Hospital Guidelines for Universal Newborn Hearing Screening 2021

Alabama's Listening!
UNIVERSAL NEWBORN HEARING SCREENING

ALABAMA
Newborn Screening
PROGRAM

ALABAMA PUBLIC HEALTH

ALABAMA EARLY HEARING DETECTION AND INTERVENTION (EHDI) PROGRAM

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PREFACE

According to the Centers for Disease Control and Prevention (CDC), three (3) out of every 1,000 infants are identified with hearing loss at birth, making it one of the most common congenital anomalies in the United States. Children with delayed identification of hearing loss and/or those who do not receive early and appropriate intervention often fall behind in speech/language, academic, and social/emotional development. Early identification and intervention efforts, on-going monitoring/surveillance of at-risk infants and children, and on-going evaluation of communication are critical in identifying children who are deaf or hard of hearing (DHH) as early as possible so that developmental delays can be substantially reduced or even eliminated entirely.

In February 2001, the Alabama Universal Newborn Hearing Screening (UNHS) Program also known as the Alabama EHDI Program or "*Alabama's Listening!*" was established as a new initiative designed to ensure that every baby born in Alabama is screened for hearing loss. The goal of the program is to ensure early and appropriate hearing screening and follow up when indicated so that infants who are DHH are identified as early as possible and receive timely diagnosis and intervention. In 2008, UNHS became mandated by Alabama public health law.

In October 2018, an Audiology Task Force was created in partnership with the Alabama EHDI Program to establish the following UNHS Guidelines. The purpose of the guidelines is to assist providers in the implementation of UNHS and follow up services. Also, the guidelines provide the necessary information for reporting newborn hearing screening to the ADPH as required per state law.

The Audiology Task Force is comprised of audiologists from a variety of settings including state agencies, universities, hospitals, and private practice. The Alabama EHDI Program would like to recognize the Audiology Task Force for their contribution to the hospital newborn hearing guidelines.

In Alabama, all newborns should have their hearing screened prior to hospital discharge or no later than one month of age with the exception of parents declining on the grounds that such tests conflict with their religious tenets and practices (Neonatal testing for certain diseases; rules and regulations for treatment thereof, § 22-20-3).

Providers conducting newborn hearing screening are expected to be consistent with national guidelines and the state guidelines described herein. Providers should educate parents about the newborn hearing screening procedure, and screening results should be reported in a family-centered manner. Results should also be reported to the medical home (e.g., primary care provider) and to the Alabama EHDI Program as required by state law. Newborns who do not pass the newborn hearing screening should receive thorough diagnostic audiological evaluation as soon as possible but no later than three (3) months of age. Infants who are identified with hearing thresholds in the mild, moderate, severe, or profound range should be immediately referred to Alabama's Early Intervention System (AEIS) or private early intervention services based on parent preference.

For more information or questions please contact:

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ALABAMA EHDI PROGRAM OVERVIEW

Hearing Professionals Use These Important 1-3-6 Benchmarks

1 mo Before **one month** of age: *Hearing Screening*

3 mo Before **three months** of age: *Hearing Evaluation*

6 mo Before **six months** of age: *Early Intervention*

Hearing screening is the first hearing service to determine if a baby may have a hearing loss.

Hearing evaluation is a comprehensive test to determine if a baby has hearing loss and the severity and type of hearing loss.

The Alabama EHDI Program is administered through the ADPH and was established in February 2001 to address the hearing health care needs of Alabama's babies. The health care needs of infants with hearing loss include timely screening, diagnosis, and referral to Early Intervention (EI) services.

An ADPH EHDI Workgroup, comprised of parents of children who are DHH, the AAP EHDI Chapter Champion for Alabama, audiologists, early interventionists, and public health officials meets quarterly to assess the EHDI program, determine needs, areas of improvement, and innovations for program enhancement and management.

The Alabama EHDI Program affirms the importance of cooperative and collaborative relationships that work to facilitate smooth transitions through the EHDI process of screening, diagnosis, and intervention for infants and their families. Therefore, the Alabama EHDI Program collaborates with many partners including state birthing hospitals, pediatric health care providers, Children's Rehabilitation Service (CRS) and EI System, divisions of the Alabama Department of Rehabilitation Services, the National Center for Hearing Assessment and Management (NCHAM), Early Head Start Programs, the CDC, and the Health Resources and Services Administration (HRSA).

The goal of the Alabama EHDI Program is to ensure all infants who are DHH are identified as early as possible and provided with timely and appropriate audiological, educational, and medical intervention in order to improve a child's communication and linguistic competence (in spoken language, signed language, or both) as well as thinking, learning, and social skills.

STATE PUBLIC LAW AND REPORTING REQUIREMENTS

The Alabama State Law, Section 22-20-3, provides legal authority for institutions caring for infants 28 days or less of age to administer a reliable test for newborn screening to include the newborn hearing screening. The law allows for parents to refuse testing on the grounds that such tests conflict with their religious tenets and practices. A written refusal should be obtained if a parent objects to newborn screening.

In addition, state law requires "health care providers to report the results of any hearing tests performed on the newborn to the ADPH and shall use such forms and follow such guidelines as shall be determined by the State Health Officer," Chapter 420-10-1-.04, *Care and Treatment of Infants Identified Through the Newborn Screening Program, Reporting and Notification*.

HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT (HIPAA)

In light of HIPAA, concerns have been raised regarding sharing information with the ADPH regarding newborn screenings. Exchange of information regarding newborn hearing screenings is permissible under HIPAA because HIPAA allows the disclosure of protected health information without

patient authorization if the disclosure is required by law or if the disclosure is required for public health activities. Disclosures regarding newborn hearing screening fall into both of these categories.

Specifically, the HIPAA regulations state that they do not pre-empt laws "for the conduct of public health surveillance, investigation, or intervention," 45 CFR 160.203 (a)(2)(c). The regulations further provide that disclosures can be made without patient consent if the disclosure is required by law or if the disclosure is required for public health activities such as "preventing and controlling disease, injury, or disability" and "the conduct of public health surveillance, public health investigation, and public health interventions," 45 CFR 164.512 (a) and (b).

State law requires that health care providers report all results of the newborns tested to the ADPH per Administrative Code 420-10-1-.04(2). Therefore, providers must continue reporting newborn screening results to the ADPH pursuant to state law and in compliance with HIPAA.

JOINT COMMITTEE ON INFANT HEARING (JCIH) NATIONAL GUIDELINES

The JCIH endorses UNHS, prompt diagnosis, and EI as the standard of care for newborns and infants. Since 1969, the JCIH has studied the complexities of hearing loss and its effects on a child's development in order to find the most current and suitable methods to identify and serve infants and their families. The JCIH includes individuals from the AAP, the American Academy of Otolaryngology and Head and Neck Surgery (AAOHNS), the American Speech Language Hearing Association (ASHA), the American Academy of Audiology (AAA), the Council on Education of the Deaf, and Directors of Speech and Hearing Programs in State Health and Welfare Agencies (DSHPSHWA); groups who also endorse universal newborn hearing screening, timely diagnosis, and EI as best practice.

The most recent publication of JCIH, *Year 2019 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs* serves as the national standard for EHDI programs. Early detection and intervention for infants who are DHH ensures opportunities to maximize linguistic competence and literacy development so that infants and children do not fall behind their peers in communication, cognition, reading, and social-emotional development. According to the JCIH, such delays may result in lower educational and employment levels in adulthood. Included is a link to the 2019 JCIH Position Statement: https://digitalcommons.usu.edu/jehdi/vol4/iss2/1/

The Alabama EHDI Program follows the 2019 Position Statement which builds on the 2000 and 2007 Position Statements and the *Supplement to the JCIH 2007 Position Statement: Principles and Guidelines for Early Intervention after Confirmation That a Child Is Deaf or Hard of Hearing.* The 2019 Position Statement reinforces the longstanding EHDI 1-3-6 goals: screening before **one** (1) month of age, diagnostic evaluation(s) by an audiologist to confirm the infant's hearing status as soon as possible but no later than **three** (3) months of age and referral to Early Intervention services as soon as possible but no later than **six** (6) months of age when hearing thresholds are found to be in the mild, moderate, severe, or profound range. In keeping with the JCIH 2019 Position Statement, the Alabama EHDI Program also encourages providers who are meeting the 1-3-6 benchmarks to work towards a 1-2-3 timeline for these same goals.

UNIVERSAL NEWBORN HEARING SCREENING PRINCIPLES AND GUIDELINES

The following principles and guidelines were developed by the Alabama EHDI Program in partnership with the 2018-2019 Audiology Task Force. The guidelines are based on nationally accepted guidelines published by the JCIH and peer-reviewed literature. They were customized to accommodate Alabama's system of care to assist providers in conducting quality screening and follow-up throughout

the state. See Appendix A for the Algorithm that outlines the process. ***Due to the importance of early identification of hearing loss, all screening, follow-up, and tracking procedures must, at a minimum, be consistent with the national and state guidelines described herein.***

Audiology Oversight of Universal Newborn Hearing Screening Programs

The Alabama EHDI Program endorses Audiology oversight of UNHS programs at both the systems level and the individual program level in accordance with the JCIH 2019 Position Statement. Although licensed audiologists do not need to conduct the actual hearing screening, audiologists with training and experience in assessing infants and children that are uniquely qualified to develop and implement all aspects of an EHDI program.

At the state systems level, audiology oversight is accomplished through the ADPH Newborn Hearing Screening Workgroup, an Audiology Task Force, and close partnership with the Audiology Program Specialist at CRS, a division of the Alabama Department of Rehabilitation Services. At the individual provider level, hearing screening programs benefit from direct access to audiological consultation to address screening criteria, quality assurance, follow-up assessment, intervention services, community resources, referral patterns, and state EHDI program guidelines to ensure appropriate screening methods and timely rescreening of infants who do not pass their initial newborn hearing screening, as well as prompt and appropriate diagnostic audiologic evaluations.

Special Circumstances

The following special circumstances may arise and affect the timing of newborn hearing screening:

1) Hospital Transfer - If an infant is to be transferred to a different hospital, unit, or state, conduct the newborn hearing screening before transfer, if possible, and communicate the results with the receiving facility.

2) Neonatal Intensive Care Unit (NICU) or Special Care Nursery - NICU babies must have Automated Auditory Brainstem Response (AABR) included as part of their screen so that neural hearing loss will not be missed. If an infant is sick, premature, or in the NICU or special care nursery and is expected to remain in the hospital for a prolonged period of time, screening should be performed when medically feasible. Hearing should be monitored after the initial screening if the infant remains in the hospital and undergoes any treatments that may affect hearing or new conditions that have the potential for risk factors for hearing loss (see *Appendix C).* Furthermore, the infant should be at least 34 weeks old and no older than six (6) months of age at the time of screening(s). After six (6) months of age, diagnostic audiological assessment is indicated in lieu of screening.

   For infants who do not pass AABR testing in the NICU, referral should be made directly to an audiologist for further assessment.

3) Home births - The Alabama State Law, Section 22-20-3, provides legal authority over any person attending a newborn child that was not attended by a physician (e.g. licensed midwife) to administer to every such infant or child in his care a reliable test of heritable diseases and conditions as are designated by the board of health, such as hearing loss. Therefore, infants not born in the hospital should be referred for an outpatient newborn hearing screening performed by an audiologist or provider under the supervision of an audiologist before **one** (1) month of age. Early Hearing Detection and Intervention – Pediatric Audiology Links to Services (EHDI-PALS) offers a national web-based directory of pediatric audiology facilities. EHDI-PALS also provides information, resources, and other services for children who are deaf or hard of hearing and under the age of five (5) years.

4) Adoption or Foster Care – If an infant/child was adopted or is in foster care, and it is unclear whether or not newborn hearing screening was performed, the child should receive a hearing screening or diagnostic audiological assessment regardless of age.

5) Family History of Hearing Loss with Childhood Onset - When an infant does not pass the initial newborn hearing screening and a family history of hearing loss with childhood onset exists, the family may opt to proceed directly to a diagnostic audiological assessment without pursuing an outpatient re-screening. When an infant passes the initial newborn hearing screening, the infant should receive a comprehensive audiological evaluation by nine (9) months of age and monitored thereafter based on the etiology of family hearing loss and caregiver concern. It is important to note that after six (6) months of age, diagnostic auditory brainstem response (ABR) evaluation is often difficult to conduct without sedation. Therefore, an un-sedated, baseline AABR evaluation should be considered before six (6) months of age.

   NOTE: Whenever family history of childhood hearing loss exists, all siblings should also receive a thorough audiological assessment and monitoring. In addition, the family should consider genetic counseling and/or testing.

6) Anomalous or Missing Ear - If an infant is born with a missing or anomalous ear or some other obvious abnormality of one or both ears, a screening should be conducted on the ear without anomaly and the result for that ear should be reported to *Alabama's Listening!* Regardless of screening outcome, the infant should be referred directly for full audiological evaluation of both ears.

7) Infants Readmitted to the Hospital - For readmissions of infants in the first month of life, if there are conditions present which are associated with potential hearing loss (e.g. hyperbilirubinemia, meningitis, sepsis), a repeat hearing screen is recommended prior to discharge. Because of the high incidence of neural hearing loss associated with significantly elevated bilirubin, these infants should be referred for audiological assessment to include diagnostic ABR measures.

8) Lack of Supplies - To avoid these situations, maintain a generous supply of required disposable supplies and have a protocol in place for checking and re-ordering supplies.

9) Equipment Malfunction - In case of equipment malfunction, notify the Alabama EHDI Program and have a written protocol for screeners with instructions to ensure newborn hearing screening is performed. The infant must return for screening or be scheduled to have a screening performed elsewhere by one month of age, or the hospital may contact Newborn Hearing EHDI Coordinator at 1-866-928-6755 to determine if loaner hearing screening equipment is available. If the infant is scheduled to have a re-screen, results should be reported on the re-screen reporting form *(Appendix G)* and faxed to the Alabama EHDI Program at (334) 206-3791.

10) Parent Refusal - If parents refuse the initial newborn hearing screening, they must sign a refusal form (*Appendix D*) that should be witnessed and faxed to the Newborn Screening Program at (334) 206-3791. Parents should be provided with *Alabama's Listening!* UNHS Parent Information regarding the importance of newborn hearing screening and developmental milestones (refer to NCHAM script, *Appendix* E). The parents should be informed that a future screening can be provided if the infant fails to meet developmental milestones and/or there is parental concern regarding hearing status. Please notify the Newborn Screening Program of a newborn screening refusal to include blood and hearing by noting the refusal on the newborn screening specimen filter form as outlined in the Newborn Screening Blood Collection Guidelines and submitting to the State Health Laboratory or by faxing the refusal form to the Alabama EHDI Program at (334) 206-3791 if family only refuses the hearing screen.

Training Qualified Screeners

A critical aspect of a successful UNHS program is to ensure all screeners are well-trained and competent. Training should be ongoing and based on JCIH guidelines, best practice procedures as reported in current professional literature, and as recommended by the Alabama EHDI Program resources for

training may include a combination of experienced screening program managers; local, licensed clinical and educational audiologists; EHDI Coordinator, or online resources. Each facility should select staff to carry out the hearing screening and related duties; there is no requirement that all nursery personnel be trained to perform newborn hearing screening. Training typically includes the following three stages:

1) Initial Training and Demonstration of Competency and Skills – The following includes recommended topics for initial training:
    - ✓ Benefits of early detection of hearing loss
    - ✓ Hearing screening equipment use and care instruction
    - ✓ Hospital orientation
    - ✓ Knowledge of hospital or birth facility hearing screening policy and procedures
    - ✓ Hospital infant security procedures
    - ✓ Documentation of screening results
    - ✓ Cultural sensitivity
    - ✓ Use of child- and family-centered communication when reporting results to the family and appropriate medical staff
    - ✓ The use of scripts (see *Appendix* E) for explaining test procedures, results, and recommendations should be considered. These scripts may also be obtained from the link: http://www.infanthearing.org/nhstc/docs/nhstc-web-scripts-for-parents.pdf
    - ✓ Demonstration of competency and skills to perform hearing screening should be completed annually and documented appropriately. Measure the trainee's competency based on performance in the nursery environment using the *Performance Based Criterion Checklist* (see *Appendix* F) or a similar performance evaluation tool.

The NCHAM at Utah State University Newborn Hearing Screening Training Curriculum (NHSTC) is a free interactive competency-based course that emphasizes the recommended practices from the JCIH Position Statements. By taking the course, learners will receive a Certificate of Completion and have the necessary foundation to be competent in newborn hearing screening. A link to the training website is provided: https://www.infanthearing.org/nhstc/index.html

2) On going quality assurance – The following are recommended quality assurance procedures:
    - ✓ At a minimum, referral rates should be monitored in order to ensure effective screening. ***A hospital nursery with an effective hearing screening program should have a referral rate of four percent (4%) or less.***
    - ✓ Periodic, direct observations of each screener in the nursery environment by a skilled professional such as an audiologist and/or program manager.
    - ✓ Periodic review of newborn hearing screening data (e.g., number of screens and number of refers) for each screener by an audiologist and/or program manager to determine their effectiveness.
    - ✓ Consider monitoring parent satisfaction with the hearing screening process.
    - ✓ Performance data to include, but not be limited to:
        - Total number of live births
        - Number of newborns screened
        - Number of newborns who passed the screening
        - Number of newborns who did not pass the hearing screening
        - Number of refusals

- Number of infants whose parent/guardian did not refuse testing but were "missed"
- Number of follow-up appointments scheduled for newborns who did not pass the hearing screening or were missed
- Total number of newborns transferred in/out of the facility

3) Updated Training – Updated training should be completed at least annually by experienced screening program managers; local, licensed clinical and educational audiologists; EHDI Coordinator, or online resources. Updated trainings should measure the trainee's competency based on performance in the nursery environment using the *Performance Based Criterion Checklist* (see *Appendix* F) or a similar performance evaluation tool.

Universal Newborn Hearing Screening Equipment

The Alabama EHDI Program endorses the use of AABR equipment for all infants in order to facilitate reporting results in accordance with state laws and to streamline data management at the state level. **Non-automated ABR screening is NOT recommended** for newborn hearing screening programs in hospital nurseries due to issues of potential operator error and significant time/cost issues.

All hearing screening equipment must meet technical specifications, calibration standards, and hospital safety standards. A quality screening program should consider including new and improved evidence-based technologies and procedures as they become available. The Alabama EHDI Coordinator is available to discuss at any time.

The hearing threshold detected with some AABR technology is higher (40 to 45 dB HL) as compared with otoacoustic emissions (OAE) technology (30 or 35 dB HL).

Pass/Refer Criteria

In most cases, pass/refer criteria is already preset into the hearing screening equipment by the manufacturer. When hearing screens are administered, a pass or refer result should automatically appear. There should be no interpretation of results by the hearing screener at the time of the screen. Pass/refer criteria should be reviewed regularly by a consulting audiologist and should be in accordance with clinically accepted national practices.

Middle Ear Effusion

The JCIH 2019 Position Statement indicates that infants with persistent middle ear fluid and or/ retained amniotic fluid may be at risk for on-going middle ear problems and subsequent conductive hearing loss. Infants with cleft palate or Down syndrome are also at significant risk for chronic middle ear disease and subsequent hearing loss which may be conductive, mixed, or sensorineural in nature. Medical referral for infants experiencing middle ear effusion is recommended; however, providers should ensure middle ear effusion does not delay a hearing loss diagnosis since it has the potential to further compromise hearing (Appendix J).

Communication and Documentation of Results

According to the AAP, infants who do not pass a newborn hearing screening have a possible "*developmental emergency.*" The birth hospital, medical home, and audiologists have an important responsibility to ensure that appropriate follow up and documentation occur so that infants are not "lost" in the system of care. Consequences for infants lost in the EHDI system of care:

- ✓ Will not receive follow up testing, early intervention, treatment, and parent support services needed.
- ✓ Family will not receive the information needed to make informed decisions about their baby's communication and treatment options.
- ✓ Infant's speech/language, social and emotional development will likely be delayed.
- ✓ Communication, learning, and behavioral problems may occur.

The following are the ways in which infants who do not pass the newborn hearing screening may be "lost" in the system of care and further recommendations for preventing such loss.

1) Lost to follow-up – The infant does not receive the next course of testing (e.g., outpatient re-screening and/or diagnostic audiologic assessment). To reduce the number of infants lost to follow-up:
   - ✓ DO emphasize the importance of outpatient re-screening without causing excessive stress to the parents (refer to script on *Appendix* E).
   - ✓ DO make an appointment for outpatient rescreening before discharge.
   - ✓ DO NOT give parents false information such as "It's probably only fluid" or "The equipment may not be functioning properly."

2) Lost to documentation – Screening, rescreening, and diagnostic findings are not properly reported to the state and/or medical home. To reduce the number of infants lost to documentation:
   - ✓ DO understand that state law mandates that results be reported to the ADPH Newborn Screening Program, specifically the EHDI Coordinator.
   - ✓ DO report all results in the manner designated by the Alabama EHDI Program.
   - ✓ DO report results to the Alabama EHDI Program and the medical home in a timely manner, preferably the same day but no later than one week after testing.

Family-Centered Practices

The JCIH 2019 Position Statement recommends family-centered practices. The premise of family-centered services is that the family is the best place for children to develop. Providing services that engage, involve, support, and strengthen families will ensure children's well-being, permanency, and development. Key components of family-centered practice include:

- ✓ Relationship between parents and service providers should be built on mutual trust and respect.
- ✓ Open and honest communication; any bias should be disclosed and justified by evidence.
- ✓ Ensure safety and well-being of all family members by working with the family to address needs.
- ✓ Focus on solutions that help the family function effectively.
- ✓ Partner with families during the decision making process.
- ✓ Services should be individualized, culturally sensitive, accommodating, and relevant.
- ✓ Families should be connected to comprehensive community-based networks of supports and services

Early Hearing Detection and Intervention – Pediatric Audiology Links to Services (EHDI-PALS)

EHDI-PALS is a website supported by NCHAM offering information, resources, and services for families and professionals. Parents and professionals can learn about childhood hearing loss, hearing testing, and important questions parents can ask when making appointments. One of the most beneficial uses of the site is a national web-based directory of pediatric audiology facilities. A link to the website is included here: http://www.ehdi-pals.org

Newborn Hearing Screening Tips

- ✓ The optimal testing environment is in a quiet location away from sources of electrical artifact. Sources of electrical artifact include but are not limited to:
  - Other medical equipment
  - Computer monitors
  - Cell phones
  - Fluorescent lights
- ✓ Use a grounded electrical outlet that is away from other equipment.
- ✓ Any unnecessary equipment should be turned OFF.
- ✓ Cell phones should be turned OFF, not muted.
- ✓ Lighting should be turned OFF, not dimmed.
- ✓ Testing is best performed when the infant is asleep, well-fed, and comfortable.
- ✓ Consider the use of baby shampoo for electrode preparation. It is gentler on an infant's skin than alcohol.
- ✓ AABR electrodes are like antennas. If the electrodes are too far apart, more noise will be in the AABR recording.
- ✓ Consider braiding the electrodes or making a tape "sleeve" to hold electrodes together, with the sticky side away from the electrodes.
- ✓ Pause testing if baby begins to move excessively, is crying/fussing, or wide awake.
- ✓ Resume testing when the baby is quiet.

BEFORE NEWBORN HEARING SCREENING
✓ Document all job descriptions, qualifications, and roles, as well as orientation, minimum length of training, and competency validation (see Appendix F) Performance Based Criterion Checklist).
✓ Identify staff responsible for screening, reporting, and training personnel.
✓ A copy of the hospital's policy and procedure manual and a copy of Universal Newborn Hearing Screening Guidelines should be located in a well-known and accessible location in close proximity to where the hearing screening is being completed.
✓ Care, use, trouble-shooting, maintenance, and servicing of the testing equipment should be included in the policy and procedure manual. This information is usually also available in the equipment manufacturer's manual.

The Alabama EHDI Program supports a two-tiered screening process.

First Tier Screening:

This is the first screen performed on a newborn; preferably *at least 12 hours after birth.* The screen may be performed sooner if needed; however, a higher referral rate may occur due to residual birthing debris in the ear canal.

Second Tier Screening:

A second hearing screening in the hospital may be performed on the day of discharge or 12-24 hours after the first screen. **The second tier should allow for no more than two attempts in hospital.** Repeated screening increases the likelihood of obtaining a pass hearing result, which could result in an infant with a hearing loss missed and suffer developmental consequences. ***Both ears must pass a single screening to be considered as an overall passing result. Combining passing results in opposite ears on successive screens does not make a passing result.***

A flowchart of the newborn hearing screening procedures is available in *Appendix A*.

NEWBORN HEARING SCREENING PROCEDURE
Refer to *Appendix E* for a recommended script regarding procedures. Explain:
✓ Benefits of early detection and intervention
✓ Potential risks and effects of hearing loss
✓ Nature of the screening procedure
✓ Applicable costs of screening procedure
✓ Parental options in regards to screening
✓ Storage and use of hearing test results
✓ Obtain proper consent and release of information for the medical home (pediatrician, primary care physician) and other professionals as needed for follow up testing if the infant does not pass the screening.
✓ Select a newborn: • who is at least 12 hours old, quiet, and comfortable. • who requires rescreening, is quiet, and comfortable.
✓ Turn on equipment and initiate software per manufacturer manual instructions.
✓ Enter all required patient information correctly.
✓ Enter risk factor(s) for hearing loss and record them in medical record *(Appendix C).*
✓ Swaddle infant in preparation for testing.
✓ Clean infant's skin and apply/connect electrodes.
✓ Apply ear muffs per manufacturing guidelines.
✓ Gently massage ear to remove debris.
✓ Place probe tip in ear canal for OAE or ear muff over infant's ears for AABR.
✓ Begin testing.
✓ Troubleshoot problems if they arise. Refer to manufacturer's manual if needed.
✓ Pause testing and calm the baby as needed.
✓ When screening is complete, remove all test equipment from the infant.
✓ Record test results in medical record according to facility policies and procedures.

It is recommended that the discharge planner be responsible for notifying parents of the newborn's hearing results and responsible for scheduling second tier, outpatient hearing screening ***before the infant is discharged.*** The discharge planner should complete the NCHAM NHSTC training referenced in Training Qualified Screeners. Results to parent/guardian should be given verbally and in writing. Communication should be culturally sensitive and family-centered. The use of language interpreters should be provided when necessary and/or per parent/guardian request.

The following is a description of procedures based on screening results:

PASS RESULTS - NO RISK FACTORS
Refer to Appendix E for a recommended script. Be sure to mention: ✓ Importance of monitoring infant's hearing, speech, and language development ✓ Baby's hearing can change at any time (e.g. ear infection) ✓ Talk to baby's doctor and ask for audiology referral if there is concern about hearing
Parents should receive a copy of the following resources: ✓ Screening results, including method and results for each ear ✓ *Alabama's Listening! UNHS Parent Information* Brochure (English and Spanish) ✓ The CDC's *Track Your Child's Developmental Milestones* brochure (English and Spanish) ✓ Information for downloading the free *CDC Milestone Tracker* app on iOS and Android devices using the Apple store or Google Play. The app is available in English and Spanish
A copy of the results should be sent immediately to: ✓ The Alabama EHDI Program. This is accomplished through electronic data transfer (Appendix B) ✓ Medical Home (pediatrician, primary care physician)

PASS RESULTS - RISK FACTOR(S)
Refer to Appendix E for a recommended script. Be sure to mention: ✓ There is a chance that the baby might develop hearing loss due to medical issues at birth ✓ Infants with hearing loss may startle to loud sounds and even appear to hear; follow up testing is needed to determine hearing status ✓ Talk to baby's doctor and ask for audiology referral to monitor hearing ✓ Importance of monitoring infant's hearing, speech, and language development
Parents should receive a copy of the following resources: ✓ Screening results, including method and results for each ear ✓ *Alabama's Listening! UNHS Parent Information* Brochure (English and Spanish) ✓ The CDC's *Track Your Child's Developmental Milestones* brochure (English and Spanish) ✓ Information for downloading the free *CDC Milestone Tracker* app on iOS and Android devices using the Apple store or Google Play. The app is available in English and Spanish ✓ Risk Factor Card (Appendix C)
A copy of the results should be sent immediately to: ✓ The Alabama EHDI Program. This is accomplished through electronic data transfer (Appendix B). Consult the facility's policy and procedure manual for more information. It is recommended that results be downloaded every day a baby is screened ✓ Medical Home (pediatrician, primary care physician) Audiologist specializing in pediatrics for audiological monitoring (see *EHDI-PALS* section to locate pediatric audiology providers in your area).

REFER/DID NOT PASS RESULTS
NOTE: An infant who does not pass his/her newborn hearing screening has a potential *developmental emergency.*
✓ Refer to *Appendix E* for a recommended script. Be sure to mention: ✓ Implications of hearing loss ✓ Importance of diagnostic audiological testing
Parents should receive a copy of the following resources: ✓ Screening results, including method and results for each ear ✓ *Alabama's Listening! UNHS Parent Information* Brochure (English and Spanish) ✓ The CDC's *Track Your Child's Developmental Milestones* brochure (English and Spanish) ✓ Information for downloading the free *CDC Milestone Tracker* app on iOS and Android devices using the Apple store or Google Play. The app is available in English and Spanish.
A copy of the results should be sent immediately to: ✓ The Alabama EHDI Program. This is accomplished through electronic data transfer. It is recommended that results be downloaded daily but no less than once per week. ✓ Medical Home (pediatrician, primary care physician). ✓ Audiologist specializing in pediatrics for a complete audiological assessment (see *EHDI-PALS* section to locate pediatric audiology providers in your area).

OUTSOURCE CONSIDERATIONS AND KEY QUESTIONS

Outsourcing is a practice to contract with an outside entity to perform testing. Outsourced vendors or contractors are typically responsible for hiring, training, scheduling, and monitoring screeners as well as reporting hearing results to the Alabama EHDI Program. There are a number of considerations and key questions to ask if an institution is planning to outsource newborn hearing screening to include:

- ✓ Will training be competency-based?
- ✓ Will performance be monitored?
- ✓ What responsibilities are assumed?
- ✓ How will each of these issues be addressed within the well-baby nursery/ NICU?
- ✓ How will the contractor communicate with families and explain findings and recommendations?
- ✓ How will effective communication and collaboration with hospital staff be established?
- ✓ Will the NICU move directly to diagnostic ABR by an audiologist for infants who do not pass as recommended by JCIH, and would this be a possible outsourced model and what are the implications?
- ✓ How would screening be presented to families and how would refusals be managed?
- ✓ What stakeholders will be contacted when a family declines (e.g., pediatrician, state EHDI program)?
- ✓ What is the risk to the hospital for babies not screened?
- ✓ Will declines increase because of potential burdens such as additional charges, immigration status, or other concerns families may have?
- ✓ Will contractor preferred hearing equipment meet standards?
- ✓ Will charges in instrumentation be considered if new technology becomes available?
- ✓ Will screening protocols be followed such as two-step screening with OAE followed by ABR?
- ✓ What specific services will the contractor provide and how will they be provided?

- ✓ How will the hospital monitor the accuracy and timeliness of documentation to ensure compliance with EHDI reporting requirements?
- ✓ How will the hospital ensure optimal tracking and surveillance?
- ✓ If newborn hearing screening is outsourced who will monitor these activities and services and how will they be coordinated with the state EHDI program?
- ✓ How much will the contractor charge, and what will happened if there is an unpaid balance (typical charge around $250, page 23, JEHDI, Outsourcing Hospital-Based Newborn Hearing Screening, 2016)?
- ✓ Does the contractor engage in aggressive collection efforts?
- ✓ Does the state require screening as part of the birth admission, thus precluding a separate bill?
- ✓ Does the contractor bill for their own personnel and equipment, resulting in higher reimbursement from insurance companies?
- ✓ How will contracted services be monitored and evaluated?
- ✓ Will the hospital be ultimately responsible for ensuring each infant is screened with the correct method, and referred for outpatient rescreening or diagnostic evaluation?
- ✓ Who will perform external monitoring and evaluation of the contractor, what will the review consist of, how often the review will be provided, and the time/costs associated with this activity?
- ✓ What are the states reporting requirements?

If outsourcing is being considered, it is critically important to include all stakeholders in the discussion to include audiologists, pediatricians, otolaryngologists, and other medical providers such as those involved with metabolic screening or other laboratory testing (Journal of Early Hearing Detection and Intervention, Outsourcing Hospital-Based Newborn Hearing Screening: Key Questions and Considerations, 2016). Additional information may be found at the following link https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1014&context=jehdi.

APPENDIX A
Newborn Hearing Screening Hospital Algorithm

NEWBORN HEARING SCREENING HOSPITAL ALGORITHM

Based on the Joint Committee on Infant Hearing (JCIH) Guidelines

Initial newborn hearing screening is performed
24-48 hours of age or before the baby leaves the hospital

Before you start the initial newborn hearing screening, is the baby's...

- ❑ Information entered exactly as entered on the blood spot form? (Refer to the instructions for entering demographic information into the hearing device)
- ❑ Testing method appropriate and all supplies gathered for testing both ears?

It is recommended to perform **only** two inpatient hearing screens, one initial and one rescreen if needed.

Otoacoustic Emissions (OAE)
- Measures hair cells of the outer ear
- Does not detect neural hearing loss
- Should only be used for well babies

Preferred Method:
Automated Auditory Brainstem Response (AABR)
- Measures inner ear and brain response to sound
- Detects neural hearing loss
- May be used for all infants, must be used for all NICU.

DID NOT PASS IN ONE OR BOTH EARS

Re-screen both ears with OAE and/or AABR, even if only one ear did not pass.

PASS BOTH EARS

No further testing required

DID NOT PASS IN ONE OR BOTH EARS

Re-screen both ears with AABR **only,** even if only one ear did not pass. **A referral should be made directly to an audiologist for rescreening on infants who do not pass AABR.**

DID NOT PASS RE-SCREEN IN ONE OR BOTH EARS

Schedule follow-up testing with a hearing professional within 2-3 weeks after discharge.

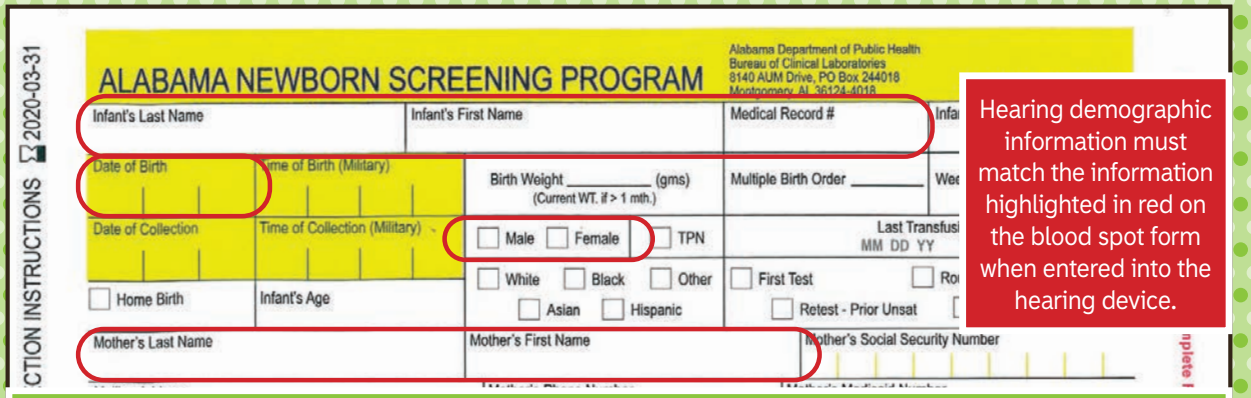
PASS WITH RISK FACTORS

See Appendix C

Hearing Results should be sent electronically to the Alabama Newborn Screening Program each day. See the instructions for *Reporting Hearing Results Electronically.*

APPENDIX B
Instructions for Entering Hearing Information into the Hearing Device & Reporting Hearing Results Electronically

INSTRUCTIONS FOR ENTERING HEARING DEMOGRAPHIC INFORMATION INTO THE HEARING DEVICE & REPORTING HEARING RESULTS ELECTRONICALLY



Hearing demographic information must match the information highlighted in red on the blood spot form when entered into the hearing device.

Entering Hearing Demographic Information into the Hearing Device:

- ✔ Remove page two of the blood spot form after completing all demographic information.
- ✔ Enter the **same** information into the hearing device from this copy to ensure linkage of the hearing result to the blood spot record and laboratory report.
- ✔ Ensure that the infant's name is entered the same to include hyphens if the name is hyphenated.
- ✔ Ensure that only the unique portion of the medical record number is documented on both the blood spot form and in the hearing device with no preceding letters or zeros (ex: ~~D00~~654321).
- ✔ Ensure that the infant's, not the mother's, date of birth, medical record number, and gender is used and matches on both the blood spot form and hearing device.
- ✔ Ensure that numbers are legible and do not resemble any other numbers or letters.

Reporting Hearing Results Electronically:

- ✔ Ensure the following format is used when naming files, **##H######_YYYYMMDD.**
- ✔ If more than one file is submitted daily, add "A", "B", etc. to the name to differentiate the files (ex: 45H58010_20190114**A,** 45H58010_20190114**B**).
- ✔ Each type of hearing device has a specific format in which results must be uploaded via the File Transfer Protocol (FTP). The data system cannot receive hearing results in any other format. ***Written instructions for specific hearing equipment is available upon request.***
- ✔ It is recommended that hospital Information Technology (IT) support is available. If updates to system security or software upgrades are completed in your hospital then core FTP software will need to be reinstalled as this may impact the ability to electronically send hearing results to the state.
- ✔ It is recommended hospitals report hearing results to the state every day an infant is screened.

If the parent refuses the blood spot screen or hearing screen, please fax a newborn screening refusal form to (334) 206-3791.

Dear Parent or Guardian:

Please refer to the newborn hearing screening risk factor card enclosed. A hearing risk factor does not mean a child will develop hearing loss, but it is recommended your child have additional hearing evaluation to ensure normal hearing and language development.

Notify your child's doctor if you have concerns regarding your child's hearing, speech, or language development. Please call 1-866-928-6755 if you have any questions or concerns about newborn hearing screening, or you may visit the newborn hearing website at www.alabamapublichealth/newborn-hearing-screening.

Sincerely,

Mary Ellen Whigham, R.N.
Alabama Early Hearing Detection and Intervention Coordinator
Alabama Newborn Screening Program

Enclosure

APPENDIX C
Risk Factors for Hearing Loss

Alabama's Listening!
UNIVERSAL NEWBORN HEARING SCREENING

ALABAMA PUBLIC HEALTH

UNIVERSAL NEWBORN HEARING SCREENING DEVELOPMENTAL MILESTONES IN HEARING

USE THIS GUIDE TO SEE HOW YOUR CHILD IS GROWING AND LEARNING

Birth to three months:
- Jumps or blinks to loud sounds
- Wakes up to loud sounds
- Quiets when he or she hears mom's voice

Three months to six months:
- Turns eyes or head to search for the sound source
- Responds to your voice even when you cannot be seen
- Enjoys toys that make sounds
- Starts babbling

At six months:
- Responds to his or her name
- Turns head to the direction of the sound source
- Begins to imitate speech sounds

At ten to twelve months:
- Understands and follows simple directions
- Gives a block or toy to you when asked for it without pointing
- Imitates speech sounds of others

At thirteen to eighteen months:
- Follows simple one step directions
- Uses 3-20 single words
- Points to 1-3 body parts when asked

At nineteen to twenty-four months:
- Understands approximately 300 words
- Puts two words together ("eat cookie") by 24 months of age
- Points to five body parts
- Responds to "yes" or "no" questions

RISK FACTORS FOR DELAYED OR LATE-ONSET HEARING LOSS

Universal Newborn Hearing Screening, Diagnosis, and Intervention

Joint Committee on Infant Hearing 2019 Guidelines

Follow up recommended immediately if:

1. Caregiver concerns regarding hearing, speech, language, and developmental delays.

Follow up recommended by 3 months of age if:

1. Infections while pregnant: CMV (cytomegalovirus).
2. Extracorporeal membrane oxygenation (ECMO).
3. Serious head injury that required hospitalization.
4. Chemotherapy.
5. Culture-positive infections (bacterial and viral) like meningitis, encephalitis, chicken pox.

Follow up recommended by 9 months of age if:

1. Family history of hearing loss.
2. Baby admitted to the Neonatal Intensive Care Unit (NICU) for more than 5 days.
3. Exposure to infections like herpes, rubella, syphilis, toxoplasmosis, zika, and meningitis.
4. Hyperbilirubinemia with exchange transfusion.
5. Craniofacial abnormalities, microcephaly, hydrocephalus, and temporal bone abnormalities.
6. Asphyxia or Hypoxic Ischemic Encephalopathy.
7. Administration of certain IV (intravenous) medications: aminoglycoside, antibiotics, for greater than 5 days.
8. Any of the over 400 syndromes like: cleft palate, Usher syndrome and many more.

APPENDIX D
Parent Refusal Form

NEWBORN SCREENING REFUSAL FORM

The American Academy of Pediatrics and the Alabama Department of Public Health strongly recommend Newborn Screening for all infants.

Child's Name _____

Date of Birth _____ Name of Delivery Hospital: _____

Parent/Legal Guardian _____

My child's medical provider,_____ ,
has advised me that my child (named above) should participate in the newborn screening program.

❑ As the parent or legal guardian of my child (named above), I choose to decline participation in my state's newborn screening program, on the grounds that such tests conflict with my religious tenets and/or practices (as allowed by the Code of Alabama 1975, 22-20-3).

I have been provided information about newborn screening in my state and the importance of early identification of the disorders. I have had the opportunity to discuss these with my child's medical provider, who has answered my questions regarding the recommended screening. I understand the following:

- The purpose and need for newborn screening to include bloodspot screening, hearing screening, and pulse oximetry screening.
- The risks and benefits of newborn screening.
- **If my child does not participate in newborn screening, the consequences of a late diagnosis may include delayed development, intellectual disability, or death.**
- My child's medical provider, the Alabama Department of Public Health, and the American Academy of Pediatrics strongly recommend that all newborns be screened for certain disorders.
- If my child has one of my state's screened conditions, failure to participate in newborn screening may endanger the health or life of my child.

Nevertheless, I have decided at this time to decline participation in the newborn screening program for my child as indicated by checking the box above.

I acknowledge that I have read this document or it has been read to me in its entirety, and I fully understand it.

Parent/Legal Guardian Signature _____ Date_____

Witness _____ Date_____

I have had the opportunity to discuss my decision not to participate in my state's newborn screening program and still decline the recommended participation.

Appendix E
NCHAM Scripts

Newborn Hearing Screening Training Curriculum Scripts

Informing Parent's of the Screen:
"Hi, congratulations on the birth of your baby. We provide hearing screening to all babies who are born here (show brochure). We're going to screen your baby now but before we do, are there any questions I can answer?"

Spanish: Informing Parent's of the Screen:
"Hola, felicitaciones por el nacimiento de su bebé. Nosotros le hacemos un tamizaje auditivo a todos los bebés que nacen aquí (muestre el panfleto). Ahora vamos a hacerle el tamizaje a su bebé pero antes de empezar ¿tiene alguna pregunta?"

Families that Refuse Screening:
"If you don't mind, I'd like to leave you with something to read that explains the benefits and the importance of screening your baby's hearing. If you should change your mind and decide you do want the screening, you can let me or your baby's attending physician or nurse know and we can discuss it more at any time.

Spanish: Families that Refuse Screening:
"Si no le importa, me gustaría dejarle algo para leer que explica los beneficios y la importancia de hacerle el tamizaje auditivo a su bebé. Si cambia de parecer y decide que quiere que se le haga el tamizaje se lo puede decir al médico o a la enfermera del bebé o a mi y podemos hablar en más detalle en cualquier momento. "

Passing:
Congratulations on the birth of your baby. We just completed the hearing screen; the results are a pass. Here is a brochure that talks about development of speech and language. It is always important to monitor the progress of your baby's development, especially their speech and language because your baby's hearing can change any time. If you are ever worried that your baby can't hear, talk to your baby's doctor right away and ask for a referral to an audiologist that is skilled at testing infants and young children.

Spanish: Passing:
Felicitaciones por el nacimiento de su bebé. Acabamos de finalizar el tamizaje auditiva de su bebé y él/ella la pasó. Este es un folleto que trata sobre el desarrollo del habla y del lenguaje. Es importante observar el desarrollo de su bebé especialmente de su habla y lenguaje ya que la audición de su bebé puede cambiar en cualquier momento. Si usted está preocupado de que su bebé no pueda oír, hable con el médico pediatra inmediatamente y pídale que lo envíe a donde un audiólogo especializado en hacer pruebas a bebés y niños pequeños.

Not Passing:
Congratulations on the birth of your baby. We just finished screening your baby's hearing. Your baby did not pass the screen today. This does not necessarily mean that your baby has a permanent hearing loss, but without additional testing we can't be sure. The screening results

will be provided to your baby's doctor. Please be sure you make or keep (depending on your hospital's protocol) the appointment for further hearing testing.

Spanish: Not Passing:
Felicitaciones por el nacimiento de su bebé. Los resultados del tamizaje auditivo que le hicimos hoy a su bebé indican que él/ella no lo pasó. Esto no necesariamente significa que su bebé tenga una pérdida auditiva permanente, pero sin hacer pruebas adicionales no podemos estar seguros. Los resultados del tamizaje le serán enviados al médico de su bebé. Asegúrese de hacer una cita para hacer más exámenes auditivos o acudir a esta (dependiendo del protocolo de su hospital).

Inconclusive/Inbetween Inpatient Screen
We've attempted to screen your baby's hearing but we weren't able to complete the test. Some babies need to be screened more than once in order to get an ac- curate result. We'll be back in a few hours to test (him/her) again.

Spanish: Inconclusive/Inbetween Inpatient Screen
Tratamos de hacerle un tamizaje auditivo a su bebé pero no pudimos completar la prueba. Algunos bebés necesitan que se les haga el tamizaje auditivo más de una vez para poder obtener resultados correctos. Regresaremos en un par de horas para hacerle la prueba nuevamente.

Incomplete or Missed Results Script
"Although we attempt to provide newborn hearing screening to all babies born at our hospital, we were unable to complete the screening on your baby. It is important that your baby be screened while he or she is a newborn to identify a early hearing loss as soon as possible. Let's schedule a time for the screening to be completed within the next week."

Spanish: Incomplete or Missed Results Script
"Aunque tratamos de hacerle el tamizaje auditivo a todos los bebés que nacen en nuestro hospital, no pudimos terminar el tamizaje de su bebé. Es importante que se le practique el tamizaje como recién nacido para diagnosticar una pérdida auditiva temprana tan pronto como sea posible. Hagamos un a cita para completar el tamizaje antes de que termine la próxima semana."

Not Passing Outpatient Re-Screen Script
"Your baby didn't pass the outpatient re screen. There can be simple reasons for this, but without further testing, I can't tell you what your baby hears. Further testing needs be done as soon as possible. Please discuss the results of this screening immediately with your baby's doctor, who can help you get a referral to an audiologist that's skilled at testing infants and young children. Finding out about hearing issues as early as possible helps make sure your baby has the best chance of developing normal language and communication skills."

Spanish: Not Passing Outpatient Re-Screen Script

"Su bebé no pasó el tamizaje auditivo que se le practicó nuevamente. Pueden existir razones sencillas para que esto ocurra, pero sin hacer más pruebas no puedo decirle lo que su bebé puede oír. Es necesario hacer más exámenes lo más pronto posible. Hable de manera

inmediata con el medico del bebé, él puede ayudarle a hacer una cita con un audiólogo con experiencia con infantes y niños pequeños. El diagnóstico temprano de problemas auditivos ayuda a que su bebé tenga la mejor oportunidad de desarrollar un lenguaje y habilidad de comunicarse normales.

Passing Script for Babies at High Risk for Hearing Loss:
"Congratulations on the birth of your baby. We just finished screening your baby's hearing and your baby passed the screen today. However, because your baby's had some medical problems at birth, there is a chance that your baby can develop hearing loss after you leave the hospital. Your baby's hearing is critical in order for "on time" development to occur. Your doctor can help you to monitor your babies hearing development and tell you when your baby should have further tests with an audiologist that's skilled at testing infants and young children."

Spanish: Passing Script for Babies at High Risk for Hearing Loss
"Felicitaciones por el nacimiento de su bebé. Acabamos de terminar de hacerle el tamizaje auditivo a su bebé el cual pasó. Sin embargo, debido a que su bebé tuvo algunos problemas médicos al nacer, existe la posibilidad pueda desarrollar una pérdida auditiva después de salir del hospital. La audición de su bebé es muy importante para que ocurra un desarrollo normal. Un médico le puede ayudar a hacer un seguimiento del desarrollo auditivo de su bebé y le puede indicar cuando un audiólogo, con experiencia con infantes y niños pequeños, necesite realizarle más pruebas."

Not Passing Script for Babies at High Risk for Hearing Loss
"Congratulations on the birth of your baby. We just finished screening your baby's hearing and your baby did not pass the screen today. There can be simple reasons for this, but without further testing with an audiologist I can't tell you what your baby hears. Because your baby has had some medical problems at birth, your baby is at greater risk for hearing loss. Talk to your baby's doctor about the results and ask for help with scheduling diagnostic tests with an audiologist that is skilled at testing infants and young children, as soon as possible. Finding out about hearing issues early is going to help to make sure your baby has the best chance of "on time" development."

Spanish: Not Passing Script for Babies at High Risk for Hearing Loss
"Felicitaciones por el nacimiento de su bebé. Acabamos de terminar de hacerle el tamizaje auditivo a su bebé el cual no pasó. Pueden existir razones sencillas para que esto ocurra, pero sin que un audiólogo le haga más pruebas no puedo decirle lo que su bebé puede oír. Debido a que su bebé tuvo algunos problemas médicos al nacer, existe un riesgo más alto de una pérdida auditiva. Hable con el medico del bebé sobre los resultados y pídale que le ayude a hacer lo más pronto posible una cita con un audiólogo con experiencia con infantes y niños pequeños. El diagnóstico temprano de problemas auditivos ayuda a que su bebé tenga la mejor oportunidad de desarrollar un lenguaje y habilidad de comunicarse normales.

APPENDIX F
Training Checklist

ALABAMA Newborn Screening PROGRAM

Performance Based Criterion Checklist
Newborn Hearing Screen OAE or AABR

Screener's Name: _____ **Validator's Name:** _____

CRITICAL BEHAVIORS	MET	NOT MET
1. Selects newborn for screening who is a minimum of 12 hours old and quiet (or appropriate infant who requires rescreening).		
2. Properly turns on the equipment and initiates software.		
3. Enters all required patient information correctly.		
4. Swaddles baby in preparation for testing.		
5. Selects proper sized probe tip/ear muff.		
6. Gently massage ear to minimize debris.		
7. Places ear muff or probe properly.		
8. Correctly cleans skin and applies/connects electrodes (AABR).		
9. Is able to troubleshoot problems with electrode connections (AABR) as needed.		
10. Demonstrates how to calm baby if needed.		
11. Knows how to pause test if/when needed.		
12. Demonstrates removal of test equipment from infant when complete.		
13. Knows how to exit the program and shut down the computer properly.		
14. Demonstrates how to review and record data according to program protocol.		
15. Provides appropriate information to caregiver regarding results and necessary follow-up when applicable. (See Appendix E)		
16. Properly reports FINAL inpatient result to infant's primary physician and to the Alabama EHDI Program.		

**Responsibilities will vary according to individualized hospital policies and procedures. Any additional requirements may need to be added to the checklist. Such responsibilities may include but are not limited to: rescreening BOTH ears when a rescreen is required, entering results on hearing log sheet, scheduling an outpatient rescreen before discharge, etc.*

☐ **CRITICAL BEHAVIORS MET** ☐ **CRITICAL BEHAVIORS NOT MET**

Screener's Signature: _____ **Date:** _____

Validator's Signature: _____ **Date:** _____

APPENDIX G
Re-screen Newborn Hearing Results Form

Re-screen Newborn Hearing Results Form

ALABAMA NEWBORN HEARING PROGRAM
PHONE 334.358.2082 FAX 334.206.3791
Hearing re-screen should be completed before one month of age

Alabama's Listening!
UNIVERSAL NEWBORN HEARING SCREENING

NEWBORN'S NAME	DATE OF BIRTH
HOSPITAL OF BIRTH	HOSPITAL ID NUMBER
MOTHER'S OR GUARDIAN'S NAME (as noted per hospital records)	HOME PHONE NUMBER
HOME ADDRESS	
PRIMARY CARE PHYSICIAN	PHYSICIAN PHONE NUMBER
ADDRESS	

BIRTH	HEARING SCREEN PERFORMED AT BIRTH FACILITY OR HOME BIRTH	Inpatient Screen Date: _____ Right Ear: ☐Pass ☐ Refer ☐ Not Tested Left Ear: ☐ Pass ☐ Refer ☐Not Tested Method: ☐ AABR ☐ OAE ☐ TEOAE ☐DPOAE	Infants who fail initial OAE screen may have an OAE or AABR re-screen. Infants who fail initial AABR screen **must** have an AABR re-screen.
BEFORE 1 MONTH	REPEAT SCREENING RESULTS Inpatient ☐ Outpatient ☐	DATE SCREENED: _____ **Both ears should be tested even if only one ear did not pass the initial screen.** Right Ear: ☐Pass ☐Refer ☐Not Tested Left Ear: ☐Pass ☐Refer ☐Not Tested Method: ☐AABR ☐OAE ☐TEOAE ☐DPOAE *Date referred for diagnostic evaluation:_____	RISK FACTORS FOR DELAYED HEARING LOSS: ☐ NICU admission ☐ Received ototoxic medications ☐Transfused ☐Other_____ _____ If any risk factors present, refer for an audiology assessment by 3-9 months of age

TEST SITE NAME	PHONE	FAX
ADDRESS		

COMMENTS/FOLLOW-UP PLAN :

_____

_____

_____

The completed form should be returned as soon as the hearing re-screen/initial diagnostic audiological evaluation is completed. Fax to the Newborn Hearing Screening Program at 334-206-3791 .

*If refer, infant should have diagnostic testing by three months of age per the Joint Committee on Infant Hearing.

NBS.Hearing Re-Screen Reporting Form.2018

APPENDIX H
Diagnostic Evaluation Newborn Hearing Form

Diagnostic Hearing Evaluation Form

Alabama's Listening!
UNIVERSAL NEWBORN HEARING SCREENING

ALABAMA NEWBORN HEARING PROGRAM
PHONE 334.358.2082 FAX 334.206.3791
Diagnostic testing should be completed before three months of age

NEWBORN'S NAME	DATE OF BIRTH
HOSPITAL OF BIRTH	HOSPITAL ID NUMBER
MOTHER'S OR GUARDIAN'S NAME (as noted per hospital records)	HOME PHONE NUMBER
ADDRESS	

TEST SITE

Audiology Provider Name	Phone	Fax
Address		

Before 3 Months	**Pediatric Diagnostic Audiology Evaluation**	**DIAGNOSTIC TEST DATE**_____ **METHOD:** ☐ABR ☐AABR ☐OAE ☐ TEOAE ☐DPOAE ☐ Normal Hearing ☐ Hearing Loss Confirmed (Please Complete Section Below)	Please select all that apply. **Both ears should be tested at each visit.**
Before 6 Months	**Enrollment in Early Intervention**	Date of Referral to EI_____ Enrollment Date_____ Medical Referral: ☐Otolaryngologist ☐Geneticist ☐Ophthalmologist ☐Pediatrician ☐ Other (specify)_____ Additional Audiology Services_____	

		dB HL	SEVERITY/TYPE	Sensorineural	Conductive*	Mixed	Unspecified	Auditory Neuropathy
___UNILATERAL LOSS ___	RIGHT EAR	16 to 25	Slight					
		26 to 40	Mild					
		41 to 55	Moderate					
		56 to 70	Moderately Severe					
		71 to 90	Severe					
		91+	Profound					
			Unknown Severity					
___BILATERAL LOSS ___	LEFT EAR	dB HL	**SEVERITY/TYPE**	**Sensorineural**	**Conductive***	**Mixed**	**Unspecified**	**Auditory Neuropathy**
		16 to 25	Slight					
		26 to 40	Mild					
		41 to 55	Moderate					
		56 to 70	Moderately Severe					
		71 to 90	Severe					
		91 +	Profound					
			Unknown Severity					

*Includes fluid in the middle ear, ear infection, poor eustachian tube function, hole in eardrum, earwax, swimmer's ear, foreign body in the ear canal, and malformation of the outer ear, ear canal, or middle ear per the American Speech-Language Hearing Association.

COMMENTS/FOLLOW UP (please add other descriptors associated with hearing loss):

_____

_____

_____

The completed form should be returned as soon as the hearing re-screen/initial diagnostic audiological evaluation is completed. Fax to the Newborn Hearing Screening Program at 334-206-3791.

NBS.Hearing Diagnostic Reporting Form.2018

Appendix I
Parent to Parent Support

Alabama Hands & Voices

Alabama Hands & Voices supports all families with children who are deaf / hard of hearing regardless of communication choice. We embrace parent and professional collaboration to enable deaf / hard of hearing children to reach their full potential. Alabama Hands & Voices was established in November 2017. We are an authorized chapter of Hands & Voices. Please reach out and help us build something phenomenal in Alabama!

CONTACT INFORMATION:
P.O. Box 130627
Birmingham, AL 35213
Phone: 205-677-3136
E-mail: alabamahinfo@gmail.com
Facebook group: Alabama Hands and Voices

Family Voices

Family Voices is a national organization and grassroots network of families and friends of children and youth with special health care needs and disabilities that promotes partnership with families–including those of cultural, linguistic and geographic diversity—in order to improve healthcare services and policies for children.

CONTACT INFORMATION:
Local Affiliate
1050 Government Street
Mobile, AL 36604-2402
Phone: 877-771-FVOA or (877-771-3862)
Email: info@familyvoicesal.org

Alabama Institute for the Deaf and Blind (AIDB) Limitless Beginnings

The AIDB Limitless Beginnings is a grant funded program to support families of children who are deaf or hard of hearing between the ages of birth and three years old, identified through the newborn hearing screening. The program is free. Parent mentors meet with families on a regular basis and will share their stories, with positive and unbiased everyday life experiences.

CONTACT INFORMATION:
Phone: (251) 232-2847 or (205) 345-2883
Johnson.ukawia@aidb.org

Woolley Institute for Spoken-Language Education (WISE)
Family Network for Empowerment, Support, and Training (NEST)

The WISE, formerly the Alabama Ear Institute (AEI), is a 501 © not for profit organization dedicated to teaching deaf children to speak. WISE is a statewide, family focused program working in collaboration with certified Listening & Spoken Language Specialists across the state, Alabama's Early Intervention System, the State Department of Education, and other private and public entities which advance the education of deaf children who use listening and spoken language.

Family.Support@WISE4AL.org

Appendix J
AAP Best Practice Letter

Alabama Chapter
INCORPORATED IN ALABAMA
American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN®

19 S. Jackson St.
Montgomery, AL 36104
Phone: 334/954-2543
Fax: 334/269-5200
E-mail: llee@alaap.org
http://www.alaap.org

October 6, 2020

Dear Medical Provider:

Subject: Best Practice – Early Hearing Detection and Intervention (EHDI) Program

Hearing loss is the most common birth defect in the United States. Each year in Alabama, approximately 100 infants are born with hearing loss. Delayed diagnosis and/or untreated hearing loss results in delayed development in speech, language, learning, and social/emotional development. It also negatively impacts learning.

The American Academy of Pediatrics (AAP) EHDI goals include:

- Ensure every infant and child with hearing loss is diagnosed and receives appropriate, timely intervention.
- Enhance pediatricians' knowledge about EHDI 1-3-6 guidelines – screening by 1 month of age, diagnosis of hearing loss by 3 months of age, and entry into early intervention (EI) by 6 months of age.
- NICU infants admitted for more than five days are required to have auditory brainstem response (ABR) included as part of their screening so that neural hearing loss will not be missed.
- Enhance pediatricians' knowledge of the risk factors for hearing loss and appropriate follow-up to identify delayed onset or acquired hearing loss as soon as possible.
- Ensure newborn hearing screening results are communicated to all parents and reported in a timely fashion according to state laws.
- Ensure middle ear effusion does not delay a hearing loss diagnosis since it has the potential to further compromise hearing.

Health care providers can offer important support for children and their families by encouraging parents to have their children's hearing, speech, language, behavior, and academic progress carefully monitored. We encourage you to implement best practice guidelines endorsed by the AAP, Joint Committee on Infant Hearing, Centers for Disease Control and Prevention, and the Alabama Department of Public Health. Should you have any questions please contact the Alabama EHDI Coordinator at (334) 358-2082 or visit the AAP EHDI website at https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/PEHDIC/Pages/Early-Hearing-Detection-and-Intervention.aspx.

Sincerely,

KBradham

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