# EARLY HEARING DETECTION AND INTERVENTION (EHDI)

## Quality Improvement Project: Final Report

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# Table of Contents

## Background

Hearing loss is one of the most common congenital conditions appearing in infants and children. In 2013, of the newborns who underwent newborn hearing screening (97.2% of infants born), it was found that 1.6% of newborns did not pass their most recent or final newborn hearing screening, and two to three infants per 1,000 live births were born deaf or hard of hearing (D/HH). Additionally, significantly more children are at risk for delayed or late-onset hearing loss due to risk factors such as genetics/family history, infection, complications after birth, and others. Numerous studies have shown that hearing loss is associated with significant delays in language development and academic achievement, even for children diagnosed with mild or moderate hearing loss.

It has been shown that early identification and implementation of the appropriate intervention for a child who has been diagnosed as D/HH, is associated with improved language, social, and academic outcomes. Between 2006 and 2012, the number of children considered lost to follow-up or lost to documentation (LTF/D) following a "do not pass" newborn hearing screen decreased from 47.7% to 35.9%. While these gains are significant, recommendations by the Joint Committee on Infant Hearing (JCIH) caution that it is critical for children who may have hearing loss or those at risk for hearing loss, be diagnosed by three months of age. These infants must then be referred to the appropriate early intervention programs by six months of age. The primary care pediatrician—the child and family's medical home—plays an important role in this process for children who do not pass their newborn hearing screen, or may be at risk for delayed or late-onset hearing loss. The medical home is the most appropriate place to discuss results of the newborn hearing screening with the family, assess the infant or child for risk factors for hearing loss, refer the child for follow-up diagnostic hearing testing as necessary, and develop an individualized care plan for a child who has been identified as deaf or hard of hearing, or is at risk for hearing loss.

## Methods

### Project Design

The Early Hearing Detection and Intervention (EHDI) program within the American Academy of Pediatrics (AAP) is dedicated to promoting the role of the medical home and the primary care provider within EHDI. The EHDI program supports a network of over 60 Chapter Champions, who provide ongoing education and resources to medical home providers. Chapter Champions play a vital role in coordinating EHDI-related initiatives between pediatric primary care physicians, other health care professionals, and state EHDI programs.

Phase I of Early Hearing Detection and Intervention Quality Improvement (QI) Project was completed in May 2016. Phase II of this quality improvement project built on lessons learned from the initial phase. Continued use of the Learning Collaborative model allowed for testing of strategies that enhanced pediatrician knowledge and practice related to documentation of newborn hearing screening results, referrals to sub-specialists, documentation of risk factors for delayed or late-onset hearing loss, and communication of these results with families.

Five practice teams (roster located in Appendix A) were recruited through the EHDI Chapter Champion network and other AAP member communications, and each team was led by a practicing primary care pediatrician. One key element of this phase was the new requirement that each team engage a Parent Partner to be involved throughout by lending their voice and perspective as tests of change were introduced. This furthered the expansion of family-centered care and family feedback. Teams participated in monthly educational webinars/conference calls to learn from experts, and each other, and received ongoing coaching and mentorship from the project quality improvement advisor. At the end of the project, practice teams participated in a post-project feedback call to share their experiences, perspectives, and learnings throughout the project.

This quality improvement project was led by an Expert Group, which provided clinical expertise and insight regarding the primary areas of focus. Members included pediatric quality improvement (QI) experts, general pediatricians, neonatologists, an audiologist, a representative from the National Center for Hearing Assessment and Management (NCHAM) a QI Advisor, and a family representative. The role of the Expert Group was to help develop the project's overall educational approach as well as the quality improvement methodology and focus of the project. Expert Group members and the QI Advisor were responsible for planning, and often leading, the monthly webinars/conference calls with the practice teams during each action period. AAP program staff also supported the efforts of the Expert Group.

## Aim and Measures

Practice teams focused on work related to pre-determined project aims and measures designed to improve follow up after newborn hearing screening. Specific areas of focus included: documentation of newborn hearing screening results, engaging in discussions with families about the results of the hearing screen and potential risk factors for hearing loss, and ensuring that all infants who do not pass the initial screen receive the needed diagnostic follow up.

### *Project Aim:*

By July 2017, five pediatric offices will make practice-based improvements that lead to enhanced care across the delivery system and strengthen the role of the medical home within the EHDI system. The participating pediatric practices will make improvements so that:

- 97% or more of all newborns have documentation of the results of their final newborn hearing screening in their medical records by 6 weeks of age;
- 97% of newborns have documentation in their medical record that the results of the newborn hearing screening were discussed with the family no later than 6 weeks of age;
- 97% or more of all newborns identified to have risk factors associated with hearing loss will have documentation of those risk factors in their medical record by 6 weeks of age and will have an individualized care plan by the 4 months of age; and
- 100% of children who do not pass their newborn hearing screening have completed an audiological evaluation by 3 months of age and documentation will be in their medical record by 4 months of age.

*Process measures* capture information about how the system works by focusing on the steps in the process that create the system. *Outcome measures* capture information about the results or final products of the system and tend to represent the perspective of the consumer. Both process and outcome measures for the project are outlined in Appendix B. For this project, the Expert Group developed project measures based on results of the National Center for Hearing Assessment and Management's 2012 physician survey and from past EHDI practice experience.

| EHDI Collaborative Measures | |
|---|---|
| **Newborn Hearing Screen: Passed** | **Newborn Hearing Screen: Did Not Pass** |
| Percentage of infants with screening results by six weeks | Percentage of infants referred for an outpatient rescreen |
| Percentage of infants with documented screening results conversation | Percentage of infants referred for a diagnostic evaluation |
| Percentage of infants with risk factor assessment by six weeks | Percentage of infants with diagnostic evaluation by three months |
| Percentage of infants with documented risk factor conversation | Percentage of infants with diagnostic results received by four months |
| Percentage of infants with risk factors who have an individualized care plan by four months old | Percentage of infants with diagnostic results reviewed by four months |

### Data Collection

Monthly data was collected in the AAP web-based Quality Improvement Data Aggregator, or QIDA. Practice teams collected information monthly for each of the seven months of the project. Repeated measurement of the practices' care processes, using patient record review and aggregate electronic health record (EHR) data collection, were used to track changes in practice. The tools that teams utilized to review charts can be found in Appendix C.

Data collected from the participating practice teams was regularly analyzed by the QI Advisor to assess which changes should be prioritized and to help teams determine whether a particular sequence of changes facilitated improvement. This analysis informed the small-scale plan-do-study-act (PDSA) cycles during the project as well as dissemination efforts following the project.

Practice teams received monthly feedback reports that included run charts of the data collected. Commonly used in quality improvement initiatives, run charts are line charts in which measures are plotted graphically on the vertical axis and time is plotted on the horizontal axis. This method of graphical display enables team member participants to track and analyze their own progress over time.

### Support to Practices

Many tools were used to assist in information sharing and provision of educational materials, chief among them was the AAP QIDA. This online workspace was used for data collection as well as functioning as a password-protected project workspace. The QIDA housed all resources and tools related to the project, and includes an aggregate report of all teams' practice-level and project-level data (that allowed for reflection and comparison throughout the course of the project.

The project email group (listserv) included all practice team members. Past experience shows that teams are more likely to communicate with each other if there is a facilitated forum for communication. This listserv group also served as the main method for communication from the Expert Group and AAP staff to practice teams regarding project information such as tool and resource updates, and monthly data collection, survey, and call reminders.

## Results

Teams were expected to participate in a series of data collection and reporting requirements throughout the collaborative. Quantitative and qualitative data were collected in a variety of formats including: A) pre- and post- implementation surveys; B) monthly chart review data; C) monthly narrative reports; D) qualitative feedback through one-on-one coaching calls; and E) a virtual post-participation focus group once the project had been closed.

The outcomes and lessons learned from these activities are described below. Outcomes are described based on the key points in the newborn hearing screening and follow up process. For clarity, the results are presented in four sections:

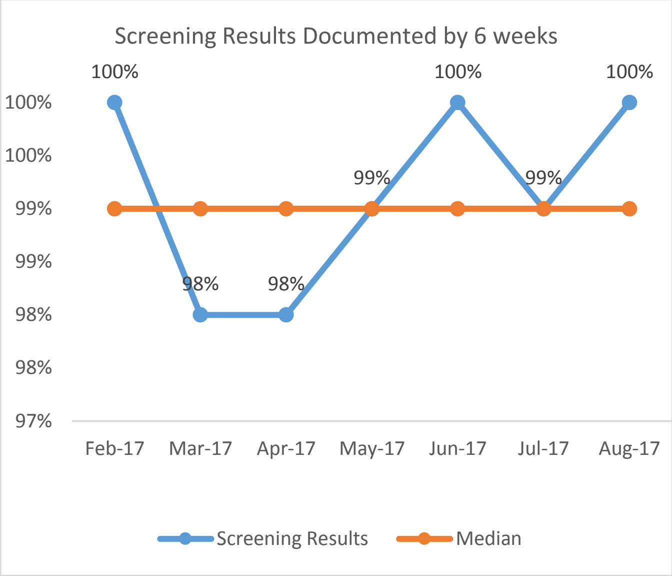
1. Newborn hearing screen results
2. Assessment of risk factors for delayed or late-onset hearing loss
3. Management of infants who do not pass the newborn hearing screen
4. Additional findings

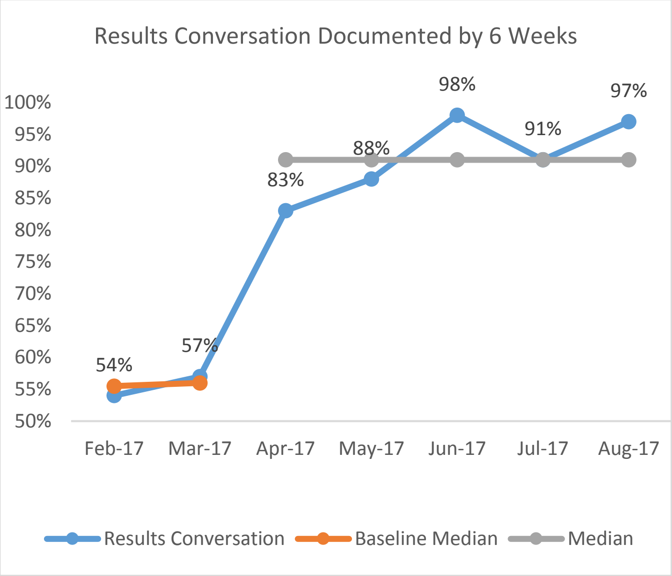
### Newborn Hearing Screening Results

A. Impact

The graphs below represent aggregate data for all practices. Data represented indicates the percent of reviewed charts that had documentation of the newborn hearing screening by the time the infant was six weeks old, as well as the percent of those charts that had documentation that these results were reviewed with families. At baseline, participating practices reported 100% of reviewed charts had the newborn screen documented. Throughout the collaborative, performance remained strong with a median of 99% percent of infants with the screening results documented by six weeks.

Throughout the duration of the collaborative, teams worked to improve documentation and workflow. By August 2017, a median of 91% of reviewed charts showed documentation that the newborn screening results were reviewed with the family. This represents a 63% improvement in 7 months.





B. Change Strategies

Teams were provided a change package (Appendix D) at the start of this collaborative. This package represented a compilation of evidence and practice-based ideas that the expert group had confidence could lead to improvement. The change strategies provided in this section, and subsequent sections, represent team self-reported strategies that at times align with the change package and at times do not.

Because most practices entered this collaborative with a strong process in place to receive newborn screening results, teams focused on improving the documentation of those results, and the discussions with the family about those results. The most effective changes were based around workflow and EHR modifications. The following change ideas were identified and adopted by teams in this collaborative:

1. Modify EHR to add “checkbox” for easy documentation and tracking of screening results conversation.
2. Enter newborn screening results into the EHR as a “diagnostic test” so that infants who do not pass can be easily tracked and outpatient rescreens can be ordered. Order will remain open until the results are received.
3. Add newborn hearing screening to the newborn history to improve documentation of screening, and to remind providers to discuss this with the family.
    a. Modify EHR so that providers can easily “pull all” newborn history into the documentation of what was discussed with the family.
4. Have office staff, and/or nursing, contact the hospital prior to the first newborn appointment for all infants who do not have newborn screening results in their chart.
5. Use a scripted - or semi-scripted - message when discussing screening results.

**Assessment of risk factors for delayed or late-onset hearing loss**

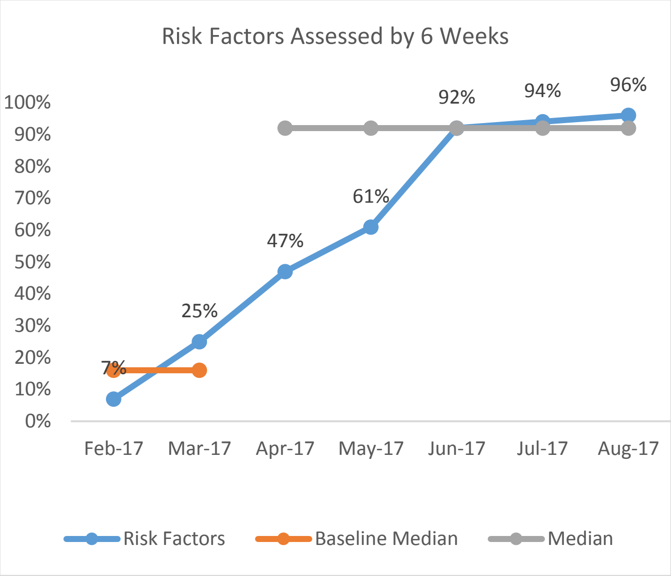
A. Impact

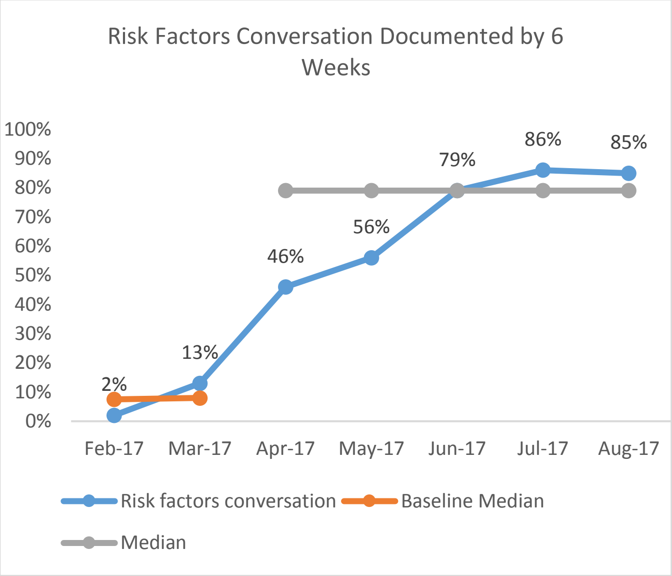
Practices participating in this collaborative were asked to: ensure all infants received an assessment for delayed on set hearing loss by six weeks of age; confirm that the outcome of this assessment was discussed with the family by this age; and have an individualized care plan in place by four months of age for any child with an identified risk factor.

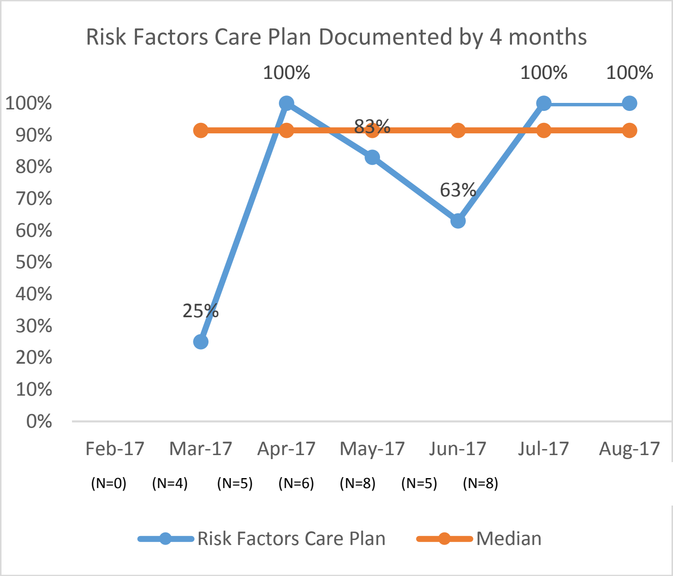
The first graph below shows that the baseline median for the percent of infants receiving a risk factor assessment by six weeks of age is 16%. Over the course of the collaborative, teams improved this median number to 92%. This represents an impressive 475% improvement in seven months.

The second graph below identifies the frequency at which reviewed charts had documentation that the risk factor assessment had been reviewed with the family by six weeks of age. At baseline, the median was 8% but through the work of the collaborative this improved to a remarkable 79%.

The final graph below represents the percent of children with identified risk factors who had a specific care plan created to address those risk factors by 4 months of age. There is no data for the first month, largely because so few children had documented risk factor assessments at the beginning of this work. As teams worked to conduct more risk factor assessments, they began to see improvement in the number of those who had care plans by 4 months. When we look across this data a median of 92% of reviewed charts had a care plan. This is an impressive change given where practice teams began.







B. Change Strategies

Many of the change strategies teams found most effective mimic the strategies used in Phase 1 to accomplish improvement in the documentation of newborn screening results and result conversations. Previously identified changes, including altering the EHR and workflow to include new locations for documentation, EHR prompts and ticklers, and improving tracking and monitoring of screening results would all benefit the tracking of risk factors. Additional successful strategies included:

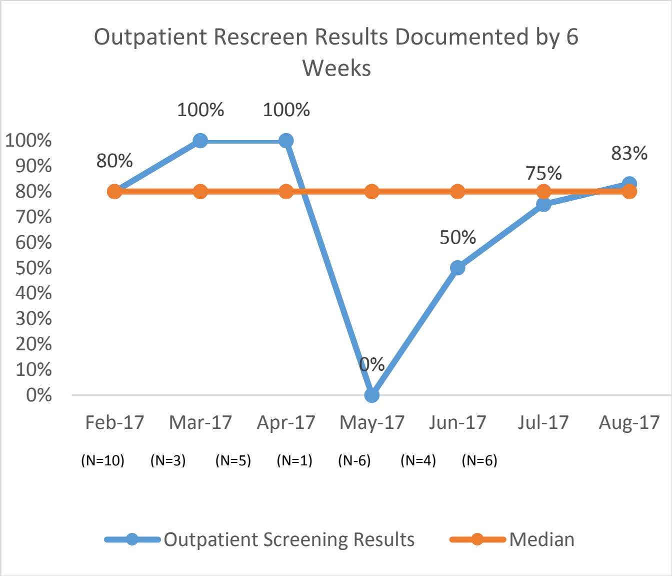
1. Train and educate all providers and nurses on the Joint Committee on Infant Hearing (JCIH) identified risk factors for delayed onset hearing loss.
2. Extend risk factor screening prompt in the EHR so that all infants are assessed at every visit until six months of age. This helps to ensure that no child is missed, even if she or he misses some routine visits, moves into the practice, or changes provider.
3. Complete initial risk factor assessment at initial newborn visit.
4. Engage front office, and/or nursing staff, to encourage families to share family history that could inform potential risk factors via questionnaire while they are in the waiting room or before they are seen by the provider.
5. Ask families about family history of hearing loss or changes, and prompt them to fully describe any family history that is identified.
6. Flag charts for follow up any time a risk factor is identified.
7. Add identified risk factors to problem list for future tracking and monitoring.
8. Create/use educational materials when discussing risk factors and outcomes of the assessment with families.
9. Build recommendations for follow up into the EHR so the appropriate guidelines and next steps provided by JCIH are easily accessible.

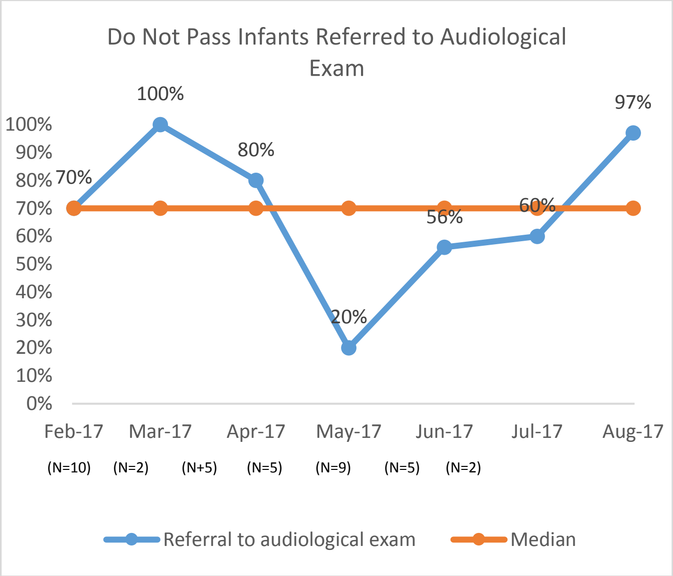
**Management of Infants Who Do Not Pass the Newborn Hearing Screen**

The culmination of this work focuses on supporting families to follow through with the necessary next steps if an infant does not pass their newborn hearing screening. Many of the results previously discussed have focused on screening and assessment, but one primary focus of this project was to make sure that every infant who does not pass their newborn hearing screen receives the needed follow up by 3 months of age. The developmental, social, and emotional impact of missing even just one infant is substantial. While infants born deaf or hard of hearing is a rare event, the consequences of missing opportunities for early intervention makes the need for a fail-proof, reliable system even more important.

The first graph below represents the percent of infants who did not pass their initial hospital screen who were then referred to an outpatient rescreening. While the numbers are quite small, there is more variability in this data that expected. It is important to note that in May 2017 while 0% had the results of the rescreen documented by 6 weeks of age there was only one infant represented here for all teams.

The second graph represent all infants who did not pass either their hospital screening and/or the outpatient rescreen who were then referred for an audiological exam. Again, there is greater than expected variability here. While the total number of infants remains low, a key focus of this collaborative was to support pediatricians in creating a “failure proof system” where no infants are missed.





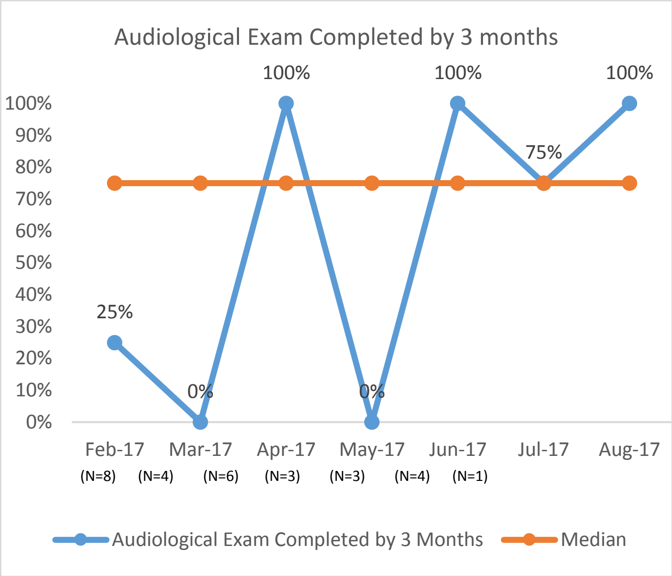
Because this data represents the aggregate of all teams for each month, we found that the graphs were often influenced by one or two teams who performance was lower than other teams. Because at this stage of the process, the sample size is very small, the impact this team(s) had on the data was more noticeable than the impact on screening results and risk factor measures. When these results were reviewed with teams they reported a few common occurrences that influenced the data, including the following:

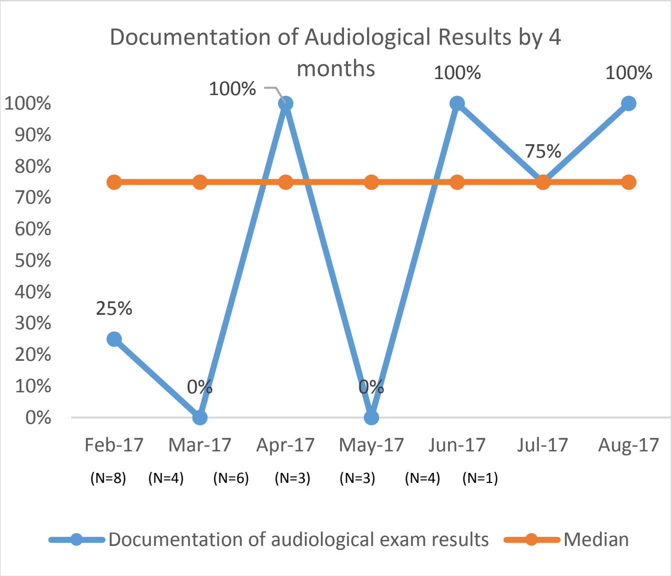
1. There is some difficulty getting the infant in for a re-screen and receiving those results by 6 weeks of age. A review of their charts, and improved tracking systems, supported practices in continually following these infants, but often it was 7 or 8 weeks by the time the results were received back in the office.
2. In May 2017, the percent of infants referred for audiological exam was reported at its lowest level of the collaborative (20%). Teams reported consistent documentation as the cause of this result. Over the remaining months, these teams worked to improve documentation, therefore, the data improved as well.

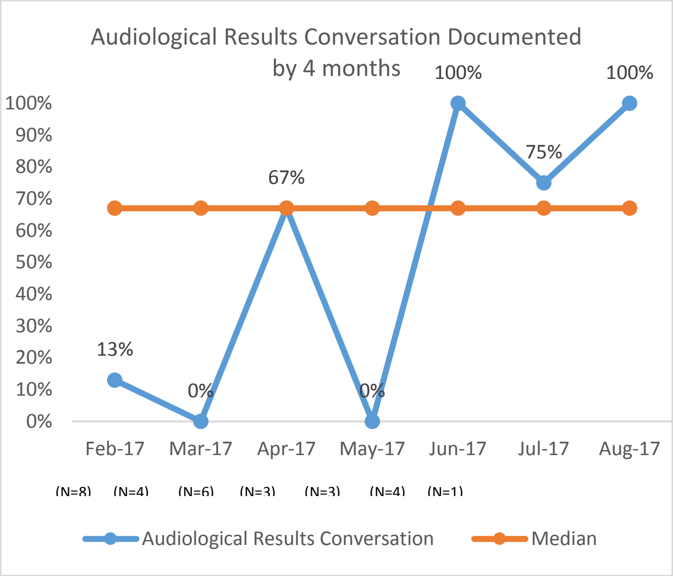
Practices were also asked to review if the diagnostic exam was complete by 3 months of age, if the results of this diagnostic exam were documented in their EHR by the four-month well-child visit, and if a conversation about this exam was documented. The data in these three graphs is exactly the same -- meaning that if the infant had completed the diagnostic appointment, the pediatrician had the results and the conversation with the family documented by four months. Again, there is great variation in this data, but at this point in the system the pediatrician has less control over the outcomes. Teams reported that the most likely reasons that exams were not completed by three months were:

1. Insurance coverage concerns and the parents who were unable to cover the cost of the exam privately.
2. Appointment timing – where appointment had been scheduled, but was not completed by 3 months of age.

As mentioned above, this data was largely skewed by the performance of a small group of teams. When the data is reviewed for individual teams, most experienced much stronger outcomes.







**Additional Findings**

At the conclusion of the learning collaborative, all participants were invited to participate in a summative webinar. In this webinar, participants discussed their experience in the learning collaborative and provided the Expert Group with suggestions for future work.

Participants reported that they found the project to be highly important, and indicated that the changes made their practice’s work easier. They appreciated and enjoyed hearing from experts in the field of EHDI. Team members noted that the process of making improvements to their internal EHDI system was so seamless that families didn't even know that there was a change. Others noted that the family education helped keep families engaged in working on hearing concerns over time.

A key change to this phase of the work was the requirement that a parent partner be included on their improvement team. The intention of this change was to help the improvement teams utilize the valuable and unique perspective of a parent as they considered changes and improvements within their system. Teams, and parent partners alike, did not see this change to be as valuable as was initially intended. Parent partners reported that many of the changes were, “in the office,” or “behind the scenes,” and that they could not meaningfully contribute. One example would be that most teams worked to change EHR documentation capabilities and workflow systems to improve documentation of conversations. While this is a critical step, the parent partner didn’t feel they were able to impact or engage in this work. Practice teams reported similar concerns.

One outcome of this collaborative was the parent partner representative to the expert group, created a list of parent partner change strategies. This grid identifies specific ideas that a team might use to engage their parent partner and add value to their role and the outcome of their efforts. (see appendix H). While teams appreciated the support, they reported that they were not able to utilize these ideas.

A final concern for teams was regarding how to create a care plan for infants with identified risk factors. This is an issue that came up during phase 1 of this work and continued with this cohort. Pediatricians indicated they would like stronger guidance on the next steps when risk factors are identified. They also felt that very specific guidance would help them streamline the care planning process and ensure that all of the pediatricians in the office understand the appropriate next steps.

## Conclusion

Pediatricians play an essential role in ensuring that all infants have their hearing screened. The results of this collaborative prove that pediatricians play an essential role in ensuring that infants who do not pass the newborn screen do receive the necessary re-screen and/or diagnostic testing. Additionally, pediatricians are key to ensuring that those who have been identified as deaf or hard of hearing receive early and effective intervention and support. Furthermore, pediatricians can serve as a critical conduit to supporting families in understanding the importance of hearing screening and understanding the risk factors that may contribute to delayed or late-onset hearing loss. The role of risk factor assessment and parent engagement in this assessment has been long overlooked and continues to represent the most powerful work of this collaborative.

# Appendices

## A. Roster

### Early Hearing Detection and Intervention Quality Improvement Phase II Project
### Participant Roster (updated 3/24/17)

| | | |
|---|---|---|
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## B. Aim and Measures

Early Hearing
Detection & Intervention
a program of the American Academy of Pediatrics

# Early Hearing Detection and Intervention Quality Improvement Project
# Aims and Measures

## Aim Statement

By July 2017, five pediatric offices will make practice-based improvements that lead to enhanced care across the delivery system and strengthen the role of the medical home within the EHDI system. The participating pediatric practices will make improvements so that:

1. 97% or more of all newborns have documentation of the results of their final newborn hearing screening in their medical records by 6 weeks of age
2. 97% of newborns have documentation in their medical record that the results of the newborn hearing screening were discussed with the family no later than 6 weeks of age
3. 97% or more of all newborns identified to have risk factors associated with hearing loss will have documentation of those risk factors in their medical record by 6 weeks of age and will have an individualized care plan by the 4 months of age
4. 100% of children who do not pass their newborn hearing screening have completed an audiological evaluation by 3 months of age and documentation will be in their medical record by 4 months of age

# Measures

## Process Measures

| Measure | Numerator | Denominator | Goal |
|---|---|---|---|
| Screening Results – All | Number of newborn infants with hospital newborn hearing screening results documented in the medical record by 6 weeks of age | Number of newborn infants 6 weeks of age during the reporting period | 97% |
| Outpatient Screening Results | Number of newborn infants who have the results of an outpatient screen documented in their medical record by 6 weeks of age | Number of newborn infants who have been referred for an outpatient hearing screen and are 6 weeks of age during the reporting period | 97% |
| Risk Factors | Number of newborn infants who were documented to have an assessment of risk factors for hearing loss by 6 weeks of age | Number of newborn infants 6 weeks of age during the reporting period | 97% |
| Referral to audiological exam | Number of newborn infants who do not pass their final hearing screen (hospital newborn or outpatient) who have a referral for an audiological exam documented in the medical record by 6 weeks of age | Number of newborn infants who do not pass their final hearing screen (hospital newborn or outpatient) who are 6 weeks of age during the reporting period | 100% |
| Audiological exam conducted | Number of newborn infants who do not pass their final hearing screen (hospital newborn or outpatient) who have receive an audiological exam | Number of newborn infants who do not pass their final hearing screen (hospital newborn or outpatient) who are 4 months of age during the reporting period | 100% |
| Documentation of audiological exam results | Number of newborn infants who do not pass their final hearing screen (hospital newborn or outpatient) who have documentation of the audiological exam results in the medical record by 4 months of age | Number of infants who do not pass their final hearing screen (hospital newborn or outpatient) who are 4 months of age during the reporting period | 100% |

## Outcome Measures

| Measure | Numerator | Denominator | Goal |
|---|---|---|---|
| Results Conversation | Number of newborn infants with documentation in their medical record that the results of the final hearing screen (hospital newborn or outpatient) were discussed with the family by 6 weeks of age | Number of newborn infants who are 6 weeks of age during the reporting period | 100% |
| Risk Factors Conversation | Number of newborn infants with documentation in their medical record that the assessment for risk factors for hearing loss were discussed with the family by 6 weeks of age | Number of newborn infants who are 6 weeks of age during the reporting period | 100% |
| Risk Factors Care Plan | Number of newborn infants identified with risk factors for hearing loss with documentation in their medical record of an individualized care plan by 4 months of age | Number of newborn infants with identified risk factors who are 4 months of age during the reporting period | 97% |
| Audiological Exam Completed By 3 Months | Number of newborn infants who do not pass their newborn hearing screen with documentation in their medical record of an audiological exam completed by 3 months of age | Number of newborn infants who do not pass their newborn hearing screen who are 4 months of age during the reporting period | 100% |
| Audiological Results Conversation | Number of newborn infants who do not pass their newborn hearing screen that had the results of the audiological exam discussed with the family by 4 month well child visit | Number of newborn infants who do not pass their newborn hearing screen completing their 4 month well child visit during the reporting period | 100% |

## C. Chart Review Tool

Early Hearing
Detection & Intervention
a program of the American Academy of Pediatrics

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# Early Hearing Detection and Intervention Quality Improvement Project
# Record Review Tool – 6 Weeks of Age

**Month of Data Collection:** ______________________________________________

______________________________________________

**Patient MR#:** ______________________________________________ **Age of Patient:** ____ **Days** ____ **Months** ____ **Years**

**Note:** QIDA does not record any patient identifying information. You may enter it here on the printed copy of this data collection tool for your own record-keeping purposes ONLY.

****Chart pull criteria:**

- ☐ **Pull and review up to 20 charts for all patients in your practice who are 6 weeks of age and passed a newborn hearing screen.**
- ☐ **Pull and review ALL charts in your practice for patients who are 6 weeks of age and did NOT pass a newborn hearing screen.**

1. Were the initial newborn hospital hearing screening results documented in the medical record by six weeks of age?

   ☐ Yes ☐ No

2. What are the initial hearing screening results?

   ☐ Pass (would go to question 5,6,7,8) ☐ Do Not Pass (would go to question 3,4,5,6,7,8)

3. If applicable, was this patient referred for an outpatient hearing screening by six weeks of age?

   ☐ Yes ☐ No (skip to 4)

3a. If yes, were the results of the outpatient hearing screen documented in the medical record by six weeks of age?

☐ Yes ☐No

3b. What were the results of the outpatient hearing screening?

☐Pass (skip to 5) ☐Do Not Pass ☐N/A, unknown

4. Is there documentation in the patient's medical record that the patient had been referred for an audiological exam by six weeks of age?

☐ Yes ☐ No ☐Not Documented

5. Is there documentation in the patient’s medical record that the primary care pediatrician discussed the results of the patient’s final hearing screen (initial hospital or outpatient) with the family by six weeks of age?

   ☐ Yes ☐ No

6. Is there documentation that the patient has been assessed for risk factors for late-onset or progressive hearing loss by six weeks of age?

   ☐ Yes ☐ No

7. Is there documentation in the patient’s medical record that the primary care pediatrician discussed the assessment for risk factors for late-onset or progressive hearing loss with the family by six weeks of age?

   ☐ Yes ☐ No

8. Were risk factors for late-onset or progressive hearing loss identified?

   ☐ Yes ☐ No ☐N/A, assessment not performed or inconclusive

Early Hearing Detection & Intervention

a program of the American Academy of Pediatrics

# Early Hearing Detection and Intervention Quality Improvement Project
## Record Review Tool – 4 Months of Age

**Month of Data Collection: ____________________________________________________________**

**______________________________________________________________________**

**Patient MR#: ________________________________________________________________________ Age of Patient: ____Days ____Months ____Years**

**Note:** QIDA does not record any patient identifying information. You may enter it here on the printed copy of this data collection tool for your own record-keeping purposes ONLY.

****Chart pull criteria:**

- ☐ **Pull and review up to 20 charts for all patients in your practice who are 4 months of age and passed a newborn hearing screen.**
- ☐ **Pull and review ALL charts in your practice for patients who are 4 months of age and did NOT pass a newborn hearing screen.**

*****Please note that some questions appear on this record review tool that are included in the record review for patients that are 6-weeks of age. Project measures that are assessed at 6-weeks of age will be only calculated using data collected for 6-week old patients. Data for these measures will also be collected for patients who are 4-months of age, however this data will not be considered when assessing progress towards your practice project aims and measures.**

1. Were the initial newborn hospital hearing screening results documented in the medical record by 6 weeks of age?

   ☐ Yes ☐ No

2. What are the initial hearing screening results?

   ☐ Pass ☐ Do Not Pass (go to question 3, 4)

3. Was this patient referred for an outpatient hearing screening?

   ☐ Yes (go to 3a, 3b) ☐ No (skip to 4)

   3a. If yes, were the results of the outpatient hearing screen documented in the medical record by 6 weeks of age?

   ☐ Yes ☐ No

   3b. What were the results of the outpatient hearing screening?

   ☐ Pass (skip to 5) ☐ Do Not Pass ☐ N/A, unknown

4. Did the patient have an audiological exam?

☐ Yes (go to 4a, 4b, 4c) ☐ No (skip to 5)

4a. Were the results of the audiological exam documented in the medical record by 4 months of age?

☐ Yes ☐No

4b. If yes, was the audiological exam completed before the patient was 3 months of age?

☐ Yes ☐ No

4c. Is there documentation in the patient's medical record that the primary care pediatrician discussed the results of the audiological exam with the family by 4 months of age?

☐ Yes ☐ No

5. Were risk factors for late-onset or progressive hearing loss identified?

☐ Yes (go to 5a) ☐ No ☐N/A, assessment not performed or inconclusive

5a. If yes, is there documentation in the patient's medical record of a personalized care plan developed by the primary care pediatrician to address any risk factors identified for late-onset or progressive hearing loss by 4 months of age?

☐ Yes ☐ No

## D. Change Package

# Early Hearing Detection and Intervention (EHDI) Quality Improvement (QI) Project Change Package

## Project Overview

The American Academy of Pediatrics Early Hearing Detection and Intervention (EHDI) program is dedicated to promoting the role of the medical home and primary care clinicians in EHDI. The EHDI program supports a network of over 60 Chapter Champions, who provide ongoing EHDI education and resources to pediatric clinicians, and play a vital role in coordinating health efforts between pediatricians, other health care professionals, and state EHDI programs.

The EHDI Quality Improvement (QI) project uses the Learning Collaborative model to test strategies that will enhance pediatrician knowledge and practice related to documentation of newborn hearing screening results, referrals to sub-specialists, documentation of risk factors for delayed or late onset hearing loss, and communication of these results with families. The project will result in potential dissemination of promising practices/strategies and education on topics of relevance to practicing pediatric primary care clinicians.

Data collection for quality improvement purposes will involve de-identified patient record reviews, completion/submission of monthly progress reports, and completion of pre- and post- project surveys completed by the participating teams. Teams will also participate in monthly educational webinars/conference calls to learn from experts and each other and to receiving coaching and mentorship from the project Quality Improvement advisor.

## Instructions

The goal of this document is to provide change ideas for improving care and outcomes for infants following newborn hearing screening. The change ideas listed in this document are not intended to be seen as recommended evidence-based interventions or guidelines for care. Rather, teams participating in this learning collaborative should test these change ideas in their respective practice(s) and, based on the results, develop and implement improved processes in their system. These ideas are compiled to support improvement teams as they work to accomplish breakthrough improvement. This document will be updated as new ideas emerge that lead to improvement.

# AIM

By July 2017, five pediatric offices will make practice-based improvements that lead to enhanced care across the delivery system and strengthen the role of the medical home within the EHDI system. The participating pediatric practices will make improvements so that:

- 97% or more of all newborns have documentation of the results of their final newborn hearing screening in their medical records by 6 weeks of age
- 97% of newborns have documentation in their medical record that the results of the newborn hearing screening were discussed with the family no later than 6 weeks of age
- 97% or more of all newborns identified to have risk factors associated with hearing loss will have documentation of those risk factors in their medical record by 6 weeks of age and will have an individualized care plan by the 4 months of age
- 100% of children who do not pass their newborn hearing screening have completed an audiological evaluation by 3 months of age and documentation will be in their medical record by 4 months of age

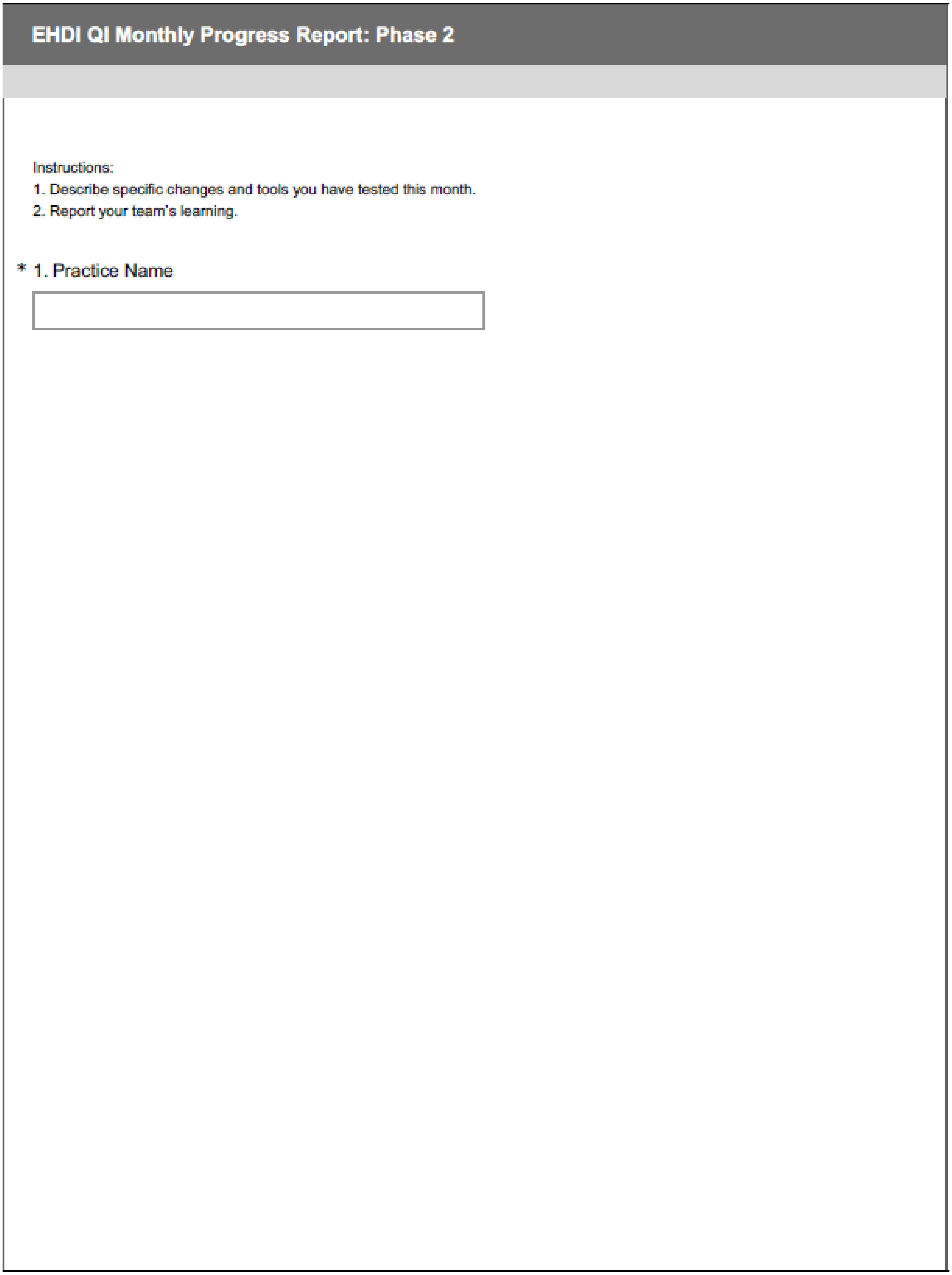
| Primary Driver 1: Newborn hearing screening results are reviewed with all families | |
|---|---|
| Secondary Driver | Change Ideas |
| Newborn hearing screening results are shared promptly with the infants primary care provider | 1. Hospital staff verifies identity of pediatrician and sends screen result by day of discharge<br>2. Use standardized process (ie, fax-back, phone call, data system) to communicate results of screen/rescreen and diagnostic evaluation to pediatrician<br>3. Pediatric practices form partnerships with local hospitals and midwives to expedite results sharing through electronic transfer<br>4. “Do not pass” results communicated differently than “pass” results, treated like a modified critical value requiring pediatrician confirmation, or mail pass results/ fax-back referrals |
| Families receive standardized and consistent communication about hearing screening results | 1. Pediatrician creates a family focused process for notifying all families of screening results<br>2. Pediatrician delivers semi-scripted messages using appropriate terminology for all screening/rescreening results<br>3. All screening/rescreening results are given to families both verbally and in writing<br>4. Prioritize conversations on newborn hearing screening so that they occur before the child is 6 weeks of age<br>5. For children who do not pass the newborn hearing screen, the PCP gives written, did not pass information, including a place to indicate time and location of pediatric diagnostic audiology appointment |
| Document conversations with families about hearing screening results in the medical record | 1. Create processes for pediatricians to document when conversations occur regarding newborn hearing screening results<br>2. Identify codes within the electronic medical record that allow accurate accounting of activities and eases data extraction<br>3. Families of infants who do not pass their newborn hearing screen should receive documentation that describes next steps and importance of diagnostic follow up<br>4. Next steps and discharge education completed and documented by support staff following interaction with pediatrician |
| Families of children who do not pass newborn hearing screening or have risk factors demonstrate engagement in next steps for follow-up | 1. Family is able to recall next steps (when applicable) to show comprehension of expectations<br>2. Family is provided with adequate opportunity to ask questions and receive information<br>3. Family is provided with the contact information for the state EHDI program, Hands & Voices, and/or Family Voices for resources and support<br>4. Family is provided with typical developmental milestone information to assist them with monitoring their child’s development |

| Primary Driver 2: Children with risk factors associated with delayed, late-onset, or progressive hearing loss have an individualized care plan to address each risk factor | |
|---|---|
| Secondary Driver | Change Ideas |
| All children are assessed for risk factors using a systematic approach | 1. Obtain risk factor assessments done during hospital stay and verify accuracy of assessment with family<br>2. Utilize the Joint Committee 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs to establish criteria for assessing risk factors<br>3. Utilize the NCHAM E Book Chapter 10: Risk Monitoring for Delayed-Onset Hearing Loss *to train staff in risk factors for delayed onset hearing loss*<br>4. Prioritize risk factor assessment so that it occurs before the child is 6 weeks of age<br>5. Utilize nursing staff for support in assessing for risk factors while rooming family and before the provider sees the infant |
| Documentation of risk factor assessment and outcomes are easily found within the infant's medical record | 1. Create processes and standard operating procedures for providers and other clinicians in the practice to document when risk factor assessment is completed<br>2. Identify codes within the electronic medical record that allow accurate identification and tracking of risk factor assessment and have those codes easily referenced<br>3. Create reporting function to allow easy extraction of data |
| Follow up plan is created for all children with identified risk factors and this plan is communicated with the family | 1. Children identified with risk factors receive a specific, individualized care plan addressing specific risk factors<br>2. Co-create follow up plan with the family to address any identified risk factors based on the outcomes of the risk factor assessment<br>3. Families receive written summaries of next steps including the timeline, significant next steps, and key contacts<br>4. Create scripted messages so that all pediatricians and support staff provide consistent information to families |

| Primary Driver 3: All children who do not pass their newborn hearing screening receive reliable and timely audiological evaluation and this care is co-managed with the pediatrician | |
|---|---|
| Secondary Driver | Change Ideas |
| Ensure next necessary referrals and medical appointments are made and the family understands next steps | 1. Pediatrician documents confirmation of follow up appointment with audiologists by 6 weeks of age<br>2. Additional needed referrals are made within 24 hours of visit<br>3. Office staff supports family in scheduling needed appointments and ensure these are at a time that is conducive to the families' needs<br>4. Pediatric office staff provides reminder calls before appointments and reminds family of the importance of diagnostic follow up |
| Diagnostic audiological evaluation completed no later than 3 months of age | 1. Standardize approach to confirm the diagnosis of hearing loss; use template orders and referrals for evaluation and diagnosis<br>2. Ensure all diagnostic evaluations are received and documented within the medical record (and update problem list if the infant is diagnosed with hearing loss)<br>3. Develop and implement system to track infants progress in receiving diagnostic follow up<br>4. Pediatric office confirms follow-up appointment for diagnostic appointment with families at time of first newborn visit; primary care pediatrician/clinician reinforces its importance<br>5. Pediatric office reminder calls to the family before the appointment to eliminate barriers, answer questions and discuss reasons why appointment is important<br>6. Share instructions from referred audiology center with family prior to audiology appointment to maximize possibility of completion of testing<br>7. Utilize the Hands & Voices Parent Roadmap with families to outline expected care and referrals during the first year<br>a. Contact local Hands & Voices chapter to verify if a road map has been created with state/local resources included |
| Create partnership with diagnostic providers to ensure timely transfer of information | 1. Partner with local pediatric audiologists, Otolaryngologists, and other medical sub-specialists critical to hearing issues in order to create collaborative relationships to manage infants in need of follow up care |

| Primary Driver 4: Engage family representation in your practice based Quality Improvement efforts | |
|---|---|
| Secondary Driver | Change Ideas |
| Identify family representation to inform your Quality Improvement efforts | 1. Contact state EHDI office or your Hands & Voices to assist you with identifying family leaders who could support your quality improvement efforts<br>2. Identify families of infants served in the pediatric practice who are interested in engaging in quality improvement efforts within the practice. Refer to the project “Parents as Partners” guide (available in the QIDA Workspace) for assistance with selecting a parent partner or to the NICHQ: Family Engagement Guide<br>3. Recruit more than one family; having at least two improves ability to have parent engagement at all meetings and in all discussions and improves parent comfort with this role |
| Include family representation in key decision processes to improve the system of care | 1. Families are represented at key practice meetings<br>2. Provide opportunity for family leadership development and systems representation is available<br>3. Families and medical providers have access to, and training with, decision tools (eg, Ottawa Decision Guide that may help families with making difficult decisions)<br>4. Parent partners review all materials for clarity, readability, and ease of message |
| Utilize family experience/knowledge to identify improvement opportunities | 1. Parent partners create satisfaction survey to be used by to survey the experience of new patients/families<br>2. Measure family experience of care with the newborn hearing screening and follow up process: quantitative (survey) and qualitative (focus groups) |

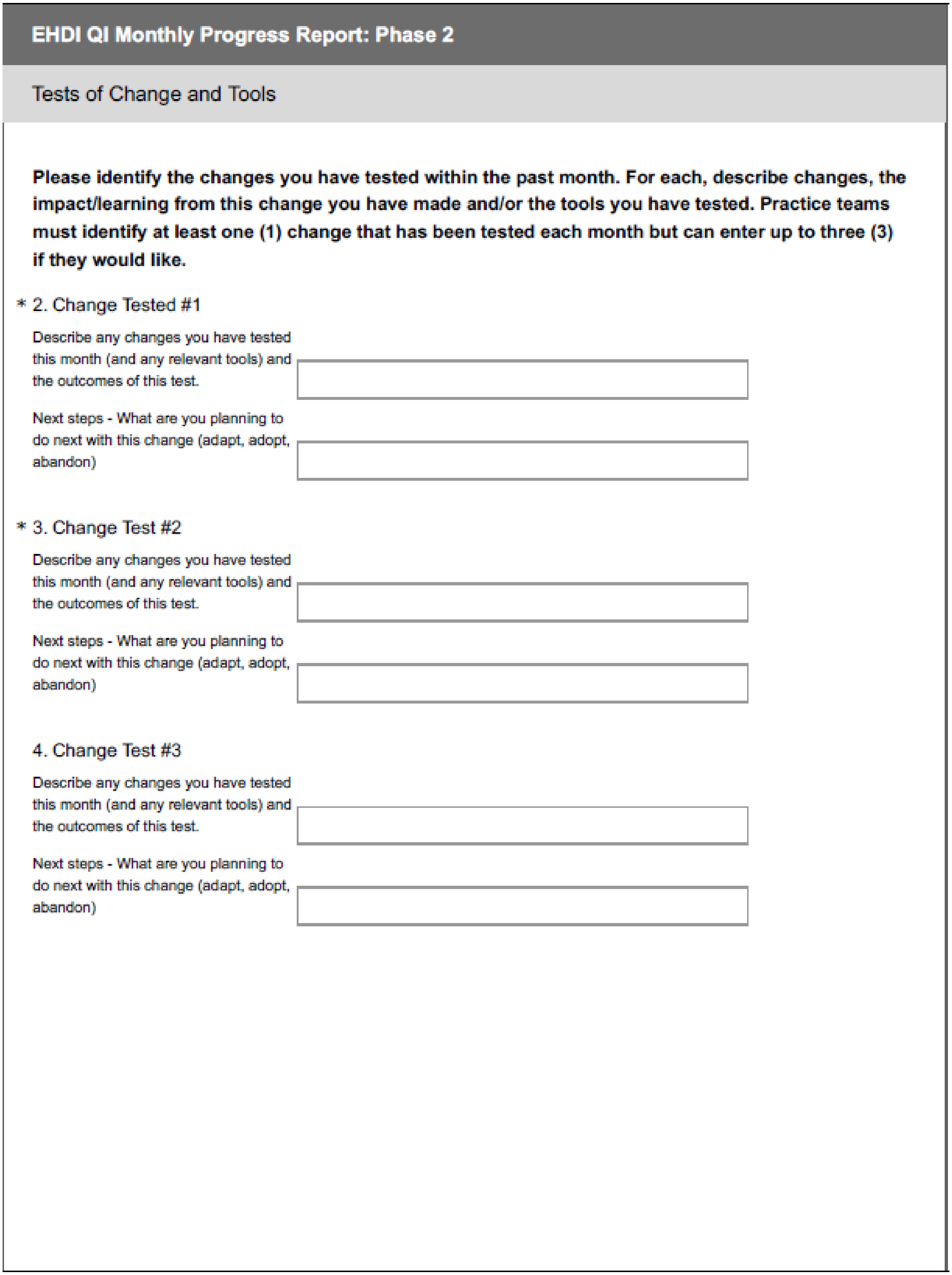
## E. Monthly Reporting Template



**EHDI QI Monthly Progress Report: Phase 2**

Instructions:
1. Describe specific changes and tools you have tested this month.
2. Report your team's learning.

* 1. Practice Name



## EHDI QI Monthly Progress Report: Phase 2

### Tests of Change and Tools

**Please identify the changes you have tested within the past month. For each, describe changes, the impact/learning from this change you have made and/or the tools you have tested. Practice teams must identify at least one (1) change that has been tested each month but can enter up to three (3) if they would like.**

* 2. Change Tested #1

Describe any changes you have tested this month (and any relevant tools) and the outcomes of this test.

Next steps - What are you planning to do next with this change (adapt, adopt, abandon)

* 3. Change Test #2

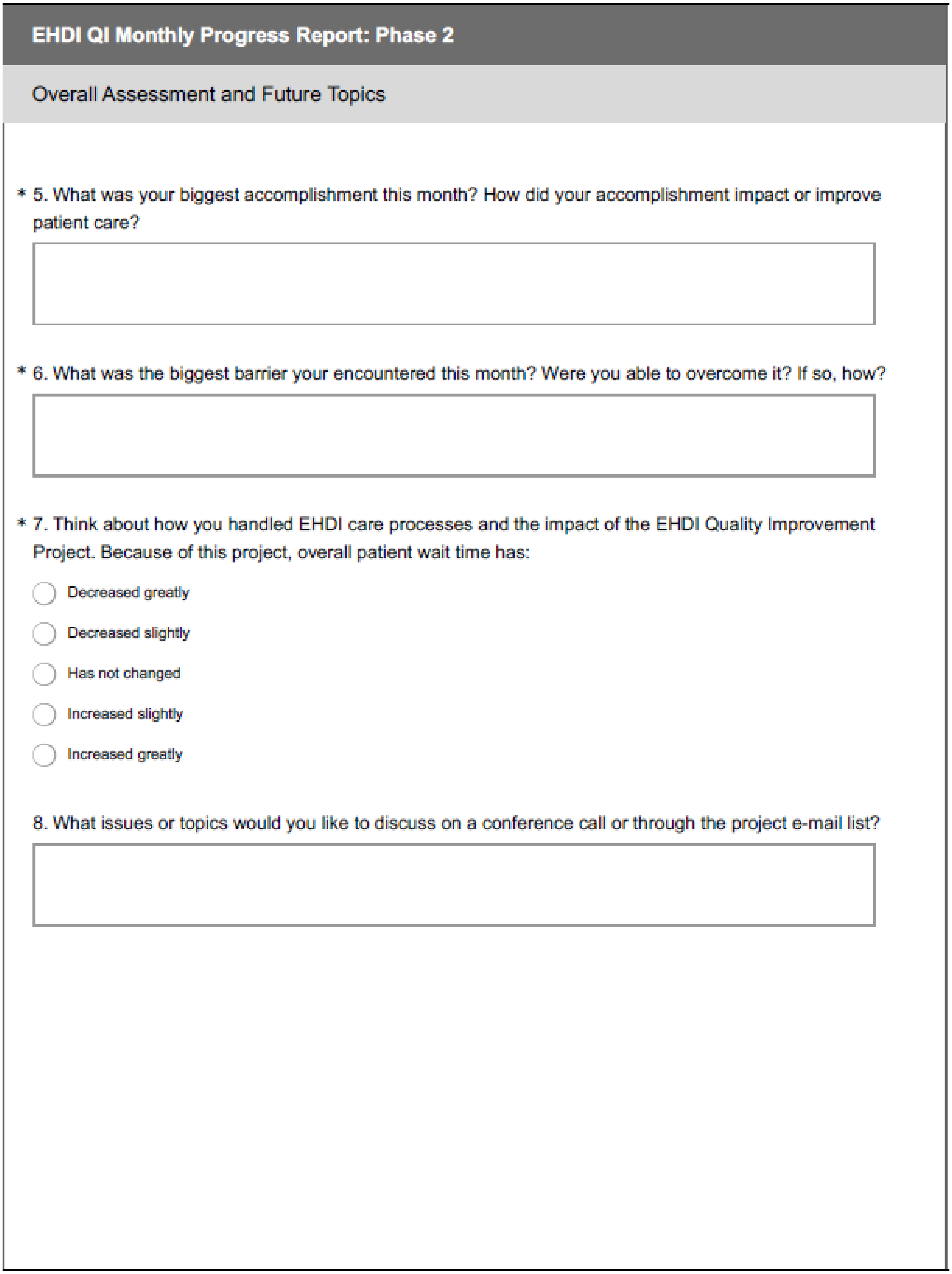
Describe any changes you have tested this month (and any relevant tools) and the outcomes of this test.

Next steps - What are you planning to do next with this change (adapt, adopt, abandon)

4. Change Test #3

Describe any changes you have tested this month (and any relevant tools) and the outcomes of this test.

Next steps - What are you planning to do next with this change (adapt, adopt, abandon)



**EHDI QI Monthly Progress Report: Phase 2**

Overall Assessment and Future Topics

* 5. What was your biggest accomplishment this month? How did your accomplishment impact or improve patient care?

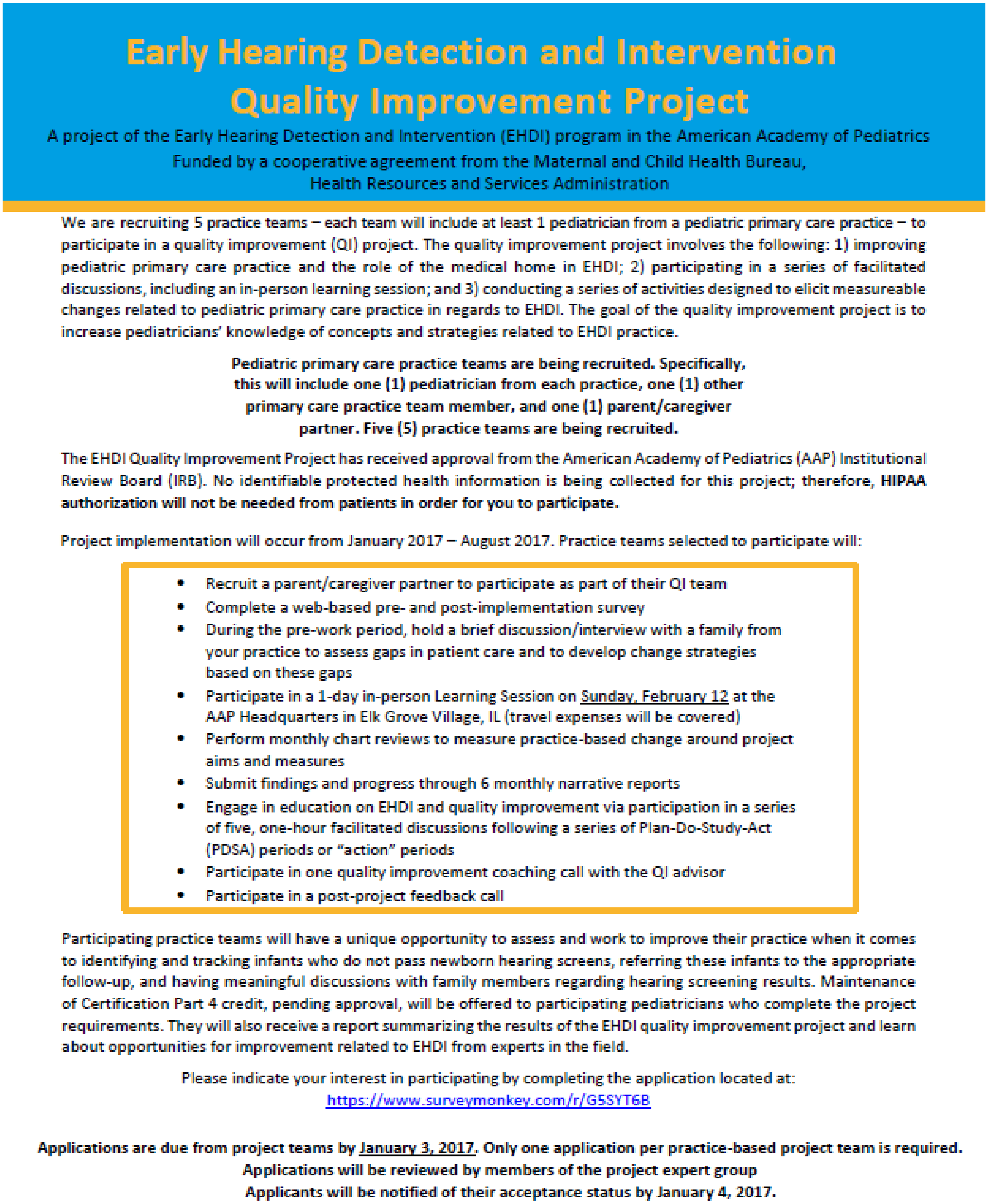
* 6. What was the biggest barrier your encountered this month? Were you able to overcome it? If so, how?

* 7. Think about how you handled EHDI care processes and the impact of the EHDI Quality Improvement Project. Because of this project, overall patient wait time has:

- ○ Decreased greatly
- ○ Decreased slightly
- ○ Has not changed
- ○ Increased slightly
- ○ Increased greatly

8. What issues or topics would you like to discuss on a conference call or through the project e-mail list?

## F. Recruitment Package



# Early Hearing Detection and Intervention Quality Improvement Project

A project of the Early Hearing Detection and Intervention (EHDI) program in the American Academy of Pediatrics
Funded by a cooperative agreement from the Maternal and Child Health Bureau,
Health Resources and Services Administration

We are recruiting 5 practice teams – each team will include at least 1 pediatrician from a pediatric primary care practice – to participate in a quality improvement (QI) project. The quality improvement project involves the following: 1) improving pediatric primary care practice and the role of the medical home in EHDI; 2) participating in a series of facilitated discussions, including an in-person learning session; and 3) conducting a series of activities designed to elicit measureable changes related to pediatric primary care practice in regards to EHDI. The goal of the quality improvement project is to increase pediatricians' knowledge of concepts and strategies related to EHDI practice.

**Pediatric primary care practice teams are being recruited. Specifically, this will include one (1) pediatrician from each practice, one (1) other primary care practice team member, and one (1) parent/caregiver partner. Five (5) practice teams are being recruited.**

The EHDI Quality Improvement Project has received approval from the American Academy of Pediatrics (AAP) Institutional Review Board (IRB). No identifiable protected health information is being collected for this project; therefore, **HIPAA authorization will not be needed from patients in order for you to participate.**

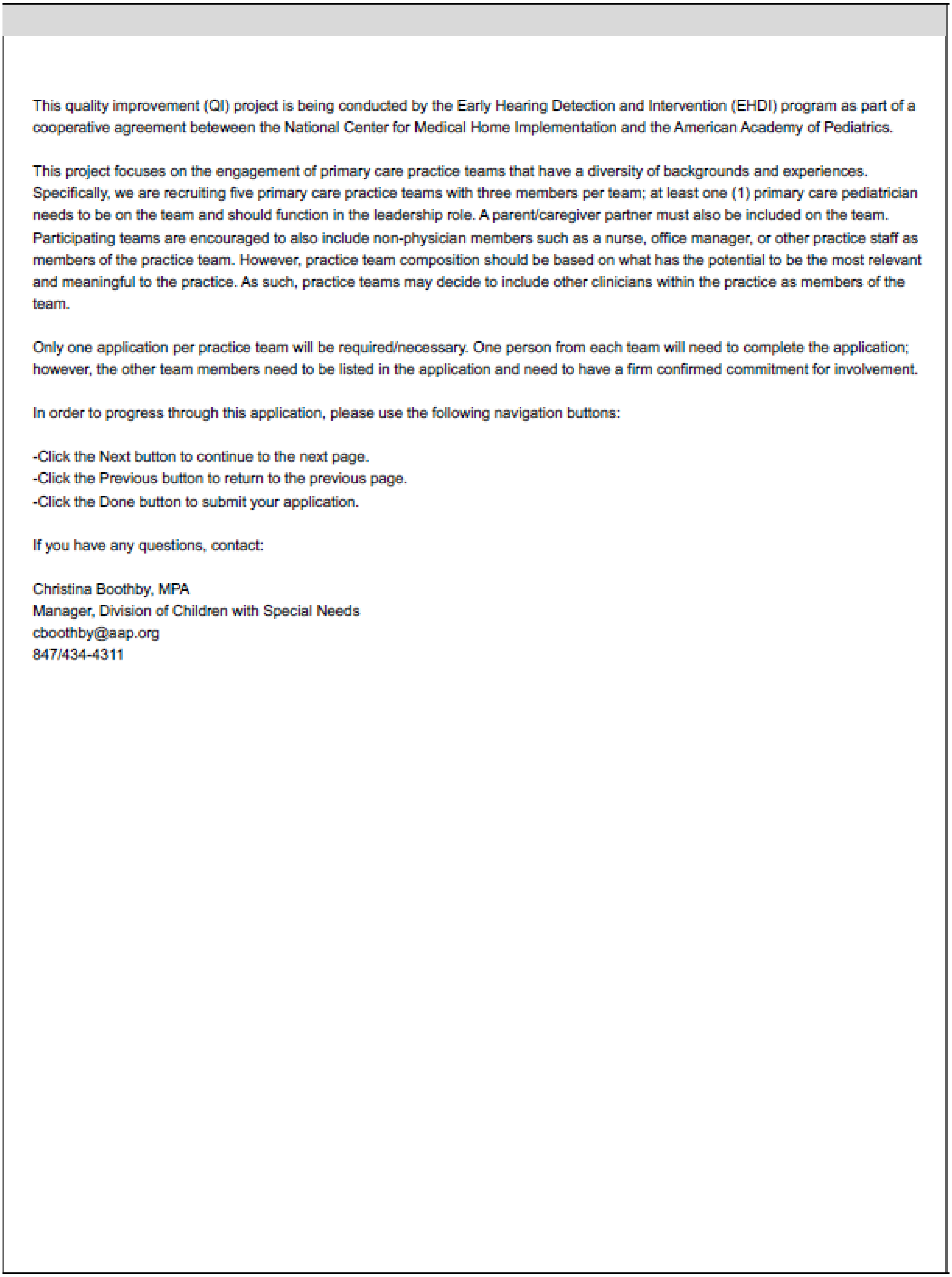
Project implementation will occur from January 2017 – August 2017. Practice teams selected to participate will:

- Recruit a parent/caregiver partner to participate as part of their QI team
- Complete a web-based pre- and post-implementation survey
- During the pre-work period, hold a brief discussion/interview with a family from your practice to assess gaps in patient care and to develop change strategies based on these gaps
- Participate in a 1-day in-person Learning Session on Sunday, February 12 at the AAP Headquarters in Elk Grove Village, IL (travel expenses will be covered)
- Perform monthly chart reviews to measure practice-based change around project aims and measures
- Submit findings and progress through 6 monthly narrative reports
- Engage in education on EHDI and quality improvement via participation in a series of five, one-hour facilitated discussions following a series of Plan-Do-Study-Act (PDSA) periods or "action" periods
- Participate in one quality improvement coaching call with the QI advisor
- Participate in a post-project feedback call

Participating practice teams will have a unique opportunity to assess and work to improve their practice when it comes to identifying and tracking infants who do not pass newborn hearing screens, referring these infants to the appropriate follow-up, and having meaningful discussions with family members regarding hearing screening results. Maintenance of Certification Part 4 credit, pending approval, will be offered to participating pediatricians who complete the project requirements. They will also receive a report summarizing the results of the EHDI quality improvement project and learn about opportunities for improvement related to EHDI from experts in the field.

Please indicate your interest in participating by completing the application located at:
https://www.surveymonkey.com/r/G5SYT6B

**Applications are due from project teams by January 3, 2017. Only one application per practice-based project team is required.**
**Applications will be reviewed by members of the project expert group**
**Applicants will be notified of their acceptance status by January 4, 2017.**



This quality improvement (QI) project is being conducted by the Early Hearing Detection and Intervention (EHDI) program as part of a cooperative agreement beteween the National Center for Medical Home Implementation and the American Academy of Pediatrics.

This project focuses on the engagement of primary care practice teams that have a diversity of backgrounds and experiences. Specifically, we are recruiting five primary care practice teams with three members per team; at least one (1) primary care pediatrician needs to be on the team and should function in the leadership role. A parent/caregiver partner must also be included on the team. Participating teams are encouraged to also include non-physician members such as a nurse, office manager, or other practice staff as members of the practice team. However, practice team composition should be based on what has the potential to be the most relevant and meaningful to the practice. As such, practice teams may decide to include other clinicians within the practice as members of the team.

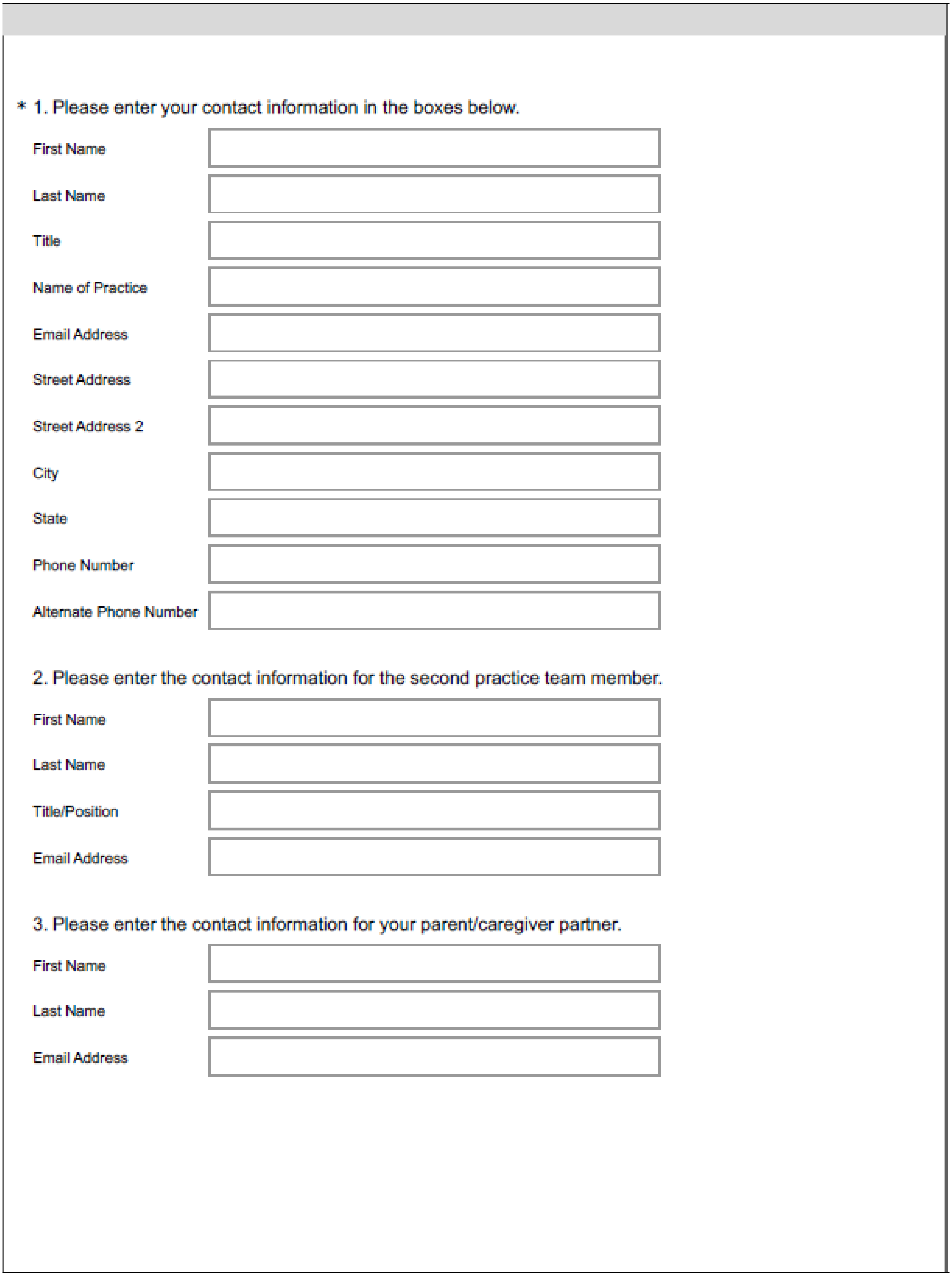
Only one application per practice team will be required/necessary. One person from each team will need to complete the application; however, the other team members need to be listed in the application and need to have a firm confirmed commitment for involvement.

In order to progress through this application, please use the following navigation buttons:

-Click the Next button to continue to the next page.
-Click the Previous button to return to the previous page.
-Click the Done button to submit your application.

If you have any questions, contact:

Christina Boothby, MPA
Manager, Division of Children with Special Needs
cboothby@aap.org
847/434-4311



* 1. Please enter your contact information in the boxes below.

First Name

Last Name

Title

Name of Practice

Email Address

Street Address

Street Address 2

City

State

Phone Number

Alternate Phone Number

2. Please enter the contact information for the second practice team member.

First Name

Last Name

Title/Position

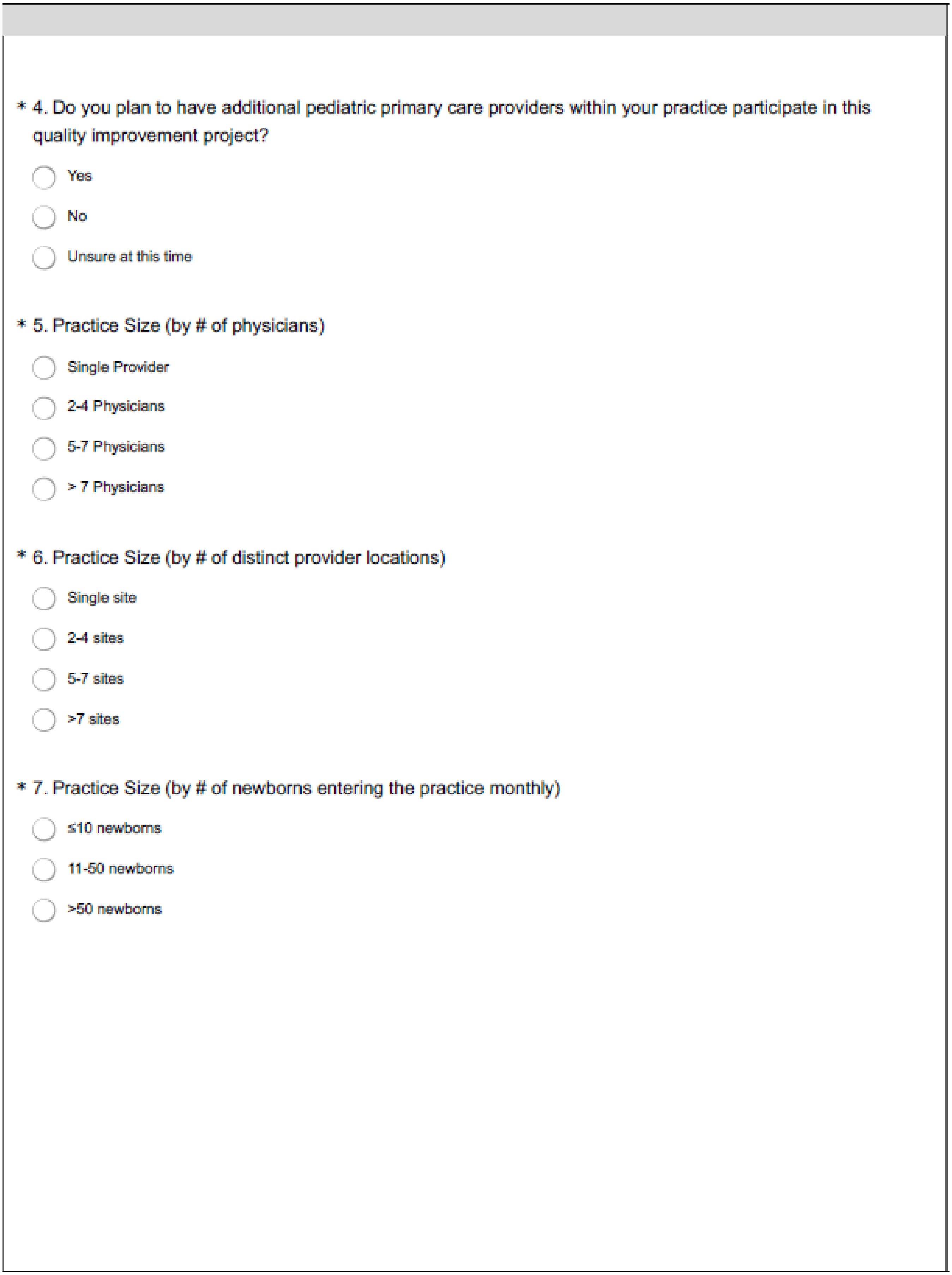
Email Address

3. Please enter the contact information for your parent/caregiver partner.

First Name

Last Name

Email Address



* 4. Do you plan to have additional pediatric primary care providers within your practice participate in this quality improvement project?

○ Yes

○ No

○ Unsure at this time

* 5. Practice Size (by # of physicians)

○ Single Provider

○ 2-4 Physicians

○ 5-7 Physicians

○ > 7 Physicians

* 6. Practice Size (by # of distinct provider locations)

○ Single site

○ 2-4 sites

○ 5-7 sites

○ >7 sites

* 7. Practice Size (by # of newborns entering the practice monthly)

○ ≤10 newborns

○ 11-50 newborns

○ >50 newborns

* 8. Please indicate your practice type.

☐ Independent Practice

☐ Hospital Affiliated Practice

☐ Affiliated with University or Medical School

☐ (County) Public Health Department

☐ Federally Qualified Health Center

☐ Other (please specify)

* 9. Which electronic health records system does your practice use? If your practice does not use electronic health records, please indicate "not applicable" below.

* 10. Please describe the geographic location of the practice.

☐ Urban

☐ Suburban

☐ Rural

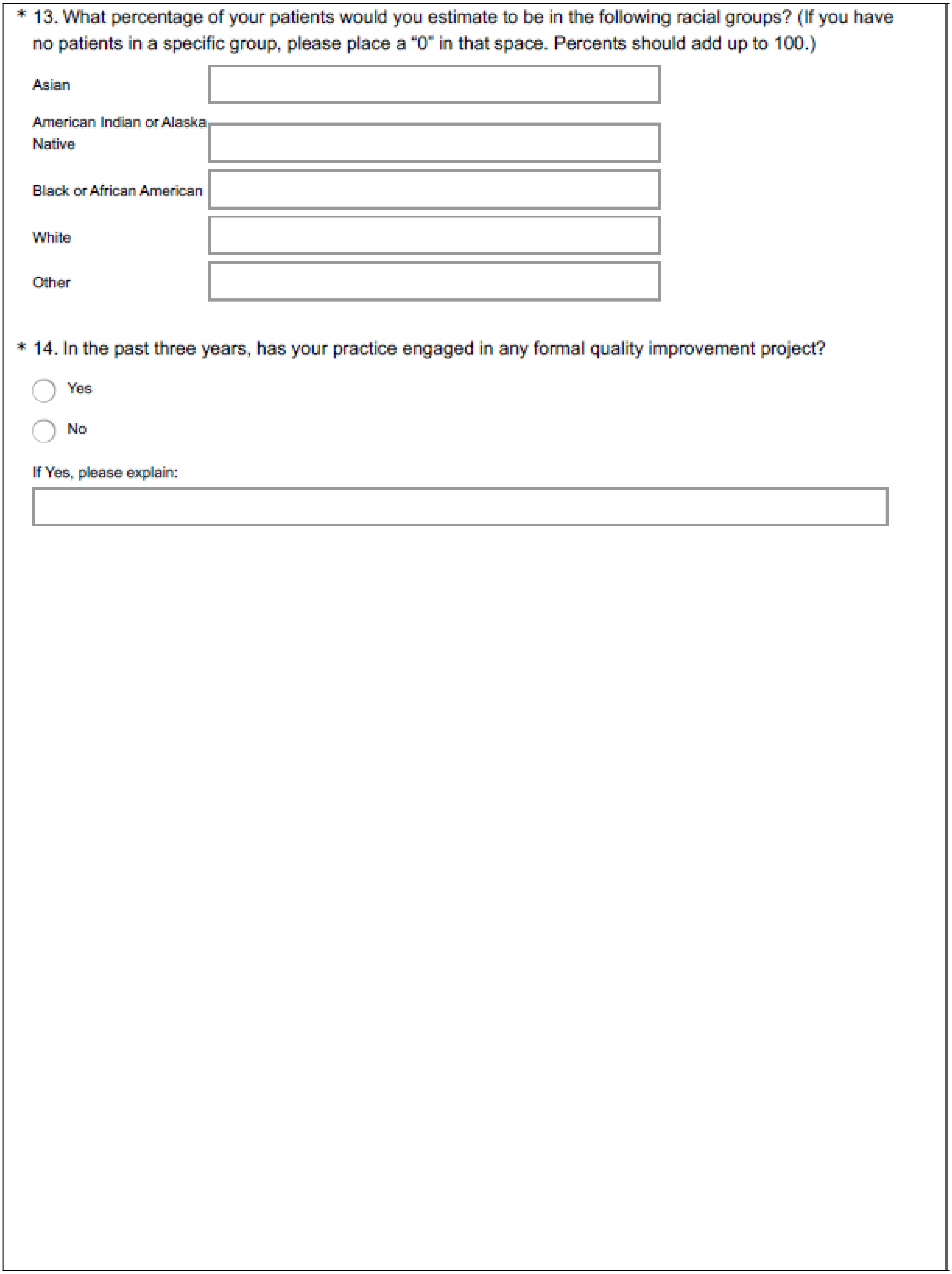
Other (please specify)

* 11. Estimated percentage of patients who use Medicaid or another state/federally-funded program to support their medical expenses.

* 12. What percentage of your patients would you estimate to be in the following ethnic groups? (If you have no patients in a specific group, please indicate "0" in that space. Percents should add up to 100.)

Non-Hispanic/Latino

Hispanic or Latino



* 13. What percentage of your patients would you estimate to be in the following racial groups? (If you have no patients in a specific group, please place a "0" in that space. Percents should add up to 100.)

Asian

American Indian or Alaska Native

Black or African American

White

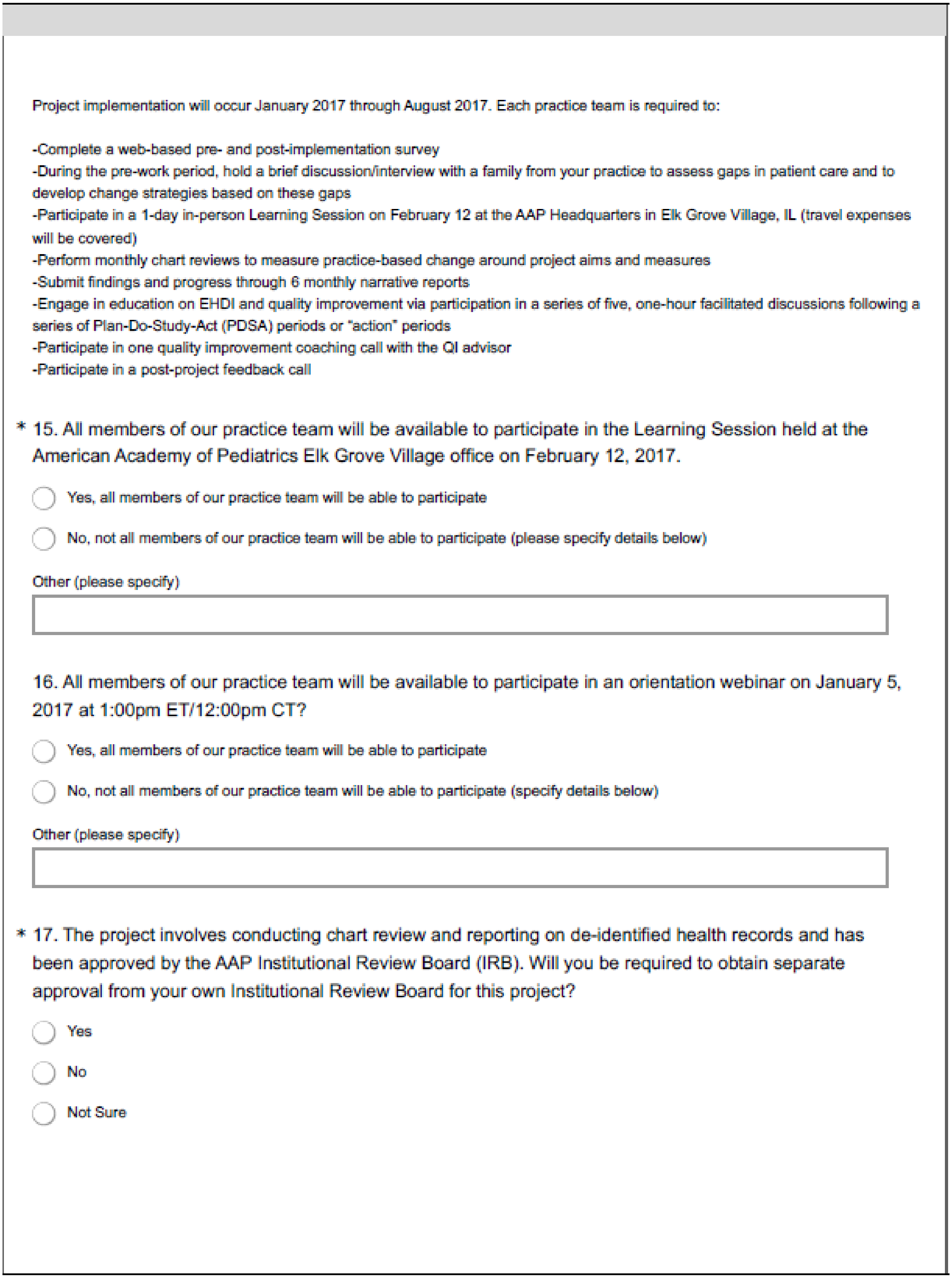
Other

* 14. In the past three years, has your practice engaged in any formal quality improvement project?

○ Yes

○ No

If Yes, please explain:



Project implementation will occur January 2017 through August 2017. Each practice team is required to:

-Complete a web-based pre- and post-implementation survey
-During the pre-work period, hold a brief discussion/interview with a family from your practice to assess gaps in patient care and to develop change strategies based on these gaps
-Participate in a 1-day in-person Learning Session on February 12 at the AAP Headquarters in Elk Grove Village, IL (travel expenses will be covered)
-Perform monthly chart reviews to measure practice-based change around project aims and measures
-Submit findings and progress through 6 monthly narrative reports
-Engage in education on EHDI and quality improvement via participation in a series of five, one-hour facilitated discussions following a series of Plan-Do-Study-Act (PDSA) periods or "action" periods
-Participate in one quality improvement coaching call with the QI advisor
-Participate in a post-project feedback call

* 15. All members of our practice team will be available to participate in the Learning Session held at the American Academy of Pediatrics Elk Grove Village office on February 12, 2017.

○ Yes, all members of our practice team will be able to participate

○ No, not all members of our practice team will be able to participate (please specify details below)

Other (please specify)

☐

16. All members of our practice team will be available to participate in an orientation webinar on January 5, 2017 at 1:00pm ET/12:00pm CT?

○ Yes, all members of our practice team will be able to participate

○ No, not all members of our practice team will be able to participate (specify details below)

Other (please specify)

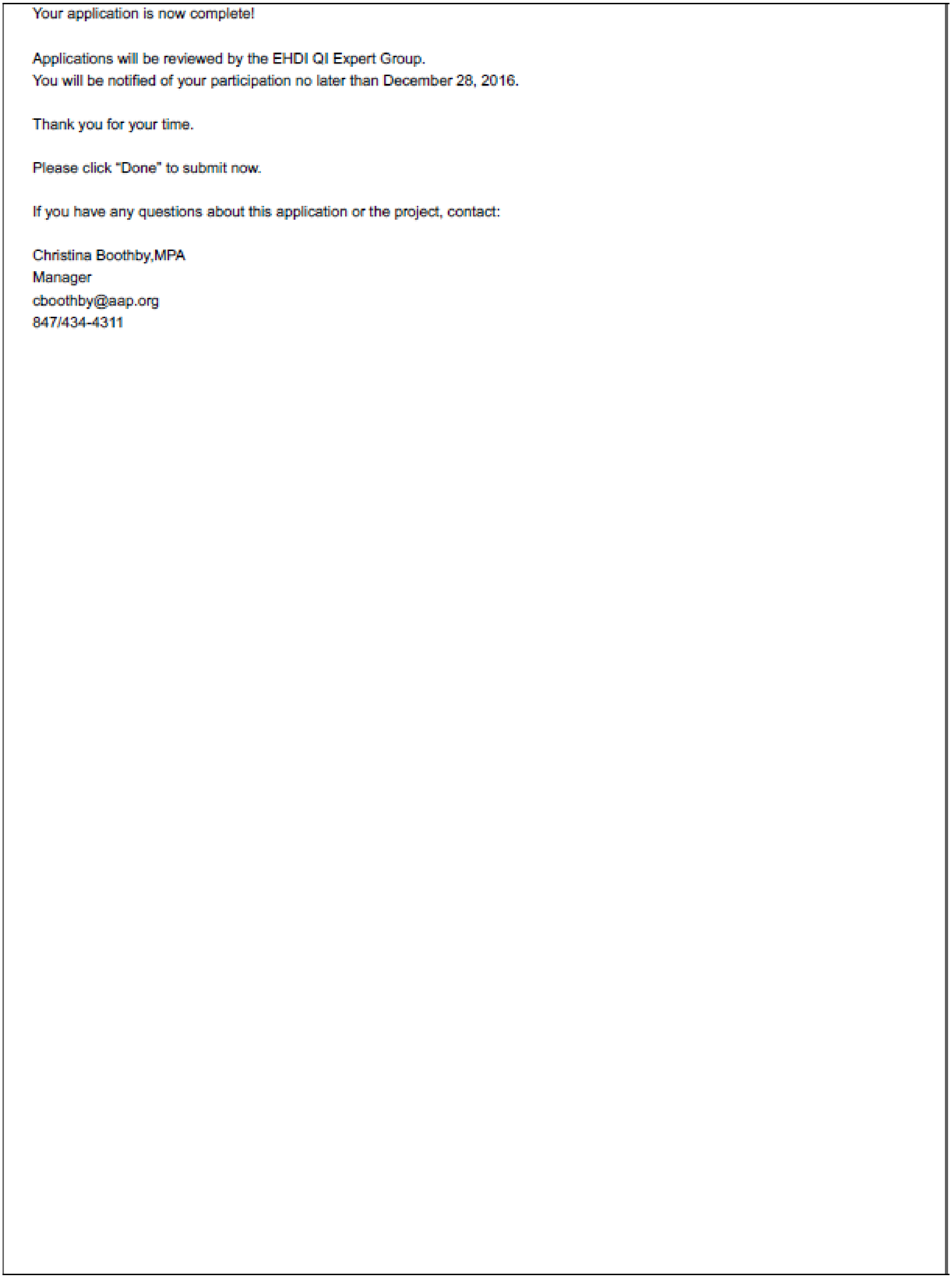
☐

* 17. The project involves conducting chart review and reporting on de-identified health records and has been approved by the AAP Institutional Review Board (IRB). Will you be required to obtain separate approval from your own Institutional Review Board for this project?

○ Yes

○ No

○ Not Sure



Your application is now complete!

Applications will be reviewed by the EHDI QI Expert Group.
You will be notified of your participation no later than December 28, 2016.

Thank you for your time.

Please click "Done" to submit now.

If you have any questions about this application or the project, contact:

Christina Boothby,MPA
Manager
cboothby@aap.org
847/434-4311

## G. Parent Discussion Guide

Early Hearing
Detection & Intervention
a program of the American Academy of Pediatrics

# Early Hearing Detection and Intervention Quality Improvement Project
## Family/Parent Discussion Guide

### Directions

These questions and prompts will help your practice team facilitate the family/parent discussion regarding their experience with the newborn hearing screening and diagnostic process. This discussion will be held as pre-work for the Early Hearing Detection and Intervention Quality Improvement Project (EHDI). Each practice team will choose a family/parent within their practice to interview who either has an infant who did not pass their newborn hearing screen or has an infant that has been diagnosed with hearing loss. Practice teams will be asked to verbally share one lesson learned or surprising finding from these discussions during the in-person Learning Session on February 12. Specific responses to the questions below will not be shared as part of this project.

The family/parent should not feel obligated to answer all of the questions on this list and should understand that there are no right or wrong answers. Rather, the questions listed can be used as a guide to identify opportunities for improvement and to provide an understanding of the different aspects of the EHDI processes that are being analyzing in the context of this quality improvement project.

### <u>Question Set 1: Infants who did not Pass their Newborn Hearing Screen</u>

1. What do you recall from when you first found out that your baby did not pass their hearing screen?
2. What do you remember most about this time? What worried you? Did you trust these results?
    a. Do you still have any concerns about your infants hearing?
3. Where did you go for information about what it meant to not pass the newborn hearing screen?
4. What role did we (the pediatrician's office) have in the next steps after your baby did not pass this screen
    a. Did we help you with scheduling the follow up appointments?
    b. Did we discuss the outcome of these appointments with you?
5. Was there more we could have done to support you during this time?

### <u>Question Set 2: Infants with Hearing Loss</u>

1. Can you describe your journey since your infant's hearing screen (see newborn hearing screening questions above for more specific questions)?
2. What do you recall about the diagnostic process and getting confirmation that your infant had hearing loss?
3. How many appointments did it require to get the confirmed diagnosis?
    a. Did you trust these results?
    b. Did we (the pediatrician's office) discuss the diagnostic results with you?
4. What challenges did you face in getting the information and support you needed after diagnosis?
    a. Were you connected with any family support organizations (Hands & Voices)? How did you learn about Early Intervention and how old was your baby at the time?
5. What role did we (the pediatrician's office) have in your journey to diagnosis?
6. Thinking back on your journey, is there anything you wish our office helped you with more?

## H. Parent Engagement Strategies

Early Hearing
Detection & Intervention
a program of the American Academy of Pediatrics

Early Hearing Detection and Intervention (EHDI)
Quality Improvement Project – Phase II
Parent Partner Engagement Strategies

| Practice Change Idea | Engaging Parent Partners |
|---|---|
| Add risk factors questions to newborn history questionnaire | • Ask parent partner to complete the risk factors questionnaire from the perspective of parent of a child newly identified as Deaf or Hard of Hearing and provide feedback or suggested edits<br>• Ask parent partner to reach to a parent in the practice who has completed the Newborn History Questionnaire and request feedback (would require getting permission from the family to share the contact information) |
| Improve process of communicating risk factors to families | • Coordinate members of the core improvement team and the parent partner to draft a script that would assist pediatricians in patient/family conversations about risk factors.<br>• Invite the parent partner to contact a recent family with identified risk factors to explore what they remember about the risk factor conversation. Invite the family to ask additional questions for the pediatrician. |
| Improve process for providers to engage families in conversation around screening results, diagnostic testing results, and risk factor assessment | • Invite parent partner to present to participating providers in the practice about the importance of having conversations with families around screening results, diagnostic test results, and risk factor assessment. Ensure providers understand the importance of this conversation, and what aspects are most important for families.<br>• Work with parent partner to develop tips for having this conversation with families. |
| Expand the number of practice providers involved once QI project has been completed. | • Ask the parent partner to share their personal experience/story about how their child’s newborn hearing screening and diagnostic testing. Remind them to highlight what went well, and what could have been done differently.<br>• Work with parent partner to develop a presentation that highlights the successes from the quality improvement project to encourage broader adoption of practices. |
| Develop posters/brochures to encourage parents to voice concerns they may have regarding their child’s development regarding speech and language. | ☐ Invite parent partner to develop language for poster and brochure that will remind families to ask their pediatrician about concerns they have with their child’s speech and language development. Share with parents in the practice who have a child who is D/HH and seek their input. |

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| Develop Parent Satisfaction Survey to assess how well practice providers are meeting the needs of families who have a child who is D/HH. | ☐ Ask the parent partner to help develop a parent satisfaction survey to be given to new patients. The survey can invite feedback in each of the following situations: passed newborn screen; did not pass newborn screen; passed with risk factors for late onset or acquired hearing loss; diagnosed with a hearing loss. |

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| Develop care plans for families of children who Deaf or Hard or Hearing, or who may be at increased risk for acquired or late-onset hearing loss. | ☐ Assign a core improvement team member to develop a risk factor care plan and ask the team's parent partner for input |
| Plan and conduct a parent focus group to improve parent engagement | ☐ Invite parent partner to organize agenda and lead a parent focus group to learn more about how the practice can improve communication with families. |
| Develop role for a Parent Resource Navigator | ☐ Ask the team's parent partner to reach out to a family who has a child recently identified as Deaf or Hard of Hearing and offer support including, but not limited to, linking them with local resources. |
| Facilitate education sessions with adjunct clinical or therapeutic providers such as audiologists, ENT, and early intervention specialists. | ☐ Ask the team's parent partner to join staff for outreach opportunities with ENT, audiology and early intervention to share personal experience regarding newborn hearing screening, results discussion, diagnostic testing and referrals to highlight the importance of family engagement, access to care, and timing. |