MODULE 3:

UNIVERSAL NEWBORN HEARING SCREENING (UNHS) OUTREACH EDUCATION

Course Description

Welcome to the *Universal Newborn Hearing Screening Outreach Education* module.
The goal of this module is two-fold: first, to teach educators how to provide information and resources to program outreach educators, and second, to provide guidance in presenting information about UNHS as it relates to hospital and birthing facility screenings. This information will be provided to:

- Program managers
- Screeners
- Other birthing facility personnel associated with the UNHS program

Outreach Locations

Locations for the education outreach will include birthing hospitals and birthing centers.

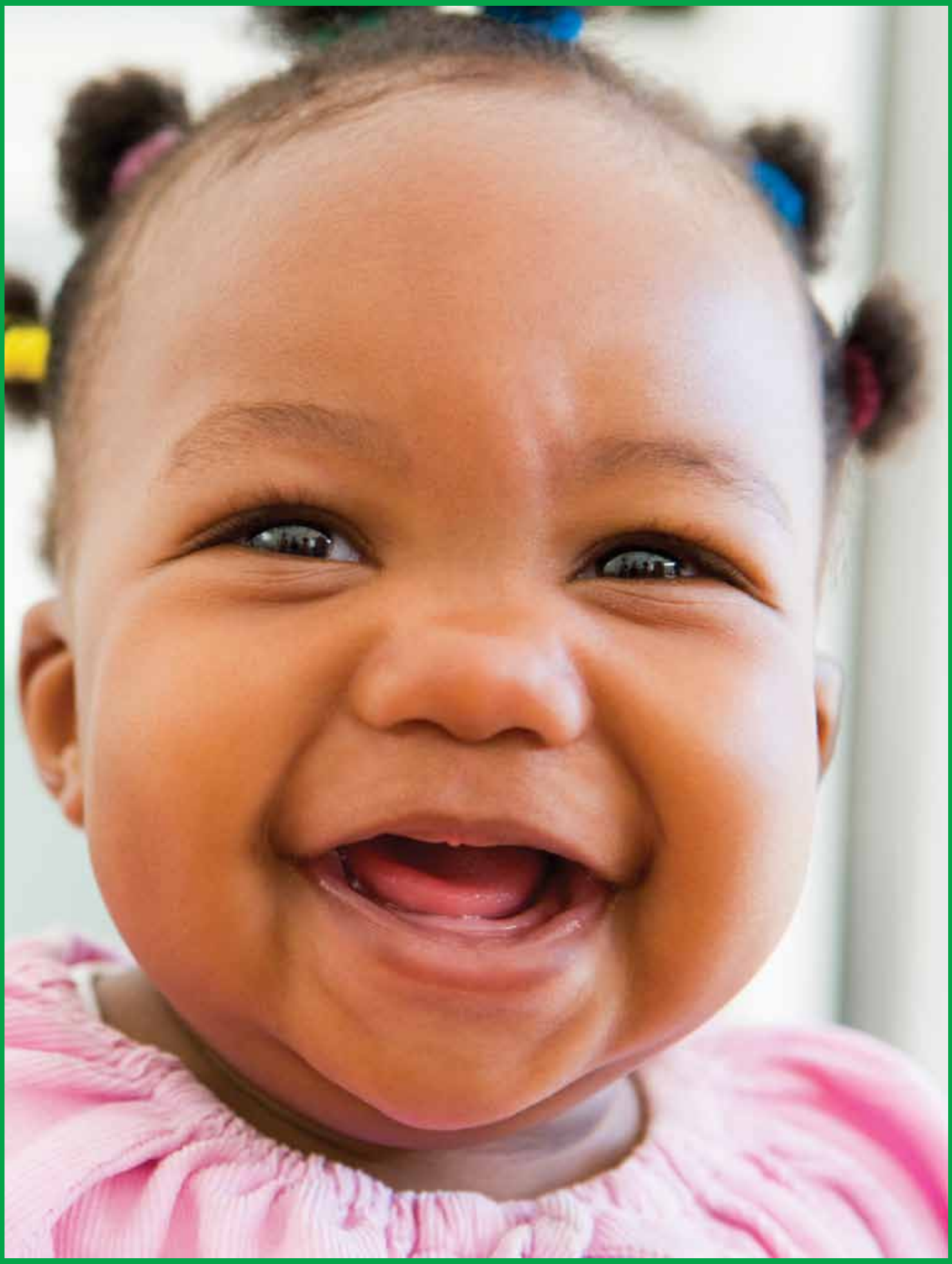
Target Audience

The target audience will be UNHS program managers, screeners, and other UNHS personnel.

Module Objectives

After completing this module, participants will be able to:

1. Identify the parent's perspective on children with hearing loss.
2. Identify the level of incidence regarding Texas newborns diagnosed with hearing loss.
3. Indicate the critical period for speech and language development.
4. Select two things to consider when conducting hearing screenings on newborns.
5. Select one step to prepare the baby for an OAE screening.
6. Identify two things that can cause high impedance while screening.
7. Indicate one way to prevent loss to follow-up screening.
8. Identify the Texas Early Hearing Detection and Intervention (TEHDI) 1-3-6 goals.



This section covers basic information about the need for UNHS. Health care providers should understand the basic concepts of UNHS, why newborns are screened, and their impact on parents making an informed and effective decision about their newborn.

Objectives

1. Identify the level of incidence of Texas newborns diagnosed with hearing loss.
2. Indicate the critical period for speech and language development.

What Is Universal Newborn Hearing Screening?

UNHS has been mandated in Texas since 1999 with the goal of early identification of newborns with hearing loss. Successful implementation of newborn hearing screening requires cooperation between providers and coordination of services across multiple sites to ensure infants with potential hearing loss receive timely diagnostic evaluation and appropriate early intervention services. Each step in the process is crucial to ensuring every infant at risk for hearing loss receives the services necessary to reach his/her full potential.

Over 400,000 babies are born in Texas each year. Of those births, approximately 1,200 newborns, or 3 out of 1,000, will be diagnosed with a confirmed hearing loss. If left undetected, hearing loss in infants can negatively impact speech, language acquisition, academic achievement, social skills, and emotional development. Early detection and intervention plays a vital role in diminishing these negative impacts of hearing loss. All infants should be screened for hearing loss at birth, preferably before they are discharged from the hospital. The UNHS and Intervention program is designed to reduce loss to follow-up for infants with hearing loss.

What Is the Level of Newborn Hearing Loss Compared to Other Conditions at Birth?

Below is a comparison in the numbers of newborn disorders per 10,000 births. In Neonatal Intensive-Care Units, high-risk births result in a higher average of newborn hearing loss.

Per 10,000 Births	
Disorder	***Newborns***
Hearing loss	**30**
Cleft lip or palate	12
Down syndrome	11
Limb defect	6
Spina bifida	5
Sickle cell	2
PKU	1

What Is a Newborn Hearing Screening?

A newborn hearing screening is the first step in the early hearing detection and intervention process to identify newborns at risk for hearing loss. Babies who are identified can be referred to early intervention programs to assist in their communication needs as early as possible. A screening is not a diagnostic evaluation, and only a general level of expertise is required to conduct a hearing screening. The auditory testing equipment is simple to operate, providing a "Pass" or "Refer" option. Nurses, technicians, and trained volunteers usually perform these hearing screenings.

What Is the Impact of Newborn Hearing Screening?

By screening newborns for hearing loss, parents or caregivers have an opportunity to review information and options and make informed decisions about their baby's needs. The critical period for speech and language development is between the ages of birth and 3 years of age. Without effective newborn hearing screening,

detection of hearing loss is delayed, resulting in delayed speech and language development that affects the child into adulthood. The goal of universal newborn hearing screening is to provide the first critical step in identifying hearing loss in the infant by or before 3 months of age so that early intervention services can be initiated by or before 6 months of age to support the family's ability to promote communication skills in their young child.

What Happens When Diagnosis Is Delayed?

In the United States, the average age of identification of children with significant hearing loss is estimated to be between 12 – 25 months. This estimate is dependent on the degree of hearing loss. Severe to profound hearing loss is typically diagnosed between 11 – 17 months of age, while mild to moderate hearing loss is often not diagnosed until a child enters school.

Language and education achievement are not related to the degree of a child's hearing loss, but rather to the age of identification of hearing loss. According to Dr. Christine Yoshinaga-Itano's 10-year longitudinal study, *"The most effective window of opportunity for brain stimulation and formation of auditory pathways is between birth and six months of life."* [30]

Landmark research shows infants enrolled in an early intervention program by 6 months of age enjoy a significant socialization and academic advantage over non-hearing peers who are not in a program by 6 months of age. A child whose hearing loss is identified at or before 6 months of age demonstrate higher expressive vocabularies, higher expressive language scores, and higher language comprehension scores than those whose hearing loss is identified after 6 months of age.

This section covers how health providers can use best practices with the TEHDI data management system, and how to prepare the environment and the newborn for a hearing screening.

Objectives

1. Identify how to obtain accurate information.
2. Identify how to prepare the screening environment.
3. Identify how to prepare the baby for a successful screening.

What Is the Best Way to Notify Parents About the Hearing Screening?

It is important to inform parents about what is involved in the newborn hearing screening. It is best to communicate with parents in their primary language. When explaining the process, you may need to use the services of an interpreter to accurately relay the information. Providers should refer to Texas Health and Safety Codes[31] and hospital guidelines regarding the procedures on informing parents about the hearing screening test. (For the entire law pertaining to hearing loss for newborns go to www.statutes.legis.state.tx.us/Index.aspx, *Health and Safety Code, Title 2 - Health; Subtitle B – Texas Department of Health Programs; Chapter 47 – Hearing Loss in Newborns).*

Why Is Accurate Information Necessary?

The information entered into the TEHDI web-based data system is critical for tracking and follow-up purposes, particularly if a baby does not pass the screening test and must be referred for additional screening or diagnosis. It is important that newborn hearing screeners check with the hospital's screening protocol to be sure they have obtained all the required information on the baby. This information is useful if follow-up is necessary. Remember that test results are considered confidential and should be treated accordingly.

What Are Some Best Practices for Newborn Hearing Screeners to Obtain Accurate Information?

To provide the best follow-up care for newborns that do not pass the newborn hearing screenings, it is important to input accurate data into the TEHDI online data management system. Here are some best practices to follow:

- ***Local Area Physician List:*** To assist parents in determining where to take their child for services, screeners should maintain a current and complete list of primary physicians and medical clinics in the area including names and phone numbers. Screeners should encourage parents to select a primary care physician or medical clinic and provide parents with the opportunity to make that selection before leaving the hospital.
- ***Use of Attending Physician as the Primary Care Default:*** Some hospitals enter the name of the attending physician into the report as standard practice if the parent has not chosen a primary physician. To ensure follow-up care for babies that do not pass the hearing screening, screeners should work with parents to identify a primary care physician or medical clinic, and to edit the record to reflect the parent's choice.
- ***Contact Information:*** For newborns who do not pass the hearing screening, it is best to include a minimum of two additional contacts in addition to the parent's contact information. Obtaining information on extended family is a good source for contacts and provides others using the data entered from the screening to follow-up on referred newborns.
- ***Name Changes:*** When completing hospital forms, ask the parent what they plan on naming the baby on the birth certificate (for example,

will they use the father's last name?). If the last name is different from the mother's name, make a note of the alternative name in the case notes of the TEHDI record so that a newborn referred during a hearing screening can be located during follow-up.

What Can Be Done to Create a Quiet Environment for Hearing Screening?

When conducting a hearing screening, post signs to alert staff that a hearing screening is taking place. Try to conduct the screening test in areas that have little or no noise and factor in noisy equipment. In a neonatal intensive care unit (NICU), you may be required to ask permission to have other equipment that is running turned off during the testing period. Try to keep conversations to a minimum during the testing procedure.

What Must Be Considered Before the Hearing Screening?

- ***Maintain Infection Control:*** Wash hands and wear gloves if required. You should also clean and maintain the screening equipment and supplies.
- ***Consider Babies With Physical Conditions:*** Be aware of any special handling of babies who have physical conditions such as malformed or missing ears, or other birth defects. Be sure to check before screening if extra care is needed before and during the screening test.
- ***Inspect the Ear:*** Do a visual inspection of the ears. If there are no visible abnormalities, it may be beneficial to massage the ear to clear any debris from the ear, especially for a second screening if the infant does not pass an initial screening.

It is important to know when to directly refer an infant to an audiologist. Check with the hospital's protocol on how and when to refer testing to an audiologist. Babies that have the following conditions should not be screened:

- No ear or partial ear
- No ear canal opening

How Is the Baby Prepared for Screening?

The optimal state for screening is a sleeping, quiet, well-fed, and comfortable newborn. Being swaddled is an important part of the screening process. If it becomes necessary, have the baby suck on a pacifier, but be sure to ask the parent's permission first.

What Are the Newborn Screening Methods?

The two standard screening tests are Otoacoustic Emissions (OAE) and Automated Auditory Brainstem Response (AABR). Both methods are fully automated with results that indicate either a *"Pass"* or *"Refer"* result. No additional interpretation is required.

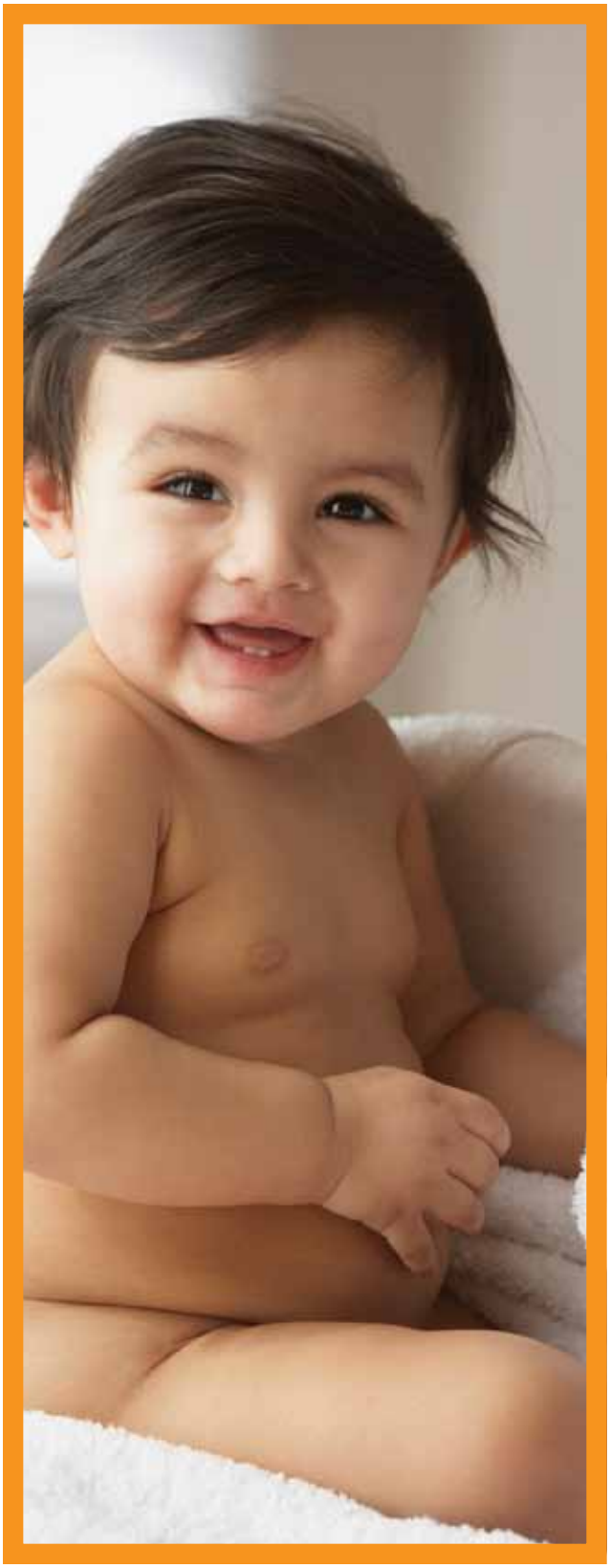
OAE: In this method, a small earphone that emits a series of soft sounds is placed in the baby's ear. The inner ear responds to the sounds by creating echoes called otoacoustic emissions, which are analyzed by the screening equipment.

AABR: In this process, band-aid-like sensors are placed on the baby's head. As soft sounds are played into the baby's ear, the equipment analyzes the brain's response to those sounds.

Whichever screening method is used, the process is completed within a few minutes and the result is immediately displayed.

When Is the Ideal Time to Screen?

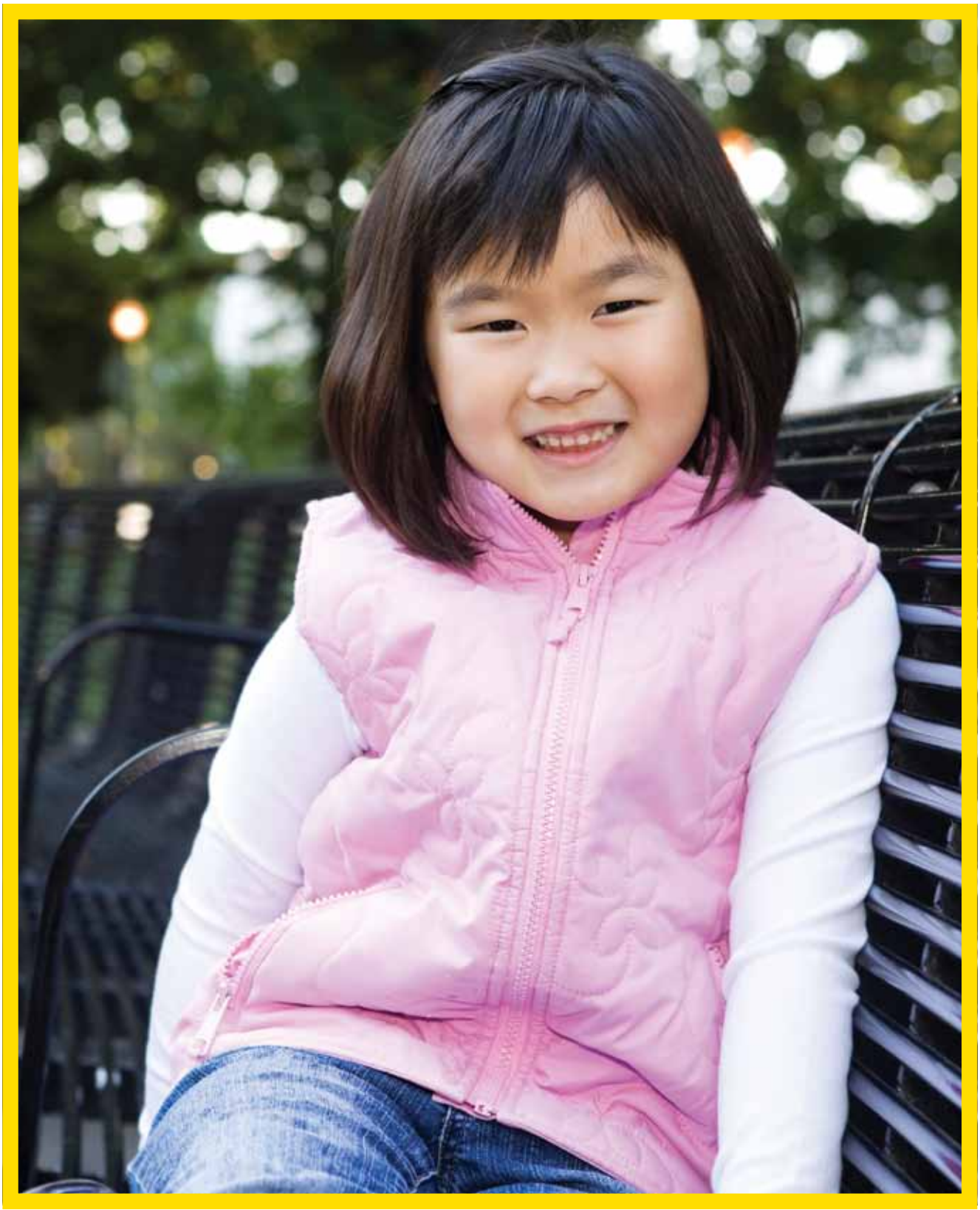
The longer a screener can wait after the birth to perform the screen, the better, because debris and fluid can still be in the baby's ear. The condition of the baby's ear after birth can interfere with testing and even cause false results. At a minimum, wait at least 12 to 18 hours after the birth. The preferable



age for the initial screening is about 24 hours of age in the well-baby nursery, and at least 5 days of age in a NICU. It may not be possible to test during ideal times because a baby may be discharged early, or because there are a large number of babies to be screened. If retesting is required, it is best to wait 4 to 6 hours between screenings.

Is Screening Repeatedly a Good Idea?

The goal of screening is not about every newborn passing the hearing test. A baby who has hearing loss may falsely pass with multiple screens. Screening repeatedly is not cost effective, or an efficient use of time. It is best to remember that not all babies will pass the screening, and this is to be expected. The purpose of rescreening is to evaluate the screening environment, and make any necessary adjustments to produce an accurate result. The goal of screening is to identify newborns who need further testing.



The following section is only for educational and informational purposes. Trainers are not expected to train screeners on how to screen babies. However, it is important to review these important tips in the screening process.

A part of any training process is understanding the audience's perspective. Educators should find out if audience members have been trained to screen babies. Determine how the training process for new staff is conducted, and what the health provider does if there is a need for additional training. Educators should determine if the health provider has written procedures and protocols for the hearing screening process. Additionally, educators should determine if experienced screeners train other screeners, or if some other method has been established. In this section, the educator can suggest using the written guidelines to establish the hearing screening process if the health provider does not have established protocols. There should be discussion about what to do if there is a high turn over of staff.

The Provider Toolkit contains items such as the training DVD from the *National Center for Hearing Assessment and Management* (NCHAM). If necessary, educators should gather information on who needs to be trained on using the TEHDI data management system, and submit a request to the TEHDI system trainer so new screeners can be properly trained.

Objectives

1. Identify proper procedures to screen using Otoacoustic Emissions (OAE).
2. Identify how to screen accurately and efficiently with OAEs.
3. Identify how to troubleshoot.
4. Identify special considerations for screening babies using OAEs.

What Are OAEs?

OAEs are very soft sounds that a normal ear produces that can be measured in the ear canal. OAEs are not usually produced when there is a hearing loss. When the probe is placed into the ear canal, sound enters the ear and strikes the eardrum causing it to vibrate. The vibration causes the three middle-ear bones to move, which push in on the inner ear stimulating the tiny sensory hair cells in the cochlea. A normally functioning cochlea sends a signal to the brain while producing an otoacoustic emission. The probe picks up the tiny sound and records it in the machine as a "Pass" or a "Refer."

What Are the OAE Screening Steps?

To screen a baby, follow these steps:

1. ***Position the baby:*** Place the baby with the ear to be tested in an upward position in order to ensure proper probe placement. During this step, many screeners have found that massaging or gently pulling back the ear to be tested before performing the screening is helpful. Also, if there is debris on the outer ear, gently wipe away the debris, but never clean debris out of the ear canal. If one or both ears do not pass, it is important for the newborn to lie on his or her back for 4 to 6 hours to allow proper drying or draining of fluids before rescreening. Ear canal massages between screenings are also recommended.
2. ***Position yourself:*** Stand behind the ear being screened (back of the baby's head toward you), and beside the baby being screened. You need to be in a position where you can easily see the ear canal when placing the probe and during testing.
3. ***Chose a probe tip:*** Newborns' ear canals have many shapes and sizes. To obtain a secure fit

and a good test result, the size of the probe tip is important. If the hospital equipment provides various sized tips to choose from, choose the right sized tip to reduce background noise. When selecting the size of the tip, be sure to select the one slightly larger than the size of the ear canal opening.

4. ***Place the probe and cable:*** Probe fit is an extremely important part of the screening process. After the newborn is swaddled tightly and comfortably, place the probe in the ear. With one hand, gently pull back on the baby's outer ear. You can easily see the ear canal. With your other hand, lay the probe on the ear and aim the probe toward ear canal, gently pushing forward into the canal. Use a gentle push-pull motion to seal the canal. Once the probe is placed, be sure to adjust the cable so that it is not on the newborn, but lying next to him or her. This placement reduces the chances of the cable moving and the probe losing its seal if the newborn wiggles.
5. ***Conduct the screening test:*** If the probe fit is secure, the test should be good. During the testing, do not hold the cable because holding the cable may introduce noise that can interfere with the test. If there are problems with the testing, one of the methods in troubleshooting is to check the probe tip for blockage. When inserting the probe, there may be debris from the ear that blocks the sound from reaching the probe. It is a good idea to visually inspect the probe tip to be sure the tip is not blocked. If it is, clean or change it. Check the manufacturing guidelines for proper servicing.
6. Repeat these steps for the other ear.

What If the Newborn Does Not Pass the Screening?

If during the testing any of the following situations occur, it is okay to repeat the screening immediately:

- The probe falls out.
- There is too much noise.
- The baby was moving, sucking, or crying.
- The probe appears to be blocked when removed from the ear.

Remember that screening too many times is not recommended because repeated screenings can lead to false results. It is important to know when it is appropriate to repeat the screening.

What About NICUs and OAE Screenings?

OAE is not recommended as the screening technology for some babies by the Joint Committee on Infant Hearing (JCIH), which has developed nationally recognized guidelines for screenings. It is recommended that babies who have been in the NICU for more than 5 days and babies readmitted to NICUs shortly after discharge be screened with an AABR.

The following section is only for educational and informational purposes. Trainers are not expected to train screeners on how to screen babies. However, it is important to review these tips on the screening process.

This section covers the AABR screening process. Health educators should determine if audience members have a need to be trained in this area and provide the necessary information and tools for those members.

Objectives

1. Identify what an Auditory Brainstem Response (ABR) is.
2. Identify how to accurately and efficiently screen using Automated Auditory Brainstem Response (AABR) equipment.
3. Identify how to troubleshoot AABR equipment.
4. Identify special considerations for NICU babies.
5. Identify what causes high impedance while screening.
6. Indicate one way to prevent loss to follow-up screening.

What Is an Auditory Brainstem Response?

An ABR is a response from within the baby's brain along the auditory pathway that is recorded during an AABR screening. Electrodes placed on the baby's head record the response; however, ABR is not generally present when there is a hearing loss.

What Are the AABR Screening Steps?

Screeners should follow these steps:

1. ***Cleaning and preparation:*** Gather all the supplies needed for cleaning and have them ready. Clean the probe and cables with either alcohol wipes or a prescribed cleaning solution. Some equipment requires the skin to be clean before placing the electrodes to obtain better impedance. Other equipment is designed to be used without the need for skin preparation. If skin prep is recommended, use Electro-paste or Omni-prep and a rigorous area skin rub. Check the equipment manufacturer recommendations.
2. ***Placing the electrodes:*** After the skin is cleaned and prepared, place the electrodes on the skin. Electrodes are like Band-Aids placed on the skin designed to pick up the very small brainwave responses. Each manufacturer designs electrodes differently. Snap-on buttons or alligator clips may be used to attach the electrode to the screening equipment. Always check with the program manager to determine where electrodes should be placed on the newborn before you screen him or her.
3. ***Placing the earphone or probe:*** After you place the electrodes, you will place a probe or earphone on or in each ear to channel the test signal through the ear. Place the cable around the top of the baby's head, away from any movements that can interfere, and to ensure the probe or earphone stays secure. Make sure all cables are attached to the machine according to the manufacturer's requirements.
4. ***Performing the screening test:*** With the electrodes and earphones or probes in place, you are ready to perform an impedance check to determine how well the electrodes have contact with skin. Good contact with the skin provides better impedance to pick up the baby's response, which in turn provides a better screening result.

What Can Be Done to Improve the Impedance?

Impedance (or resistance) means a lack of signal due to a weak contact; the higher the impedance, the weaker the signal. You may have problems with electrode impedance even if you prepared the skin correctly. Sometimes the equipment shows high impedance because a good contact was not made between the electrode and the baby's skin. This problem can occur if the electrode is not placed correctly, the skin is oily, or the skin has a lot of hair. You may need to reposition the electrodes or rescrub the area. Be careful not to harm the baby's skin. You may need to apply electrode paste to obtain a better contact. If you are unable to reduce impedance, check the machine or contact the program manager for assistance.

What If There Is Myogenic (Muscle) Noise?

During the AABR testing process there may be myogenic noise that can raise the impedance level and interfere with the brainwave response. This response occurs when the newborn contracts his or her muscles during the testing process by moving or sucking. You may need to wait until the baby is in a relaxed state or asleep, or you may need to remove the pacifier. Other ways to reduce myogenic noise and keep the baby still is to make sure that he or she is fed before the screening, swaddled, and comfortable. A neck roll can also be used to position the infant.

What If There Is Electrical Noise?

Electrical noise can also cause high impedance. This noise can come from the electrical outlet, other nearby equipment, or malfunctioning equipment. If you are getting too much noise, change the electrical outlet or move to a different area to test. Check to see whether overlapping cables and cords are causing high impedance. Impedance should always be low at the testing site.

What Are the Areas to Troubleshoot for AABR?

If the screening is taking more than fifteen minutes because of too much noise, stop the testing, review the manufacturer's troubleshooting guidelines, and check for these situations:

- Is the baby in a quiet state?
- Is the surrounding environment quiet?
- Is the baby sucking too much and if so, do you need to remove the pacifier?
- Are the earphones placed and sealed correctly?
- Are the electrodes placed properly?
- Are the cable connections correct?
- Is there any electrical noise?

How Is Loss to Follow-up Screening Prevented?

Screeners have a great responsibility to notify parents and accurately document the information on a newborn's screening. Hospitals should have procedures in place to reduce the number of babies who do not return for the follow-up screening. Some ways to reduce the number of babies lost to follow-up screening include:

- Follow a scripted message that explains the screening results to parents in clear and concise language. Do not rely solely on a letter or brochure to communicate this information.
- Get a second point of contact (other than a parent) for each family. For example, include other contact information, such as a friend or extended family member, that you get from the parents and enter it into the statewide TEHDI data management system.
- Before the infant goes home, verify the infant's primary care provider (PCP). This information allows the TEHDI program to contact the primary care provider to assist when a child needs follow-up.

- Provide or assist the family in making the follow-up appointment before the baby and mother are discharged. This assistance helps to improve the chances the family will attend the follow-up appointment. If the baby is referred on the AABR screening, the baby must be re-screened using AABR, so the follow-up appointment must be made at a facility that has AABR.

How Important Is the Role of Hospital Staff in the TEHDI Process?

Screeners are the first line of defense in detecting possible hearing loss in newborns. Research has shown that the critical time for obtaining the Newborn Hearing Screening (NBHS) is while the newborn is in the hospital. If an infant does not receive a NBHS or does not pass the NBHS, it is widely acknowledged that over 50% of those will not return for follow-up testing. This loss to follow-up issue is one of the greatest challenges currently facing the TEHDI program. UNHS hospital staff members not only ensure screening of newborns while in the hospital, they also play a pivotal role in assisting parents in securing follow-up care.

What Is Outpatient Screening?

When infants do not pass inpatient hearing screening, additional testing must be completed soon after discharge from the hospital. Frequently, the next step is an outpatient rescreening. The outpatient rescreening is useful in discharging infants from the program who did not pass the inpatient screening because of transient conductive hearing loss associated with occluded ear canals or middle ear effusion.

How Is a Diagnostic Evaluation and Referral to Early Childhood Intervention (ECI) Done?

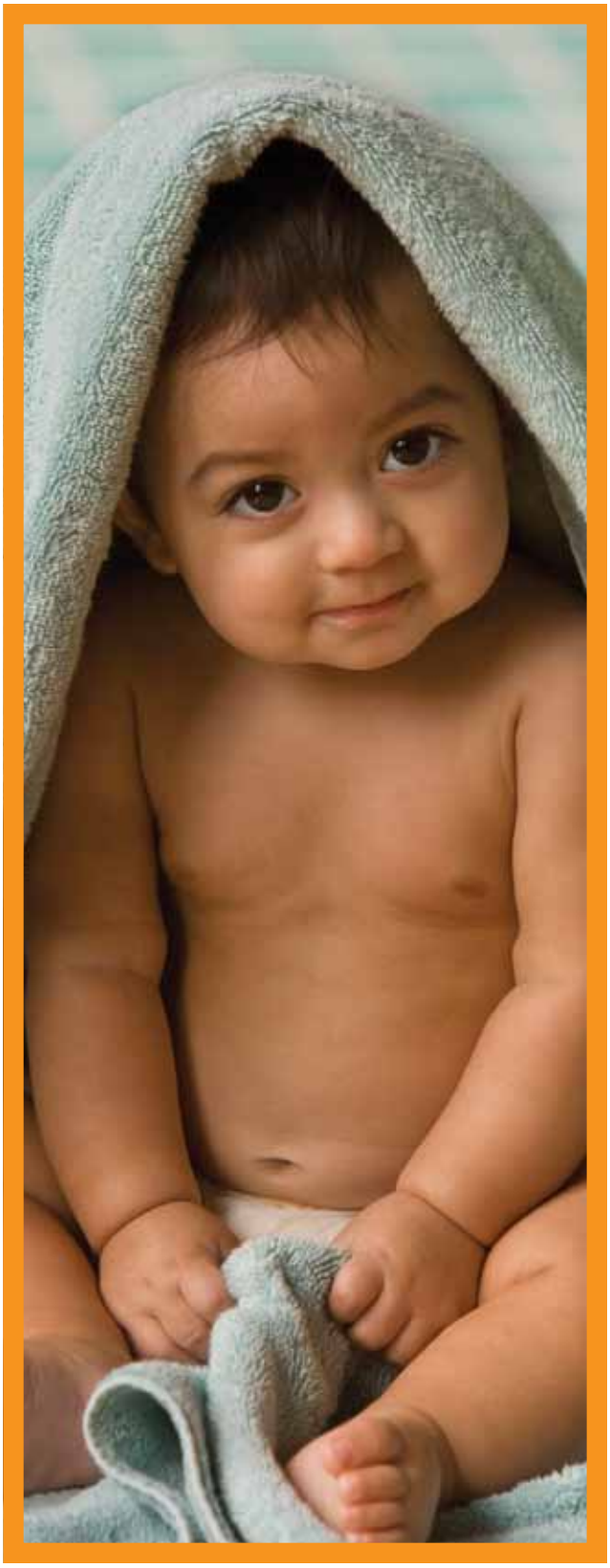
Early identification of infants with possible auditory impairment is only the first step. Ultimately, infants with auditory impairment must receive appropriate intervention, preferably by six months of age, in order to reduce the potentially deleterious effects of untreated hearing loss on language development, educational achievement, and future vocational options.

How Is a Successful UNHS Program Implemented?

1. To institute a Newborn Hearing Screening protocol for a hospital, do the following:
   a. Train newborn hearing screeners using:
      - A training CD.
      - Texas Health Steps online training modules.
      - A script provided by the Department of State Health Services (DSHS).
   b. Keep referral rates low by:
      - Ensuring equipment is annually calibrated.
      - Following the manufacturer's recommendations.
      - Using proper ear probes for OAEs.
      - Providing screening in an established quiet area with the baby at rest.
      - Re-screening babies who do not pass the NBHS before discharge.
      - Limiting the number of screeners.
   c. Manage data and patient information using the TEHDI online tracking system by:
      - Obtaining contact information on each infant, at a minimum: Contact name, address, and phone number, and alternate phone number, if possible.
      - Entering data directly into the TEHDI system on a daily basis.

2. To provide effective communication with parents:
   - Use a developed script for communicating hearing results to parents.
   - Listen to parents' concerns and assist them in finding solutions.

3. To provide culturally sensitive communication with parents:
   - Be aware of the newborn family's culture.
   - Have access to translation services.
   - Have access to an interpreter for parents who are Deaf or hard of hearing.
4. Finally, enlist the support for newborn hearing screening from physicians, chief executive officers, community organizations, and other hospital staff members.



This section covers the parent's perspective in the newborn screening process. Health care providers should be aware of the perspectives of parents and be culturally sensitive in responding to their concerns.

Objectives

1. Identify issues relating to parents' perspectives.
2. Identify how to speak to parents using hearing screening scripts.

What Do Some Parents Say?

"When my child was born, I did what most parents do; I listened for that first cry, counted my daughter's fingers and toes and inspected my precious bundle from top to bottom. I wanted to know if my baby girl was healthy. As a new parent, I relied on medical/health care providers to evaluate the health of my baby. New parents typically don't know the specifics of each test that is done, but we put our faith in the health care providers to do what is needed. I brought my baby home with a clean bill of health and proceeded to adjust to life with a newborn. What I didn't know was that my newborn daughter had a profound hearing loss…

"Her hearing loss was diagnosed when she was 8 months old. I feel fortunate we got that information while she was still so young. I know of countless families with children with hearing loss, and many were met with skepticism when they first voiced concerns about their child's hearing. Testing and diagnosis can get delayed until a child is 2 years old or older. Hearing loss in infants is defined as a low-incidence disability so most medical professionals don't have much, if any, experience with it and may not fully appreciate the implications. As a medical condition, hearing loss is invisible in an infant. There is no immediate danger to the child's physical well being and the ramifications can take years to surface. So why is there a need to get a diagnosis at birth? Is it really necessary for the baby to have yet one more test? Can't it wait?

"The answer is NO – diagnosis cannot wait. Hearing loss impacts a baby's ability to develop language and communication with their parents and the world around them. Babies with typical hearing are exposed to language from the moment they are born. Although these infants will not be able to fully express themselves for years to come, their tiny brains start to take it in all in as the process of language development begins." [32]

How Should a Screener Speak to Parents and Other Medical Providers?

It is important to have parents informed during the hearing screening, and feel at ease about having their baby's hearing screened. Be sure to provide all available information and answer any questions parents may have about the screening process. It is important to be sensitive to cultural differences when communicating with families. Use an interpreter when communicating with limited or non-English-speaking parents or parents who are Deaf or hard of hearing. It is important to convey the test results in a way that families can understand. Also, the screener needs to understand the importance of communicating the test results to families, the baby's nurse, the attending physician, and the medical home provider.

Screening a newborn can be emotional for parents, and they may have many questions about the screening. As a screener, you should respectfully answer every question. If you do not know the answer, refer to the program manager for additional information.

Avoid statements such as, *"Your baby **failed** the screening test."* Instead, use a statement such as, *"Your baby did not pass the screening test. We will have to refer the baby for further testing."* While speaking with parents it is best to use the terms *"Refer"* and *"Did Not Pass."*

Also, results should be provided to all parents. Let them know that this is a screening and not a diagnosis. Also be sure that any printed materials you share with them are written in the parent's native language. It is best to use a standard script to provide the information.

When a baby has a "Did Not Pass" result, it is important that the family understand what the next step should be. Convey the results to the family using simple and clear language and give them clear information on what to do next, such as when and where the baby needs to go for follow-up testing. Know who is to make the appointment about the follow-up testing. Follow hospital protocol on documentation.

Should a Script Be Used in Speaking With Parents?

The answer is, ***"Yes."*** A standard script while speaking to parents is very important so as to not unduly alarm parents. Also, it is best to refrain from negative phrases such as *"failed the test."* It is best to use phrases such as *"did not pass the test."* There should be a hospital protocol that provides a standard script.

To review the actual standardized screening scripts, go to *Section VI: Creating Newborn Hearing Screening Procedures for Hospitals, Standard Scripts Policy.*

Health care providers should determine if a hospital or clinic has newborn hearing screening procedures in place. If not, then the following procedures manual template can be used to modify a facility's need to have a standardized policy and scripts in place.

Objective

1. Identify key policies that make up a NBHS Procedures Manual.

The following are suggested guidelines for a hospital-based NBHS Programs Procedures Manual. It is neither an inclusive document nor should it be considered necessary to follow these procedures. This document is only a suggested guideline for a hospital or birthing center to use as they establish their own protocols. Questions to ask program managers and screeners are:

- Do you have a policy and procedure manual?
- Do you have written scripts?
- Do you understand the importance of having written scripts?

The following is a template for a hospital-based NBHS Policies and Procedures Manual:

NBHS Policies and Procedures

Administrative Policy

Purpose:

- To screen all newborns and infants during their birth admission in order to identify those with hearing loss.
- To establish a mechanism for follow-up evaluation of newborns and infants needing additional care.
- To assist hospital medical and clinical staffs in understanding the value of a universal newborn hearing screening (UNHS) program.

Policy:

It is the policy of {Department Name} at {Facility Name} to provide timely, cost efficient, accurate, and reliable hearing screening services to all newborn infants during their birth admission.

Definitions: {modify as needed}

- Automated Auditory Brainstem Response: This is designated as AABR in this policy and related policies. AABR is a physiologic measure of the response from the ear and the brainstem to an auditory signal. Test technique and protocol will be defined in the appropriate section of this policy.
- Otoacoustic Emission: This is designated as OAE in this policy and related policies. OAE is the evaluation of the outer hair cell response to a known auditory input for the purposes of measuring cochlear function. Test technique and protocol will be defined in the appropriate section of this policy.

Participating Personnel:

Program Manager Role:

- Acts as chair of the hospital or birthing center stakeholder committee on newborn hearing screening.
- Acts as implementation coordinator responsible for equipment, staff, and protocol decisions.
- Assumes the responsibility of a screener if needed because of workload issues.
- Assures that each new staff member has received appropriate training.
- Assures that each new staff member knows screening protocols.
- Oversees screeners and monitors performance and provides focused re-education when needed.
- Monitors that family and primary care provider reports are generated in a timely manner.
- Assures performance of daily screening responsibilities as defined by hospital or birthing center protocol.
- Assures that supplies are being ordered and available as needed.
- Performs a baby-by-baby reconciliation every month to assure all nursery admissions are accounted.
- Coordinates services and follow-up for infants who need further evaluation.
- Educates medical and clinical staff on the benefits of early hearing detection and intervention.
- Reviews monthly program performance to assure that it meets established benchmarks.
- Takes corrective action as needed to improve or maintain program performance.
- Reports to state agencies as required by state law and governing rules.
- Ensures required information is entered into the Texas Early Hearing Detection and Intervention (TEHDI) data management system.

Screening Personnel Role:

- Obtains a list of all new admissions to the nursery daily.
- Maintains screening equipment as recommended by the manufacturer.
- Follows screening and calibration procedures suggested by manufacturer.
- Screens all newborns and infants for hearing loss for whom there is consent.
- Screens newborns during their birth admission using a physiologic screening technology; OAE and/or ABR according to hospital protocol.
- Rescreens infants who do not pass the initial birth admission screening before discharge according to hospital protocol.
- Maintains patient information as required by hospital or birthing center protocol. For example: newborn's name, medical record number, primary care physician, date of birth, gender, gestational age, hospital status, all screening information.
- Maintains follow-up contact information on all infants who fail the birth admission screen. For example: enter follow-up contact with parent's name, telephone, and address, and obtain additional contact information (i.e., a grandparent or neighbor) to assist in finding an infant for follow-up screening.
- Prints a parent report with their infant's birth admission screening results.
- Provides the report to the parents of infants who pass the screening as required by policy.
- Gives parents of infants the results verbally and in writing with follow-up contact information for infants who do not pass the hearing screening.
- Provides informational brochures to families as required by protocol.
- Prints physician reports and sends each infant's report to the appropriate primary care providers.
- Prints a daily list of infants screened for a backup record.
- Orders supplies and brochures as needed.

- Contacts program manager with questions as needed.
- At the end of each month, verifies that all data are current and that no infant has unknowingly been discharged without screening by comparing screening records with the nursery records.
- Maintains records documenting consent and confidentiality for the hospital or birthing center newborn hearing screening program.
- Screeners rely on automated interpretation protocols and do not make interpretive decisions regarding screening outcome.
- Screeners may relay screening outcomes to families based on the results of automated interpretation, which may be provided verbally in addition to a standardized written letter.
- Screeners are responsible for the day-to-day operations of the program.

Screening Location:

- Screening for well-infant populations will be conducted in the designated area for this purpose.
- Screening for the neonatal intensive care unit (NICU) infant population will be conducted in the designated area for this purpose.

Screening Hours:

- Screening will be conducted during the days and times established by {Facility Name}.
- The screener's day is complete when all infants being discharged that day have been screened and appropriate documentation has been completed.
- Infants who are not to be discharged that day may be screened if time and the infant's clinical condition permit.
- Hours for weekday, evening, and weekend shifts may vary secondary to activity in the nurseries.

Professional Dress Code: {Dress code will be established by facility}

- Personnel may wear scrubs (professional in appearance).
- Lab coat is optional.
- Name tags and photo identification must be worn at all times in the nursery.
- Personnel without appropriate identification cannot transport infants.

Screening Protocol:

The initial hearing screening is performed with {Insert Hospital selected Technology} technology.

- If the infant refers one or both ears, the infant should be rescreened before discharge.
- The infant is "discharged" from the program if the infant passes the birth admission screening bilaterally.
- If the infant does not pass the birth admission screening in one or both ear(s), the infant is scheduled to return in two weeks for a follow-up screen or referred to a diagnostic audiological center and entered into the follow-up protocol.

Daily Protocol:

- Each day, a list of the infants needing hearing screening will be obtained and entered into the information management system pending file.
- The "High Risk Register" (RISK) page is completed on NICU infants by performing a chart review and on well babies if screener observes the presence of a risk factor (such as craniofacial anomaly, syndromic stigmata, or family history of hearing loss).

- The screener determines his/her daily schedule by using the discharge information. Families leaving early need their infant tested first. Prioritization of the other infants is completed from information obtained from the room to room visits or date and time of birth.
- Equipment is turned on and prepared for testing (see technology manufacturer's suggested procedures for details).
- Infants who are ready to be screened are transported to the designated hearing screening area.
- All transportation of infants should comply with hospital policy (personnel, means of transport, security, etc.).
- Screen infants according to the screening protocol outlined previously.
- Upon completion of the screen, return the infant to the location from which he/she was obtained unless otherwise specified by the nurse or family.
- The caregiver's name is noted for all babies.
- If the baby refers on one or both ear(s) for further evaluation, the entire follow-up page is completed.
- All infants completing screening receive a sticker on the crib card that indicates screening has been completed.

Communicating Results:
Written results are provided to the parent(s) documenting screening results regardless of outcome. Personal communication of the screening results to the family is recommended for all infants, particularly those infants who refer the initial birth admission screening.

- Infants passing the hearing screening receive written test results indicating a "pass" on the birth admission hearing screening.
- Infants who refer the hearing screening are transported back to the parent's room so that screening results may be provided directly to the parents. In addition, the need for follow-up evaluation in two weeks is explained and an appointment for such is scheduled and noted in the information management system.
- Follow-up information is placed in the TEHDI web-based information system, and verified for accuracy.

Required Program Documentation:
Results are documented on the chart note. General rules for documentation are per hospital policy.

Necessary Documentation:
- Chart notes per hospital policy (daily).
- Charge sheets for all hearing screening should be completed and submitted (daily).
- Stickers to indicate that screening has been completed are placed on crib cards (daily).
- Brochures and letters are distributed to parents (daily).
- Screening results are sent to primary care provider (daily).

Scope:
This policy applies to infant hearing screenings performed by {designated personnel} for newborn infants born at {Facility Name}.

References:
- *JCAHO, Comprehensive Accreditation Manual for Hospitals.* 2008.
- *Joint Committee on Infant Hearing 2007 Position Statement.*

Revisions:
This policy will be reviewed/revised as necessary but not less than annually.

Program Statistics Policy

Purpose:
To describe recommended statistics for the Universal Newborn Hearing Screening (UNHS) components of Early Hearing Detection and Intervention (EDHI).

Policy:
It is the policy of the {Department Name} to calculate statistics on a monthly and quarterly basis to provide feedback on the quality of the program. It is the policy of the {Department Name} to transmit data to the state or its designee upon request.

Standards:
Statistics Calculated (as needed)

- Number of births (live/expired)
- Number of infants screened on birth admission
- Number of infants who pass birth admission screen
- Number of infants who refer birth admission screen
- Number of infants who were screened before 1 month of age.
- Number of infants who do not get screened because of early discharge
- Number of infants not screened on birth admission who were scheduled for an initial outpatient screen
- Number of infants who passed using the initial screening technology (only pertains to 2 technology programs)
- Number of infants who passed using two screening technologies (only pertains to 2 technology programs)

Quarterly statistics (as applicable to your site) calculated are the same as the monthly statistics but reflect quarterly totals and may also include follow-up testing information such as:

- Number of infants who returned for follow-up screening.
- Number of infants who passed follow-up screening.
- Number of infants who referred follow-up screening.
- Number of infants who needed diagnostic audiologic assessment.

Information Stored:
The monthly statistics are reviewed via the information management system program reports.

Distribution of Reports:
Completed quarterly and annual reports should be maintained in the {Department Name} as well as submitted to the appropriate hospital or birthing center personnel.

Scope:
This policy applies for the statistics that are calculated on data collected for the UNHS Program.

Revision:
This policy will be reviewed/revised as necessary but not less than annually.

Follow-Up and Tracking Policy

Purpose:
To establish a mechanism for follow-up services and tracking for newborns and infants suspected of having a hearing loss.

Policy:
It is the policy of {Facility Name} program to provide tracking and access to follow-up services for all infants suspected of having a hearing loss. These infants will be detected through UNHS Program of {Facility Name}.

Additionally, infants from this facility may be referred for further evaluation.

General Information:
- Infants who were not screened or do not successfully complete the initial birth admission hearing screening will be identified as at risk for hearing loss and enrolled in the tracking system.
- Infants who do not successfully complete the initial birth admission screening procedure will/should be scheduled for outpatient screening.
- The information system is designed to ensure that appropriate follow-up and evaluation occur for infants who may have hearing loss.

Follow-Up Appointments:
Initial rescreening with OAE and/or AABR for each infant that did not pass the birth admission screening will be followed as detailed below:

1. Infant passes birth admission screening:
   - Parents are informed of screening results in writing.
   - Primary care physician is notified of screening results in writing.
2. Infant refers on birth admission screening:
   - Same as above.
   - Infant is referred for follow-up screen or referred for a diagnostic audiological evaluation to evaluate hearing sensitivity.
   - Appointment for further evaluation should ideally be scheduled before the infant is discharged from the facility.
   - A referral will be made to the local Part C of IDEA Program *(Individuals with Disabilities Education Act (IDEA) Part C is federally funded)*.

Documentation:
Use the web-based information management system for documentation of follow-up services and tracking.

Scope:
This policy relates to the follow-up and tracking of all infants referred to the EHDI at {Facility Name}.

References:
JCAHO. Comprehensive Accreditation Manual for Hospitals, 2008.

Revisions:
This policy will be reviewed/revised as necessary but not less than annually.

Information and Instructions Policy

Purpose:
To assure uniform delivery of information regarding the Universal Newborn Hearing Screening (UNHS) component of Early Hearing Detection and Intervention (EHDI) for parents of newborn infants.

Policy:
Each person who provides information regarding UNHS uses the same terminology and displays appropriate professionalism with all family interactions.

Standards:
It is important to provide the right information when discussing the program. The following are examples of "what to say" in certain situations.

Screener Understanding:
The following information will:
- assist the screener in answering questions about the program, and
- provide an understanding regarding the importance of newborn hearing screening.

Important Facts About Infant Hearing:
- As much as 50 percent of infants with hearing loss are born in the well-baby nursery with no known risk factors.
- Out of 1,000 babies screened, as many as three to five will have significant hearing loss.
- Hearing loss is more prevalent than all the other disorders combined that are also screened during the newborn period.
- A newborn whose hearing loss is detected and who receives intervention before 6 months of age has the potential for normal to near-normal language development.
- A newborn or infant that does not pass the hearing screening should receive an audiological evaluation before 3 months of age.
- A newborn whose hearing loss is detected should receive intervention (hearing aids, and/or sign language) before 6 months of age.

Differences Between OAE and ABR:
- An OAE evaluates the auditory system from the outer ear to the cochlea. It does not evaluate the neural pathways from the cochlea to the brain.
- An OAE is an evoked response because a stimulus is used to generate a response.
- It is an electrophysiologic response to an acoustic stimulus.
- The OAE does not evaluate an infant's brainstem function.
- An AABR evaluates the system from the outer ear through the brainstem.
- The ABR is an electrophysiologic response that is generated in response to the auditory signal.
- AABR screening does not provide information about neurologic status.

Standard Scripts Policy

The following are example scripts to use in various situations in both "Passing" and "Did not Pass" screenings:

Informing Parents of the Hearing Screen
"Hi! Congratulations on the birth of your baby. You have received information that we provide hearing screening to all babies born. We are going to screen your baby now."

Informing Parents of the Hearing Screen (Spanish)
"¡Hola! Felicitaciones por el nacimiento de su bebé. Usted recibió información sobre el tamizaje auditivo que le hacemos a todos los recién nacidos. Ahora vamos a hacerle el tamizaje a su bebé."

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."

Passing (Spanish): Pasó
"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."

Did Not Pass
"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."

Did Not Pass (Spanish): No Pasó
"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 aesta (dependiendo del protocolo de su hospital)."

Inconclusive
"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 as soon as possible. Let's schedule a time for the screening to be completed within the next 2 weeks."

Inconclusive (Spanish): No Concluyente
"Aunque tratamos de hacerle un tamizaje auditivo a todos los recién nacidos en nuestro hospital, no pudimos completar el tamizaje de su bebé. Es importante hacerlo lo más pronto posible. Hagamos una cita para terminar de hacerle la prueba durante las dos semanas entrantes."

Not Passing Outpatient Rescreen
"Your baby did not pass the second screen. The screening does not tell us whether your baby has a hearing loss; it just tells us that further testing should be done as soon as possible. The next

step is to get a diagnostic ABR as soon as possible. This should be discussed immediately with your baby's doctor who may need to help you with obtaining a referral to a pediatric audiologist."

Not Passing Outpatient (Spanish): No Pasó El Segundo Tamizaje Auditivo

"Su bebé no pasó el segundo tamizaje auditivo. Esto no significa que su bebé tiene una pérdida auditiva; solamente nos indica que se deben hacer más pruebas lo más pronto posible. El siguiente paso es realizar una prueba de potenciales evocados auditivos del tronco cerebral (conocida por sus siglas en inglés ABR). Hable de manera inmediata con el médico de su bebé quien puede ayudarle a conseguir una cita con un audiólogo pediatra."

High Risk: Passing

"Congratulations on the birth of your baby. We screened your baby's hearing and the results are a pass. However, because your baby has had some medical problems at birth, there is a chance that your baby can develop a hearing loss after you leave the hospital. Your baby's hearing is critical for normal speech and language development, so it is important that you speak to your baby's doctor who can help you in knowing when your baby should have further tests with a pediatric audiologist and can also help you to monitor for normal speech and language development."

High Risk: Passing (Spanish)

"Felicitaciones por el nacimiento de su bebé. Su bebé pasó el tamizaje auditivo que le realizamos. Sin embargo y debido a que tuvo algunas complicaciones médicas durante su nacimiento , existe la posibilidad de que desarrolle una pérdida auditiva después de que sea dado de alta del hospital. La audición es importante para el desarrollo normal del habla y lenguaje de su bebé. Es importante que hable con el médico de su bebé quien le puede indicar cuando debe ser visto por un audiólogo pediatra y también le puede ayudar a hacer el seguimiento del desarrollo del habla y lenguaje de su bebé."

High Risk: Not Passing

"Congratulations on the birth of your baby. Your baby received a hearing screen and the results show that your baby did not pass. There can be simple reasons for this, but without further testing with a pediatric audiologist, I cannot tell you what your baby hears. Because your baby has had some medical problems at birth, your baby is at a greater risk for a hearing loss. Please discuss these results with your baby's doctor and ask them to help you schedule diagnostic tests with a pediatric audiologist as soon as possible. Finding out about hearing issues as early as possible will help to ensure that your baby has the best chance to develop normal speech and language."

High Risk: Not Passing (Spanish)

"Felicitaciones por el nacimiento de su bebé. Su bebé no pasó el tamizaje auditivo que le realizamos. Las razones no son necesariamente complicadas pero sin tener resultados de exámenes realizados por un audiólogo pediatra no puedo informarle cual es la capacidad auditiva de su bebé. Debido a que su bebé tuvo algunas complicaciones médicas durante su nacimiento tiene una mayor posibilidad de desarrollar una pérdida auditiva. Es importante que discuta estos resultados con el médico de su bebé, él le puede ayudar a hacer una cita con un audiólogo pediatra lo más pronto posible. El diagnóstico de problemas auditivos lo más temprano posible ayudará a que su bebé tenga una mejor oportunidad para desarrollar un habla y lenguaje normal."

Scope:

This policy is applicable to the individuals performing the Infant Hearing Screening at {Facility Name}.

Revisions:

This policy will be reviewed/revised as necessary but not less than annually.

What Are the TEHDI Performance Standards for Hospitals?

The Department of State Health Services uses the performance standards below when certifying birthing facilities.

Hospital Certification

Performance Standard	*Standard*	*Distinguished*
1. **Screening Rate.** *Newborns shall be screened during the birth admission. Newborns whose parent(s) refuse the screening shall not be counted in reaching this percentage.*	95%	98%
2. **Passing Rate.** *Newborns shall pass the birth admission screen.*	90%	95%
3. **NICU In Process**. *Babies that have not passed both ears or have not been tested and are still marked as "inpatient."*	Not more than 5%	Not more than 1%
4. **Contact Information.** *Records that contain complete parental contact information, for those infants that do not pass the birth screen:* *1. Name* *2. Address* *3. Phone number*	Not more than 5% missing	Not more than 1% missing
5. **Parent Letter.** *Records document written correspondence to parents about infant's screening result was given.*	Not more than 5% missing	Not more than 1% missing
6. **PCP Contact.** *Records contain pediatrician/primary care provider (PCP) contact information.*	Not more than 5% missing	Not more than 1% missing
7. **PCP Letter.** *Records document correspondence to pediatric primary care providers (PCPs) about screening results for patients in their care.*	Not more than 5% missing	Not more than 1% missing
8. ***Electronic Reporting.** *Screening results are imported electronically.*	100%	100%

*not included in the analysis for standard certification.

Resources

TX Health Steps Online Modules
Texas Health Steps (THSteps) Online Provider Education offers a range of high-quality training opportunities to THSteps providers. This training is designed to improve providers' ability to deliver comprehensive preventive health, mental health, and dental and case management services to Medicaid-eligible children from birth through 20 years of age.

THSteps Online Provider Education consists of a number of self-paced, web-based training modules. Each module is divided into sections, with an evaluation component following each section. These evaluations enable trainees to assess their knowledge as they complete each module. An online certificate of completion will be issued after a trainee successfully completes an entire module.

Continuing education (CE) credits can be awarded to eligible participants after the successful completion of each module.

Texas Health Steps (THSteps) Online Provider Education
http://txhealthsteps.com

Newborn Hearing Screening Course
http://txhealthsteps.com/catalog/coursedetails.asp?crid=1703

Additional Web-link Resources

DSHS: TEHDI Program:
www.dshs.state.tx.us/tehdi/default.shtm

Educational Resource Center on Deafness:
www.tsd.state.tx.us/outreach

March of Dimes:
www.marchofdimes.com

My Baby's Hearing:
www.babyhearing.org

National Newborn Screening and Genetics Resource Center:
http://genes-r-us.uthscsa.edu

National Center for Hearing Assessment and Management (NCHAM):
www.infanthearing.org

NCHAM - Newborn Hearing Screening Training Curriculum (Videos):
www.infanthearing.org/nhstc_dvd/streaming.html

Office of Minority Health - Cultural Competency Information:
www.omhrc.gov

Texas Connect:
www.callier.utdallas.edu/txc.html

Texas Hands and Voices:
www.txhandsandvoices.org

Texas Health Steps:
http://txhealthsteps.com

Texas Medical Association:
www.texmed.org

[1] Joint Committee on Infant Hearing: *2007 Position Statement: Principles & Guidelines for Early Hearing.* www.jcih.org/posstatemts.htm.

[2] DSHS – Department of Assistive and Rehabilitative Services, Early Childhood Intervention (ECI). www.dars.state.tx.us.

[3] American Academy of Pediatrics: www.aap.org/healthtopics/medicalhome.cfm.

[4] Texas Hands & Voices. www.txhandsandvoices.org.

[5] The Texas State Plan for Deaf Education, 2007: http://ritter.tea.state.tx.us/deaf/stateplan.html.

[6] National Institute on Deafness and Other Communication Disorders: http://www.nidcd.nih.gov.

[7] Texas Midwifery Board Midwifery Rules: §831.121 Newborn Screening; www.dshs.state.tx.us/midwife/mw_rules.doc.

[8] DSHS Texas Midwifery Board: www.dshs.state.tx.us/midwife/mw_history.shtm.

[9] DSHS: Texas Midwifery Board www.dshs.state.tx.us/midwife/default.shtm.

[10] U.S. Dept of Health & Human Services – The Office of Minority Health: www.omhrc.gov.

[11] U.S. Dept of Health & Human Services – HRSA: *Transforming the Face of Health Professions Through Cultural and Linguistic Competence Education: The Role of the HRSA Centers of Excellence.* www.hrsa.gov/culturalcompetence/curriculumguide.

[12] U.S. Dept of Health & Human Services – The Office of Minority Health: www.omhrc.gov.

[13] ADA Business BRIEF: *Communicating with People Who Are Deaf or Hard of Hearing in Hospital Settings.* www.ada.gov/hospcombr.htm.

[14] March of Dimes: *Well-Baby Visits: Routine Medical Care for Children from 1 Month to 2 Years Old.* www.marchofdimes.com/pnhec/298_29655.asp.

[15] March of Dimes: *Well-Baby Visits: Routine Medical Care for Children from 1 Month to 2 Years Old.* www.marchofdimes.com/pnhec/298_29655.asp.

[16] March of Dimes: *Well-Baby Visits: Routine Medical Care for Children from 1 Month to 2 Years Old.* www.marchofdimes.com/pnhec/298_29655.asp.

[17] March of Dimes: *Immunizations: Your Baby's Shots.* www.marchofdimes.com/pnhec/298_9087.asp.

[18] March of Dimes: Quick Reference: Fact Sheets. www.marchofdimes.com/professionals/14332_25619.asp.

[19] Centers for Disease Control and Prevention: *Vaccines & Immunizations.* www.cdc.gov/vaccines/default.htm.

[20] Centers for Disease Control and Prevention: *Vaccines & Immunizations.* www.cdc.gov/vaccines/default.htm.

[21] NCHAM: *Newborn Hearing Screening Training Curriculum,* Video. www.infanthearing.org.

[22] NCHAM: *Newborn Hearing Screening Training Curriculum,* Video. www.infanthearing.org.

[23] NCHAM: *Newborn Hearing Screening Training Curriculum,* Video. www.infanthearing.org.

[24] NCHAM: *Newborn Hearing Screening Training Curriculum,* Video. www.infanthearing.org.

[25] NCHAM: *Newborn Hearing Screening Training Curriculum,* Video. www.infanthearing.org.

[26] March of Dimes: Important Things to Know, video. www.marchofdimes.com/pnhec/39679_834.asp.

[27] Gallaudet University, Department of Biology & Medical College of Virginia, Department of Human Genetics: *Finding Genes for Non-Syndromic Deafness.* www.people.vcu.edu/~nance/cause.html.

[28] U.S. National Library of Medicine. *Non-Syndromic Deafness.* www.nlm.nih.gov.

[29] DSHS: TX Health Steps - Ear Infection Flyer. https://secure.thstepsproducts.com/pdf/1-86s.pdf.

[30] Audiology Online: *San Francisco Hearing and Speech Center Treats Newborns for Hearing Loss,* 2003. www.audiologyonline.com/news/news_detail.asp?news_id=753.

[31] Texas Statutes, Health & Safety Code: www.statutes.legis.state.tx.us

[32] Source: Deaf and Hard of Hearing Leadership Council.