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Prepared by: **Nebraska Early Hearing Detection & Intervention**

EHDI UPDATE for Primary Care Providers

The Nebraska Early Hearing Detection and Intervention (NE-EHDI) Program develops, promotes, and supports systems to ensure all newborns in Nebraska receive hearing screenings, family-centered evaluations, and early intervention as appropriate.

Caitlin Nichols, Doctor of Audiology at Morrill County Community Hospital in Bridgeport Nebraska

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Western Nebraska welcomes Dr. Nichols

Written by: **MeLissa Butler**

NE-EHDI is excited to announce that families in western Nebraska now have more options when seeking in-person pediatric audiology services. Dr. Caitlin Nichols has joined the professional care team at Morrill County Community Hospital in Bridgeport Nebraska and began seeing patients in October 2021.

Caitlin graduated from the University of Nebraska-Lincoln with a Bachelor of Science in Education and Human Sciences in Speech-Language Pathology/Audiology, a Master of Science in Audiology, and her Doctorate of Audiology. She has over four years of experience working alongside other Audiologists and completed her externship at Audio-Logic PC in Columbus.

Her list of specialties are as follows: Pediatric evaluation and diagnostics, Adult evaluation and diagnostics, Hearing aid fitting/programming, and hearing conservation. In her free time, Caitlin enjoys reading her favorite book, cooking or baking, and spending time with her family.

You can book an appointment by calling the scheduling line at **308-262-7133.**

Primary Care Provider's Responsibility in the EHDI Process

Written by: **MeLissa Butler**

The Nebraska Infant Hearing Act was signed into law in 2000, with the purpose of providing early detection of hearing loss in newborns, and to enable those children and their families to obtained needed multidisciplinary evaluation, treatment, and intervention services at the earliest opportunity to prevent or mitigate the developmental delays and academic failures associated with the late detection of hearing loss. The Infant Hearing act mandates that "each birthing facility shall include a hearing screening test as part of its standard of care for newborns and shall establish a mechanism for compliance review" with the goal of achieving a 100% screening rate for all Nebraska newborns. This law not only promotes the healthy development of children, but also reduces public expenditure for health care, special education, and related services. Since the Infant Hearing Act only details the birthing facility's responsibility in the Newborn Hearing Screening process, how do Primary Care Providers (PCP) know what their responsibility is?

Per Nebraska State Statute **44-2810**, health care practitioners are tasked with providing ordinary and reasonable care with diligence that other providers would expect in like circumstances. This includes making the appropriate referrals and overseeing the next steps of the newborn hearing screening process until the child is found to have normal hearing or a confirmatory diagnosis of hearing loss is made.

Outside of the newborn period, the Joint Committee on Infant Hearing (JCIH) also recommends ongoing monitoring of a child's hearing in the medical home. Routine developmental milestone evaluations should occur periodically at ages 9, 18, 24, and 30 months of age for well-babies. For infants with risk factors for late-onset or progressive hearing loss, periodic hearing evaluations should occur based on the recommended monitoring frequency outlined in the 2019 JCIH Position Statement.

What can PCPs do?

- Be knowledgeable of the reporting process and report to NE-EHDI.
- Use the NE-EHDI website to understand resources in Nebraska and educate families.
- Follow-up with families at the first sign of system failure.
- Update NE-EHDI on babies in your care who move shortly after birth, or who are born out of state.
- Lend your expertise to advisory committees.

JCIH
JOINT COMMITTEE on INFANT HEARING

jcih.org

The **Joint Committee on Infant Hearing** is comprised of representatives from the American Academy of Pediatrics, the American Academy of Otolaryngology and Head and Neck Surgery, the American Speech Language Hearing Association, the American Academy of Audiology, the Council on Education of the Deaf, and Directors of Speech and Hearing Programs in State Health and Welfare Agencies. The Committee's primary activity has been publication of position statements summarizing the state of the science and art in infant hearing, and recommending the preferred practice in early identification and appropriate intervention of newborns and infants at risk for or with hearing loss.

What to do next

When a baby does not pass the newborn hearing screening:

- Refer the infant to a pediatric audiologist for a repeat hearing screening or diagnostic evaluation as soon as possible.
- Stress the importance of timely* follow-up to parents/guardians.
  - *General anesthesia may be required to test babies older than 90 days of age.
- Provide the parents' guidance on preparing the infant for the repeat screening or evaluation.
  - Babies are easiest to test when they are sleeping. Parents are encouraged to not allow their baby to sleep in the car on the way to the testing facility and to hold the last feeding until right before the test is ready to begin.
- Provide the parents/guardians with the time and location of the follow-up appointment, and provide the telephone number of the audiology center.
- Provide updates to your state EHDI program regarding where the infant is in the testing process.

When an infant is identified as deaf or hard of hearing:

- Refer to early intervention services and the appropriate medical specialists (i.e., otolaryngologist, ophthalmologist, and geneticist) as indicated by the diagnostic evaluation.
- Facilitate the infant's receipt of amplification if the family chooses technology to aid their child.
- Support the family's language and communication choices, whether spoken or signed.
- Encourage the parents to connect to family support.

When an infant passes with risk factors:

- Monitor individual cases to assure that a diagnostic evaluation is completed by nine months of age, or earlier if indicated by the risk factor.

On all infants and children:

- Provide ongoing monitoring of **ALL** children's hearing to ensure they are reaching speech and language milestones on time.

Physician's Role in the Medical Home:

- All children identified as D/HH should have a medical home.
- The medical home coordinates and monitors assessment and support services for the child's diagnosis and overall development.
- Care coordination for families with children who are deaf or hard of hearing.
- A medical home can help families understand the EHDI process.
- The medical home ensures that appropriate and timely steps are taken to identify children who are deaf or hard of hearing and enrolled in an early intervention program on time.
- The medical home serves as the primary coordinating entity which can help significantly reduce lost to follow-up and lost to documentation.

Nebraska EHDI Coordinators

Amanda Adams - Program Coordinator
Evaluation, planning, management, and systems development
Email: amanda.adams@nebraska.gov
Phone: 402-471-6770

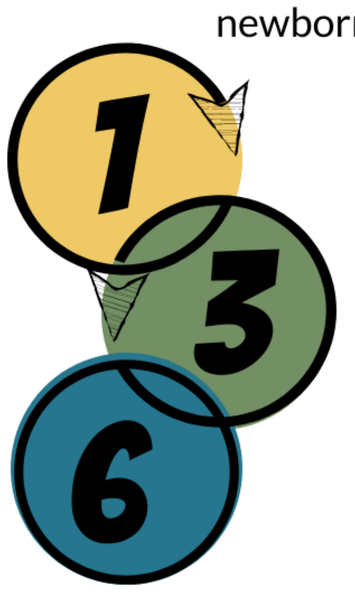
MeLissa Butler - Follow-up Coordinator
Follow-up, community outreach and education, patient education materials distribution, data management, complex diagnostics
Email: melissa.butler@nebraska.gov
Phone: 402-471-3579

References:

- Nebraska Infant Hearing Act: 71-4734 - 71-4744
- Malpractice or professional negligence, defined: 44-2810
- Hearing Screening in Pediatric Primary Care
- Year 2019 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs

JCIH 1-3-6 Goals

The Joint Committee on Infant Hearing has established 1-3-6 goals for newborn hearing screening and follow-up.



All infants should receive a hearing screening by ***one*** month of age

All infants who refer should receive a diagnostic evaluation prior to ***three*** months of age.

All infants who are identified as deaf or hard of hearing should begin receiving early intervention services by ***six*** months of age.

Per JCIH 2019 Position Statement

If there is any suspicion that an infant is deaf or hard of hearing...

- Assure prompt follow-up with rescreening or diagnostic evaluations.
- Make sure evaluations are done by an audiologist who has experience testing infants.
- Flag patient charts for children who failed the hearing screening and who have risk factors.
- Be knowledgeable of Nebraska's protocols and the JCIH 1-3-6 guidelines.

Little ears are a big deal!

PCP's role in the EHDI Process for Homebirths

Written by: **MeLissa Butler**

While the majority of Nebraska births take place in a hospital, some families elect to deliver their babies at home. Since Nebraska Revised Statute 38-613 prohibits Certified Nurse Midwives from attending homebirths, the newborn's primary care provider is responsible for educating the parents about the importance of newborn hearing screening, sending the order for the test to be performed, and reporting information to the state EHDI program.

Newborn hearing screening is not mandated by Nebraska State Law, however, it is the standard of care that all infants born in Nebraska receive a newborn hearing screening at birth or shortly thereafter. This is due to the high incidence of childhood deafness in infants and young children, and the fact that over time, research has shown that early intervention services can make a big difference in educational and social/emotional outcomes for children who are deaf or hard of hearing. Positive outcomes can only be achieved through universal newborn hearing screening using a physiological measure since behavioral observation is not an accurate indicator of hearing in the thresholds necessary for children to develop normal speech and language skills.

Here are some dos and don'ts for providers who serve families that elect a homebirth:

DO:

- Talk to the parents about the newborn hearing screening at the first appointment
- Encourage parents to look for reliable educational resources about newborn hearing screening such as the NE-EHDI website
- Stress the importance of scheduling the hearing screening as soon as possible after birth to avoid the need for a sedated hearing test if further evaluation is needed (Usually after 90 days of age)
- Refer families to a qualified Audiology Provider
- Communicate information to NE-EHDI regarding:
  - Scheduled hearing screening appointments.
  - Families who decline the hearing screening

DON'T:

- Delay talking to families about the importance of newborn hearing screening
- Rely on behavioral responses to assess hearing in newborns
- Forget to report information to NE-EHDI
- Hesitate to ask NE-EHDI any questions about serving families who elect homebirth

EARLY HEARING DETECTION & INTERVENTION

NEWBORN HEARING SCREENING

The goal of newborn hearing screening is to identify children who are deaf or hard of hearing (d/hh) so that they have access to hearing technology and early intervention at a young age. Early access to communication and intervention are important for developing children's social and academic potential.

Referrals

Where can primary care providers refer patients for audiology follow up? Visit our website to view a list of all clinics in Nebraska:

https://bit.ly/NEAudiology

Next Steps

Where can you find out what to do after a baby does not pass the hearing screening? Visit our website to view our algorithm:

https://bit.ly/EHDIAlgorithm

Primary Care Provider's Role

- Be familiar with the JCIH 1-3-6 goals.
- Update EHDI about a child's hearing status.
- Ensure timely and appropriate follow up occurs.
- Provide ongoing monitoring of every child's hearing status, especially those with risk factors.
- Work with the audiologist to coordinate the evaluation and referral process.

Visit our website to find out about:

Your Role

Understand why each primary health care provider plays a key role in ensuring the appropriate follow-up occurs.

Timely Follow-up

Find out why timely follow-up is important for infants who do not pass their newborn hearing screening.

Resources

Find reliable resources for services related to audiology evaluations, family support, early intervention and relevant research topics.

Ongoing Monitoring

Understand and identify risk factors for late onset hearing loss, and when ongoing monitoring is needed.

Family Support

Learn the benefits of connecting families of d/hh children, and where parents can find support.

Reporting & Referrals

Find out how to report results to EHDI, and when to make a referral to Early Development Network (EDN).

For more information visit:

http://dhhs.ne.gov/EHDI

Nebraska Early Hearing Detection & Intervention
888-545-0935
DHHS.NEEHDI@nebraska.gov

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Nebraska Early Hearing Detection and Intervention (NE-EHDI)

Nebraska Newborn Hearing Screening Algorithm Guidelines

For Pediatric Primary Care and Medical Home Providers

Aligns with the AAP Guidelines

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

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

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

Birth at hospital HINFO (hearing) record created by Vital Records system when birth record is submitted to state.

→ Hospital educates parent(s) on newborn hearing screening.

→ Newborn's hearing screened at hospital using OAE and/or AABR screening methods.

Discharged before hearing screening completed.

REFER on inpatient hearing screening. (REFER: does not pass for one or both ears).

PASS hearing screening prior to hospital discharge.

Hospital enters bilateral pass date into Vital Records (HINFO record).

Hospital informs **Primary Care Provider** of hearing screening results.

Primary Care Provider provides on-going monitoring of **ALL** children's hearing, especially those with risk factors for late-onset and progressive hearing loss.

Risk factors for late onset or progressive hearing loss need to be reported to NE-EHDI using the Risk Factor Reporting form found on the NE-EHDI website. Sample of form on the back page of this document.

Hospital creates HSCREENING record(s) on the electronic Vital Records system (ERS) and records results or reason for no screening.

Hospital informs **Primary Care Provider** of hearing screening results or no screening.

NE-EHDI sends letters to the **Primary Care Provider & Parents** (REFER or discharged prior to screening) **regarding the need to schedule further testing.**

Hospital staff, **Primary Care Provider**, or test provider schedules appointment for outpatient hearing screen and informs parent(s) of appointment date, time and location.

Outpatient hearing re-screening completed by 1 month of age.

Provider of Outpatient hearing screen notifies **Primary Care Provider of PASS or REFER results.**

Primary Care Provider reports results of Outpatient hearing screen to NE-EHDI.

If REFER – Audiological Diagnostic Evaluation to be completed prior to 3 months of age.

→ **Primary Care Provider provides a Medical Home and** partners with Audiologist to refer a baby identified as deaf or hard of hearing to appropriate agencies for **early intervention services** and to appropriate medical specialists (i.e., otolaryngologist and geneticist) as indicated by the diagnostic audiologic evaluation.

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More information can be found at
http://dhhs.ne.gov/Pages/EHDI-Primary-Physician.aspx
https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/PEHDIC/Documents/Algorithm1_2010.pdf

Nebraska Early Hearing Detection and Intervention
Nebraska Dept. of Health and Human Services
P.O. Box 95026, 301 Centennial Mall South
Lincoln, NE 68509-5026

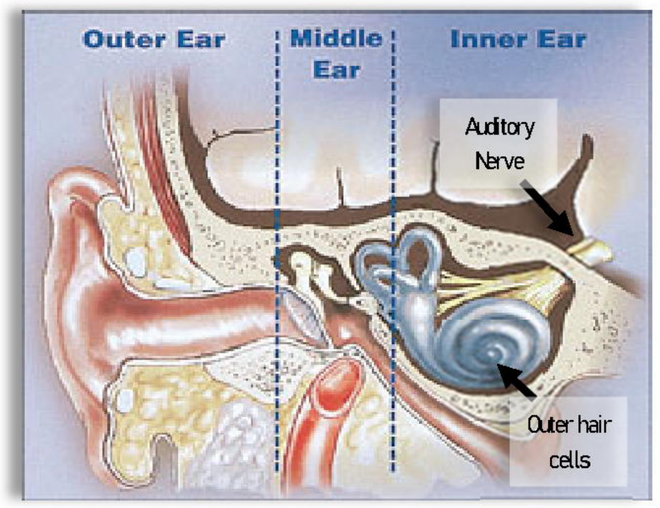
For questions or concerns, please call:
MeLissa Butler
Phone: 402-471-3579 FAX 402-742-2395

9/13/2019

ABR vs. OAE SCREENING

ABR: Auditory Brainstem Response
OAE: Otoacoustic Emissions

ABR or OAE screenings are performed shortly after birth. Each screening method measures a different type of response to sound. Both screening methods determine if further testing is needed and are approved by the Joint Committee on Infant Hearing (JCIH) for well-babies. Babies who stay in the NICU more than five days require an ABR screening prior to discharge from the hospital.



ABR	OAE
Measurement	
The ABR screening tells us how the nerve and brainstem pathways for hearing are working. The ABR records activity at the level of the brainstem in response to sounds played through earphones.	The OAE screening measures the function of the outer hair cells, but does not measure a response from the auditory nerve. The hair cells respond to sound by vibrating. The vibration produces a very quiet sound that echoes back into the middle ear. This sound is the OAE that is measured.
How does it work?	
An earphone is placed in or on the ear and makes clicking or beeping sounds. Electrodes on the scalp/earlobes detect electrical responses that relate to sound moving from the ear to the brain. Testing works best if the infant is asleep.	An earphone with a microphone is placed in the ear canal and measures the cochlea's response to sound. Infant must be resting quietly and be calm. Infant noise or movement, middle ear fluid, or residual vernix may interfere with testing.
Referral Rate: Around 3% of babies will fail the test and need follow up testing.	**Referral Rate:** Around 10% of babies will fail the test and need follow up testing.
False Negatives: May miss mild, low frequency, and precipitously sloping high frequency hearing losses due to the limited stimuli levels and frequency bands used during the test.	**False Negatives:** May miss mild or low frequency hearing losses due to measurement limitations. May also miss auditory neuropathy, a condition in which the inner ear detects sound, but has a problem sending sound along the auditory nerve to the brain.
How long does it take?	
Total time for preparation, testing, and documentation is usually around 15-30 minutes.	Total time for preparation, testing, and documentation is usually 10-20 minutes.
How much does it cost?	
Cost: Around $11/ baby for disposables.	**Cost:** Around $1/ baby for disposables.

If your patient fails their newborn hearing screening, encourage the parents to have their child's hearing retested per the JCIH 1-3-6 guidelines

1 Repeat hearing screening by **one** month of age	3 Diagnostic evaluation by **three** months of age	6 Enrolled in early intervention by **six** months of age

A failed outpatient hearing screening warrants referral to a pediatric audiologist for diagnostic testing

Scan the QR code for a list of Pediatric Audiologists in Nebraska or visit ehdi-pals.org for a list of audiologists in other states

For more information, visit the Nebraska Early Hearing Detection & Intervention website - dhhs.ne.gov/EHDI

Nebraska EHDI Chapter Champion

Written by: **MeLissa Butler**

The American Academy of Pediatrics Early Hearing Detection and Intervention (AAP EHDI) program provides technical assistance, training, and education to support medical home implementation for families with children who are deaf or hard of hearing.

The Chapter Champion program is an important component of the AAP EHDI program, and partners with the AAP state chapters and the state EHDI program to enhance pediatricians' knowledge of the EHDI 1-3-6 guidelines.

Nebraska's Chapter Champion is Dr. Heather Gomes, Otolaryngologist at Boys Town National Research Hospital. Dr. Gomes comes from a family of medical professionals, which inspired her to pursue a career in medicine. As a mother of three, Dr. Gomes understands and can relate to what parents are feeling when their child has a medical problem or illness. She cares for both children and adult patients, and her philosophy on inpatient care is centered around her ability to find the cause of her patient's problem and provide the most up-to-date treatment to help her patients feel better.

Heather Gomes, M.D.
NE-EHDI Chapter Champion

Nebraska Early Hearing Detection & Intervention
PO Box 95026
Lincoln NE 68509-5026