NEWBORN HEARING SCREENING GUIDELINES

FOR
HOSPITALS AND BIRTHING CENTERS

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Tennessee Newborn Hearing Screening Program

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Introduction

The Tennessee Department of Health (TDH) Newborn Hearing Screening Program coordinates a comprehensive and effective system for early identification of hearing loss through screening, follow-up, and tracking procedures. Newborn hearing screening and follow-up plays a critical role in the process of identifying newborns who are at risk for hearing loss and connecting them with diagnostic services, support, and intervention services. Without an organized process throughout the state through the Early Hearing Detection and Intervention (EHDI) program, infants with hearing loss might experience delays in obtaining diagnostic and intervention services, which can lead to delays and/or disorders in language, social, and behavior skills.[1]

Because of the importance of early identification of hearing loss, the goal of the Tennessee Newborn Hearing Screening Program is to screen infant hearing prior to discharge from the hospital (or within the first month of life when not delivered in a hospital), identify permanent hearing loss prior to three months of age, and implement appropriate intervention services by six months of age. These guidelines follow the Joint Committee on Infant Hearing (JCIH) 2019 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs (EHDI).[1]

The purpose of this document is to outline a standardized system to conduct and report hearing screening on all infants in the state of Tennessee. Healthcare providers will take an active role in educating families on the importance of timely screening and follow-up. These guidelines are intended to be used as a resource in the development of individual hospital newborn hearing screening policies.

These guidelines will replace any previous guidelines provided by the Tennessee Department of Health.

Background

Tennessee passed "Claire's Law" in April 2008, which required newborn hearing screening; effective July 1, 2008, Tennessee Code Annotated, Title 68, Chapter 5, Part 9, Sections 901-906, was amended to state that "Every newborn infant shall be screened for hearing loss in order to prevent the consequences of unidentified hearing loss unless the parent or parents of the child object on the grounds that the test would conflict with the parent's or parents' religious tenets or practices... The result of the hearing screen is to be reported to the Department of Health and should be done before hospital discharge or prior to one (1) month of age." For a non-birthing hospital or home birth, the child shall be referred by the attending healthcare professional to an appropriate hearing screening provider for screening prior to one month of age.[2]

Key elements for newborn hearing screening:

1. Hearing screening is required prior to hospital discharge or prior to one month of age (if not performed in a birth or transfer hospital).
2. Results of the hearing screening should be reported to the TDH on the dry blood spot (DBS) card or the "Hearing Only" form unless uploaded through the hearing upload file (HDU).
3. Parents who refuse hearing screening must complete and sign the Newborn Screening Refusal Form, with a copy kept in the medical record and a copy sent to TDH (Appendix 4).
4. Each screening facility shall distribute an educational pamphlet with information about the screening to every parent/guardian.
5. Infants who fail one or both ears (or were unable to be tested due to a malformation of the ear) should be referred for a second screening or directly to an audiologist for diagnostic audiologic evaluation.
6. Failure to have a child tested for the detection of hearing loss is a Class C misdemeanor pursuant to T.C.A. § 68-5-404.

Hearing Screening Personnel

Hearing screenings can be performed by trained personnel, including audiologists, audiological technicians/assistants, nurses, and medical assistants. Although licensed audiologists are not required to conduct the actual hearing screenings, it is recommended that an audiologist with experience in evaluating newborns and young children be involved in the development and implementation of each component of the hearing screening program, when possible, for each hospital and birthing center's Newborn Hearing Screening Program. Additionally, hospitals and agencies should designate a physician/provider to oversee the medical aspects of the program. Hospitals should coordinate testing and reporting activities in consultation with audiology, nursing, and/or laboratory services that might be responsible for other metabolic or genetic blood spot screening.

Training of Screeners

Resources for training of screeners including interactive modules are available from the National Center for Hearing Assessment and Management (NCHAM) website at infanthearing.org. Select resources are available in the appendices at the end of this document. Additionally, onsite training by program managers and/or audiologists is crucial to a successful Newborn Hearing Screening Program and should include, at minimum, the following:

- ✓ Hospital-specific policies and orientation
  - Safety and security procedures
  - Cleaning and infection control
  - Cultural sensitivity
- ✓ Instructional training specific to newborn hearing screening
  - Handling and soothing newborns
  - Risk factors for hearing loss and the benefits of newborn hearing screening
  - Use and care of screening equipment
  - Communication with parents/caregivers and hospital personnel regarding test procedures and results
  - Documentation and reporting of screening results
- ✓ Annual or semi-annual assessment of competencies and skills
  - Consider use of a competency checklist tool (see Appendix 9 for example)
  - Annual or semi-annual observations by the program manager and/or audiologist
  - Quality assurance measures of hearing screening data to ensure each screener's effectiveness

Contracting for Screening Services

Facilities may choose to contract with a private audiology or otolaryngology practice, another medical center, or an agency or practice that specializes in newborn hearing screening for those services. While use of third-party organizations for hearing screening is acceptable, the birthing facility remains responsible for ensuring hearing screenings are completed in an appropriate timeframe and all results are reported to the Tennessee Department of Health.



Hearing Screening Equipment

Currently, there are two technologies available for objective physiologic screening of hearing in newborns: automated auditory brainstem response (AABR) and otoacoustic emissions (OAE). Automated hearing screening equipment does not require interpretation by the screener, nor a behavioral response from the infant. Only screening technologies (not diagnostic equipment) should be used by technicians for the purpose of screening hearing.

All hearing screening equipment must meet hospital safety and calibration standards. Pass/fail criteria should be set in accordance with clinically accepted national practices and any questions should be reviewed with the equipment manufacturer or a consulting audiologist. In the case of equipment malfunction, the hospital or birthing center is responsible for a plan to obtain replacement equipment, test infants at a later date (but prior to 1 month of age) or refer infants to another screening center.

Automated ABR (AABR)

AABR is an objective hearing screening tool utilizing earphones that produce clicks or chirps as stimuli to elicit a response from the brainstem, which is measured by electrodes/sensors on the skin. In automated ABR equipment, the pass/fail criteria are preset by the manufacturer and requires no interpretation by the hearing screener, with the equipment producing an overall pass or fail result. Typical pass criteria require a repeatable wave V evoked response at ≤ 35 dB nHL for each ear within specific latency (time) parameters. Note, screening by AABR can miss hearing loss at select frequencies or minimal/mild hearing loss.

Otoacoustic Emissions (OAE)

OAEs are an objective hearing screening tool utilizing ear probes that emit auditory stimuli and measure/record emissions from the cochlea (hearing organ). There are two types of OAE technologies: Distortion product (DPOAE) and transient evoked (TEOAE). With automated OAE equipment, the pass/fail criteria are preset in the equipment and require no interpretation by the hearing screener, with the equipment producing a pass or fail result. Typical pass criteria for TEOAEs is a response with an SNR >3 to 6 dB in a majority of the frequency bands assessed, wave reproducibility of >70%, and an overall amplitude consistent with age-comparable norms. For DPOAEs, typical pass criteria are a response with an SNR >3 to 6 dB at a majority of the frequency bands assessed and an absolute response consistent with age-comparable norms.[3] Note, hearing screening via OAE will miss auditory neuropathy/dyssynchrony spectrum disorder (ANSD) and can miss mild hearing loss.

Hearing Screening Protocol

The following screening protocols have been developed in accordance with current hearing screening standards established by the Joint Committee on Infant Hearing Screening, a nationally recognized organization, in conjunction with the American Academy of Pediatrics.

Inpatient Hearing Screening

The age of the newborn can have a significant effect on the result of a newborn hearing screening. Due to residual birthing debris in the ear canal, **testing should not be attempted prior to 12 hours of life**, with fail rates decreasing between 12-24 hours of life.[4] When a newborn is discharged prior to 12 hours of age, testing should be completed as close to discharge as possible. Note that norms for AABR testing may be invalid for a newborn <34 weeks gestational age, resulting in an inaccurate fail result. Therefore, it is recommended, when possible, to wait until the newborn is 34 weeks gestational age to perform the hearing screening when utilizing AABR.

Infants who fail the hearing screening in one or both ears can receive a rescreening prior to hospital discharge. Screeners should wait as long as possible to rescreen, ideally 8-12 hours, allowing time for any debris in the ear canal to clear. Inpatient hearing screening should consist of **no more than two attempts** on each ear, assuming the infant is calm and quiet and there are neither equipment problems nor environmental interference during

either screen. When hearing screenings are repeatedly performed, the possibility of passing the screening increases by chance alone, which could result in a child with hearing loss going undetected and delaying needed intervention.

When a newborn fails the initial hearing screening, **both ears should receive a rescreen**, not just the ear that did not pass the initial hearing screening. To be considered a pass, **both ears must pass on the same hearing screening**. It is not permitted to combine results on successive screens and be considered a pass.

Environmental noise, electrical interference, and state of the baby can all affect the outcome of the hearing screening. Screening will be faster and more effective when conducted in a quiet and controlled environment. Acoustical and electrical interference will be factors to consider when selecting a testing location. Appropriate testing environments include the mother's room, nursery, or the infant's room in the NICU that minimizes noise and confusion during the screening. When possible:

- television or radio should be turned off
- extended family members need to be quiet or leave the room during testing
- screening should be conducted away from other babies
- for NICU screening, the infant should be in a bassinette or crib (vs. isolette), when possible

Adequately preparing the infant for hearing screening can affect the outcome. Testing immediately after nursing or feeding and swaddling the baby will increase the chance of the newborn sleeping during the procedure. Prior to and during the procedure:

- the ear canal should be visually inspected for debris (vernix, blood, wax).
- the infant should be positioned to ensure the ear to be tested is face up and easy to access
- the earphone probe should be positioned while ensuring the ear canal is open. For insert earphones, gently pulling the ear down and out will help open the canal.

Following are criteria related to the specific nursery to which the child is admitted.

Well Baby Nursery

Hearing may be screened via OAE, AABR, or a combination of the two methods. However, both ears should be tested via the same method (i.e., both ears via OAE or both ears via AABR). It is acceptable to screen with OAE following failed AABR for newborns in the well baby nursery, but it is not considered best practice due to the chance of missing a neural type of hearing loss known as auditory neuropathy/dyssynchrony spectrum disorder (ANSD).[1]

If a newborn fails in one or both ears on the initial hearing screening, a rescreen can be conducted. Only two hearing screenings conducted at separate intervals can be conducted prior to discharge. To be considered a pass, both ears must pass on the same hearing screening – it is not permitted to combine results on successive screens and be considered a pass. Report the result of the final hearing screen performed prior to discharge for both ears. Refer to the Hearing Screening Flow Chart (Appendix 7) at the end of this document for additional information.

Note: Infants with microtia or atresia of one or both ears are at an increased risk for hearing loss and should not receive a hearing screening. All infants with this diagnosis should be referred directly for diagnostic evaluation by a pediatric audiologist trained in infant bone conduction ABR evaluation.

Neonatal Intensive Care Unit (NICU)

Hearing should be screened via AABR or a combination of OAE and AABR. **It is not appropriate to screen infants in the NICU via OAE alone.** Infants in the NICU are at an increased risk for a neural type of hearing loss known as auditory neuropathy/dyssynchrony spectrum disorder (ANSD) and OAE methods are unable to detect this disorder. Therefore, NICU babies who do not receive a pass result via AABR in both ears should be referred for diagnostic testing as soon as possible.

Hearing screening in the NICU population may be delayed due to the medically fragile status of the infant. Testing should be conducted when the infant is clinically stable and at or after 34 weeks gestational

age, when possible, due to normative AABR data. Additionally, if the infant's health status changes and includes new risk factors for hearing loss after passing an initial hearing screen, another screen prior to discharge is warranted.

If a newborn fails in one or both ears on the initial hearing screening, a rescreen may be conducted. Only two hearing screenings conducted at separate intervals may be conducted prior to discharge. To be considered a pass, both ears must pass on the same hearing screening – it is not permitted to combine results on successive screens and be considered a pass. The result of the final hearing screen performed prior to discharge should be reported for both ears. Refer to the Hearing Screening Flow Chart (Appendix 7) at the end of this document for additional information.

For NICU infants who fail the inpatient screening, diagnostic audiologic assessment prior to discharge is optimal. If inpatient diagnostic pediatric audiology services are not available at the screening facility, the infant should be referred for a *comprehensive audiologic evaluation* by an audiologist trained in performing pediatric diagnostic ABR testing as soon as medically feasible in the outpatient setting. Babies in the NICU who fail the inpatient hearing screening should not be rescreened in the outpatient setting, as this can delay access to needed intervention.[1]

Note: Infants with microtia or atresia of one or both ears should not receive a hearing screening due to an increased risk for hearing loss. All infants with this diagnosis should be referred directly for diagnostic evaluation by a pediatric audiologist trained in infant bone conduction ABR evaluation.

Non-Birthing Hospitals and Out-of-Hospital Births

Infants born on an emergency basis in a hospital that does not otherwise provide obstetrical or maternity services and therefore does not provide infant hearing screening should be referred to an appropriate hearing screening provider.. Please scan the QR code on the cover of this document for an up-to-date list of hearing screening providers in Tennessee.

Documentation and Follow Up for Inpatient Results

The hospital or birthing facility should report the result of the newborn hearing screening on the Tennessee State Newborn Hearing Screening Laboratory Form (Appendix 2). This form is used to collect blood specimens for newborn screening and to report the result of the hearing screen conducted in the hospital. When the hearing screening has been performed prior to the dried blood spot (DBS) form being sent, results should be recorded in the hearing section of the DBS. If screening results are not available at that time, the green tear out "Hearing Copy" of the DBS may be used to report results, or by direct upload to iCMS. Sending of forms with a blood specimen should not be delayed awaiting hearing results. If the green carbon copy is not available, results may also be reported on the "Hearing Screening Only" form (Appendix 3).

Send the result of the final hearing screen conducted prior to hospital discharge. Results should be reported as soon as possible and no later than seven (7) days after the screen.

Documentation should include:

- ✓ Date of hearing screen
- ✓ Method (AABR or OAE)
- ✓ Result for each ear
  - Pass – final result for the ear is a pass– final result for the ear
  - Leave result blank if testing was not completed due to declined, transferred, still in hospital, or expired
- ✓ Disposition
  - Declined – waived by parent/guardian due to religious belief (must have signed Refusal form (Appendix 4)
  - Transferred – transferred to another facility prior to completion of hearing screen
  - Still in Hospital
  - Expired
  - Unable to test (including microtia/atresia)
- ✓ Risk factors – report all applicable categories (see Appendix 5 for details)

If the newborn passes the hearing screen:

- The screener should notify the parent or caregiver in person, if possible, and in writing in the language of the family.
- If the infant has been determined to have a risk factor for hearing loss, the parent should be informed of the need for follow-up testing and the recommended timeframe (Appendix 5).
- The hearing screening result should be documented in the medical record.

If the newborn fails the hearing screen:

- The screener should notify the parent or caregiver in person and in writing (in the language of the family) of the hearing result and the need for follow-up testing in the outpatient setting.
- Per the facility's outpatient testing protocol, the family should be provided an appointment in writing for outpatient rescreening at the time of discharge from the birth hospital, when possible.
- Parent/caregivers should be asked for a second point of contact (name and phone). Such information should be documented on the hearing report form.
- The identity of the primary care provider or clinic to provide care after discharge should be verified on the hearing report form.
- The hearing screening result should be documented in the medical record

The hospital or birthing center should develop clear criteria for staff to determine appropriate risk factors for hearing loss. Additionally, the facility shall be responsible for developing documentation procedures in accordance with hospital policy to verify that all infants have received a hearing screening or documentation as to why a screening was not performed.

Missed Hearing Screen

For infants who did not receive a hearing screening prior to hospital discharge from a facility that performs newborn hearing screening, the miss should be documented on the DBS or green Hearing Only copy by selecting "Unable to test." The missed hearing screening should be documented in the medical record and the child's medical home notified of the need for referral for a newborn hearing screening. If the birthing facility performs outpatient hearing screening, the family should be contacted to schedule a hearing screening as soon as possible, and by one (1) month of age.

Parent Refusal

Under Tennessee code, a parent/guardian can refuse newborn hearing screening on the grounds that the test would conflict with the parent's or parents' religious tenets or practices. Parents who refuse hearing screening must complete and sign the Newborn Screening Refusal Form with a copy kept in the medical record and a copy sent to the TDH. "Refused" should be recorded in the hearing section of the DBS. Information on newborn hearing screening and developmental milestones should be provided to the parent and they should be encouraged to discuss a referral for testing with their medical provider if concerns for hearing arise or the parent/guardian chooses to have hearing screening performed later.

Transferred Infants

For infants who transfer hospitals, **the hospital that discharges the infant to home is responsible for conducting the hearing screening and reporting the results to TDH** if the hearing screening was not performed at the birth hospital. Discharge and transfer forms should contain information regarding the status of the hearing screen (pass/fail or not completed). Hospitals should screen all babies born in or discharged from their hospital regardless of the infant's state of residence.

Readmitted Infants

A repeat hearing screening should be completed on all infants readmitted during the first month of life when there are new risk factors for hearing loss identified (e.g., meningitis, hyperbilirubinemia requiring exchange transfusion, culture positive sepsis, etc.) If a baby has elevated bilirubin levels or received blood transfusion, rescreen should be performed via AABR to rule out auditory

neuropathy/dyssynchrony spectrum disorder (ANSD), a rare type of hearing loss that cannot be diagnosed via OAE screening.



Outpatient Follow-Up

Outpatient testing should be completed for any child who does not pass the final inpatient newborn hearing screening in one or both ears.

Well Baby Nursery Graduates

Outpatient rescreening may be completed for babies who discharged from a well baby nursery and have no risk factors for hearing loss. This rescreen should be completed by one (1) month of age. National guidelines recommend allowing one to two weeks from the initial screen to allow ears to clear of any transient dysfunction (vernix, amniotic fluid, etc.). **Both ears must be rescreened and pass to be considered an overall pass result**; outpatient pass results for one ear cannot be combined with inpatient pass results for the opposite ear.

Hearing may be rescreened via OAE or AABR regardless of the method used for the initial screen. However, both ears should be rescreened via the same method (i.e., both ears via OAE or both ears via AABR). Although it is acceptable to screen with OAE following failed AABR for newborns in the well baby nursery, it is not considered best practice due to the chance of missing a neural type of hearing loss known as auditory neuropathy/dyssynchrony spectrum disorder (ANSD).[1] Screening is recommended via the initial screening method or AABR. Refer to Appendix A -Best Practices Recommendations.

Neonatal Intensive Care Unit (NICU) Graduates

Outpatient rescreening, whether in the medical home or outpatient in the hospital nursery, is not recommended for newborns who are discharged from the NICU as this can delay access to needed intervention. JCIH guidelines recommend that diagnostic audiologic assessment prior to discharge is optimal. If inpatient diagnostic pediatric audiology services are not available at the screening facility, the infant should be referred for a *comprehensive audiologic evaluation* by an audiologist trained in performing pediatric diagnostic ABR testing in the outpatient setting as soon as medically feasible. [1]

NICU graduates should not be assessed using OAE alone. At a minimum, ABR testing should be performed to assess neural integrity, as NICU graduates are at an increased risk of a neural type of hearing loss known as auditory neuropathy / dyssynchrony spectrum disorder (ANSD).[1] Both ears must be evaluated, regardless of if one ear passed the inpatient hearing screening, due to the risk for late-onset and/or progressive hearing loss.

Documentation and Follow Up for Outpatient Results

The hospital or birthing facility should report the result of the outpatient rescreening on the green tear out "Hearing Copy" of the DBS or the "Hearing Screening Only" form (Appendix 3), or by direct upload to iCMS. Results should be reported as soon as possible and no later than seven (7) days after the screen. Documentation should include:

- ✓ Date of hearing screen
- ✓ Method (AABR or OAE)
- ✓ Result for each ear
  - Pass – result for the ear is a pass
  - Refer – result for the ear is fail

- ✓ Risk factors – report all applicable categories (see Appendix 5 for details)
    - The hospital or birthing center should develop clear criteria for staff to determine appropriate risk factors for hearing loss.

If the newborn passes the hearing screen:

- The screener should notify the parent or caregiver in person, if possible, and in writing in the language of the family.
- If the infant has been determined to have a risk factor for hearing loss, inform the parent of the need for follow-up testing and the recommended timeframe.
- Document the hearing screening result in the medical record.
- Notify the medical home of the hearing screening result.

If the newborn fails the hearing screen:

- The screener should notify the parent or caregiver in person and in writing (in the language of the family) of the hearing result and the need referral for diagnostic testing by a qualified pediatric audiologist.
- If diagnostic pediatric audiology services are available at your facility, provide the family in writing with a scheduled appointment for diagnostic testing before the family leaves, when possible.
- Provide information about the importance of timely diagnostic follow-up. Consider giving the family a copy of the Newborn Hearing Screening Pamphlet to help facilitate the importance of newborn hearing screening and timely follow-up (Appendix 11).
- Document the hearing screening result in the medical record.
- Notify the medical home of the hearing screening result.



Case Management Follow Up

It is important to remember that hearing screening does not diagnose an infant with hearing loss, and it is not the goal to ensure that every infant passes the hearing screening. The purpose of a successful hearing screening program is to identify those infants who need additional testing to confirm hearing status as well as those who might be at risk for hearing loss. Many professionals will be involved in unique roles in the Newborn Hearing Follow Up process, but the birth hospital is the gatekeeper to that journey, the front-line members of the team that narrow down the pool of infants to those who need further attention. It is vital that hospital programs feel confident in their ability to screen infants accurately, educate parents effectively,

and provide timely communication to other members of the NBS team.

The national guideline for timely hearing screening and follow-up is known as "1-3-6." Accepted benchmarks include the following:

- ✓ Hearing screening is completed for all infants prior to birth or transfer hospital discharge and no later than **one (1) month** of age.
- ✓ For those infants who fail the hearing screening, diagnostic hearing evaluation to confirm the infant's hearing status is complete no later than **three (3) months** of age.
- ✓ Infants identified with hearing loss are immediately referred to Early Intervention (EI) services, with services to begin as soon as possible but no later than **six (6) months** of age.

Timely follow-up is necessary for infants who require additional audiologic screening and/or diagnostic evaluation. Please reference the Infant Audiologic Screening and Diagnostic Centers document — a list of providers that can provide initial or follow-up screening or diagnostic services for infants. Additionally, the Tennessee Newborn Hearing Screening Best Practices Document, a summary of important guidelines regarding newborn hearing screening, can be found in Appendix 6.

Risk Factors for Hearing Loss

Infants who pass the newborn hearing screening might be at risk for progressive or late-onset hearing loss. It is important that families of infants identified with risk factors be educated on the importance of audiologic follow-up.

Below is a list of the risk factors with a high association of hearing loss. It is important to report known risk factors to the TDH to ensure appropriate and timely follow-up. A table of the recommended timeframe and frequency of audiologic follow-up for each risk factor can be found in Appendix 5 at the end of this document.

1. NICU stay >5 days
2. Syndrome associated with progressive or late-onset hearing loss
3. Family history of permanent childhood hearing loss
4. Birth conditions or findings including microtia/atresia, ear dysplasia, cleft lip and/or palate, temporal bone abnormalities, white forelock, microphthalmia, congenital microcephaly, congenital or acquired hydrocephalus
5. In-utero infections such as CMV, Herpes, Rubella, Syphilis, Toxoplasmosis; Zika+ infant
6. Extracorporeal membrane oxygenation (ECMO)
7. Asphyxia or hypoxic-ischemic encephalopathy

A. Events associated with hearing loss including significant head trauma (especially basal skull/temporal bone fractures); chemotherapy

C. Aminoglycoside administration >5 days

D. Hyperbilirubinemia requiring exchange transfusion

F. Postnatal culture-positive infections associated with sensorineural hearing loss, including bacterial and viral (especially Herpes virus and Varicella) meningitis and encephalitis

Protection of Infant and Family Rights

Consent to Screen

Newborn hearing screening is required per Tennessee Code Annotated, Title 68, Chapter 5, Section 9. Informed consent is **not required** for testing or for reporting to the Tennessee Department of Health Newborn Hearing Screening Program. The parent or caregiver should be advised of the newborn hearing screen before it occurs, and the procedure should comply with individual hospital policy and procedure. The parent or caregiver should be advised if they will be charged for the hearing screening or will receive a separate bill for hearing screening services.

The hospital or birth center may notify the Tennessee Early Intervention System (TEIS) of infants who do not pass the hearing screen. A release of information is not required to notify TEIS (Federal Individuals with Disabilities Act – IDEA – Part C Child Find Regulations, 34 CFR Part 303.302 Rule; Sept 2011). The TDH NHS Program will notify TEIS of any child ultimately identified with a hearing loss as a result of the Newborn Hearing Screening Program.

Confidentiality

Reporting of the newborn hearing screening results to the Tennessee Department of Health Newborn Hearing Screening Program by the hospital, birthing center, medical provider, and/or audiologist is required under "Claire's Law" TCA 68-5-901 to 906 and is permitted under the standards of the Health Insurance Portability and Accountability Act (HIPAA) of 1996.

Access to Interpreter/Translation Services

Hospitals and birthing centers shall meet the standards of Title VI of the Department of Health and Human Services, Civil Rights Act of 1964 that prohibits discrimination based on race, color, and national origin by federally funded recipients. They shall also meet the standard of Title VI as it pertains to individuals with limited English proficiency or deafness and the need to provide access to interpreter and/or translation services. Hospitals and birthing centers shall have linguistically appropriate and culturally sensitive materials to inform parents and guardians about the newborn hearing screening process.

Quality Assurance and Improvement

The Tennessee Newborn Hearing Screening Follow-Up Program strives to meet the goals as recommended by the Joint Committee on Infant Hearing (JCIH) 2019 Position Statement. The JCIH document is available for download at http://www.jcih.org/posstatemts.htm. Additionally, TDH NHS partners with hospitals and providers to ensure the quality of screening programs across the state.

TDH NHS monitors the following data monthly for each birthing facility:

- Total number and percentage screened
- Total number and percentage of failed screenings.
- Total number of confirmed hearing loss
- Monthly QA reports

Additionally, hospitals and birthing facilities should establish internal quality assurance protocols to monitor outcome data, improve reporting, identify challenges, and recognize employee competency.

At a minimum, facilities should be able to report the following data:

- Total number of live births
- Number of newborns screened
- Number and percentage of newborns that pass the hearing screening
- Number and percentage of newborns that fail the hearing screening (results by ear and overall)
- Number of refused hearing screenings
- Number of missed hearing screenings
- Number of newborns transferred in or out of the facility
- Number of expired newborns

REFERENCES

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2. Tenn. Code Ann. § 68-5-901-905. Available at: https://www.tn.gov/commerce/regboards/contractors/rules-and-laws/laws.html
3. American Academy of Audiology (2020). *Assessment of Hearing in Infant and Young Children.* Reston, VA: AAA.
4. Van Dyk, M., Swanepoel, D.W., Hall, J.W. (2015). Outcomes with OAE and AABR screening in the first 48h – Implications for newborn hearing screening in developing countries. *International Journal of Pediatric Otorhinolaryngology, 79(7,* 1034-1040.
5. Early Hearing Detection & Intervention Program: American Academy of Pediatrics in conjunction with the Center for Disease Control & Prevention and Maternal & Child Health Bureau of HRSA (April 2014). *Guidelines for Rescreening in the Medical Home Following a 'Do Not Pass' Newborn Hearing Screening.*
6. National Center for Hearing Assessment and Management: https://www.infanthearing.org/

APPENDICES

- Appendix 1: Claire's Law
- Appendix 2: Dry Blood Spot Card
- Appendix 3: Hearing Screening Only Reporting Form
- Appendix 4: Refusal Reporting Form
- Appendix 5: Risk factor and timeline table and Provider Directory links
- Appendix 6: Newborn Hearing Screening Best Practices Recommendations
- Appendix 7: Hearing Screening Flow Chart
- Appendix 8: Rescreening Guidelines
- Appendix 9: NCHAM Screener Competency
- Appendix 10: NCHAM Scripts
- Appendix 11: Newborn Hearing Screening Pamphlet (English and Spanish)

APPENDIX 1

EARLY HEARING DETECTION OF HEARING LOSS
(Claire's Law – Effective July 1, 2008)

Tennessee Code Annotated, Title 68, Chapter 5
Part 9 - Early Hearing Detection of Hearing Loss

68-5-901. Legislative findings.
The general assembly finds and declares the following:
(1) That hearing loss occurs in newborns more frequently than any other health condition for which newborn screening is currently required;
(2) That early detection of hearing loss, early intervention, and early follow-up have been demonstrated to be highly effective in encouraging development of a child's health and communication and cognitive skills; and
(3) That early screening and intervention will serve the public purposes of promoting healthy development of children and reducing public expenditures for health care, special education and related services.
[Acts 2008, ch. 768, § 2.]

68-5-902. Part definitions.
As used in this part, unless the context otherwise requires, "hearing screening" or "hearing screening test" means a screening or test provided in accordance with current hearing screening standards established by a nationally recognized organization such as the Joint Committee on Infant Hearing Screening of the American Academy of Pediatrics.
[Acts 2008, ch. 768, § 3.]

68-5-903. Newborn infant.
Every newborn infant shall be screened for hearing loss in order to prevent the consequences of unidentified hearing loss unless the parent or parents of the child object on the grounds that the test would conflict with the parent or parents' religious tenets or practices.

[Acts 2008, ch. 768, § 4.]

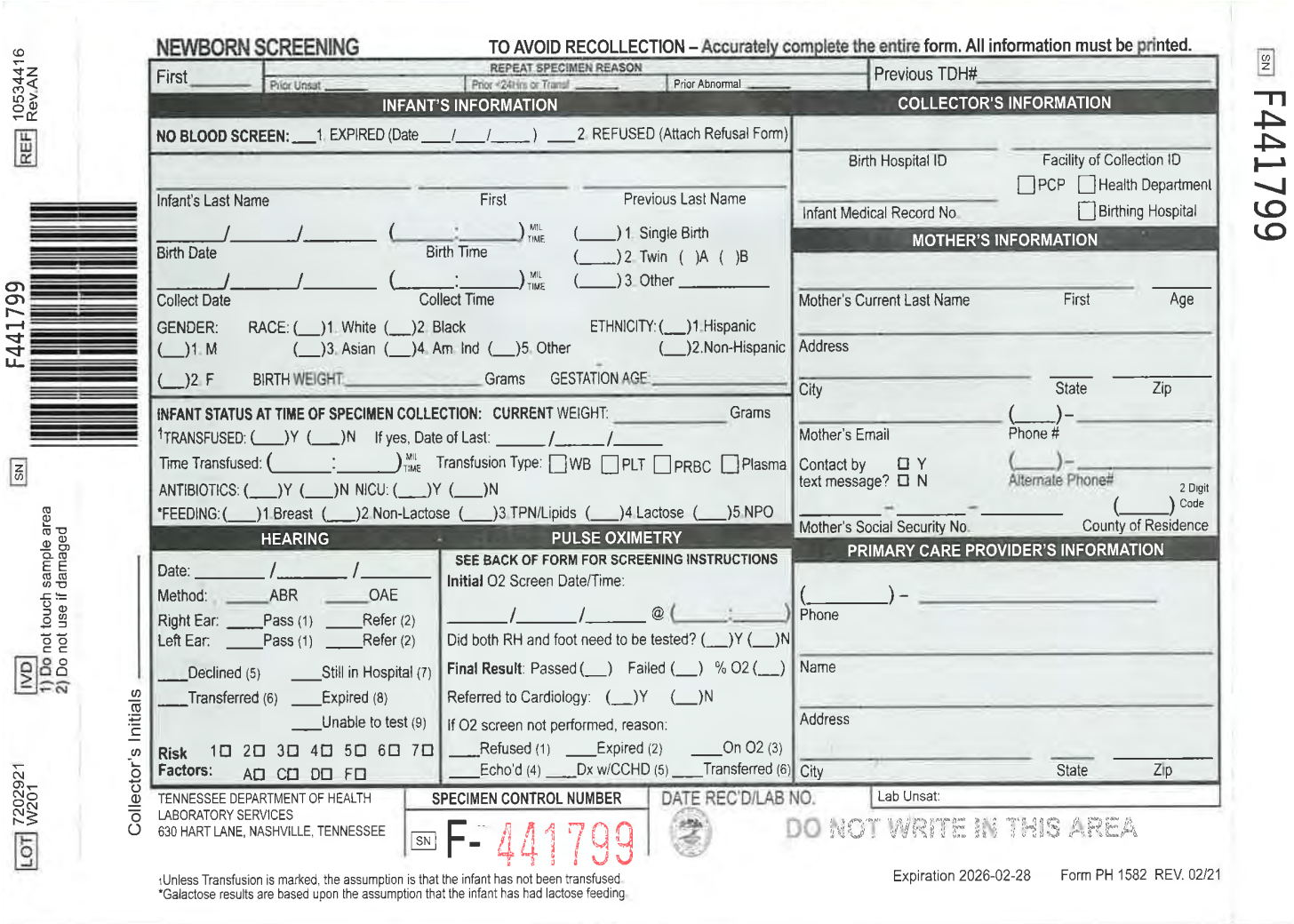
68-5-904. Child born in hospital or other specified facilities.
(a) A child born in a hospital or other birthing facility shall be screened for hearing loss prior to discharge from that facility. The attending health care professional shall refer a child born in a setting other than a hospital or other birthing facility to the department of health or an appropriate hearing screening provider as listed in the latest edition of the directory of hearing screening providers in Tennessee for hearing screening. A child born on an emergency basis in a hospital that does not otherwise provide obstetrical or maternity services and that does not provide infant hearing screening tests prior to discharge of an infant from the hospital, shall refer a child born in that facility to the department of health or an appropriate hearing screening provider as listed in the latest edition of the directory of hearing screening providers in Tennessee for hearing screening. The hearing screening test shall be provided in accordance with current hearing screening standards established by a nationally recognized organization such as the Joint Committee on Infant Hearing Screening of the American Academy of Pediatrics. All screening providers or entities shall report their screening results to the department of health.

(b) Any medical or audiologic provider performing follow-up tests shall report the results of the tests to the department of health.
[Acts 2008, ch. 768, § 5.]

68-5-905. Report and referrals.
The results of all hearing screenings performed pursuant to this part shall be reported to the department of health. The department of health shall refer any child who does not pass the hearing screening test to the Tennessee early intervention system (TEIS) of the department of education for follow-up. Children who have been identified with hearing loss or high risk conditions that place them at high risk for hearing loss as identified by standards established by a nationally recognized organization such as the Joint Committee on Infant Hearing Screening of the American Academy of Pediatrics shall be referred to the TEIS.
[Acts 2008, ch. 768, § 6.]

68-5-906. Rules and Regulations.
The department of health, in consultation with the department of education, shall promulgate rules and regulations in accordance with the Uniform Administrative Procedures Act, compiled in Title 4, Chapter 5, to effectuate this part.
[Acts 2008, ch. 768, § 7.]

APPENDIX 2



REF 10534416 Rev.AN

F441799

SN

IVD 1) Do not touch sample area 2) Do not use if damaged

LOT 7202921 W201

NEWBORN SCREENING

TO AVOID RECOLLECTION – Accurately complete the entire form. All information must be printed.

First _____ | REPEAT SPECIMEN REASON: Prior Unsat _____ Prior <24Hrs or Transf _____ Prior Abnormal _____ | Previous TDH# _____

INFANT'S INFORMATION

NO BLOOD SCREEN: ___1. EXPIRED (Date ___/___/____) ___2. REFUSED (Attach Refusal Form)

Infant's Last Name | First | Previous Last Name

Birth Date | Birth Time (MIL TIME) | (____)1. Single Birth (____)2. Twin ( )A ( )B (____)3. Other _____

Collect Date | Collect Time (MIL TIME)

GENDER: (___)1. M (___)2. F

RACE: (___)1. White (___)2. Black (___)3. Asian (___)4. Am. Ind (___)5. Other

ETHNICITY: (___)1.Hispanic (___)2.Non-Hispanic

BIRTH WEIGHT _____ Grams GESTATION AGE: _____

INFANT STATUS AT TIME OF SPECIMEN COLLECTION: CURRENT WEIGHT: _____ Grams

[1]TRANSFUSED: (___)Y (___)N If yes, Date of Last: ___/___/___

Time Transfused: (___:___) MIL TIME Transfusion Type: ☐WB ☐PLT ☐PRBC ☐Plasma

ANTIBIOTICS: (___)Y (___)N NICU: (___)Y (___)N

*FEEDING: (___)1.Breast (___)2.Non-Lactose (___)3.TPN/Lipids (___)4.Lactose (___)5.NPO

HEARING

Date: ___/___/___

Method: ____ABR ____OAE

Right Ear: ____Pass (1) ____Refer (2)

Left Ear: ____Pass (1) ____Refer (2)

____Declined (5) ____Still in Hospital (7)

____Transferred (6) ____Expired (8)

____Unable to test (9)

Risk Factors: 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐ A☐ C☐ D☐ F☐

PULSE OXIMETRY

SEE BACK OF FORM FOR SCREENING INSTRUCTIONS

Initial O2 Screen Date/Time:

___/___/___ @ (___:___)

Did both RH and foot need to be tested? (___)Y (___)N

Final Result: Passed (___) Failed (___) % O2 (___)

Referred to Cardiology: (___)Y (___)N

If O2 screen not performed, reason:

____Refused (1) ____Expired (2) ____On O2 (3)

____Echo'd (4) ____Dx w/CCHD (5) ____Transferred (6)

COLLECTOR'S INFORMATION

Birth Hospital ID | Facility of Collection ID

☐PCP ☐Health Department ☐Birthing Hospital

Infant Medical Record No.

MOTHER'S INFORMATION

Mother's Current Last Name | First | Age

Address

City | State | Zip

Mother's Email | (____)- Phone #

Contact by text message? ☐Y ☐N | (____)- Alternate Phone#

___-___-___ Mother's Social Security No. | (____) 2 Digit Code County of Residence

PRIMARY CARE PROVIDER'S INFORMATION

(_____)- _____ Phone

Name

Address

City | State | Zip

Collector's Initials _____

TENNESSEE DEPARTMENT OF HEALTH
LABORATORY SERVICES
630 HART LANE, NASHVILLE, TENNESSEE

SPECIMEN CONTROL NUMBER SN F- 441799

DATE REC'D/LAB NO.

Lab Unsat:

DO NOT WRITE IN THIS AREA

[1]Unless Transfusion is marked, the assumption is that the infant has not been transfused.
*Galactose results are based upon the assumption that the infant has had lactose feeding.

Expiration 2026-02-28 Form PH 1582 REV. 02/21

NS F441799

APPENDIX 3

TN Department of Health

Tennessee Department of Health
Newborn Screening Follow Up Program
1st Floor, R.S. Gass Building
630 Hart Lane, Nashville, Tennessee 37243
Phone (855) 202-1357 Fax (615) 532-8555

**** NOTE: Hearing results should be submitted on the Newborn Screening Filter Card OR carbon form. Use this form ONLY if these are not available & fax to Newborn Screening Program at 615-532-8555 ****

Hearing Screen Only
(See note above - Filter Card or Carbon Copy Form should be used first if possible)

Child's Last Name _____ First Name _____ Middle Name _____ Gender _____ (Twin: A or B) _____ Date of Birth ___/___/___

Birth Mother's Last Name _____ First Name _____ Maiden Name _____ **State Lab TDH#** _____

Address _____ City _____ State/Zip _____ Phone ( )_____

Primary Care Provider _____ Phone ( )_____

Birth Hospital Name: _____ City/State: _____

If this infant was TRANSFERRED, list hospital: _____

Person filling out form (print name): _____ Phone: ( ) _____

Facility/Provider Name: _____ City: _____

INITIAL SCREEN RESULTS:

Date of Initial Hearing Screen: ___/___/___ **Method:** AABR OAE

Results: R: Pass Fail **L:** Pass Fail **Risk Factors:** Mark in box at bottom

RESCREEN RESULTS (if infant did not pass initial screen in one or both ears):

Date of Rescreen: ___/___/___ **Method:** AABR OAE

Results: R: Pass Fail **L:** Pass Fail **Performed by:** Hospital PCP Audiologist ENT Other: _____

IF APPLICABLE, INFANT WAS REFERRED TO: Audiologist ENT Other: _____

Name: _____ Phone: ( ) _____ Appointment date (if known): ___/___/___

Comments: _____

Risk Factors: (see below, check all that apply)

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ A ☐ C ☐ D ☐ F

1. NICU >5 Days
2. Syndrome associated with progressive or late onset HL
3. Family History of permanent childhood hearing loss
4. Birth conditions of findings include microtia/atresia, ear dysplasia, cleft lip and/or palate, temporal bone abnormalities, white forelock, micorphthalmia, congenital microephaly, congenital or acquired hydrocephalus.
5. In-utero infections, such as CMV, Herpes, Rubella, Syphilis and Toxoplasmosis; Zika + Infant
6. ECMO
7. Asphyxia or Hypoxic Encephalopathy

A. Events associated with hearing loss including significant head trauma, (especially basal skull/ temporal bone fractures) or chemotherapy
C. Aminoglycoside administration >5 days
D. Hyperbilirubinemia requiring exchange transfusion
F. Postnatal culture-positive infections associated with Sensorineural Hearing Loss, including confirmed bacterial and viral (especially Herpes virus and Varicella) meningitis and Encephalitis

PH-4426

APPENDIX 4

Tennessee Department of Health
Newborn Screening Follow Up Program
Division of Family Health and Wellness
R.S. Gass Building, 1st Floor
630 Hart Lane, Nashville, TN 37243
NEWBORN SCREENING REFUSAL FORM

Instructions: Fill out a Newborn Screening filter card with the following information and attach this completed and signed refusal form.

a. Marked 'Refused' as reason for NO BLOOD SCREEN;
b. Infant first and last name;
c. Infant date and time of birth;
d. Hospital of Birth ID;
e. Mother first and last name;
f. Mother address, city, state and zip;

If parents also refuse the hearing screen and CCHD screen, please mark as appropriate in those boxes at the bottom of the Newborn Screening filter card and have a parent complete this refusal form.

Baby's First and Last Name: _____

Baby's Date of Birth: _____ **Time of Birth:** _____

Hospital of Birth: _____

Mother's First and Last Name: _____

Mother's Street Address: _____

City: _____ **ST:** _____ **Zip:** _____

Note to provider: This form must be signed by a parent prior to submission and shall be retained in the medical record for the period of time defined by the hospital or provider policy.

Mark screens that will not be completed:

❒ **Blood Specimen Screen** ❒ **Hearing Screen** ❒ **Critical Congenital Heart Disease Screen**

I, _____, have the authority to make health decisions for my newborn baby, _____. I have been informed of the need for a newborn hearing screen, a pulse oximetry screen to detect critical congenital heart disease, and a blood test to screen for metabolic/genetic disorders as designated by the Department of Health.

I have been informed that Tennessee law (Title 68, Chapter 5) requires these tests and that a refusal of these tests is a misdemeanor under T.C.A. § 68-5-404, absent a firmly held religious tenant and practice. I refuse the above marked tests for my newborn baby, _____, because such tests conflict with my religious tenets and practices. Under penalty of perjury pursuant to T.C.A. § 68-5-403, I affirm such refusal is based on a conflict with my religious tenets and practices.

Parent Signature: _____ **Date:** _____/_____/_____

Submitted by: _____ **Title:** _____

An electronic signature will be treated as an original signature for purposes of this refusal.
PH-3686 (Rev. 06-2021) RDA 150

APPENDIX 5

Risk Factor	Diagnostic Follow-Up	Monitoring Frequency
NICU >5 days	By 9 months	Per concerns based on hearing and speech milestones
Syndrome associated with progressive or late-onset HL	By 9 months	According to findings and natural history of syndrome or concerns
Family history of permanent childhood hearing loss	By 9 months	Based on etiology of family hearing loss, according to findings, and per concerns based on hearing and speech milestones
Birth conditions or findings including microtia/atresia, ear dysplasia, cleft lip and/or palate, temporal bone abnormalities, white forelock, microphthalmia, congenital microcephaly, congenital or acquired hydrocephalus	By 9 months	According to findings and per concerns based on hearing and speech milestones
In-utero infections, such as herpes, rubella, syphilis, toxoplasmosis, CMV, Zika	CMV by 3 months All others by 9 months	• CMV every 12 months to age 3 • All others per concerns based on hearing and speech milestones
Extracorporeal membrane oxygenation (ECMO)	No later than 3 months after occurrence	Every 12 months to school age, sooner per concerns
Asphyxia or Hypoxic Ischemic Encephalopathy	By 9 months	Per concerns based on hearing and speech milestones
Events associated with hearing loss including significant head trauma (especially basal skull/temporal bone fractures) or chemotherapy	No later than 3 months after occurrence	According to findings and per concerns based on hearing and speech milestones
Aminoglycoside administration >5 days	By 9 months	Per concerns based on hearing and speech milestones
Hyperbilirubinemia requiring exchange transfusion	By 9 months	Per concerns based on hearing and speech milestones
Postnatal culture-positive infections associated with sensorineural hearing loss, including bacterial and viral meningitis or encephalitis	No later than 3 months after occurrence	Every 12 months to school age, sooner per concerns

DIRECTORIES

Links Updated Twice Annually

INFANT SCREENING AND DIAGNOSTIC CENTERS (birth to 6 months)
https://www.tn.gov/content/dam/tn/health/documents/2022%20Infant%20Audiological%20Assessment%20and%20Diagnostic%20Centers.pdf

PEDIATRIC AUDIOLOGY DIAGNOSTIC TESTING AND INTERVENTION (birth to 3 years)
https://www.tn.gov/content/dam/tn/health/documents/2022%20Pediatric%20Audiology%20Centers.pdf

APPENDIX 6

TN Department of Health

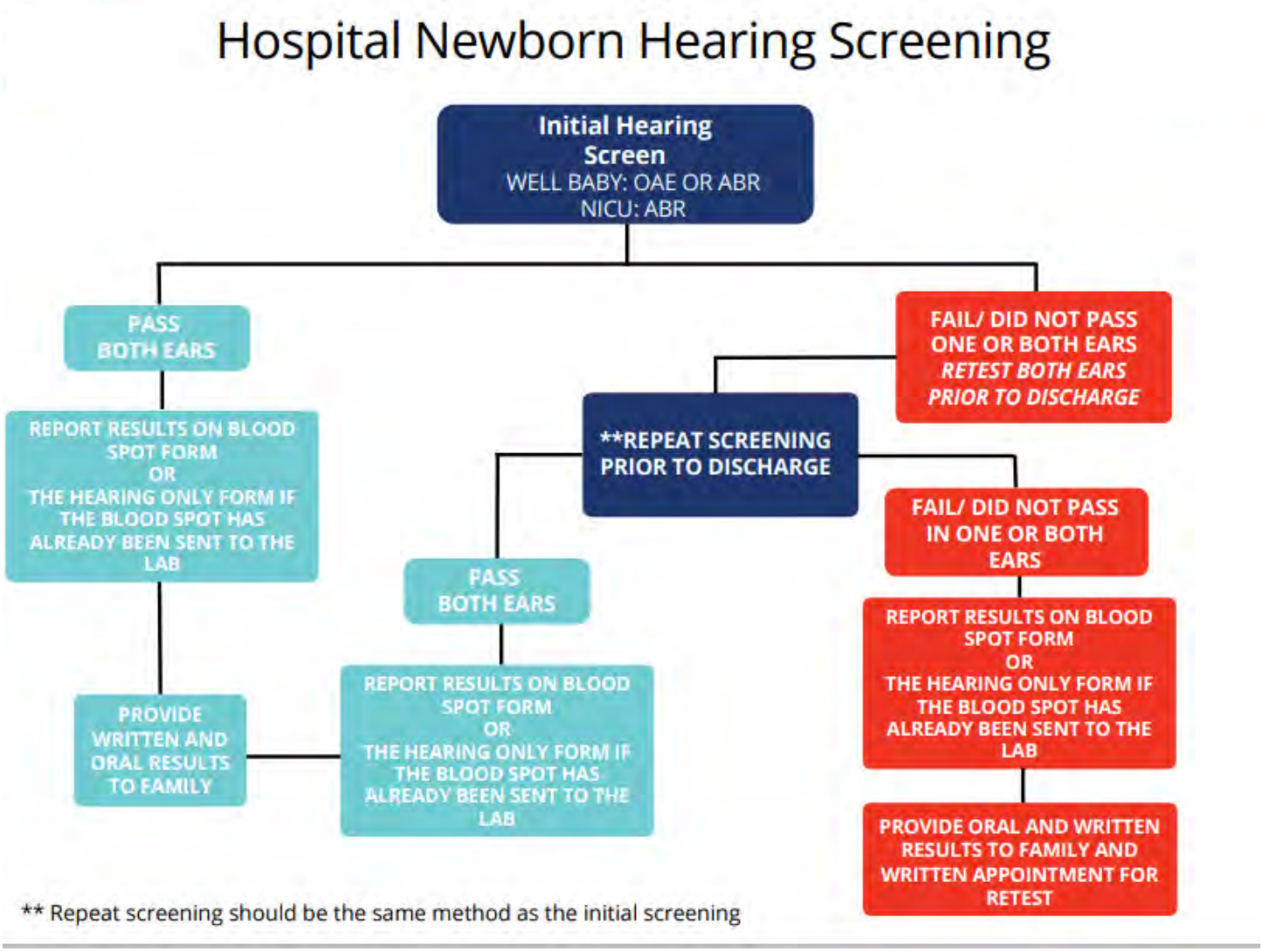
Newborn Hearing Screening Best Practice Recommendations

- **Initial hearing screening method:**
  - Infants in the well-baby nursery may be screened via AABR or OAE at or after twelve (12) hours of age
  - **Infants in the NICU nursery must be screened via AABR at a minimum,** no earlier than thirty-four (34) weeks gestational age and at or after twelve (12) hours of age
  - If the infant fails the initial screen, a rescreen may be attempted prior to discharge, ideally 8-12 hours after the initial screen
- **Initial hearing screening results should be reported within seven (7) days of screening:**
  - Paper Reporting
    - Document on dried blood spot specimen filter card. Ship via courier service.
    - If hearing screening is delayed, document results on green slip found in the filter paper card or complete the Hearing Only form (link below). Ship via courier service.
    - Sending dried blood spot specimens/forms **should not be delayed** awaiting hearing results.
  - Electronic Reporting
    - Hearing Device Upload (HDU)
    - Remote Diagnostic Portal (RDx)
- **Families should be informed in writing and in their preferred language about newborn hearing screening, the results of the hearing screening (pass/fail), any recommendations for follow-up, and developmental milestones.**
- **If an infant fails an inpatient hearing screening, one outpatient rescreen is acceptable, ideally one to two weeks following the initial hearing screening, and no later than one month of age.**
  - Infants discharged from a NICU should be considered for direct referral for diagnostic testing, forgoing outpatient rescreening, due to risk factors for hearing loss.
- **If an infant fails the hearing screening via AABR method, the infant should be rescreened via AABR.**
  - Rescreen via OAE after AABR for infants discharged from a well-baby nursery or out of hospital birth is acceptable per JCIH 2019 guidelines but is not considered best practice.
  - **Screen/rescreen via OAE alone for infants discharged from a NICU is not acceptable**.
- **Both ears should be rescreened even if only one ear fails the initial screen.**
  - The same technology (AABR or OAE) should be used for screening of both ears.
  - Both ears must pass the same screening attempt. Results from successive screens cannot be combined for opposite ears to be considered an overall pass.
- **If an infant fails one outpatient rescreen, regardless of the method (AABR or OAE), then referral for diagnostic testing via ABR or ABR/ASSR is required.**
  - It is not acceptable to rescreen in the outpatient setting more than once, **even when middle ear dysfunction is suspected**.
  - Please see the TDH Infant Provider Directory Level III for a list of providers capable of performing infant diagnostic evaluations.
- **Rescreen results should be reported within 7 days of screening on the "Hearing Screening Only" form available at** https://www.tn.gov/content/dam/tn/health/program-areas/newborn-screening/Hearing-Only-Form.pdf
- **Audiologists performing rescreening or diagnostic testing should report results online via the RDx portal at** https://newborn.health.tn.gov/toolbar/login.aspx

Tennessee Department of Health
Newborn Screening Follow Up Program
R.S. Gass Building, 1st Floor 630 Hart Lane, Nashville, TN 37216
615-532-8462

Department of Health Authorization No. 355801.
This Electronic publication was promulgated at zero cost.
February 2022

APPENDIX 7


Hospital Newborn Hearing Screening
Initial Hearing Screen
WELL BABY: OAE OR ABR
NICU: ABR
PASS BOTH EARS
REPORT RESULTS ON BLOOD SPOT FORM OR THE HEARING ONLY FORM IF THE BLOOD SPOT HAS ALREADY BEEN SENT TO THE LAB
PROVIDE WRITTEN AND ORAL RESULTS TO FAMILY
FAIL/ DID NOT PASS ONE OR BOTH EARS
RETEST BOTH EARS PRIOR TO DISCHARGE
**REPEAT SCREENING PRIOR TO DISCHARGE
PASS BOTH EARS
REPORT RESULTS ON BLOOD SPOT FORM OR THE HEARING ONLY FORM IF THE BLOOD SPOT HAS ALREADY BEEN SENT TO THE LAB
FAIL/ DID NOT PASS IN ONE OR BOTH EARS
REPORT RESULTS ON BLOOD SPOT FORM OR THE HEARING ONLY FORM IF THE BLOOD SPOT HAS ALREADY BEEN SENT TO THE LAB
PROVIDE ORAL AND WRITTEN RESULTS TO FAMILY AND WRITTEN APPOINTMENT FOR RETEST
** Repeat screening should be the same method as the initial screening

APPENDIX 8

WELL BABY NURSERY

Initial Screening **Refer**	Follow-Up Screening:	OAE	ABR/AABR	TYMP/REFLEX	ASSR	BEHAVIORAL (under 6 months not appropriate)
OAE		X	X	Must be in conjunction with repeat of OAE or AABR/ABR or behavioral if baby is 6 months or greater	Must be in conjunction with OAE or AABR/ABR for diagnostic testing	If baby is 6 months or greater then Behavioral is accepted as recommended follow-up in conjunction with other methods except ASSR.
AABR/ABR		Not best practice; education letter will be sent	X	Must be in conjunction with repeat of OAE or AABR/ABR or behavioral if baby is 6 months or greater.	Must be in conjunction with OAE or AABR/ABR for diagnostic testing	If baby is 6 months or greater then Behavioral is accepted as recommended follow-up in conjunction with other methods except ASSR.
OAE/ABR Should be the same technology on both ears. If not education letter will be sent.		Must be in conjunction with repeat of OAE or AABR/ABR or behavioral if baby is 6 months or greater	X	Must be in conjunction with repeat of OAE or AABR/ABR or behavioral if baby is 6 months or greater	Must be in conjunction with OAE or AABR/ABR for diagnostic testing	If baby is 6 months or greater then Behavioral is accepted as recommended follow-up in conjunction with other methods except ASSR.

X – ACCEPTABLE STAND-ALONE TEST METHOD

NICU/RISK FACTOR BABIES

Initial Screening **Refer**	Follow-Up Screening	OAE	ABR/AABR	TYMP/REFLEX	ASSR	*Behavioral (under 6 months not appropriate)
AABR/ABR		Follow-up for risk factor testing only OAE is acceptable; if failed initial then repeat with AABR; education letter	X	Must be in conjunction with repeat of OAE or AABR/ABR or behavioral if baby is 6 months or greater	Only in conjunction with AABR/ABR for diagnostic testing	If baby is 6 months ***corrected age** or greater then Behavioral is accepted as recommended follow-up in conjunction with other methods except ASSR
OAE/ABR Should be the same technology on both ears. If not education letter will be sent.		OAE/ABR Must be in conjunction with repeat of OAE or AABR/ABR or behavioral if baby is 6 months or greater	X	Must be in conjunction with repeat of OAE or AABR/ABR or behavioral if baby is 6 months or greater	Only in conjunction with AABR/ABR for diagnostic testing	Depend on age If baby is 6 months ***corrected age** or greater then Behavioral is accepted as recommended follow-up in conjunction with other methods except ASSR.

X – ACCEPTABLE STAND-ALONE TEST METHOD

*** 6 MONTH AGE IS BASED ON CORRECTED AGE, NOT CHRONICAL AGE.**

ACRONYM GUIDE:

1. **ABR – AUDITORY BRAINSTEM RESPONSE**
2. **AABR – AUTOMATED AUDITORY BRAINSTEM RESPONSE**
3. **ASSR – AUDITORY STEADY STATE RESPONSE**
4. **OAE – OTOACOUSTIC EMISSION**

APPENDIX 9



The screener is able to competently complete the screening process on 3 infants using procedures outlined in the NHSTC.

* To be completed by an established expert screener

Date of observation: _____

Screener Name: _____ Observer's Name/Title:_____

Observer use the following symbols to complete the checklist:
+ = completed skill or procedure
- = did not complete skill or procedure
N/A = not applicable (if this is the case provide an explanation in comments)

Hands On Procedure	Infant 1	Infant 2	Infant 3	N/A	Comments
1. General Knowledge: The Importance of EHDI					
Observer asks screener why it's important to screen the hearing of newborns. (Observer determines if screener has a general understanding of this concept).					
2. Preparing to Screen					
Selects baby appropriate for screening (sleeping, fed, quiet)					
Educates parents about the newborn hearing screen					
Follows hospital infection control procedures					
Swaddles and positions baby in preparation for screening					
Enters all required patient information accurately into screening equipment					
3. Screening with OAE					
If conducting OAE cleans and prepares probe for screening					
If conducting OAE, appropriately places probe in baby's ear.					
Quiets baby, if needed					
Ensures proper ear is selected on the equipment and initiates screening					
Demonstrates troubleshooting techniques, if needed (calms baby and re-positions probe, if needed)					

When switching ears, uses recommended techniques (ear massage, checks/cleans probe tip					
4. Screening with AABR					
Prepares skin and appropriately places electrodes/probe or muffins					
Quiets baby, if needed					
Ensures proper ear is selected on the equipment and initiates screening					
Demonstrates troubleshooting techniques, if needed (calms baby when artifact is present, re-positions probe, if needed, etc.)					
When switching ears, uses recommended techniques (ear massage, checks/cleans probe tip, ensures electrodes/muffins are secure					
5. Completing the Screening Process					
Prints, documents results, per hospital protocol					
Conducts state reporting responsibilities					
If passing results, effectively communicates results to parents (both verbal and written) using NHSTC scripts and provides informational handout					
If failing results: • communicates results to parents (both verbal and written) using NHSTC scripts • schedules a follow-up appointment for outpatient testing • provides a written handout with appointment time and details • documents parents contact phone numbers • confirms PCP's name					
Communicates/faxes screening results to PCP per hospital protocol					

APPENDIX 10



Communicating with Parents

Passing Script

"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."

"Felicitaciones por el nacimiento de su bebé. Acabamos de fi nalizar 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."

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 baby's hearing development and tell

you when your baby should have further tests with an audiologist that's skilled at testing infants and young children."

"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

"Congratulations on the birth of you baby. We just finished screening your baby's hearing and your baby did not pass the screen today. This doesn't necessarily mean that your baby has a permanent hearing loss, but what it does mean is that further testing is needed. We'll provide the screening results to your baby's doctor. Please be sure you make or keep the appointment for further hearing testing."

"Felicitaciones por el nacimiento de su bebé. Acabamos de hacerle el tamizaje de la audición a su bebé y no lo pasó. Esto no necesariamente significa que su bebé tenga una pérdida auditiva permanente, pero significa que más pruebas son necesarias. Le daremos los resultados del tamizaje al médico de su bebé. Asegúrese de hacer o mantener la cita para hacer más exámenes auditivos".

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. This doesn't necessarily mean that your baby has a permanent HL but what it does mean is that further testing is needed. 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 to schedule an audiological diagnostic test as soon as possible. Finding out about hearing issues early is going to help to make sure your baby has the best chance of normal "on time" development."

"Felicitaciones por el nacimiento de su bebé. Acabamos de hacerle el tamizaje de la audición a su bebé y no lo pasó.
Esto no necesariamente significa que su bebé tenga una pérdida auditiva permanente, pero significa que más pruebas son necesarias.
Debido a que su bebé ha tenido algunos problemas médicos al nacer, tiene un riesgo más alto de tener una pérdida auditiva. Hable con el médico del bebé sobre los resultados y pida ayuda para programar una prueba de diagnóstico audiológico lo más pronto posible. Enterarse temprano de problemas de la audición ayudará a asegurar que su bebé tiene la mejor oportunidad de un desarrollo normal y a tiempo".

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. Knowing the result of the screening gives your family the opportunity to make decisions about your baby, early, which can make a big difference in your baby's ability to develop language and communication skills. 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."

"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. Saber los resultados del tamizaje le da a su familia la oportunidad de tomar decisiones temprano sobre su bebé, lo que puede hacer una gran diferencia en la habilidad de su bebé para desarrollar lenguaje y habilidades de comunicación. Si cambia de parecer y decide que quiere que se haga el tamizaje, puede hacérmelo saber o al médico o enfermera que atienden a su bebé y podemos hablar sobre esto en cualquier momento."

Inconclusive/Inbetween Inpatient Screen Script

"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 accurate result. We'll be back in a few hours to test (him/her) again."

"Tratamos de hacerle un tamizaje auditivo a su bebé pero no pudimos completer 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."

"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."

Script for Babies Born with Microtia and/or Atresia

"Congratulations on the birth of your baby. Sometimes children are born without ears. Microtia and Atresia are birth conditions where the outer ear and/or ear canal is not fully developed. Your baby will not be receiving a hearing screening while in the hospital. Instead he or she will be referred to a pediatric audiologist who specializes in testing infants and young children. Your baby's doctor will be able to provide you with more in-depth information on scheduling an appointment and next steps."

"Felicitaciones por el nacimiento de su bebé. En ocasiones los niños nacen sin oídos. Microtia y atresia son condiciones de nacimiento en las que el oído externo y/o el canal auditivo no están completamente desarrollados. Su bebé no tendrá un tamizaje auditivo en el hospital. En cambio, él o ella serán referidos a un audiólogo pediátrico quien se especializa en hacer pruebas a bebés y niños pequeños. El profesional de salud de su bebé podrá darle información más detallada sobre la cita y los siguientes pasos".

Not Passing Outpatient Re-Screen Script

"Your baby didn't pass the outpatient re-screen. 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 who specializes in conducting diagnostic tests. 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."

"Su bebé no pasó el tamizaje auditivo de paciente ambulatorio que se le practicó. Es necesario hacer más exámenes lo más pronto posible. Hable de manera inmediata sobre los resultados de este tamizaje con el médico de su bebé, quien le puede ayudar a hacer una cita con un audiólogo especializado en pruebas de diagnóstico. Enterarse temprano de problemas de la audición ayudará a asegurar que su bebé tiene la mejor oportunidad de desarrollar lenguaje y habilidades de comunicación normales".

APPENDIX 11



Your Baby's Hearing Screening Result

Date: _____

Type of screen: ☐ AABR ☐ OAE

Result:	Right Ear	Left Ear
Pass	☐	☐
Fail	☐	☐
Could not test	☐	☐

Next Step:

☐ No other hearing testing is needed for your baby unless you have concerns.

☐ No other hearing testing is needed at this time, but your baby has a risk for hearing loss. Talk with your baby's pediatrician about when to have more testing.

☐ More hearing testing is needed as soon as possible. Ask your baby's pediatrician to help you schedule an appointment.

For a list of testing centers in your area:

Your Baby's Hearing Checklist

Birth to 3 months	• Quiets to a familiar voice • Startles to loud sounds
3 to 6 months	• Enjoys toys that make sound • Responds by cooing • Watches a speaker's face
6 to 9 months	• Turns head towards voices • Babbles (ba ba ba)
9 to 12 months	• Follows simple directions • Responds to own name • Imitates sounds
12 to 18 months	• Says 10-20 words • Understands "yes-no" questions
18 to 24 months	• Says more than 50 words • Uses two word phrases

To learn more about newborn hearing screening, please visit:
https://www.tn.gov/health/health-program-areas/newborn-screening/newborn-screening/newborn-hearing-screening.html

TN Department of Health

Tennessee Newborn Hearing Screening Follow-Up Program
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Newborn Hearing Screening

TN Department of Health



Why should my baby's hearing be screened?

- Most babies hear well at birth, but a small number are born with hearing loss. Hospitals screen all babies to find the ones who may have hearing loss.
- About half of babies with hearing loss have no known risks for it. Most babies with hearing loss are born to parents without hearing loss.
- A hearing screening is the only way to know if a baby has hearing loss. Babies with hearing loss may react to some sounds and coo or babble just like babies with normal hearing.
- It is important to find hearing loss as soon as possible. Babies whose hearing loss is not found early will have a hard time learning.
- If hearing loss is found, there are many ways to help your baby.

What should I know about newborn hearing screening?

- The test is safe and does not hurt. Most babies sleep through the test.
- An earphone will be placed on or in your baby's ear. Stickers may also be placed on your baby's head.
- A special machine shows if your baby responds to sounds.
- The screen takes about 10-20 minutes to complete.
- You will know the results of the hearing screening right away.
- The procedure is only a screening. It helps find babies who need more testing.

Newborn hearing screening is required in Tennessee

Tennessee Department of Health Authorization 355808. This public document was promulgated at $0.05 per copy, 125,000 copies. March 2022.

What does it mean if my baby does not pass the hearing screening?

- It does not necessarily mean that your baby has hearing loss. A baby can fail the hearing screening for several reasons.
- It does mean more testing is needed. Additional testing is the only way to find out how your baby hears.
- It is important to have follow-up testing done as soon as possible. Your baby should have an appointment with an audiologist (hearing specialist) for this testing.

Can a baby pass the hearing screening and still have hearing loss?

- Yes, some babies hear well enough to pass the hearing screening but have some hearing loss or lose hearing later due to illness, injury, some medicines, or a family history of hearing loss.
- Babies who have certain risks for hearing loss may need testing when they are older to make sure their hearing has not changed. Your baby's pediatrician will help you know if your baby needs more testing.
- Watch for signs of hearing loss and talk with your baby's pediatrician if you are worried.

https://www.tn.gov/content/dam/tn/health/program-areas/newborn-dashboard/TDHHospitalNewbornScreeningPamphlet.pdf



Resultado de la prueba de audición de su bebé

Fecha:_____

Tipo de evaluación: ☐ AABR ☐ OAE

Resultado:	Oído derecho	Oído izquierdo
Aprobó	☐	☐
No aprobó	☐	☐
No se pudo evaluar	☐	☐

Próximo paso:

☐ No es necesario realizar ninguna otra prueba de audición a su bebé, a menos que tenga alguna preocupación.

☐ En este momento no es necesario realizar ninguna otra prueba de audición, pero su bebé corre cierto riesgo de perder la audición. Hable con el pediatra de su bebé sobre cuándo realizar pruebas adicionales.

☐ Es necesario realizar más pruebas de audición lo antes posible. Pida al pediatra de su bebé que le ayude a programar una cita.

Para obtener una lista de centros de pruebas en su zona:

Lista de comprobación de la audición de su bebé

Del nacimiento a los 3 meses	• Se calma cuando escucha una voz familiar • Se sobresalta con los sonidos fuertes
3 a 6 meses	• Le gustan los juguetes que hacen ruido • Responde con gorgoritos • Observa la cara del orador
6 a 9 meses	• Gira la cabeza hacia las voces • Balbuceos (ba ba ba)
9 a 12 meses	• Sigue instrucciones sencillas • Responde al nombre propio • Imita los sonidos
12 a 18 meses	• Dice de 10 a 20 palabras • Comprende las preguntas que se contestan con un "sí" o un "no"
18 a 24 meses	• Dice más de 50 palabras • Utiliza frases de dos palabras

Para saber más sobre las evaluaciones auditivas de los recién nacidos, visite: https://www.tn.gov/health/health-program-areas/newborn-screening/newborn-screening/newborn-hearing-screening.html

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Prueba de audición de recién

TN Department of Health



¿Por qué hay que examinar la audición de mi bebé?

- La mayoría de los bebés oyen bien al nacer, pero un pequeño número nace con pérdida auditiva. Los hospitales examinan a todos los bebés para encontrar a los que puedan tener pérdida auditiva.
- Aproximadamente la mitad de los bebés con pérdida auditiva no tienen factores de riesgos conocidos. La mayoría de los bebés con pérdida auditiva nacen de padres sin pérdida auditiva.
- Un examen de audición es la única forma de saber si un bebé tiene pérdida auditiva. Los bebés con pérdida auditiva pueden reaccionar a algunos sonidos y hacer gorgoritos o balbucear igual que los bebés con audición normal.
- Es importante detectar la pérdida auditiva lo antes posible. Los bebés cuya pérdida de audición no se detecta a tiempo tendrán dificultades para aprender.
- Si se detecta una pérdida auditiva, hay muchas formas de ayudar a su bebé.

¿Qué debo saber sobre las evaluaciones auditivas de los recién nacidos?

- La prueba es segura y no duele. La mayoría de los bebés duermen durante la prueba.
- Se colocará un auricular en el oído de su bebé. También puede que se coloquen pegatinas en la cabeza de su bebé.
- Una máquina especial muestra si su bebé responde a los sonidos.
- La evaluación tarda entre 10 y 20 minutos.
- Conocerá los resultados de la prueba de audición de inmediato.
- El procedimiento es solo un examen rutinario. Ayuda a encontrar a los bebés que necesitan evaluaciones adicionales.

La prueba de audición para recién nacidos es obligatoria en Tennessee

¿Qué significa que mi bebé no pase la prueba de audición?

- No significa necesariamente que su bebé tenga pérdida auditiva. Un bebé puede no pasar la prueba de audición por varios motivos.
- Lo que significa es que se necesitan hacer más pruebas. Las pruebas adicionales son la única manera de saber cuán bien oye su bebé.
- Es importante que se realicen pruebas de seguimiento lo antes posible. Su bebé debe tener una cita con un audiólogo (especialista en audición) para realizar estas pruebas.

¿Puede un bebé pasar la prueba de audición aunque tenga pérdida auditiva?

- Sí, algunos bebés oyen lo suficientemente bien como para pasar la prueba de audición pero tienen alguna pérdida auditiva o la pierden más tarde debido a enfermedades, lesiones, algunos medicamentos o antecedentes familiares de pérdida auditiva.
- Los bebés que tengan ciertos riesgos de pérdida auditiva podrían necesitar pruebas cuando sean mayores para asegurarse de que su audición no haya cambiado. El pediatra de su bebé le ayudará a saber si necesita pruebas adicionales.
- Esté atento a los signos de pérdida auditiva y hable con el pediatra de su bebé si está preocupado/a.

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https://www.tn.gov/content/dam/tn/health/program-areas/newborn-dashboard/TDHHospitalNewbornScreeningPamphlet-Spanish.pdf

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