percent of infants who receive diagnostic testing after failing their screening, but it has been difficult to maintain progress. The rate was 38% in 2016, 44% in 2017, 38% in 2018 and 31% in 2019.

Research Question

In order to gain a greater understanding of this issue, we examined whether the following factors significantly predicted which infants received diagnostic testing after failing their hearing screening:

- Mother's Race
- Mother's Ethnicity
- Geographic location (NYC versus rest of NYS)

Methodology

1. EHDI data from the 2019 calendar year were analyzed to identify which infants failed their most recent hearing screening.
2. The data were analyzed further to identify which infants who failed their screening had documented diagnostic testing in the EHDI database (EHDI-IS).
3. Logistic regressions were utilized to examine whether mother's race, mother's ethnicity, or location significantly predict whether infants receive diagnostic testing. We also examined whether the likelihood of diagnostic hearing testing for infants with different racial and ethnic backgrounds depended upon their geographic location.

Main Findings

811 infants who failed their hearing screening had documented diagnostic testing (31%)

The logistic regression model showed that:

Infants living outside of NYC were more likely to have diagnostic testing than infants living in NYC.

The percent tested was 39% for infants living outside of NYC versus 23% living in NYC.

Infants from Asian/Pacific Islander or Other race mothers were more likely to have diagnostic testing than infants from Black mothers.

The percent tested were 36% (Asian/ Pacific Islander), 34% (Other race) versus 23% (Black).

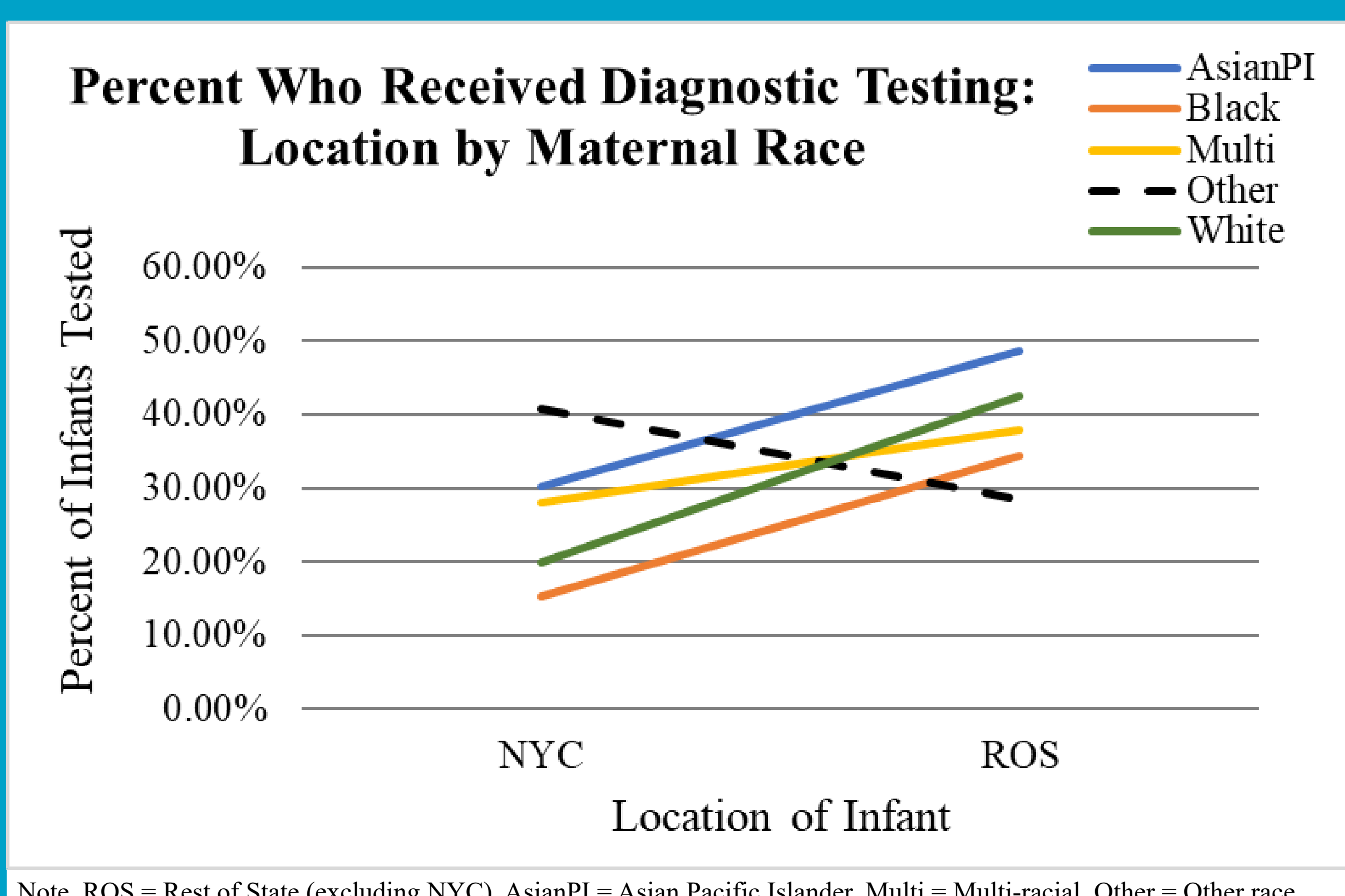
Infants from Hispanic mothers were more likely to have diagnostic testing than were infants from Non-Hispanic mothers.

The percent tested was 33% among infants with Hispanic mothers versus 31% with Non-Hispanic mothers.

There was a significant interaction between mother's race and location (see graph below).

For the majority of racial groups (Asian/Pacific Islander, Black, Multi-racial, and White), infants living outside of NYC were more likely to have diagnostic testing than infants living in NYC.

Infants with mothers from Other racial groups were more likely to receive testing in NYC than outside of NYC (see the black dashed line in the graph below).



Conclusions

Infant's mother's race, ethnicity and location significantly predict documented diagnostic hearing testing.

However, it is unclear whether these infants were never referred for diagnostic testing (i.e., loss to follow-up) or whether they received diagnostic testing but the information is never entered into the EHDI database (i.e., loss to documentation).

The EHDI Program collects data initially through the birth certificate from the state's two vital records system, Statewide Perinatal Data System (SPDS) outside of NYC and the E-Vitals system in NYC. These records are then integrated into the EHDI database (EHDI-IS). If an infant does not pass the newborn hearing screening, follow-up and/or diagnostic audiologic evaluation results must be manually entered into the NYEHDI-IS by providers of these services. However, it can be a challenge to ensure follow-up and/or diagnostic audiologic evaluation results are entered. This loss of documentation limits the ability to ensure the loop is closed on every infant who does not pass initial hearing screening.

The EHDI Program is looking to address this challenge in several ways and this research helps us to focus our attention and technical assistance.

Potential Future Research Ideas

1. Conduct this analysis in the future to see whether these differences persist
2. Contact families to identify what percent of infants were diagnosed but the information was not documented in EHDI-IS versus infants that never received diagnostic testing.
3. Identify why infants with Black mothers, Non-Hispanic mothers and infants living in NYC are less likely to have documented diagnostic testing.
4. Identify which racial and ethnic groups are the most prevalent in the birth centers with the lowest percentage of infants who received diagnostic testing

References

1. Joint Committee on Infant Hearing. Year 2019 position statement: Principles and guidelines for early hearing detection and intervention programs. *The Journal of Early Hearing Detection and Intervention* 2019; 4(2), 1-44.
2. Center for Disease Control (2020, December). Hearing Loss Treatment and Intervention Services. <https://www.cdc.gov/ncbddd/hearingloss/treatment.html>