2024 Early Hearing Detection & Intervention (EHDI) Community of Learning Report

Minnesota Perinatal Quality Collaborative (MNPQC)

May 2024-July 2024

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Executive Summary

The Minnesota Perinatal Quality Collaborative (MNPQC), supported by the Minnesota Department of Health, launched a three-month Early Hearing Detection and Intervention (EHDI) Community of Learning (COL) from May 2024 to July 2024. This initiative aimed to address critical gaps in the timely diagnosis and intervention for infants with hearing loss. The COL was designed as a more accessible and flexible opportunity for facilities seeking to improve quality but lacking the capacity for year-long or multi-year improvement initiatives. The primary goal was to enhance the identification and intervention of hearing loss by 3 months of age, supported by expert faculty in neonatal and pediatric care.

Throughout this collaborative effort, participating hospitals reported improvements in both the scheduling of follow-up screenings and the overall coordination of care for newborns who did not pass their initial hearing screen. Notably, rescreening rates within 15 days improved by 15% across participating facilities, demonstrating the effectiveness of the evidence-based strategies employed. The initiative not only enhanced care for newborns and their families but also provided a sustainable framework for ongoing quality improvement in early hearing detection practices across Minnesota.

MNPQC Background

The **Minnesota Perinatal Quality Collaborative** (MNPQC), founded in 2018, is a nonprofit organization dedicated to improving perinatal health outcomes in Minnesota. MNPQC is part of a network of **Perinatal Quality Collaboratives (PQCs)** supported by the Centers for Disease Control and Prevention (CDC), aimed at fostering partnerships among hospitals, healthcare centers, public health institutions, and community organizations. By using evidence-based frameworks from the **Institute for Healthcare Improvement (IHI)**, MNPQC has become a key player in improving maternal and infant health outcomes through quality improvement initiatives.

MNPQC currently collaborates with a network of **35+ organizations**, including academic institutions, healthcare providers, and local/state agencies. In 2022, MNPQC joined the **Alliance for Innovation on Maternal Health (AIM)**, a national initiative promoting safety bundles designed to enhance maternal care. MNPQC's Hypertension Sprint draws on this extensive network, leveraging the collective expertise of clinical champions, public health professionals, and patients to achieve systemic improvement in perinatal healthcare.

EHDI COL Introduction

The Early Hearing Detection and Intervention (EHDI) Community of Learning (COL) was established to address critical gaps in timely diagnosis and early intervention for infants with hearing loss in Minnesota. According to the Joint Committee on Infant Hearing (JCIH), all infants should undergo a hearing screening by 1 month of age, with comprehensive audiological evaluation completed by 3 months for those who do not pass. While most Minnesota infants are screened before 1 month, only 45.8% of those who failed their screening in 2020 received diagnostic evaluation by 3 months- well below the national target of 85%. Timely diagnosis and intervention are vital, as early detection can lead to language skills on par with hearing peers by age 5 to 6, regardless of communication mode or degree of hearing impairment. Additionally, intervention by 6 months provides significant language advantages and reduces long-term education costs. This community of learning aimed to improve these outcomes by supporting facilities with evidence-based strategies to enhance screening, diagnosis, and early intervention processes.

Project Structure

Hospital Teams

The Early Hearing Detection and Intervention (EHDI) Community of Learning (COL) engaged four hospital teams across Minnesota in a collaborative effort to improve early identification and intervention for infants with hearing loss. These participating teams included:

- Northfield Hospital & Clinics
- Essentia Health Virginia
- Essentia Health St. Mary's Duluth
- Riverwood Healthcare

To ensure a comprehensive approach, the composition of each hospital team was curated to encompass a diverse range of expertise and perspectives. Teams included pediatric audiologists, family medicine providers, physician leaders, nurse managers, hearing screening technicians, pediatric otolaryngologists, and frontline staff. This diverse mix of roles allowed the teams to approach the challenges of hearing screening and intervention from multiple angles, ensuring that improvements addressed clinical, operational, and patient family experience considerations.

Every two weeks, these teams submitted project-specific data, actively participated in bi-weekly collaborative learning sessions, and received ongoing expert support and feedback.

They also worked through multiple Plan-Do-Study-Act (PDSA) cycles to test, implement, and refine various evidence-based practices. By engaging in these iterative cycles, the teams were able to identify practical solutions to challenges, refine screening and follow-up protocols, and drive sustainable changes within their facilities.

This multidisciplinary structure allowed hospital teams to tackle barriers holistically, leveraging the collective knowledge of both clinical and non-clinical staff to implement and sustain meaningful improvements in early hearing detection and intervention.

Content Experts

Throughout the Early Hearing Detection and Intervention (EHDI) Community of Learning, a team of content experts provided invaluable support, offering guidance on quality improvement, clinical practices, and family-centered care. These experts brought diverse experiences and knowledge that enriched the program's overall effectiveness and ensured hospital teams had access to timely, relevant, and research-based strategies in early hearing detection and intervention.

- **Jane Taylor (MNPQC Improvement Advisor):** As an expert in quality improvement, Jane played a pivotal role in guiding teams through the implementation of Plan-Do-Study-Act (PDSA) cycles and data collection. She provided overall improvement science support, ensuring hospital teams could apply tested methodologies to optimize their processes. Jane's mentorship was key in translating quality improvement concepts into actionable steps that drove progress within each hospital.
- **Maria Johnson, BSN, RN (Maple Grove Hospital)**: With firsthand experience from participation in MNPQC's previous EHDI Initiative, Maria shared her insights on best practices and successes from Maple Grove Hospital's efforts to improve early hearing detection. Her presentation focused on practical tips and lessons learned, inspiring participating hospitals to replicate successful strategies in their own settings.
- **Bekah Bischoff, Patient Family Partner (MoMMA's Voices):** Bekah emphasized the critical role of incorporating patient and family voices into perinatal health initiatives. Her discussions centered on equity and the need to engage patients as partners in care, reminding hospital teams of the importance of empathy, inclusion, and culturally sensitive approaches when working with families impacted by hearing loss.

- **Dr. Abby Meyer, MD, MPH (Children's Minnesota):** Dr. Meyer provided expert guidance on improving communication with parents and caregivers. She emphasized the teach-back method, a technique that ensures caregivers fully understand the next steps following a diagnosis or screening. Dr. Meyer highlighted the importance of closing the feedback loops to enhance understanding and promote adherence to follow-up care.
- **Jessica LS Novak, Au.D., CCC-A, PASC (Children's Minnesota):** Jessica offered critical insights into the audiology process, including the steps following an initial newborn hearing screening and the coordination required between audiologists and primary care providers. Her expertise helped hospital teams refine their follow-up procedures and streamline communication between departments to ensure timely diagnostic evaluations.
- **Cindy Hillyer, MPA (Minneapolis Public Schools):** Cindy provided a unique perspective on the long-term implications of hearing loss, focusing on its effects from her experience working in the public school system. She also discussed how to improve systems incrementally, offering strategies to implement small, manageable changes that lead to meaningful improvements over time. Cindy's advice on gaining buy-in from coworkers and leadership resonated with teams working to champion change within their facilities.

These content experts collectively offered a well-rounded approach to quality improvement, clinical expertise, patient engagement, and long-term planning, helping hospital teams not only improve hearing detection and intervention processes but also build sustainable, patient-centered systems that will benefit infants and families in the future.

Changes Tested by Teams

Throughout the Early Hearing Detection and Intervention (EHDI) Community of Learning (COL), participating hospital teams tested and implemented a variety of changes thorough Plan-Do-Study-Act (PDSA) cycles. While not all hospitals tested each of these interventions, these areas of focus represent the collective efforts of the COL teams to improve early hearing detection and follow-up care.

A key focus for many teams was **staff education on the importance of rescreening**. Training sessions were conducted to raise awareness among hospital staff about the critical role that timely rescreening plays in the early detection of hearing loss. This education emphasized the developmental benefits of early intervention, ensuring that

rescreening appointments were scheduled before discharge, which is crucial for identifying and addressing hearing issues promptly.

Another significant area of improvement was the **streamlining of data collection processes**. Teams developed standardized templates and workflows for recording and tracking data related to newborn hearing screenings. This approach helped reduce errors, improve data accessibility, and support more informed decision-making in patient care, leading to better outcomes and more efficient processes.

Electronic Health Record (EHR) updates were also a focus for several teams. These updates included prompts for scheduling a 15-day rescreening for infants who did not pass the initial screening. By integrating these prompts into the EHR system, clinicians were reminded to schedule necessary follow-ups, which reduced the risk of infants being lost to follow-up and improved the overall timeliness of care.

The COL emphasized the importance of **interdisciplinary collaboration** as well. System-wide education initiatives were conducted to foster teamwork and communication among audiologists, pediatricians, nurses, and administrative staff. This collaborative approach ensured that all disciplines involved in the hearing screening process worked cohesively to provide timely and accurate care, enhancing the overall effectiveness of the program.

To improve follow-through on recommended follow-up appointments, some teams focused on **providing local options for referrals**. By expanding their networks to include more accessible local clinics and educating families on the importance of follow-up, hospitals were able to increase appointment adherence. This initiative was particularly important in ensuring that families had the resources and understanding needed to continue care after leaving the hospital.

Addressing **no-show appointments** was another priority. Teams developed protocols for tracking and rescheduling missed appointments, supported by automated reminders and follow-up calls. This ensured that infants who missed their initial follow-up were promptly rescheduled, reducing the likelihood of delayed diagnosis and treatment.

Some teams also focused on **sharing education with outlying clinics** within their networks. By extending the training and resources developed during the COL to these clinics, teams aimed to standardize care and improve outcomes across a broader geographic area. This helped ensure that the benefits of the COL extended beyond the immediate hospital setting.

Finally, **improving the documentation of results in the EHR** was a critical focus. Teams worked to enhance the ease of documenting and retrieving hearing screening results within the EHR. This ensured that all members of the care team could easily access up-to-date

information on each infant's status, facilitating better communication and continuity of care.

These changes, collectively tested and refined by the hospital teams, contributed significant improvements in early hearing detection and follow-up care processes. The efforts made during the COL not only enhanced care for newborns and their families but also laid the groundwork for ongoing improvements in hearing screening practices statewide.

Results Overview

The conclusions below are drawn from the data submitted by the four participating teams in the Early Hearing Detection and Intervention (EHDI) Community of Learning (COL). While individual site experiences may vary, these findings reflect key trends observed across the duration of the program.

Newborn Screening and Follow-Up:

The data shows a strong commitment among the participating hospitals to adhere to established protocols for Newborn Hearing Screening (NHS). A significant number of newborns underwent initial screening, underscoring a dedication to early identification of potential hearing issues. However, the follow-up procedures highlight areas for improvement. A notable percentage of newborns who did not pass the initial screening were not scheduled for an outpatient rescreen prior to discharge. This gap emphasizes the need for enhanced processes to ensure timely follow-up, which is critical for effective early intervention.

Failure Rate:

Approximately 4% of newborns did not pass their initial hearing assessment, a figure within the expected range for NHS. However, this raises questions about the effectiveness of follow-up actions. Timely and thorough follow-up is essential to determine whether these infants have actual hearing loss or if the initial failure was due to transient conditions like fluid in the ears. Accurate diagnosis through proper follow-up is crucial to avoid misdiagnosis and to ensure that infants receive the necessary care.

Timeliness of Rescreening:

Among the newborns who failed the initial screening, about 80% were successfully scheduled for a rescreen within 15 days, reflecting a positive trend toward prompt intervention. However, it is concerning that 20% did not receive timely follow-up. Delays in

rescreening can be detrimental, as early intervention is vital for addressing hearing loss and ensuring infants receive the appropriate care and support. Missing this critical window can lead to longer-term developmental challenges.

Focus for Improvement:

The data underscores an urgent need for hospitals to enhance their follow-up processes, particularly in scheduling rescreenings and ensuring no newborn is lost to follow-up after discharge. Strengthening coordination between hospitals and outpatient services is essential to bridge this gap and ensure that all infants receive timely interventions. By addressing these areas, hospitals can align practices with best standards, ultimately supporting early intervention and promoting better health outcomes for infants.

Conclusions and Next Steps

In summary, the data analysis highlights a commendable commitment to Newborn Hearing Screening (NHS) among participating hospitals, with a significant number of newborns undergoing initial screenings. However, the findings also reveal critical gaps in follow-up processes that must be addressed to optimize outcomes for infants at risk of hearing loss. Ensuring timely rescreening for those who fail the initial screening is essential for accurate diagnosis and early intervention, which can significantly impact long-term developmental outcomes.

Moving forward, it is crucial to implement targeted strategies to improve follow-up practices. Hospitals should enhance their scheduling systems to ensure that all newborns who do not pass the initial screening are promptly scheduled for outpatient rescreens before discharge. This could involve developing standardized protocols for communication between inpatient teams and outpatient services, as well as training staff on the importance of follow-up in preventing lost opportunities for intervention.

Additionally, exploring the use of automated reminders or digital tracking systems could help ensure that no infant falls through the cracks. Strengthening partnerships with primary care providers and audiologists will also be key to ensuring seamless transitions from hospital to outpatient care. By enhancing these coordination efforts, hospitals can improve the continuity of care, ensuring that all infants receive timely and effective interventions.

In conclusion, while the initial screening processes are functioning well, addressing the identified gaps in follow-up practices is essential to ensuring that all newborns receive the timely care they need. By focusing on these areas, hospitals can better align their practices

with the highest standards, ultimately supporting early intervention for hearing loss and promoting better health outcomes for infants across Minnesota.

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- **Bekah Bischoff**, Patient Family Partner, MoMMA's Voices, for reminding us of the importance of equity, empathy, and patient-centered care, especially for families impacted by hearing loss.
- **Dr. Abby Meyer, MD, MPH**, Children's Minnesota, for your guidance on improving communication with families, ensuring better understanding and adherence to follow-up care.
- **Jessica LS Novak, Au.D., CCC-A, PASC**, Children's Minnesota, for offering critical insights into audiology processes and the coordination of care between audiologists and primary care providers.
- **Cindy Hillyer, MPA**, Minneapolis Public Schools, for providing a long-term perspective on hearing loss and strategies to implement manageable changes that lead to meaningful improvements.

Your contributions helped hospital teams not only enhance their early hearing detection and intervention processes but also build sustainable systems that will continue to benefit newborns and their families in the future.