

The Impact of the COVID-19 Pandemic on the Early Management of Hearing

Loss in North Carolina: Literature Review and Methodology

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About the Authors

The authors are full-time graduate students in the Doctor of Audiology (AuD) program at UNC and audiology trainees in the North Carolina Leadership Education in Neurodevelopmental and Related Disabilities (LEND) Program. This project is being completed with mentorship by UNC-Chapel Hill and UNC Health faculty and in collaboration with the North Carolina EHDI Program (NC-EDHI) program.

Background

Newborn hearing screenings are vital to decrease the risk of congenital hearing loss going undetected and manifesting into speech-language, learning, or other developmental delays (Walker et al. 2014). The COVID-19 pandemic put considerable strain on families and the healthcare system. Despite these challenges, the American Academy of Pediatrics recognized the importance of hearing screening in their 2020 statement reporting that the continuation of newborn hearing screenings during the pandemic “is essential to ensure healthy and appropriate development.”

Retrospective studies on COVID-19's impact on hearing screenings reported potentially significant disruptions including decreased rates of screening by one month of age, overall screening, and referral for intervention services (Blaseg et al. 2021). Anecdotal evidence and general clinical impressions suggest the risk that children accessed these services less consistently during the COVID-19 period.

This poster provides a literature review and preliminary look into the impact of COVID-19 on hearing loss detection and intervention from the Centers for Disease Control and Prevention (CDC) for North Carolina.



Photo from UNC Pediatric Audiology Services

JCIH Guidelines

In congruence with the universal hearing screening mandate, the Joint Committee of Infant Hearing (JCIH) has released a national set of recommendations for age of screening, identification, and intervention. Guidelines for the 1-3-6 method state the following:



Although the goal of the 1-3-6 method is to ensure that all children with hearing loss are identified, evaluated, and receive intervention services by 6 months of age, there are barriers to its implementation. A study by Awad et al. (2019) cited missed appointments, mild hearing loss, and middle ear involvement as obstacles to timely hearing aid fittings.

Similarly, previous studies have found appointment wait times, provider-patient relationships, limited access to audiologists, and cost are variables that impact meeting the 1-3-6 guidelines (Awad et al. 2019).

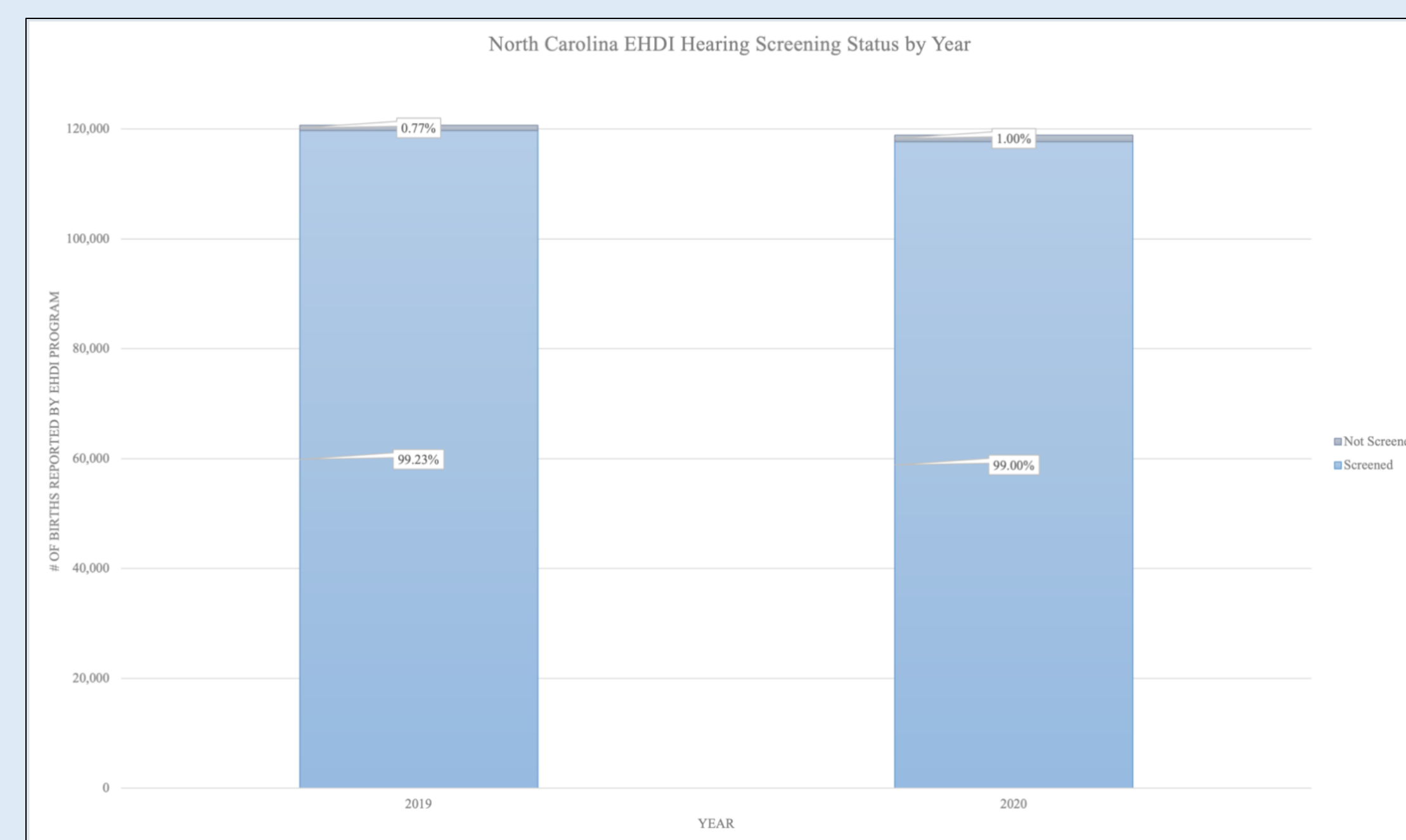


Photo from UNC Health

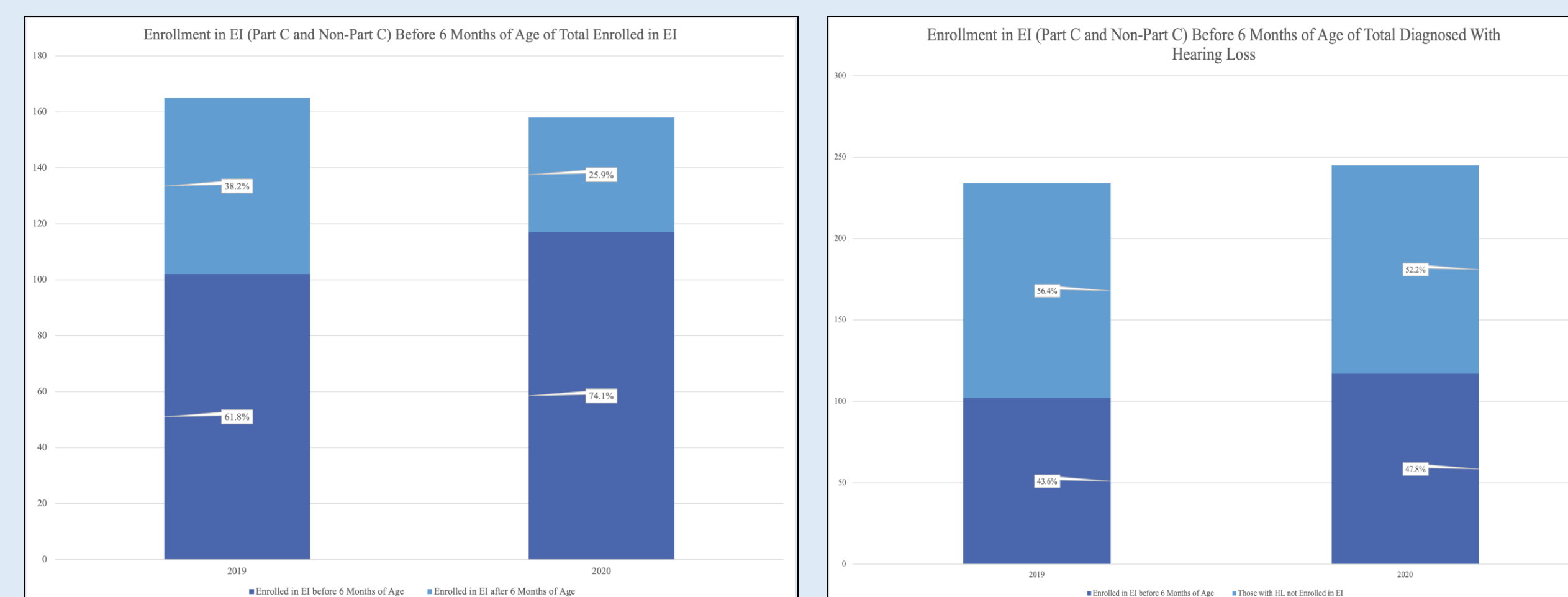
Literature Review

The Centers for Disease Control and Prevention (CDC) along with the Early Hearing Detection and Intervention Program (EHDI) sends out an annual Hearing Screening and Follow-up Survey (HSFS). Data from a summary of hearing screenings among total occurrent births in the state of North Carolina from the first year of the COVID-19 Pandemic (January 2020 to December 2020) and from the year immediately preceding (January 2019 to December 2019) are presented and compared below.

Status	2019	2020
Screened	119,709	117,658
Not Screened	929	1,184
Total Births	120,638	118,842



Year	Permanent Hearing Loss	Total Referrals to Part C	Total Enrolled in EI (Part C and Non-Part C)	% Enrolled in EI Before 6 Months of Age Among the Enrolled (Part C and Non-Part C)		
				Total Enrolled in EI Before 6 Months of Age (Part C and Non-Part C)	% Enrolled in EI Before 6 Months of Age Among those with Hearing Loss	% Enrolled in EI Before 6 Months of Age
2019	234	204	165	102	61.8	43.6
2020	245	211	158	117	74.1	47.8



Key preliminary findings for this ongoing investigation include the following:

- Between 2019 and 2020, the percentage of babies in North Carolina who failed to undergo a newborn hearing screening increased from 0.77% to 1.00%.
- During COVID-19 in 2020, the percentage of babies enrolled in EI services of the total diagnosed with hearing loss increased, as did percentage of enrollment prior to turning 6 months of age.

Methods

The purpose of this investigation is to serve as the initial step to a larger scale study that analyzes the success and availability of hearing management after identification in the state of North Carolina.

Using an administrative dataset generated by the North Carolina EDHI public health tracking database, data will be analyzed to evaluate early hearing loss care during two periods:

- (1) the pre-COVID-19 period (a thirty-month window from 09/20/2017-03/19/2020) to serve as baseline, and
- (2) a thirty-month window of the COVID-19 period (03/20/2020-09/20/2022).

The data will be analyzed to measure the following:

Timing Benchmarks	Quality Benchmarks
age at hearing loss diagnosis	rates of loss to follow up at each EHDI benchmark
age at confirmation of hearing	rates of diagnosis compared to birth rate
age at hearing aid fitting	rates of hearing aid fitting and cochlear implantation compared to birth rate
age at early intervention enrollment	
age at cochlear implantation	

The study population includes any infant who did not pass the initial newborn hearing screening or subsequent outpatient hearing screening (if applicable) during the specified time window.

Analysis of this data will help provide a more in-depth understanding of the impact the COVID-19 pandemic had on the identification, referral, and subsequent interventions for children with hearing loss in the state of North Carolina.

Next Steps

- Aggregate and analyze data from the NC EHDI public health tracking database to evaluate early hearing loss care before and during the COVID-19 pandemic
- Assess several timing (age of diagnosis, hearing aid fitting, etc.) and quality (rate of loss to follow-up, rate of device fitting compared to birth rate, etc.) benchmarks to better inform the NC EHDI system and audiology care teams about the impact of COVID-19
- Preset findings to the North Carolina EHDI Advisory Committee



Photo from CDC

Acknowledgements

Marcia Fort, AuD, NC Division of Public Health, Raleigh, NC

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