

FY 2013 Non-Competing Continuation (NCC) Progress Report
Reporting Period: April 1, 2012 – March 31, 2013

Revised: 7/24/2013

1. Project Identifier Information:

- a. **Grant Number:** H61MC00052
- b. **Project Title:** Reducing Loss to Follow-up after Failure to Pass Newborn Hearing Screening
- c. **Organization Name:** MS State Department of Health (MSDH)
- d. **Mailing Address:** 570 E. Woodrow Wilson Blvd., P.O.Box 1700, Jackson, MS 39215
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2. Accomplishments and Barriers:

Within this reporting period, the Early Hearing Detection and Intervention (EHDI) Program in MS continued to collaborate with the National Initiative on Children's Healthcare Quality (NICHQ) and the Early Childhood Hearing Outreach (ECHO) Initiative projects regarding collection of data on children with potential late-onset hearing loss and improvement of data systems. The ECHO project ended in June 2012 and the NICHQ project ended in September 2012.

As a result of collaborating with NICHQ, EHDI identified small changes to be tested and possibly implemented within the system to potentially improve data collection and follow-up practices. EHDI adopted the Newborn Hearing Screening Scripts from the National Centers for Hearing Assessment and Management (NCHAM) and disseminated these scripts to birthing facilities to be shared with nursery staff in an attempt to deliver consistent messages to families after a failed newborn hearing screening. Consistent messages shared with families will potentially enhance their knowledge of the importance of following up with an audiologist to

rule out hearing loss. EHDI identified and contracted with a “Parent Consultant” to provide “Peer to Peer” support for families to enhance family relationships. EHDI analyzed its data on a monthly basis and submitted to NICHQ. EHDI and NICHQ identified strengths and weaknesses in the data and coordinated activities for enhancement opportunities.

EHDI piloted with one of its partnering diagnostic centers to survey parents regarding non-compliance of scheduled follow-up appointments. The survey determined that most of the parents forgot about the appointment and needed to be reminded within a day or two of the scheduled appointment. The team developed an intervention plan for this issue which consisted of sending a reminder letter via mail the week of the appointment and calling to remind the families of the appointment a day before it is scheduled. Over a short period of time, an improvement was seen in some families following up on their first scheduled appointment. This pilot site is continuing to follow the intervention plan in an effort to increase compliance of families following up with scheduled diagnostic appointments in a timely manner.

From the inception until the end of the NICHQ Project, 664 newborns referred on the newborn hearing screening. 10.4% (69) of the referred newborns were diagnosed with permanent hearing loss. EHDI continues to follow the NICHQ methodology for improving the collection of newborn hearing screening data and follow-up practices.

EHDI continues to collaborate with ECHO regarding the initiative. Two Early Head Start Centers piloted with the MS ECHO project. ECHO purchased screening equipment for the pilot sites. EHDI and EHCO provided training to the sites in June 2011. These two centers reported

hearing screening data (only numbers) to ECHO. EHDI is collaborating with the Head Start Collaboration Office regarding the development of a Memorandum of Understanding (MOU) for Early Head Start to report hearing screening data to EHDI. EHDI is also in the process of identifying additional Early Head Start centers that may be interested in partnering with EHDI to update their hearing screening protocol(s) and report "refer" results to EHDI.

In a continued effort to improve data reporting and collection, EHDI and another Maternal Child Health (MCH) program (Newborn Screening) are in the process of securing an electronic database system (Natus/Neometrics) to replace separate databases and integrate newborn screening and newborn hearing screening data. A Hearing Module has been reviewed and approved for purchase from the commercial vendor. The Neometrics system is in the QA process and it is expected to go into production within the next few weeks. Integration of data will potentially allow both programs to effectively track all newborns through the screening processes in a timely manner, enhance data collection, and assist staff in recommending appropriate follow-up services to families.

EHDI is also collaborating with the MS Health Information Network (MS-HIN) regarding electronic transmission of data (via secure email) from hospitals to the EHDI program. EHDI is in the process of piloting this project with two hospitals. EHDI is looking forward to these new partnerships in the collection of data in a more secure and timely manner.

3. Goals and Objectives:

Goal 1: Integrate with other systems of care that provide services to children and families

Objective 1: By September 2011, EHDI will establish relationships with other MSDH health programs, Early Head Start Centers, childcare centers, healthcare professionals, and others to increase awareness of the EHDI system and the importance of follow-up after newborns fail the newborn hearing screening.

Progress: The EHDI director and HSCO director established partnerships and visited several Early Head Start Centers together to learn more about their protocols for hearing screening (initiated by the ECHO Initiative) in May 2011. During this project period, EHDI continued to collaborate with Early Head Start Centers and shared information with community colleges, childcare centers, MCH programs, and other healthcare professionals. The Newborn Screening program and the EHDI program are in the process of implementing the use of an integrated database system.

Objective 2: By September 2013, EHDI will develop a pilot project with early childhood programs to share hearing screening data on the children with hearing or language development issues/concerns.

Progress: The EHDI director is in the process of identifying early childhood programs/Early Head Start Centers that are interested in piloting a project regarding the evaluation of quality early childhood hearing screenings and follow-up practices.

Goal 2: Enhance EHDI and EI Collaboration

Objective 1: By June 2011, EHDI will contract with deaf educators, audiologists, and/or speech language pathologists to consult with EI staff, audiologists, providers, and families on hearing loss and available resources.

Progress: Objective 1 was met in 2011 and also in 2012. In July 2012, EHDI renewed contracts with four Hearing Resource Consultants (HRCs) and contracted with two new HRCs to serve as the contact person in their designated region of the state for families of children with potential or diagnosed hearing loss. HRCs educate families on hearing loss and intervention options, develop relationships with local providers, and work with Early Intervention (EI) Service Coordinators (SC) to assist with the development of the Individualized Family Service Plans (IFSPs). During this project period, the HRCs' role was expanded to include visiting and sharing information regarding EHDI's Policies/Procedures and risk factors associated with late onset hearing loss with hospitals, childcare centers, pediatric clinics, and other working with children and families. This is an ongoing activity.

Objective 2: By March 2013, enhance hearing screening protocol for EI evaluators in each public health district to screen children's hearing during comprehensive evaluations for early intervention services.

Progress: EI is currently utilizing a subjective hearing screening protocol (parent questionnaire) to screen children's hearing during comprehensive evaluations. In an effort to utilize an objective screener, the EHDI Director and the EI's Part C Coordinator are in the process of reviewing options to update EI's hearing screening method to an objective screening protocol (Otoacoustic Emissions –

OAE). Tentative meeting dates have been scheduled in January 2013 to continue this discussion.

Objective 3: By March 2012, EHDI will utilize various methods to identify infants/children with late-onset or progressive hearing loss that are enrolled in the EI program.

Progress: In March 2011, EHDI contracted with two universities to provide trainings to Early Intervention's Service Coordinators, providers, audiologists, parents, and other professionals regarding the EHDI system and identifiable risk factors for developing late onset hearing loss. In an effort to educate families on risk factors for potential late onset hearing loss and the importance of periodic follow-up with an audiologist, EHDI distributed literature on risk factors to EI's staff and providers for dissemination to families that are enrolled in the EI system.

EHDI continues to provide ongoing training to Service Coordinators to make them more knowledgeable of risk factors associated with late onset hearing and the importance of conveying this information to families. EHDI revised its policies and procedures to request that SCs report children with a potential late onset hearing loss to the EHDI program for appropriate follow-up services. HRCs also act as a resource to SCs and assist with the development of the IFSP for children with hearing loss or a potential hearing loss. EHDI continues to partner with other MCH programs to educate families, providers, stakeholders, and others on the development of late onset hearing loss in children and the benefits of early intervention services. EHDI anticipates that this enhanced awareness among

programs will potentially increase the number of children identified with late onset hearing loss and receive EI services in a timely manner.

Goal 3: Enhance the capacity of the EHDI system of care through statewide training opportunities

Objective 1: By March 2012, EHDI will offer yearly educational opportunities statewide for healthcare professionals and parents on the importance of follow-up after failure to pass the newborn hearing screening.

Progress: To increase awareness of the EHDI process at the state and local level and to potentially reduce the number of newborns lost to follow-up after failure to pass the newborn hearing screening, three regional trainings (statewide) were conducted in March 2012. The purpose of the training was to update the audience of the goals of the EHDI program and to provide information on enhancement opportunities regarding early hearing screening, diagnosis, and intervention systems for infants/young children and their families. Over 200 participants attended the trainings (statewide) including hospital nursery staff, audiologists, speech pathologists, early interventionists, MCH nurses and social workers, childcare providers, parents, and students. As a result of the training, EHDI has developed additional partnerships among providers working with young children and families to enhance follow-up and systems of care for families of children with potential and diagnosed hearing loss.

Goal 4: Collaborate with NICHQ to improve staff quality methodology and to identify small programmatic changes that result in documented improvements in infant/family outcomes

Objective 1: By May 2011, EHDI will identify 4 – 5 team members to participate in the Learning Collaborative and learn the goals and objectives of NICHQ.

Progress: Core and Extended teams (partners from hospitals, diagnostic centers, and early intervention programs in MS) were developed in April 2011 to coordinate activities to improve outcomes and the quality of EHDI data collected. Teams met once a month to discuss strengths and weaknesses of the collaborative and identify small changes to implement in the system. The NICHQ project ended in September 2012. EHDI continues to collaborate and coordinate activities with its internal and external team members regarding programmatic improvements of data collection and follow-up activities.

Objective 2: By March 2012, EHDI will test and adapt programmatic changes that result in documented improvements in infant/family outcomes.

Progress: During the NICHQ project, teams utilized the Plan, Do, Study, Act (PDSA) model to establish activities and interventions to further develop EHDI's system of care from newborn hearing screening to EI services. There are ongoing evaluations of these activities/interventions to determine the benefit of the small changes in improving infant/family outcomes. Please see the "**Accomplishments and Barriers**" section for further discussion.

4. Significant Changes:

The EHDI Director was promoted to another position within the Early Intervention division in August 2012. During the recruitment process of a new EHDI Director, the prior EHDI Director provided continued oversight of the EHDI program. A new EHDI Director (Attachment 2) was hired in December 2012. Several contractual HRCs resigned during June 2012. EHDI recruited

and contracted with two new HRCs (Attachment 2) in July and August 2012 to provide consultation to families of children with hearing loss and EI's staff. The change in the EHDI Director and HRCs did not have any negative impact on the project's goals and objectives due to the prior EHDI Director continuing with oversight of the day to day operations of the EHDI program and contractual staff being replaced in a timely manner. EHDI's state-level staff provided consultation to families and providers during the recruiting process for HRCs. There was no disruption in services to families.

EHDI also contracted with a Parent Consultant (PC) during this project period. The PC has a child with a hearing loss and serves as a parent to parent support system to families of children with hearing loss. This individual has initiated a start-up state chapter of the National Hands & Voices Organization in the state of MS to enhance MS's "Peer to Peer" family support system. The PC collaborates and coordinates monthly meetings/conference calls with the National Hands & Voices, providers, and parents regarding the policies, procedures, and status of MS becoming an "official" chapter.

EHDI has developed relationships with other MSDH maternal child health programs to increase awareness of the EHDI system and the importance of follow-up after newborns fail the newborn hearing screening. The programs share information (demographics) and training opportunities between each other to enhance capacity at the state and local level regarding improving early hearing screening, diagnosis, and intervention systems for infants/young children and their families.

5. Plans for Upcoming Budget Year:

EHDI plans to continue contracting with HRCs to provide consultation to families and providers statewide regarding hearing loss, educational options, and other services. As an addition to the EHDI team, the Parent Consultant will become more involved as a resource to families (statewide), present during annual trainings, attend the National Conference, and recruit parents and professionals as members of the state's Hands & Voices Chapter (once established). EHDI also plans to reach out to obstetricians and gynecologists (OB/GYN) regarding the importance of sharing newborn hearing screening information with expecting mothers and families. EHDI will continue its collaboration with MCH programs to educate and increase awareness of newborn hearing screening to families and to potentially reduce loss to follow-up by taking advantage of training opportunities and making recommendations to improve the system of care for families.

Update as of 4/2/13: The following activity will be discontinued due to lack of funding to purchase additional hearing screeners for Head Start Centers. However, EHDI will continue to educate Head Start centers on the importance of screening children's hearing with an appropriate screener and the known risk factors associated with late-onset or progressive hearing loss.

Activity: EHDI plans to expand the ECHO pilot to include an additional eight local Early Head Start centers utilizing the OAE screener. Most Early Head Start centers are using a subjective screening tool (parent questionnaire) to screen children's hearing. EHDI anticipates that access to a more objective screening method will potentially enhance early identification of children with late onset or progressive hearing loss in Early Head Start centers. EHDI's consultant staff will train Early Head Start staff on how to effectively screen children's hearing utilizing the OAE. EHDI and Early Head Start will establish a MOU to share hearing screening data. EHDI will develop a protocol for Early Head Start to report all "refer" results to the EHDI program for

EHDI staff to follow-up with families on diagnostic appointments and other services. EHDI anticipates its collaboration with Early Head Start will enhance children's opportunities of being identified with hearing loss so that they may benefit from early intervention services and potentially maximize the critical period of speech/language development in early childhood.

Update: EHDI is requesting to pay salary and fringe for its Hearing Screening Coordinator. This person is responsible for the day to day administration of the statewide hearing screening component of the Early Hearing Detection and Intervention program. The position is full time. This individual assists with the development and implementation of EHDI policies and procedures to facilitate direct contact with hospitals, diagnostic clinics, First Steps staff, EHDI regional hearing resource consultants, and families of children with a potential hearing loss. The Coordinator also manages the database to track newborn hearing screening results, speaks in public settings, develops PowerPoint presentations, translates statistical data into appropriate formats, and makes efforts to reduce loss to follow-up. This individual has one and a half years of experience with EHDI-M.

PROJECT NARRATIVE

Introduction

Hearing loss is one of the most common congenital conditions in the United States. It is essential to develop and foster activities and collaborations to ensure that children who fail the newborn hearing screening receive timely follow-up and intervention services to reduce developmental delays. In 2011, the EHDI Program reported a 9.2 % loss to follow-up rate and was ranked fourth in the nation among other EHDI Programs. The Early Hearing Detection and Intervention (EHDI) Program has identified aims for this project period based on the needs determined from quantitative and qualitative data. The EHDI Program's aim is to collaboratively decrease the lost to follow-up rate by 5% for the state to align with the National Center for Hearing Assessment and Management (NCHAM) goal. The EHDI Program sub-aims are to test and implement changes to increase the number of newborns screened to reduce the loss to follow-up rate, offer diverse training to non-English speaking families to increase awareness about the importance of newborn hearing screening/loss to follow-up rates, increase the percentage of newborns that receive audiologic evaluations by three (3) months of age, and intervention services by six (6) months of age who failed newborn hearing screenings. The EHDI Program has identified sub-aims to improve the system: implement quality assurance methodologies to determine if there is a gap in infants who failed the third outpatient screening in comparison to loss to follow-up rate, continuously improve loss to follow-up rate, integrate with other systems of care to improve language barriers for populations served, implement strategies to support identified socio-cultural determinants, identification of other determinants,

Work Plan-Project Period: July 1, 2014-June 30, 2017

Aim Statement 1

Collaborate with stakeholders to improve quality improvement methodologies for newborn hearing screening

Changes / Activities (sequence as needed)	Start Date	Estimated Completion Date	Lead Staff and Partner Support (where applicable)	Process Measures	Outcome Measures
By June 2014, conduct Plan, Do, Study Act (PDSA) Cycles to increase hearing screening rates by 2% and decrease loss to follow-up/loss to documentation rates.	May 2013	June 2014	Lead: Data Manager Partners: Hearing Screening Coordinator and EHDI Director	<p>Conduct Plan, Do, Study Act (PDSA) Cycles with hospitals to identify reasoning for the high percentage of missing data that can be controlled by the nursery staff</p> <p>Analyze the number of babies born at the hospital in comparison to the number of babies screened</p> <p>Ensure that data collection methods by hospitals are followed according to EHDI procedures</p>	<p>EHDI Staff and Hospital Staff feedback conveying improved care for infants and families</p> <p>Parent feedback conveying that there is improved care for infants and families</p> <p>Utilizing a Counting Data Measure-data revealing a higher percentage of infants screened over a short and long timeframe (1-5 months)</p> <p>Run Chart Data – data reported to reveal an increase in the screening rate over time without a dramatic decrease in</p>

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				Ensure that there is a staff person assigned to collect data at the hospital	screening rate Improve the newborn screening rate at hospitals by a 2%
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Aim Statement 2

Enhance the System of Care and collaborations with audiologists and ear, nose, and throat (ENTs) physicians to improve tracking strategies to decrease the loss to follow-up rate

Changes / Activities (sequence as needed)	Start Date	Estimated Completion Date	Lead Staff and Partner Support (where applicable)	Process Measures	Outcome Measures
<p>By March 2015, increase the Program's initial diagnostic screening rate by 7%, and eventually by 14% to ensure that all newborns who did not pass the newborn hearing screening receive audiologic evaluations no later than three (3) months of age.</p> <p>This activity will support the Healthy People 2020 Objective Target of 72.6%.</p>	April 2013	March 2015	<p>Lead: Diagnostic Follow-Up Coordinator</p> <p>Partners: Audiologists, ENTs, Data Manager, EHDI Director</p>	<p>Conduct Plan, Do, Study Act (PDSA) Cycles with audiologists, ENTs, and other populations serving children birth (0) to three (3) years old.</p> <p>PDSA Cycles will be conducted at the facilities identified with the highest percentages of no-shows for initial and follow-up appointments</p> <p>Develop a procedure to support ENTs to report</p>	<p>Increase the EHDI Program's screening rate by 2% for newborns who did not pass the newborn hearing screening to ensure that audiologic evaluations are conducted no later than three (3) months of age.</p>

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				<p>audiologic evaluations to the EHDI Program staff</p> <p>Identify the number of babies that did not pass the newborn hearing screening</p> <p>Collaborate with ENTs in MS to educate about the importance of ensuring that all newborn who do not pass the newborn hearing screening receive an audiologic evaluation no later three (3) months</p> <p>Analyze diagnostic clinics in the state to determine which facilities have the lowest percentage of completed diagnostic evaluations no later than three (3) years of age</p> <p>Collaborate with ENTs and audiologists to identify infants that were not reported to the EHDI Program but who were had initial, follow-up or completed diagnostic evaluations.</p>	
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				<p>Identify the provider network and collaborate with these groups to ensure that the facilities begin reporting follow-up diagnostic results to the EHDI Program.</p> <p>Analyze the number of babies that were not scheduled for an audiologic appointment at hospital discharge</p> <p>Identify the number of babies with a confirmed 'conductive' hearing loss that were reported to the Program and collaborate with ENTs, audiologists, and other providers on tracking methodologies and procedures recommended by the American Board of Otolaryngology guidelines</p> <p>Develop letter of agreements or memorandums of understandings (MOUs) with ENTs and the Program to report audiologic</p>	
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				evaluations in a timely manner	
				Develop and disseminate a data report to share with stakeholders	

Aim Statement 3

Enhance collaborations with Early Intervention (EI) staff to support infant/family outcomes to reduce the loss to follow-up rate

Changes / Activities (sequence as needed)	Start Date	Estimated Completion Date	Lead Staff and Partner Support (where applicable)	Process Measures	Outcome Measures
By February 2015, increase the screening percentage by 2% of infants with confirmed hearing loss to ensure that intervention services are received by six (6) months of age	April 2014	February 2015	Lead: Hearing Resource Consultants, Parent Consultant and EI Staff Partners: Data Manager, EHDI Director, and other stakeholders	Implement PDSA Cycles related to feedback received from stakeholders and quantitative and qualitative data Enhance and implement EHDI Program tracking methodologies to track newborns with a confirmed hearing loss Monitor procedures with EI staff and EHDI	Increase by 5% the newborns with a confirmed hearing loss that receive intervention services by six (6) months of age and provide increased educational awareness for the families

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				<p>Hearing Resource Consultants to increase the percentage of newborns with a confirmed hearing loss to receive intervention services by six (6) months</p> <p>Analyze the number of infants with a confirmed hearing loss that were not initially reported to the Diagnostic Coordinator and were not enrolled in intervention services by six (6) months</p>	
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Aim Statement 4

Engage stakeholders to identify gaps and needs to support quality improvement methodologies that will decrease the loss to follow-up rate

Changes / Activities (sequence as needed)	Start Date	Estimated Completion Date	Lead Staff and Partner Support (where applicable)	Process Measures	Outcome Measures
By March 2015, collaborate with diverse stakeholders (families, primary care providers, hospital staff, and EHDI Program staff) to decrease the EHDI program loss to follow-up rate by 5%	May 2014	March 2015	<p>Lead: Data Manager, Parent Consultant, Hospital Nursery Staff</p> <p>Partners: EHDI Director, Parents, EHDI Staff, Primary Care Providers, EHDI Advisory Committee members</p>	<p>Develop a survey with stakeholders regarding quality improvement methodologies</p> <p>Analyze and document specific reasons for loss to follow-up rates</p> <p>Identify hospitals who do not schedule 3rd outpatient appointments prior to discharge and determine if this factor impacts the loss to follow-up rate through PDSA Cycles</p> <p>Implement PDSA Cycles based on quantitative and qualitative data, and stakeholders feedback related to ways to decrease the loss to follow-up rate</p> <p>Report findings quarterly (face to face and/or within a report) to</p>	<p>Decreased loss to follow-up rate by 5%</p> <p>Decreased loss to follow-up rate at hospitals with the highest loss to follow-up rate</p> <p>EHDI's Policies and Procedures will be re-emphasized and implemented in hospitals that were not scheduling 3rd outpatient hearing screenings prior to discharge. This will decrease the number of patients who become loss to follow-up from hospitals.</p>

				stakeholders regarding quality improvement methodologies implemented	
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Aim Statement 5

Integrating with other Systems of Care to reduce loss to follow-up rates for non-English speaking populations

Changes / Activities (sequence as needed)	Start Date	Estimated Completion Date	Lead Staff and Partner Support (where applicable)	Process Measures	Outcome Measures
By March 2015, develop relationships with Mississippi State Department of Health (MSDH) programs and other stakeholders who can provide support to non-English speaking families after newborns fail the newborn hearing screening to decrease the loss to follow-up rate	May 2014	March 2015	Lead: EHDI Director and Data Manager Partners: EHDI Staff, MSDH's Office of Health Disparities, and stakeholders	Analyze the number of non-English speaking populations that fail newborn hearing screenings and ensure that these babies are served by the 1-3-6 Centers for Disease Control and Prevention (CDC) benchmark Analyze reasons why non-English populations are not served by CDC benchmarks due to language barriers	Show an increase in the number of non-English speaking populations served according to the 1-3-6 Centers for Disease Control and Prevention (CDC) benchmark

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				<p>Conduct PDSA Cycles from identified gaps in services reported in EHDI data</p> <p>Analyze the location of where translator services are needed</p>	
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Aim Statement 6

Enhance the EHDI infrastructure to families and children with a hearing loss to support socio-cultural determinants of health to reduce loss to follow-up rates

Changes / Activities (sequence as needed)	Start Date	Estimated Completion Date	Lead Staff and Partner Support (where applicable)	Process Measures	Outcome Measures
By March 2015, implement quality improvement methodologies to determine socio-cultural determinants for the population served	June 2014	March 2015	Lead: EHDI Director Partners: EHDI Staff, MSDH'S Programs, Stakeholders, EHDI Programs in other states,	<p>Analyze the number of socio-cultural determinants impacting the population served Collaborate with Early Intervention Program and other MSDH Programs to identify supports needed for families</p> <p>Collaborate with other states to identify</p>	A decrease in the determinants and increase in support to families and children after identifying and supporting socio-cultural determinants

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				<p>methodologies implemented by those EHDI Program to support socio-cultural determinants</p> <p>Collaborate with stakeholders to identify strategies to improve socio-cultural determinants impacting populations through the dissemination of surveys</p>	
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Aim Statement 7

Extend stakeholder groups to decrease the loss to follow-up rate

Changes / Activities (sequence as needed)	Start Date	Estimated Completion Date	Lead Staff and Partner Support (where applicable)	Process Measures	Outcome Measures
By May 2014, invite two (2) additional stakeholder groups to support the EHDI Program to identify and implement change strategies identified	February 2014	April 2014	Lead: EHDI Staff and stakeholders	Collaborate with parent groups, schools, churches, other programs and organizations to identify existing barriers for children and their families to reduce the loss to follow-up rate	Decrease in loss to follow-up rate based on additional stakeholder input and awareness of the barriers

Aim Statement 8

Enhance EHDl tracking system related to health disparities in the state to reduce the loss to follow-up rate

Changes / Activities (sequence as needed)	Start Date	Estimated Completion Date	Lead Staff and Partner Support (where applicable)	Process Measures	Outcome Measures
By April 2015, implement a tracking system to identify if health disparities exist in the state due to lack of health care providers	April 2014	April 2015	Lead: Data Manager Partners: EHDl Staff and stakeholders	<p>Conducting GIS Mapping to identify health disparities impacting the population served</p> <p>Engaging stakeholders to identify observed health disparities impacting the population served</p> <p>Including health disparity questions a part of the survey</p>	Identifying if there is an increase in the loss to follow-up rate in the geographic locations where there is a lack of health care providers

conduct further analysis of health disparities in the state, and provide extended support to families and children in rural areas where there are a lack of audiologists.

These aims will be supported by identifying quality assurance methodologies and expanding collaborations with stakeholders to identify and implement needs of families and communities. Small tests of changes will be implemented after needs are identified from data collected to identify barriers to reduce the loss to follow-up rate. The EHDI Program will increase awareness related to reducing loss to follow-up after a newborn fails to pass the newborn hearing screening by expanding collaborative support and communication to stakeholders. Educational awareness opportunities will occur through technological advancement trainings (face-to-face and web based) for birthing facilities, primary care providers, child care centers, out of hospital birthing facilities, midwives, Early Intervention Program, audiologists, ENTs, families, and other stakeholders. In addition, there will be ongoing trainings for the EHDI staff through online professional development and webinars to ensure staff is up-to-date on screening, diagnostic, and early intervention services. Continuous professional enrichment through trainings will assist the EHDI staff in their effort to support families and children regarding newborn hearing screening and strategies to decrease the loss to follow-up rate. The EHDI staff will attend the National Annual EHDI Conference to gain knowledge and engage in networking opportunities with other state EHDI Program staff.

The EHDI Program will implement and foster improvements to reduce the lost to follow-up rate by creating goals that are specific, measurable, attainable, realistic, and timely (SMART) and aligned with the Model for Improvement. The Model for Improvement, often referred to as the Plan, Study, Do, Act Cycle (PSDA), will allow the EHDI Program, stakeholders, families,

and others to understand why changes are needed to processes to support the EHDI infrastructure. In addition, run-charts will be utilized to observe patterns in lost to follow-up reporting from hospitals. The EHDI Program will provide statistical evidence to determine next steps required to improve services for children and families and decrease the loss to follow-up rate. The EHDI Program will obtain participant feedback from surveys, hospitals, families and stakeholder meetings to support changes needed to decrease lost to follow-up rates after newborns fail to pass the newborn hearing screening.

The EHDI Program staff is confident that the timelines specified for the aims and activities within this project period will be met due to the collaborative engagement of the EHDI Program staff, stakeholders, families, and others. The EHDI staff and stakeholders understand the importance of ensuring that all children who fail the newborn hearing screening receive a timely follow-up and intervention services.

Needs Assessment

In the state of Mississippi, 53% of the population is rural and more than half of the physicians practice in four urban areas (Mississippi State University, 2011). Fifty-one (51) of eighty-two (82) counties are categorized as medically underserved which contributes to the “maldistribution of health care resources and impact the health of residents” (2011, p.1). In addition, the state of MS consists of diversity in languages spoken. According to the MS 2010 Census, the diversity of languages spoken in MS consists of 95,422 people with spoken language other than English. Some of these language diversities consist of 50,515 Spanish or Spanish Creole; 10,826 French including Patois and Cajun; 5,654 other Native North American languages; 5,501 German; 4,916 Vietnamese; 2,506 Chinese; 2,005 Tagalog; 1,485

Korean; 1,336 Italian; and 1,081 Arabic. As a result of the diversity in languages and other determinate factors, the EHDI Program's needs assessment was established to interlace health disparities which impact organizations and communities served. All these factors result in unmet health needs, socio-cultural determinates of health that impact populations served, and loss at entry to early intervention services related which could impact the loss to follow-up rate.

In 2012, there were approximately 38,618 live births in Mississippi. The EHDI database tracking system and the Centers for Disease Control and Prevention's (CDC) annual reporting data reveals that the birth rate in MS has decreased for the past three years (2009, 2010, and 2011). The number of infants screened and the loss to follow up rates have consistently fluctuated for the past three years (2009, 2010, and 2011). Also, the number of children who did not receive a third outpatient screenings has varied for the past three years (2009, 2010, and 2011). The EHDI data for the number of infants screened in comparison to Vital Records data for live births reported for the years of 2009, 2010, and 2011 data revealed that the EHDI Program has maintained a screening rate of 98% (**Graph 1**). The EHDI Program plans to develop strategies with hospitals that have the highest percentage of missing documentation to support the need to improve the state newborn hearing screening rate to 100%, as recommended by the National Institutes of Health. Increasing the percentage of reporting data from hospitals could reduce the loss to follow-up rate for newborns who fail their newborn hearing screening.

The EHDI Program aims to ensure that all newborns who do not pass the newborn hearing screening receive audiologic evaluations no later than three (3) months of age to meet The Healthy People 2020 Objective Target of 72.6%. The EHDI Program statistical data for the past three years revealed that the EHDI Program has not achieved the objective target by 16%

(Graph 2). The Staff identified the need to improve strategies for the system of care with audiologists and ear, nose, and throat (ENTs) physicians to increase the tracking strategies that will reduce the loss to follow up rate. Identifying and implementing change strategies could improve the rate of infants who do not pass the newborn hearing screening and ensure that audiologic evaluations are received no later than three (3) months of age.

The Program's strategy is to ensure that confirmed hearing loss cases receive intervention services before six (6) months of age. The EHDI Program will make efforts to collaborate with healthcare providers and support families to ensure timely services are received. Tharpe (2009) conveys in *Closing the gap in EHDI follow-up*, many infants who do not pass their final newborn hearing screening, do not complete follow-up. The staff analyzed data to identify if gaps exist related to the loss to follow-up rates in comparison to the final newborn hearing screenings. Data in **Graph 3** from the EHDI data system does not appear to reveal a substantial gap in services related to the total number of infants that missed third out-patient hearing screenings compared to the loss to follow-up rate. There was a lower number of infants reported who did not pass the final hearing screening in comparison to the higher percentage of loss to follow-up infants.

Although the Program's loss to follow-up rate remains less than the national goal of 20%, it is important to implement quality improvement methodologies to improve the rate annually. In 2011, the EHDI Program's loss to follow-up rate was 9.7%. The Program staff will engage stakeholders to identify gaps and needs to decrease the loss to follow-up rate after newborns fail to pass their newborn hearing screening.

The MS 2010 Census reveals that 95,422 individuals in the state of MS speak a language other than English. The EHDI Program assessed the needs of the community to determine the impact of diverse languages on the families in relationship to loss to follow-up rates. During the previous grant period, the EHDI Program staff experienced communication barriers with many families due to the diversity in languages for the population served. The EHDI Program seeks to improve and support the communication needs for the state population (families and communities) served. The plan is to integrate with other systems of care and engage stakeholders to identify needs and implement changes needed.

There is a need to conduct a more in-depth analysis of the socio-cultural views that impact the loss to follow-up rate after newborns fail the newborn hearing screening. The staff and stakeholders indicated that many families experience lack of transportation as a barrier to attend follow-up appointments after newborns fail the newborn hearing screening. During the FY 2013, the EHDI staff observed that many families had Medicaid transportation coverage but due to the Medicaid policy “only one child can accompany a parent to an appointment”, this hinders many families from attending a follow-up hearing screening appointment after newborns fail their initial screening. There is a need for the Program to improve support to families who experience the challenges related to insurance coverage and other determinants that can hinder parents from taking newborns to follow-up appointments. A possible solution to the transportation barrier that many families are experiencing could be the implementation of a Program subsidized travel voucher for families. Designated funds for transportation services could support families in keeping their scheduled appointments which might reduce the loss to follow-up rate after a newborn fails the newborn hearing screening. The Program will set-up a

travel voucher reimbursement process to cover verified travel cost. If this need is not addressed, this could impact the loss to follow-up rate after a newborn fails the newborn hearing screening and increase the loss to follow-up rate.

The socio-cultural factor can be viewed as interlaced with health disparities impacting communities. Mississippi State University conducted research that identified 53% of the state's population as rural and more than half of the physicians practice in four urban areas (Mississippi State University, 2011). During the previous grant period, the EHDI staff observed the hardship that many families experience to follow-up with diagnostic appointments after a hearing loss has been confirmed due to the state's rural geographic make up. As observed in **Graph 4**, there is a lack of providers in specific rural locations of the state. The EHDI Program will evaluate the loss to follow-up rates in predominately rural areas in the state where there are minimum providers.

The needs assessment consist of quantitative and qualitative data which revealed that barriers in the state consist of: socio-cultural impacts, health disparities, language barriers for families and communities, the need for expanded stakeholder collaborative groups to support socio-cultural, health disparities. In addition, there is a need to improve the EHDI system of care to support families, children, and communities. A plan will be developed to improve methodologies and ensure that newborns who fail their newborn hearing screening are diagnosed by three (3) months of age and receive intervention services by six (6) months of age to reduce the loss to follow-up rate.

Methodology

The EHDI Program in collaboration with the EHDI Advisory Committee and other stakeholders will develop quality improvement methodologies for the needs identified in the state. Quality improvement methodologies will be developed and implemented to support the identified needs focus on how change concepts (e.g., increasing the Program's diagnostic screening rate, enhancing support to non-English speaking populations, etc.) link to change ideas. The plan is to test change concepts at a small level, identify if the process proves successful through continual tracking of data, and revise or implement the change idea to support the test change. The Program staff understands that it is normal for a test change to reveal positive improvements in a short period of time, but it is often necessary to observe the test change for a longer time period to identify if the test change should be implemented at a larger level into a change concept.

In the years 2011 and 2012, the EHDI Program staff with input from stakeholders implemented quality improvement methodologies for diagnostic clinics in the state to support the loss to follow-up rate when newborns failed the newborn hearing screening. The Program piloted with one diagnostic center to survey parents regarding non-compliance of scheduled follow-up appointments. The survey determined that most of the parents forgot about the appointment and needed a reminder within a day or two of the scheduled appointment. The EHDI Program implemented the Plan, Do, Study, Act (PDSA) Cycle technique that created the opportunity for the diagnostic centers and the EHDI staff to provide extended support to the family. The families were sent a reminder the week of the appointment and were called by the EHDI staff the day

before the appointment. In a short period of time, (e.g., month, quarter) an improvement was seen with families attending their initial and follow-up appointments.

The Program staff and stakeholders will implement diverse methods to support the aims of the project and identified needs related to reducing loss to follow-up after a newborn fails the newborn hearing screening. The methodologies used will focus on changing and improving care provided to infants and their parents. The measurements aligned for the quality improvement methodologies will give insight into the improvement, accountability, and research knowledge pertaining to the strategy. The EHDI Program staff and stakeholders will focus predominately on process and outcome measures of this methodology. The EHDI Program will observe, document, and monitor test changes that are implemented in different geographic locations of the state. Once change methodologies are proven to be successful as a result of improved measurements (plot data, diverse sampling in different facilities and geographic locations, analysis of quantitative and qualitative data) in relationship to outcome, process, and counting measures; then change will be implemented as a statewide change process.

The Program will continue to enhance methodologies and utilize NICHQ's promising practices to enhance the program, communication with providers, and to support families while reducing the loss to follow-up rate. Current methodologies being utilized by the EHDI Program include monitoring data reported from hospitals and diagnostic clinics, assistance with follow-up for diagnostic and intervention programs and collaborative linking to other Public Health Information databases (WIC, Immunization, PIMS, Vital Statistics, Birth Defects, Early Intervention, Newborn Screening). The program will use other strategies: utilization of fax-back forms between multiple primary care providers, including a second point of contact on

standardized reporting forms used by providers, collaboration between EHDI staff, hospitals, and audiologic clinics to ensure that appointments are made immediately after a newborn fails the final hearing screening at the hospital, and utilization of standardized ‘script’ messages for parents at hospitals regarding newborn hearing screening results. In addition, the EHDI Program has dedicated coordinators (Diagnostic and Hearing Screening) to collaborate with birthing facilities, diagnostic centers, primary care providers, and families to ensure that infants receive diagnoses and timely services when diagnosed with a hearing loss.

Hearing Resource Consultants (HRCs) who are speech-language pathologists and audiologists are a vital part of the EHDI Program staff. HRCs are instrumental in educating families on the importance of audiological and medical home follow-up, hearing loss, communication options, and services provided through the First Steps Early Intervention Program. HRCs are resources to families’ audiologists, Service Coordinators (SCs), medical providers, and other service providers. HRCs support trainings at universities and EHDI trainings throughout the year. HRCs develop and foster relationships with families, Early Head Start Centers, pediatricians, obstetricians and gynecologists, midwives, ear, nose, and throat physicians, and audiologists. It is essential that HRCs remain a part of the EHDI Program staff to support the needs of families and providers in efforts to reduce loss to follow-up.

The Parent Consultant (PC) is a parent of a hard of hearing or deaf child and a fundamental resource to the EHDI Program. The Parent Consultant is a resource and support to families while also recruiting other parents and professionals, as members of the state’s Hands and Voices Chapter. The PC collaborates with Hearing Resource Consultants, First Steps Early Intervention Program, and Service Coordinators, to ensure that infants confirmed with a hearing

loss receive appropriate and timely services. The PC promotes educational awareness for the EHDI Program through presentations at annual trainings and attendance at the EHDI National Conference.

The EHDI Advisory Committee members are also an essential component of the EHDI Program. The committee members are comprised of nine (9) members which include audiologists, educators, and a parent of a deaf or hard of hearing child. The committee members are appointed for three (3) years by the State Health Officer. The Advisory Committee meetings are held quarterly. The committee meetings are schedule one (1) year in advance to accommodate the diverse schedules of the committee members.

The EHDI Program will continue to enhance programmatic infrastructure through collaborations with Early Head Start (EHS) centers across the state. Previously, the EHDI Program collaborated with two (2) local Early Head Start centers through the ECHO pilot. Many Early Head Start Centers are using a subjective screening tool (parent questionnaire) to screen children's hearing. The Early Intervention Program recently purchased ten (10) Otoacoustic Emission (OAE) hearing screeners to support the needs of families and children with a suspected hearing loss. The Hearing Resource Consultants will jointly work with the Early Intervention (EI) staff to screen children with a suspected concern of a hearing loss before any evaluation is complete to ensure accurate testing results. The EHDI Program staff and stakeholders anticipates that this programmatic collaboration will enhance children opportunities of being identified with hearing loss early so that the child can benefit from EI services and reach his/her maximize potential in speech, language, and social/emotional development.

The EHDI Program staff will continue to expand collaborations with Early Head Start (EHS) Centers across the state in order to support families and children to receive an objective hearing screening and timely follow-up services. The EHDI Program anticipates expanding collaborations with a minimum of five (5) Early Head Start (EHS) Centers during the next three years.

Goal 1: Collaborate with stakeholders to improve quality improvement methodologies for newborn hearings and loss to follow-up

Objective: By June 2014, conduct Plan, Do, Study Act (PDSA) Cycles to increase hearing screening rates by 2% and decrease loss to follow-up/loss to documentation rates.

Activity 1: Collaborate with two (2) hospitals with the highest percentage of missing data reported to the EHDI Program in 2012.

Activity 2: Develop a PDSA Cycle with two (2) hospital nursery staff to support quality improvement to infants and parents regarding loss to follow-up/loss to documentation.

Activity 3: Conduct quarterly meetings to analyze data to determine if the changes implemented by the hospital nursery staff supported improvements.

Activity 4: Continue collaborative efforts with other hospitals to increase loss to follow up/loss to documentation rates.

Goal 2: Enhance the System of Care and collaborations with audiologists and ear, nose, and throat (ENTs) physicians to improve tracking strategies to decrease the loss to follow-up rate

Objective: By March 2015, increase the Program's initial diagnostic screening rate by 7% and eventually 14% total to meet the Healthy People 2020 Objective Target of 72.6%. To ensure that all newborns who did not pass the newborn hearing screening receive audiologic evaluations no later than three (3) months of age.

Activity 1: Collaborate with EHDI Advisory Committee members and other stakeholders to develop a procedure to support ENTs to report audiologic evaluations to the EHDI Program staff.

Activity 2: Collaborate with ENTs in MS to educate about the importance of ensuring that all newborn who do not pass the newborn hearing screening receive an audiologic evaluation no later than three (3) months of age.

Activity 3: Develop letter of agreements or memorandums of understandings (MOUs) with ENTs and the EHDI Program to report audiologic evaluations in a timely manner.

Activity 4: Develop and disseminate a data report to share with stakeholders.

Goal 3: Enhance collaborations with Early Intervention (EI) staff to support infant/family outcomes to reduce the loss to follow-up rate

Objective: By February 2015, increase the screening percentage by 2% of newborns with confirmed hearing loss that receive intervention services by six (6) months age.

Activity 1: Enhance and implement EHDI Program tracking methodologies to track newborns with a confirmed hearing loss.

Activity 2: Implement procedures with EI staff and EHDI Hearing Resource Consultants to increase the percentage of newborns with a confirmed hearing loss receive intervention services by six (6) months of age.

Goal 4: Engage stakeholders to identify gaps and needs to support quality improvement methodologies to decrease the loss to follow-up rate

Objective: By March 2015, collaborate with diverse stakeholders (families, primary care providers, hospital staff, and EHDI Program staff) to decrease the EHDI program loss to follow-up rate by 5%.

Activity 1: Develop a survey to engage stakeholders regarding quality improvement methodologies.

Activity 2: Implement Plan, Do, Study, Act (PDSA) Cycles related to feedback received from stakeholders on ways to decrease the loss to follow-up rate.

Activity 3: Report findings quarterly (face to face and/or within a report) to stakeholders regarding quality improvement methodologies implemented.

Goal 5: Integrating with other systems of care to reduce loss to follow-up rates for non-English speaking populations

Objective: By March 2015, develop relationships with other Mississippi State Department of Health (MSDH) programs and stakeholders who can provide support to non-English speaking families after newborns fail the newborn hearing screening to decrease the loss to follow-up rate

Activity 1: Hire a contract non-English speaking translator for the MS EHDI Program staff, First Steps Early Intervention staff, and Hearing Resource Consultants, and hospital nursery staff to utilize to support the needs of non-English speaking families.

Activity 2: Transform hearing screening literature into diverse languages to support populations served.

Activity 3: Integrate a tracking system to identify non-English populations served.

Goal 6: Enhance the EHDI infrastructure for families and children with a hearing loss by identifying socio-cultural determinants of unmet health needs which will reduce loss to follow-up rates

Objective: By March 2015, implement quality improvement methodologies to determine socio-cultural determinants for the population served.

Activity 1: Collaborate with stakeholders to identify strategies to improve socio-cultural determinants impacting populations through the dissemination of surveys.

Activity 2: Collaborate with other states to identify methodologies implemented by the EHDI Program to support socio-cultural determinants.

Activity 3: Collaborate with Early Intervention Program and other MSDH Programs to identify support for families.

Goal 7: Extend stakeholder groups to decrease the loss to follow-up rate

Objective: By May 2014, invite two (2) additional stakeholder groups to support the EHDI Program to identify and implement change strategies identified

Activity 1: Collaborate with parent groups, schools, churches and other programs/organizations to identify existing barriers for families and children that will help reduce the loss to follow-up rate.

Goal 8: Enhance EHDI tracking system related to health disparities in the state to reduce the loss to follow-up rate

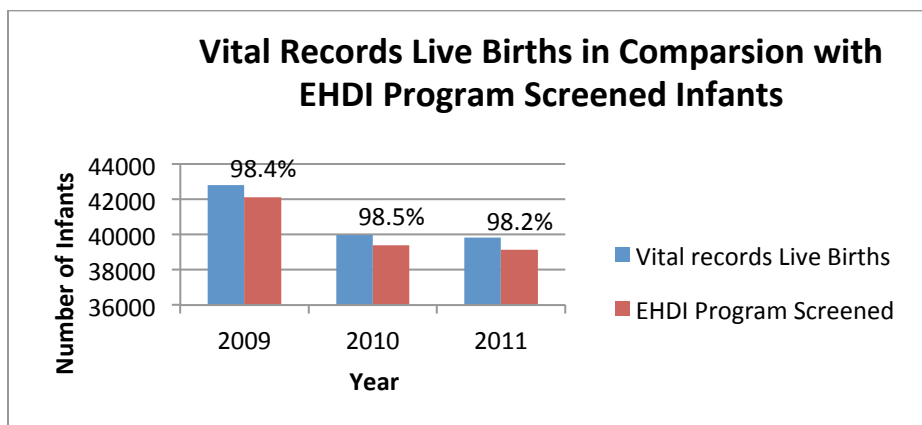
Objective: By April 2015, implement a tracking system to identify if health disparities exist in the state due to the lack of health care providers and develop a plan to support some of the identified barriers.

Activity 1: Conduct ArcGIS Mapping to identify health disparities and its impact on unmet health needs.

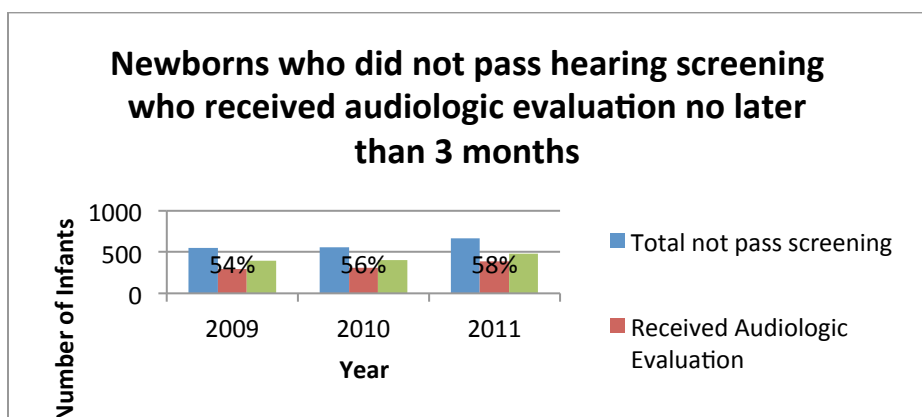
Activity 2: Engage stakeholders to discuss determinants impacting health disparities for the population served.

Activity 3: Implement health disparities questions as a part of the EHDI survey to stakeholders.

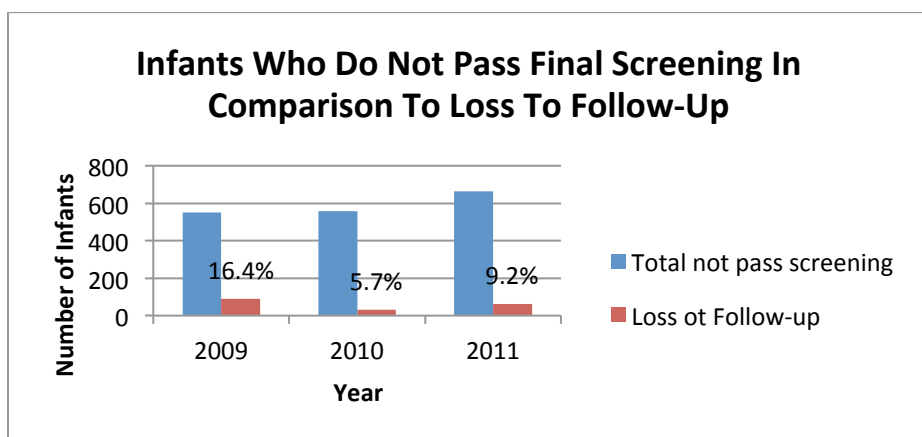
Graph 1



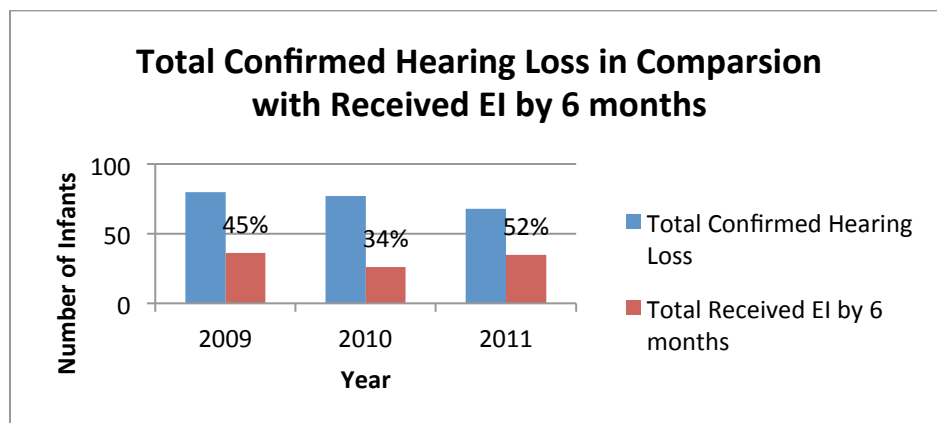
Graph 2

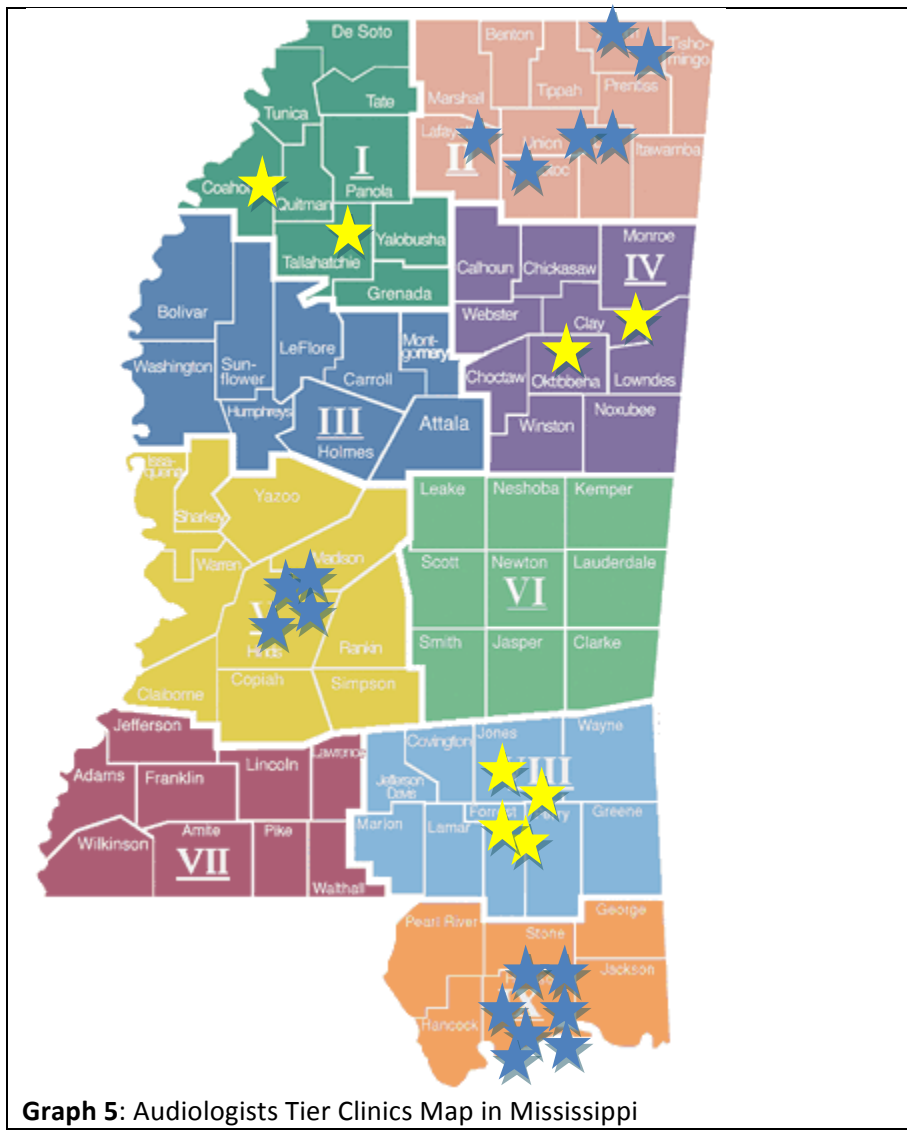


Graph 3



Graph 4





Graph 5: Audiologists Tier Clinics Map in Mississippi