



Oklahoma State Department of Health
Creating a State of Health

The following recommended protocols were developed by the Oklahoma Newborn Hearing Screening Program (NHSP) in collaboration with the Oklahoma Audiology Taskforce (OKAT). These guidelines were created in accordance with recommendations made by the American Academy of Audiology (AAA) and the American Speech-Language-Hearing Association (ASHA). The protocols take into consideration other national organizations such as the Food and Drug Administration (FDA), the Center for Disease Control (CDC), Early Hearing Detection and Intervention (EHDI) Program, and the Joint Committee of Infant Hearing (JCIH). Please reference those materials for further reading.

Protocols are to be implemented by individuals licensed by the State of Oklahoma to practice audiology.

The OKLAHOMA PROTOCOL FOR INFANT AUDIOLOGIC DIAGNOSTIC ASSESSMENT was developed as a guide for professionals who serve as a referral resource for infants that do not pass newborn hearing screening. The protocol should be used to facilitate the diagnosis of hearing loss, to obtain medical clearance for amplification, and to fit amplification systems on infants with hearing loss by three months of age.

For electronic versions of the protocols or if you have additional questions or comments for the OKAT Protocols Subcommittee, please email newbornscreen@health.ok.gov

Sincerely,

Patricia Burk, M.S., CCC-SLP, LSLS Cert. AVT
Facilitator, Oklahoma Audiology Taskforce (OKAT)
Program Coordinator
Newborn Hearing Screening Program
Oklahoma State Department of Health
Patriciaab@health.ok.gov

Debbie Earley, M.S., CCC-A
Facilitator, OKAT Protocols Subcommittee
Follow-up/Audiology Coordinator
Newborn Hearing Screening Program
Oklahoma State Department of Health
DebbieE@health.ok.gov

CONTRIBUTORS

The following is a list of contributors to the OKLAHOMA PROTOCOL FOR INFANT AUDIOLOGIC DIAGNOSTIC ASSESSMENT and The OKLAHOMA PROTOCOL FOR PEDIATRIC AMPLIFICATION. Contributions consist of writing, reviewing, modifying, and approving these documents:

Christi Barbee, Au.D., CCC-A, F-AAA, Clinical Assistant Professor, Board Certified Audiologist, OUHSC College of Allied Health Department of Communication Sciences and Disorders

Brooke Bennett, Au.D., CCC-A, Audiologist, Hearts for Hearing

Patricia Burk, MS. CCC-SLP, LSLs, Cert. AVT, Program Coordinator, Newborn Hearing Screening Program, Oklahoma State Department of Health

Joan Burns, MA, CCC/A, Audiologist, The Scholl Center for Communication Disorders

Teresa H. Caraway, Ph.D., CCC-SLP, LSLs Cert. AVT, Co-Founder, Hearts for Hearing

Deborah Earley, M.S., CCC-A, Follow-up/Audiology Coordinator, Newborn Hearing Screening Program, Oklahoma State Department of Health

Allison Finch, M.S., CCC-A, Audiologist, Children's Medical Center, LINK Project OSU-Tulsa

Meredith Gatzemeyer, Au.D., CCC-A, Audiologist, The Scholl Center for Communication Disorders

Mary Hudson, Ph.D. CCC-A, Assistant Professor/AuD Program Coordinator, OUHSC College of Allied Health Department of Communication Sciences and Disorders

Heather Kasulis, Au.D., CCC-A, Audiologist, Hearts for Hearing

Beth Martin, M.S., CCC-SLP, Acting Chief, Child Guidance Service, Oklahoma State Department of Health; DSHPSHWA Representative to the Joint Committee on Infant Hearing (JCIH)

Kela Miller, Au.D., CCC-A, Audiologist, Integris Cochlear Implant Clinic

Sandra Over, Au.D., CCC-A Clinical Audiologist Manager, Integris Cochlear Implant Clinic

Sandra Parke, Au.D., Audiologist, Koweta Indian Health Facility

Jacque Scholl, Au.D., CCC/A, FAAA, Audiologist, The Scholl Center for Communication Disorders

Miranda Seal, Au.D., F-AAA, CCC-A, Manager of Audiology/ENT for Chickasaw Nation Division of Health, Chickasaw Nation, Indian Health System

Casey Smith, MPA, Quality Assurance/Data Coordinator, Newborn Hearing Screening Program, Oklahoma State Department of Health

T.Tate Bay, M.S., CCC-A, Audiologist, Allergy Ear Nose and Throat

Brandon R. Vincent, Au.D., CCC-A, F-AAA, Staff Audiologist, Speech-Language Pathology Department, University of Central Oklahoma

OKLAHOMA PROTOCOL FOR INFANT AUDIOLOGIC DIAGNOSTIC ASSESSMENT

Revised: October 2009

The following OKLAHOMA PROTOCOL FOR INFANT AUDIOLOGIC DIAGNOSTIC ASSESSMENT was developed by the Oklahoma Newborn Hearing Screening Program in collaboration with the Oklahoma Audiology Taskforce (OKAT) as a guide for professionals who serve as a referral resource for infants that do not pass newborn hearing screening. It is to be implemented by individuals licensed by the State of Oklahoma to practice audiology. The protocol should be used to facilitate the diagnosis of hearing loss, to obtain medical clearance for amplification, and to fit amplification systems on infants with hearing loss by three months of age.

For infants who did not pass the screening process, all of the following procedures should be completed within the first two months of life by an individual licensed by the State of Oklahoma to practice audiology.

I. PROFESSIONAL QUALIFICATIONS FOR PROVIDERS COMPLETING AUDIOLOGIC DIAGNOSTIC ASSESSMENT

Special Note: A licensed audiologist with experience in the pediatric population is the professional qualified to perform diagnostic audiological assessments for infants. An audiologist who does not have the expertise and/or equipment necessary to evaluate infants and young children should refer to professionals and facilities that provide pediatric diagnostic services.

II. RECOMMENDED PEDIATRIC AUDIOLOGIC DIAGNOSTIC ASSESSMENT:

Special Note: If you do not have equipment to complete all of the above procedures, please contact the Oklahoma Newborn Hearing Screening Program for referral information.

- A. Case history/parent observation report
- B. Otoscopy
- C. Perform Acoustic immittance tympanometry, physical volume and acoustic reflexes (use of a high frequency probe tone such as 1000 Hz is recommended for infants less than 6 months of age).
- D. Perform a click ABR at intensities of 80 to 90 dB nHL. Compare responses obtained to rarefaction and condensation clicks presented using a fast click rate (>30 second). In the case of auditory neuropathy, there will be an inversion of waveforms (e.g., cochlear microphonic) with either no replicable waveforms or very abnormal waveforms.
- E. Obtain a threshold response to 500 Hz, 2000 Hz, and 4000 Hz tone bursts.
- F. Obtain a bone conduction click ABR.
- G. Obtain an evoked otoacoustic emission (TEOAE and/or DPOAE) to further evaluate cochlear function. OAEs should be obtained at a minimum signal to noise ratio of 6 dB for at least 3 frequencies with good repeatability.

III. FOLLOWING ASSESSMENT:

A. Discuss the results and follow-up recommendations with the parents.

1. If hearing loss is confirmed...

- a. Dispense amplification as appropriate. If equipment for amplification is unavailable at your site, refer to a pediatric dispensing audiologist. Contact the Oklahoma Newborn Hearing Screening Program for referral information.
- b. Refer infant to an otolaryngologist for medical evaluation.
- c. Provide information regarding the importance of early intervention and referral to SoonerStart and/or other programs providing intervention services to infants and children with hearing loss.
- d. Provide other referrals that should include genetics, ophthalmology, child development, counseling, speech/language pathology, etc.
- e. Recommend parent support groups

2. If hearing is normal but child is identified as “at risk” for acquired or late onset hearing loss...

- a. Infant should receive audiologic monitoring and follow-up by age appropriate audiologic screening or test procedures at six-month intervals until age three years.
- b. For list of risk factors, please reference the Joint Committee on Infant Hearing (JCIH) 2007 Position Statement (APPENDIX A).

3. If normal hearing...

- a. Notify infant’s primary care physician (PCP)
- b. Provide information to the parents about hearing, speech and language milestones and information regarding risk indicators for progressive hearing loss. Examples of milestones may include but are not limited to the following:
 - www.babyhearing.org
 - www.asha.org
 - www.nidcd.nih.gov

B. Prepare a written report interpreting test results and describing the diagnostic profile.

C. Disseminate written report and other information to the infant’s PCP and to other healthcare providers and agencies as requested by the parents.

D. Notify the Newborn Hearing Screening Program (NHSP) as Oklahoma State law mandates reporting of all infant hearing screening and diagnostic assessments (APPENDIX B).

APPENDIX A

From the Joint Committee on Infant Hearing, 2007

1. All infants should have access to hearing screening using a physiologic measure before 1 month of age.
2. All infants who do not pass the initial hearing screen and the subsequent rescreening should have appropriate audiologic and medical evaluations to confirm the presence of hearing loss before 3 months of age.
3. All infants with confirmed permanent hearing loss should receive intervention services before 6 months of age. A simplified, single point of entry into an intervention system appropriate to children with hearing loss is optimal.
4. The EHDI system should be family centered with infant and family rights and privacy guaranteed through informed choice, shared decision making, and parental consent. Families should have access to information about all intervention and treatment options and counseling regarding hearing loss.
5. The child and family should have immediate access to high-quality technology, including hearing aids, cochlear implants, and other assistive devices when appropriate.
6. All infants and children should be monitored for hearing loss in the medical home. Continued assessment of communication development should be provided by appropriate providers to all children with or without risk indicators for hearing loss.
7. Appropriate interdisciplinary intervention programs for deaf and hard-of-hearing infants and their families should be provided by professionals knowledgeable about childhood hearing loss. Intervention programs should recognize and build on strengths, informed choices, traditions, and cultural beliefs of the families.
8. Information systems should be designed to interface with electronic health records and should be used to measure outcomes and report the effectiveness of EHDI services at the community, state, and federal levels.

To view the complete statement, please visit the following:

http://www.cdc.gov/ncbddd/ehdi/documents/JCIH_2007.pdf

APPENDIX B

Oklahoma Law and State Board of Health Rules

Oklahoma legislation originally enacted in 1982 and updated in 2000 requires that every newborn have hearing screened before discharge from the birthing hospital. The legislation also required the State Board of Health to develop rules and guidelines to accomplish the provisions of the act.

State of Oklahoma *Newborn Infant Hearing Screening Act*

§63-1-543. Short title - Screening for detection of congenital or acquired hearing loss.

A. This act shall be known and may be cited as the “Newborn Infant Hearing Screening Act”.

B. Every infant born in this state shall be screened for the detection of congenital or acquired hearing loss prior to discharge from the facility where the infant was born. A physician, audiologist or other qualified person shall administer such screening procedure in accordance with accepted medical practices and in the manner prescribed by the State Board of Health. If an infant requires emergency transfer to another facility for neonatal care, such screening procedure shall be administered by the receiving facility prior to discharge of the infant.

C. The State Board of Health shall promulgate rules necessary to enact the provisions of this act. The State Commissioner of Health shall develop procedures and guidelines for screening for the detection of congenital or acquired hearing loss.

D. Any durable medical equipment purchased or supplied by the State Department of Health for the purpose of being permanently or temporarily fitted for use by a specific child shall not be deemed or considered to be a “tangible asset” as that term is defined in Section 110.1 of Title 74 of the Oklahoma Statutes and, once fitted to a specific child, shall be deemed thereafter to have minimal or no value to the Department for purposes of further disposition pursuant to the Oklahoma Central Purchasing Act.

[1]Added by Laws 1982, c. 141, § 1, emerg. eff. April 9, 1982. Amended by Laws 2000, c. 204, § 1, eff. Nov. 1, 2000; Laws 2006, c.273, § 1, emerg. eff. June 7, 2006.

[2]

§ 63-1-544. Report of results

The results of the screening procedures, conducted pursuant to section 1 of this act, shall be reported to the State Department of Health in accordance with procedures adopted by the State Board of Health.

[1]Added by Laws 1982, c. 141, § 2, emerg. eff. April 9, 1982.

[2]

§ 63-1-545. Publication of results--Release of information

The State Commissioner of Health shall compile and publish annually the results of the infant screening procedures using the information reported to the Department. The Commissioner may authorize the release of information concerning children who are found to have hearing impairments to the appropriate agencies and department so that such children may receive the necessary care and education.

[1]Added by Laws 1982, c. 141, § 3, emerg. eff. April 9, 1982.

[2]

State Board of Health
Newborn Hearing Screening Rules

CHAPTER 540. INFANT HEARING SCREENING

310:540-1-1. Purpose

The rules in this Chapter implement the Infant Hearing Screening Regulations, 63 O.S. 1991, Sections 1-543 through 1-545.

310:540-1-2. Definitions

The following words or terms, when used in this Chapter, shall have the following meaning, unless the context clearly indicates otherwise:

"Audiologist" means an individual holding certification in Audiology by the American Speech-Language-Hearing Association or its equivalent.

"Discharge" means the release of the newborn from care and custody of a perinatal licensed health facility to the parents or into the community.

"Hearing Screening Procedure" means the combination of physiologic hearing screening and risk factor tracking used to determine from the total population of infants born, the infants at risk for hearing loss.

"Other qualified individual" means an individual working under the guidelines developed by the responsible physician or audiologist.

"Parent" means a natural parent, stepparent, adoptive parent, legal guardian, or other legal custodian of a child.

"Physician" means an M.D. or D.O. licensed in the State of Oklahoma to practice medicine.

"Physiologic Screening" means the use of a bilateral physiologic screening technique to determine from the total population of infants born, the infants at risk for hearing loss.

"Risk Factors" mean conditions identified by the Joint Committee on Infant Hearing (JCIH 2000 Position Statement or later) which place a newborn at risk for hearing loss.

"Transfer" means release of the newborn from care and custody of one perinatal licensed health facility to another.

310: 540-1-3. Guidelines

(a) All newborns in Oklahoma will have a Hearing Screening Procedure completed unless the parent or guardian refuses because of religious or personal objections.

(b) Requirements for the Hearing Screening Procedure are as follows:

(1) For facilities with a two-year average annual birth census of 15 or greater:

a) All infants will receive a physiologic and risk factor screening prior to discharge.

b) Infants transferred to another facility will be screened by that institution prior to discharge.

(2) For facilities with a two-year average annual birth census of fewer than 15:

a) All infants will receive a physiologic and risk factor screening prior to discharge if physiologic screening equipment is available.

b) Infants transferred to another facility will be screened by that institution prior to discharge.

c) If physiologic screening equipment is not available, the infant will be screened for risk factors and,

d) the parents will be directed to a regional site providing physiologic screening and encouraged to have the infant screened within the first month of life.

(3) Out-of-Hospital Births:

- a) All infants who are not born in a hospital will have their hearing screened within the first month of life. The infant's physician or licensed or certified birth attendant is responsible for completing the risk factor screening and for referring the infant to a regional hearing screening site for a physiologic screen.
 - b) Physicians, other health care providers, or local county health department staff who examine a child within the first three months of life who was not born in a hospital, or who was born out of state, will verify that the infant's hearing has been screened. Infants not screened will be referred to a regional hearing screening site.
- (c) Hospital universal newborn hearing screening programs will be administered by an audiologist and/or physician.
- (d) The physiologic screening will include the use of at least one of the following:
- (1) Auditory Brainstem Response Testing (ABR);
 - (2) Otoacoustic Emissions Testing (OAE);
 - (3) any new or improved techniques deemed appropriate for use in hearing screening procedures by the Commissioner of Health.
- (e) The Hearing Screening Procedure will be performed by a qualified and properly trained individual, and the results provided to the primary care physician or other health care provider. Notification of the screening results to parents will be given prior to discharge or immediately following the Hearing Screening Procedure if conducted through a regional site.
- (f) Newborns will be referred to an audiologist for a diagnostic hearing evaluation for these reasons:
- (1) They did not pass the hearing screening prior to discharge;
 - (2) they passed the screening but were at risk for progressive or late onset hearing loss because of a risk factor identified by the Joint Committee on Infant Hearing.
- (g) The hospital personnel, audiologist, or primary care physician involved in the screening of a newborn will provide the parents with appropriate resource information to allow them to receive the medical, audiologic, and other follow-up services as necessary.
- (h) The hospital personnel, audiologist, or primary care physician involved in the initial Hearing Screening Procedure of a newborn will forward results to the Oklahoma State Department of Health in a manner and time frame deemed appropriate by the Oklahoma State Department of Health.
- (i) Audiologists or physicians involved in completing follow-up hearing evaluations will forward test results and recommendations to the Oklahoma State Department of Health in a manner and time frame deemed appropriate by the Oklahoma State Department of Health.
- (j) To facilitate the reporting of newborns and infants who have or are at risk for hearing loss, the reporting requirements will be designed to be as simple as possible and easily completed by nonprofessional and professional individuals involved in the program.
- (k) The Oklahoma State Department of Health will utilize a tracking system to track infants identified at risk for hearing loss for a period up to one year in order to assure appropriate follow-up care.
- (l) The Oklahoma State Department of Health will compile and report data collected from hearing screening procedures at least annually and will share such information as directed by the Commissioner of Health.

APPENDIX C

Revised April 2011

NEWBORN HEARING SCREENING REPORTING FORM INSTRUCTIONS FOR USE

Newborn Hearing Follow-up Report submission is mandated by the State of Oklahoma, Newborn Infant Hearing Screening Act§63-1-543.

PURPOSE:

This Reporting Form is to be used to report all visits to your facility by infants and children birth to three years of age. Information from these reports will be used to update the newborn hearing screening results reported at birth by the hospital and monitor that each child is receiving follow-up services as soon as possible. Annual data will be reported to the Center for Disease Control and Prevention (CDC) to determine babies "Loss to Follow-up/Loss to Documentation".

REPORTING HEARING RESULTS ON ALL INFANTS AND CHILDREN FROM YOUR FACILITY should include:

- Initial infant hearing screenings on "out of hospital births" and missed hospital screenings
- All infants that referred the initial hearing screening
- A child referred to you from other resources (parents, physicians, etc) with suspected or confirmed hearing loss
- A child being evaluated for hearing aids or cochlear implant(s)
- A child being monitored for risk factors for progressive hearing loss
- A child who exhibits any significant change in hearing status
- A child who was scheduled for follow-up from newborn screening or hearing aid fitting but missed multiple scheduled appointments and has now been lost to follow-up
- **Report all results even if auditory responses are within the normal limits or incomplete results**

INSTRUCTIONS FOR USE:

- Enter date of appointment, not the date you are filling out form

IDENTIFYING INFORMATION

- The child's full name, birth date, and mother's first and last name
- Mom's SS# if given
- Current address
- Name of child's hospital of birth or note if out-of-hospital birth
- Current Primary Care Physician

RESULTS:

- Complete Box 1 for screenings, complete Box 2 for diagnostic audiologic assessments
- Check correct test results for each ear. Ear specific test results are required, even if baby passed one ear on an initial screen. If baby has malformation of ear prohibiting a screening, need to refer for diagnostic ABR.
- Check all tests performed.
- If baby refers screening, make note of recommendations for follow-up in comments section of Box 1.
- If diagnosed hearing loss, check degree and type of loss (refer to updated ASHA guidelines for degree of loss)
- Do not mark two degrees of hearing loss. If the hearing loss crosses two levels, check the degree that encompasses the majority of the frequencies
- Include date of amplification and check type of amplification device
- Check all other referrals made
- If enrolled or referred to early intervention, note location if known
- Note any known risk factors/family history

Please return or fax the **completed form**, or **audiology report** to: Newborn Hearing Screening Program
Oklahoma State Department of Health
1000 N.E. 10th Street
Oklahoma City, OK 73117
Fax (405)271-4892

