

Perspectives of Key Personnel and Actualization of Practices: A View from the EHDI System of Georgia

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Introduction

Early Hearing Detection and Intervention

Newborn hearing screening is the first step in the early hearing detection and intervention (EHDI) process. EHDI has proven to yield positive outcomes for children, including communication and linguistic competence (Yoshinago-Itano et al., 1998). These outcomes are optimal when benchmarks recommended by the Joint Committee on Infant Hearing (JCIH) are met – screen by 1-month, diagnosis by 3-months, and enrollment into early intervention by 6-months (Yoshinago-Itano et al., 2017).

In 2022, Cree et al. published a paper examining provider perspectives across the continuum of care (i.e., screeners, audiologists, pediatricians) to understand barriers and facilitators in the Texas EHDI system. Five themes were identified by providers participating in the study which included coordination across the continuum of care, access to care, education and training, insurance coverage, and confidentiality. Findings point to the importance of examining the components of the early identification process from the perspective of the provider.

EHDI in Georgia

In Georgia, EHDI coordinators are responsible for obtaining records of screening results from birthing hospitals and making contact with families who need follow-up for a failed, missed, or undocumented screen. EHDI coordinators help coordinate rescreening appointments and diagnostic evaluations as needed for families.

In 1999, Georgia passed legislation mandating newborn hearing screening across all of Georgia's birthing centers. Georgia set a 95% goal, similar to other states, of completing the initial birth screen. Georgia has consistently met the 95% initial screen goal; however, many of Georgia's 18 health districts struggle to meet the JCIH 1-3-6 goals of follow-up screening, diagnostic evaluation, and enrollment into early intervention, respectively.

The Footprint of Georgia

Department of Public Health

- From 2018-2020, on average, there were:
 - 122,382 resident births per year
 - 117,883 resident babies screened per year
- 18 health districts:
 - Each district has an assigned EHDI coordinator
 - Counties served by each district range from 1-16
 - The number of birthing hospitals in each district range from 1-8
- Georgia Demographics:
 - Population of 10,711,908 (2020 Census)
 - 79% of Georgia's population comes from urban areas; whereas 21% of Georgia's population comes from rural areas
 - 120/159 (75%) counties are considered rural
 - 39/159 (25%) counties are considered urban

Purpose

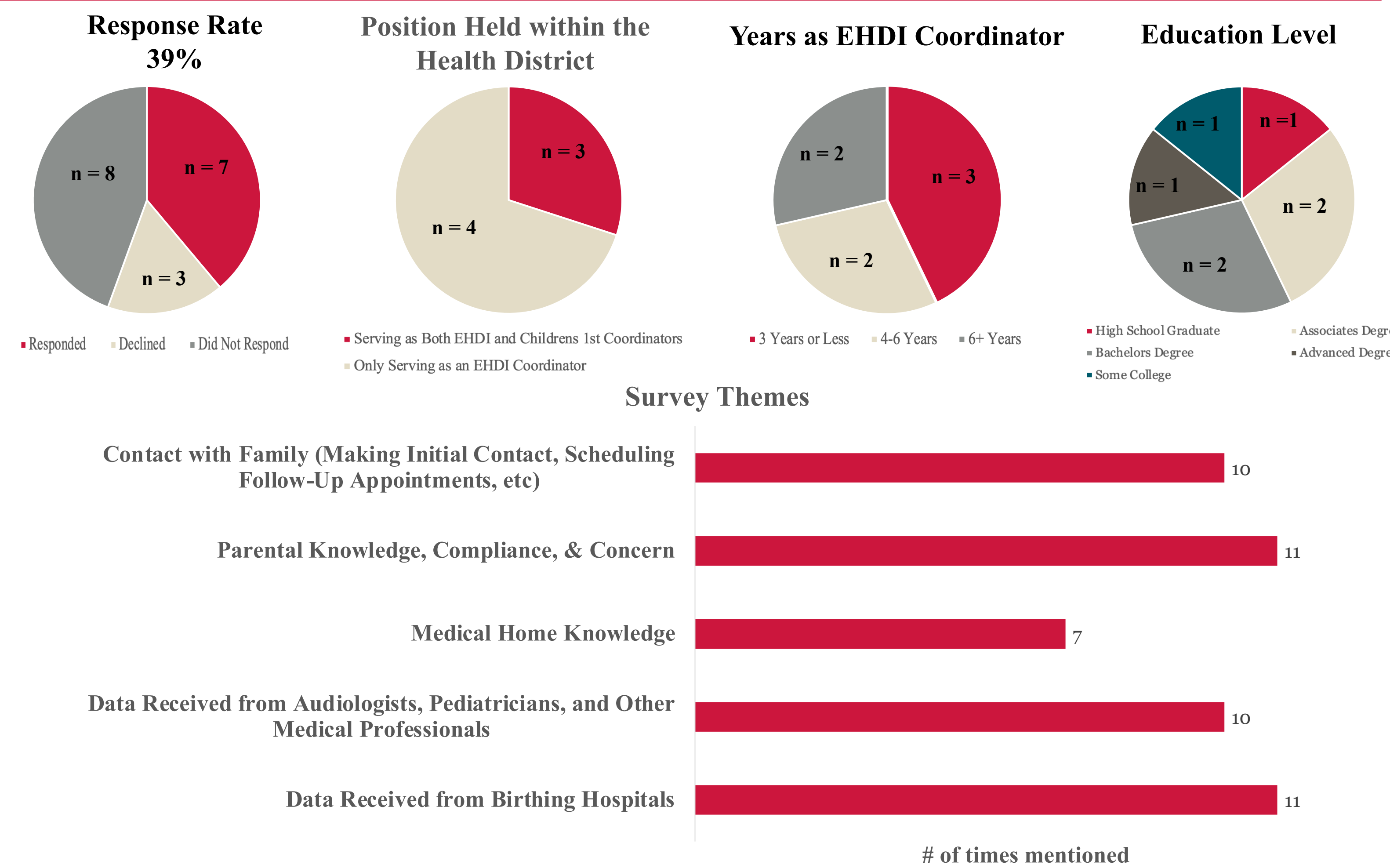
The current study set out to identify factors that contribute to the successes and challenges within the EHDI system of Georgia from the viewpoint of EHDI coordinators across the state. A secondary purpose was to compare EHDI coordinator perceptions with statewide EHDI data.

To the best of our knowledge, this is the first study to investigate the link between EHDI coordinator perceptions and actualization of practice

Method

A survey was developed as a pilot study to inform a larger, broader project. Survey questions were designed to ascertain perceptions of the EHDI system, including strengths, challenges, and suggestions for improvement as well as targeted demographics. The survey was distributed to EHDI coordinators across the state via email with a Qualtrics link to access the survey. A zoom interview option was given as an alternative to completing the survey via Qualtrics. Weekly reminder emails were sent with an opt-out option, and follow-up phone calls were implemented. Participants were compensated \$30 for their participation. Health districts were randomly assigned a letter of the alphabet to protect confidentiality of the participants. Results were analyzed for common themes which emerged from the distributed survey. A SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis was also performed. EHDI state data were requested and received from Georgia DPH from the years 2018-2020 in August of 2021. Provider perceptions and themes were compared with EHDI state data. The study protocol was approved by the University of Georgia IRB.

Results



Strengths

- Knowledge of follow-up screen locations and diagnostic centers within their district
- Good relationships with providers in the area (pediatric audiologists and other professionals)
- Strong communication with birthing hospitals
- Knowledge of which centers accept Medicaid versus those that do not
- Effective communication with families

Weaknesses

- Serving in multiple roles of responsibility (e.g., Children's 1st)
- Difficulty obtaining results from birthing hospitals
- Heavy workload for the amount of funded staff
- Longer than desired turnaround time from receipt of hospital data to family contact
- Higher than desired loss to follow-up
- High turnover rate for coordinator position

Opportunities

- Expansion of Georgia Mobile Audiology coverage
- Expansion of tele-audiology for diagnostic evaluations
- Contract with outside audiologists/agencies to bring services to a central location in more remote areas
- Development of comprehensive education for families and professionals
- Implementation of a dedicated EHDI clinic in each district
- Utilization of MPH internships and/or volunteers to assist with data entry

Threats

- Understaffing of personnel to carry out the multiple responsibilities required to meet the 1-3-6 JCIH benchmarks
- State population distribution (causing transportation difficulties, etc.)
- Inconsistent and incomplete data reporting from birthing hospitals, pediatricians, and audiologists
- Parental knowledge, concern, and compliance of the importance of newborn hearing screening and follow-up
- State budget allocated to EHDI program

"If you had unlimited resources and the ability to change the EHDI system, where would you allocate those resources?"

"I would allocate the funds to help get clients to and from their appointments and to have a better working relationship with the hospitals so that we are able to get the information needed regarding the hearing results."

"Easier and more access to screenings for families."

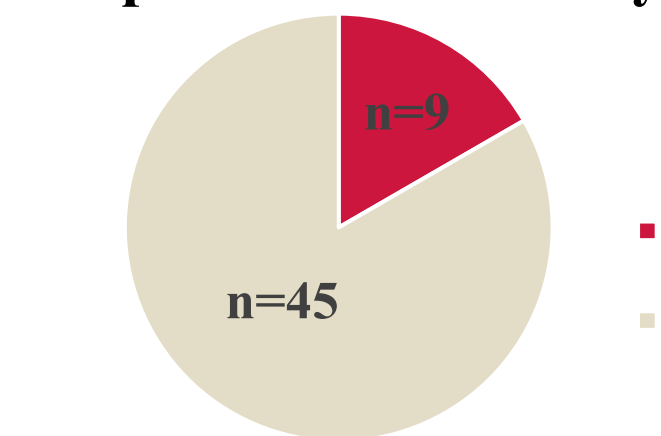
"I would create a public platform that would have access to pregnant women, doctors and educators and provide continued education around hearing screenings." (x3)

"Attempt to hire individuals with a global knowledge of child development and family systems as well as knowledge of all Early Intervention programs."

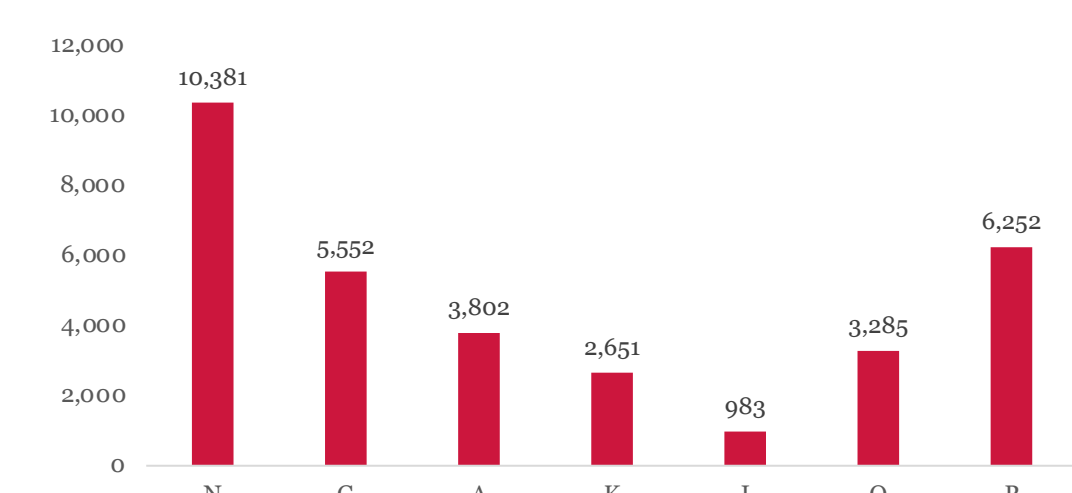
"Allocate funds for audiologist and pediatricians that are willing to provide follow hearing screening for infants"

"Every district would have the funds to hire a full-time or part-time Audiologist. Districts that have very remote areas to reach would have the ability to travel to those areas to complete follow-ups, diagnostic ABRs, or any other audiological needs. I think if we could do these things we would have less loss to follow up." (x2)

Number of Rural and Urban Counties Represented in Survey



Average Number of Births from 2018-2020



Survey represents 26.89% of the average annual births in the state of Georgia (32,905 out of 122,382 births)

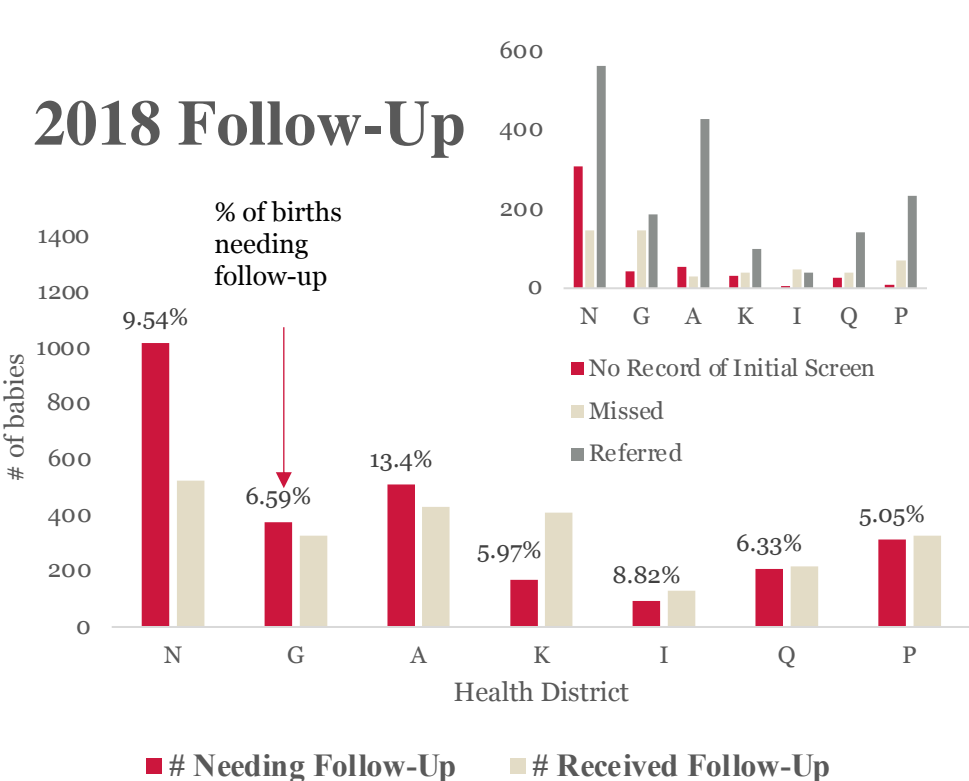


Figure 1

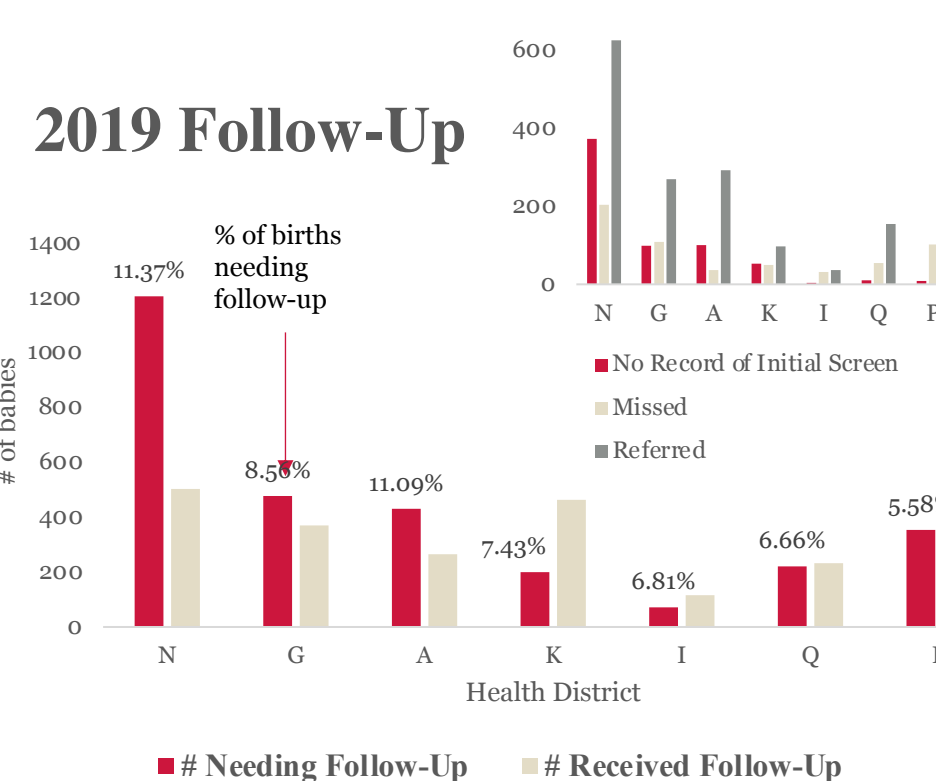


Figure 2

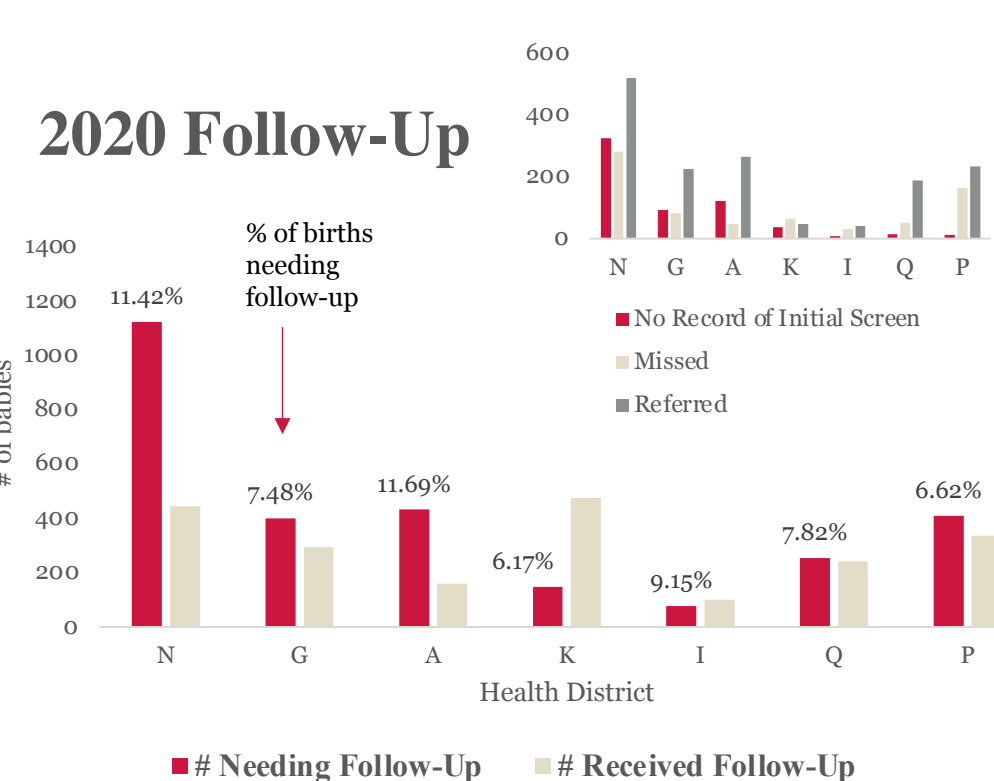


Figure 3

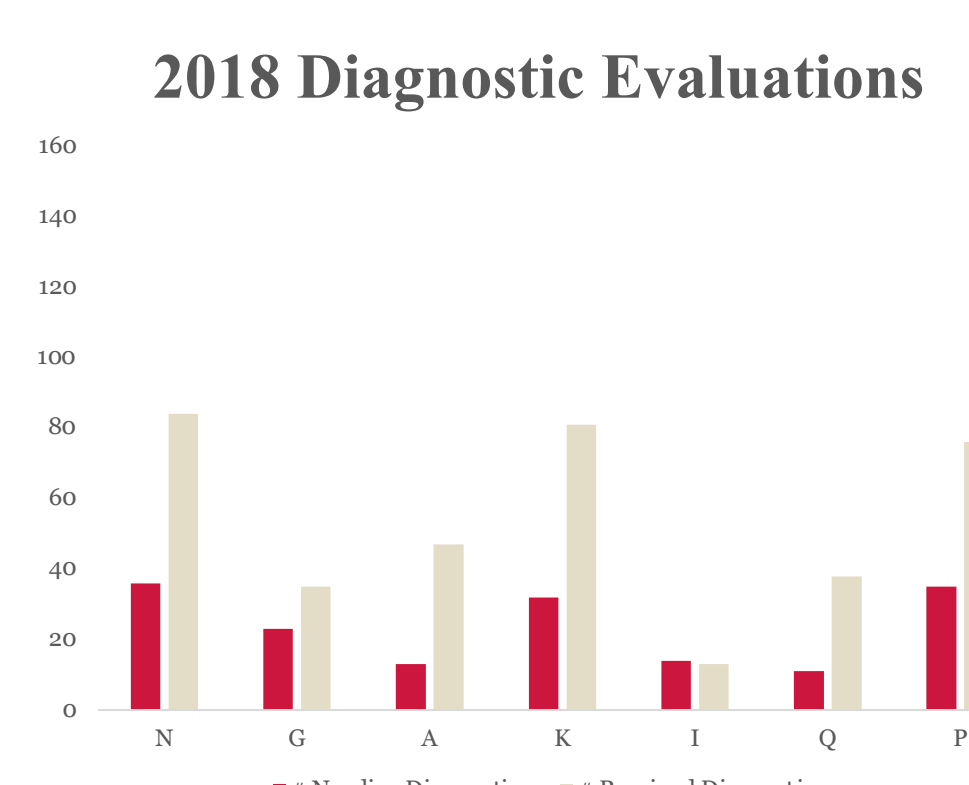


Figure 4

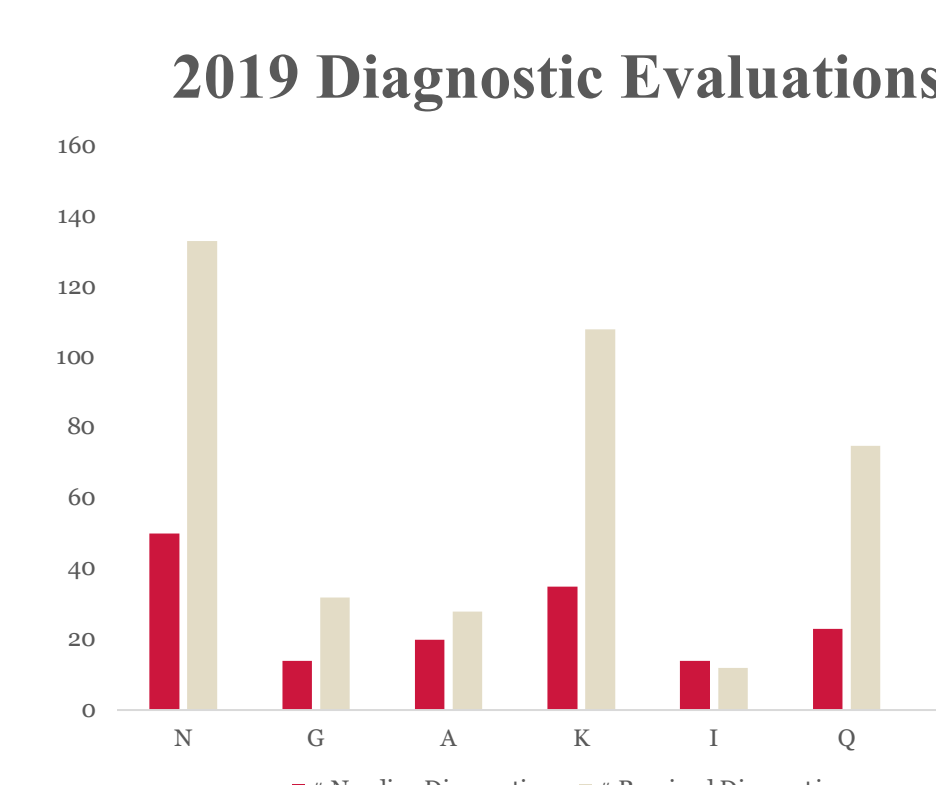


Figure 5

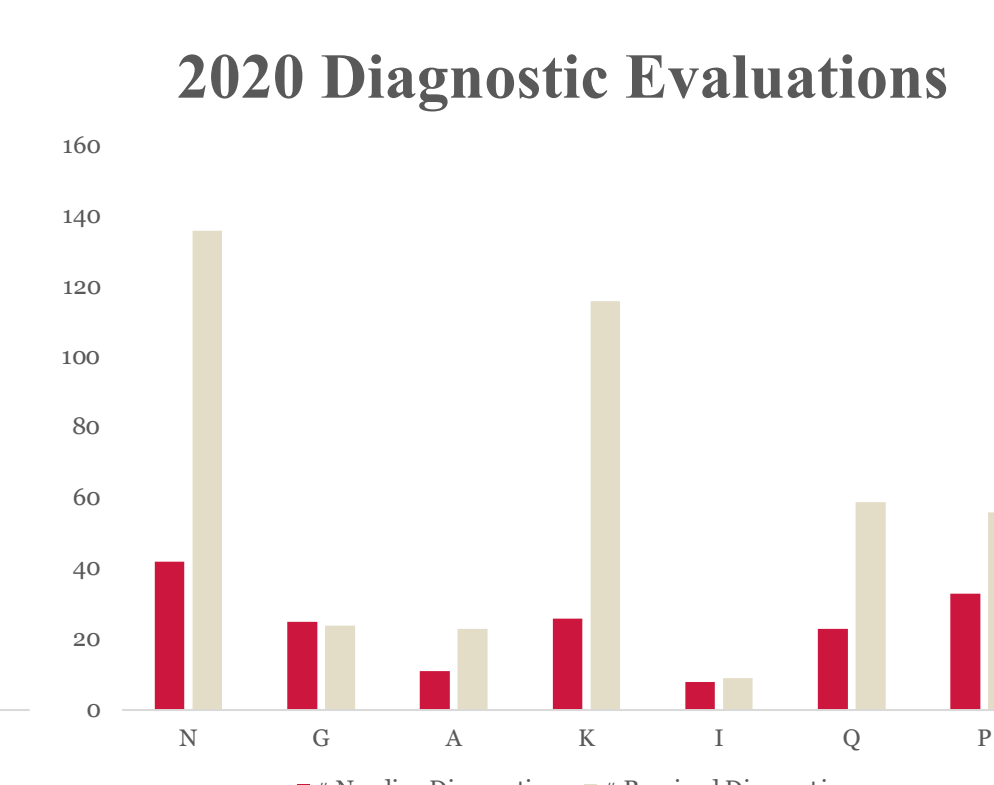


Figure 6

Discussion

While improvements have been made within the EHDI system over the past two decades, we continue to lose track of a high number of babies designated as needing follow-up. Results from this survey yielded five major themes identified by EHDI coordinators as affecting the success of the system, including: 1) data received from district birthing hospitals, 2) data received from pediatricians and audiologists, 3) parental knowledge, compliance and concern, 4) medical home knowledge, and 5) communication with family.

Data received from the birthing hospital are often incomplete and/or arrive in forms that are not initially usable. Many EHDI coordinators reported that they must input results into the state SendSS database before being able to contact families. In addition, many reported incomplete records from the birthing facilities. Some EHDI coordinators indicated that they have good working relationships with hospitals and can typically get missing data. To overcome these challenges, one EHDI coordinator suggested a database that could better communicate the screening data as well as gaining access to hospital records in some capacity to overcome the challenges posed by missing data.

Data received from audiologists and pediatricians was frequently reported as a challenge. Some coordinators reported that audiologists were not aware of their role in the EHDI system and therefore, they (coordinator) struggled to monitor and track whether a newborn returned for follow-up. Chung et al. (2017) reported similar findings in which audiologists did not report rescreens or diagnostic evaluations because they did not know how to report to their state EHDI program.

EHDI coordinators also **identified parental knowledge, compliance, and concern** as factors affecting the EHDI system. Coordinators reported that parents are not "concerned" or that they do not understand the significance of newborn hearing screening and therefore do not return for follow-up appointments. Lack of education surrounding newborn hearing screening and its importance decreases the propensity for a family to pursue follow-up (Ehlert et al., 2017). Coordinators suggested that more parental education be provided. A factor reported as impacting parental compliance revolved around transportation barriers preventing families from attending follow-up appointments. A solution some EHDI coordinators reported was the provision of Lyft or Uber rides; whereas, other coordinators reported utilizing a relatively new resource, Georgia Mobile Audiology, to decrease the transportation barrier and increase compliance.

Medical home knowledge was reported by EHDI coordinators as a limitation to babies receiving needed follow-up. Two of seven coordinators reported that pediatricians in their district knew the importance of newborn hearing screening as well as what to do if a patient referred or missed their initial screen. Two of the remaining five, indicated they were unsure of their pediatricians' knowledge.

Communication with families was reported by EHDI coordinators as being mainly a strength for the system. EHDI coordinators reported that once a baby is identified as needing follow-up they are able to contact the family and communicate the steps to effectively coordinate care. One aid that an EHDI coordinator shared was the implementation of a scheduling reminder system to assist families in remembering appointments.

Actualization of Practices and Limitations of State Data

At the outset of this project, the intent was to identify relationships between EHDI coordinator perceptions and realization as reflected in state data. We found this challenging and imprecise given publicly available data. For example, in Figures 1-3, babies needing follow-up includes a sizeable number of babies for which there is no record of the initial screen. It was not possible for us to track what ultimately became of this group making it difficult to interpret the data. However, this finding of "muddy" data corresponds to what district coordinators revealed related to inconsistent data received from hospitals, audiologists and other medical personnel. A second example of the imprecise nature of the data is the disparity between babies needing a diagnostic and babies receiving a diagnostic as depicted in Figures 4-6. This finding is due, in part, by the practice of some providers logging babies directly into the system as a diagnostic, bypassing the follow-up screen.

Future Directions

It is clear from the survey responses that EHDI coordinators care deeply about their role within the EHDI system. Coordinators provided innovative ideas to improve the system for the betterment of the children and families they serve. They do so within the context of a system, not unlike other state systems, that would benefit from increased resources directed at personnel and retention, communication between providers, education of providers and parents, and streamlined data reporting and data communication.

Future investigations are needed to disentangle the state data to obtain a more precise portrayal of loss to follow-up. In addition, survey findings point to important areas of research related to health literacy and other social determinants of health that likely play a critical role in the success of the EHDI system.