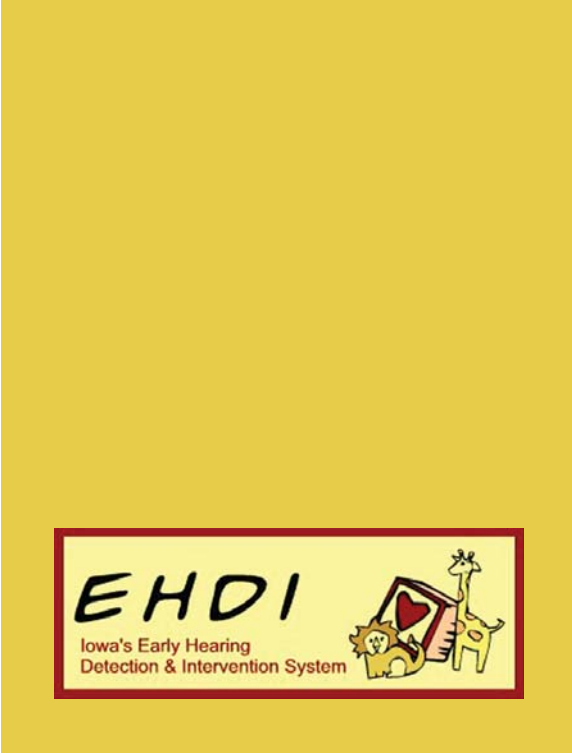


**EHDI**  
**Best Practices Manual**



# Introduction

## **Purpose**

Each year, approximately 12,000 babies are born in the United States with permanent hearing loss. With two to three of every 1,000 newborns having a hearing loss, it is the most frequently occurring birth defect. Additionally, another two to three per 1,000 children will acquire a hearing loss after birth.

Screening and assessment are very important, even for families who have no history of hearing problems. In fact, most babies born with hearing loss are born to parents with normal hearing. If identification does not happen until after six months of age, the child's language skills at age three will be far behind those of a child with normal hearing.<sup>1</sup> Families look to physicians, audiologists, and other health care providers to learn more about screening, assessment, intervention and resources available for their child and family.

The purpose of the Iowa EHDI Best Practices Manual is to advance the development of a comprehensive statewide early hearing detection and intervention (EHDI) system in Iowa. This manual will assist hospitals, birth centers, Area Education Agencies (AEAs), health care providers and private practice audiologists in developing programs and written protocols for newborn hearing screening, follow up and intervention. The manual is based upon best practices within early hearing detection and intervention programs and Iowa EHDI law and rules.

The EHDI program would also like to take this opportunity to let you know we appreciate the work you do to assure infants and children with hearing loss are identified as early as possible and receive ongoing support. Your efforts to assist children who are Deaf or hard-of-hearing and their families will minimize delays in speech, language, cognitive development (thinking) and social and emotional development for years to come!

Iowa Early Hearing Detection and Intervention Program  
Iowa EHDI Advisory Committee

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## **Acknowledgements**

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---

<sup>1</sup>Yoshinaga-Itano, C., Sedey, AL, Coulter, DK, and Mehl, AL. (1998). Language of early- and later-identified children with hearing loss. *Pediatrics*, 102, 1161-71.

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# Table of Contents

<b>Background .....</b>	<b>1</b>
EHDI Advisory Committee	
EHDI law and rules	
<b>Iowa EHDI Program.....</b>	<b>2</b>
Overview	
Program goals	
<b>Chapter One – EHDI Partner Roles and Responsibilities .....</b>	<b>3</b>
Policy	
Background	
State responsibilities	
Birthing hospitals	
Birth centers	
Outpatient screen provider	
Audiologist	
Primary care provider	
<b>Chapter Two – Qualifications and Training of Newborn Hearing Screening Personnel .....</b>	<b>7</b>
Policy	
Background	
Newborn hearing screening personnel	
Qualifications	
Training program	
Supervised practice/individual observation	
<b>Chapter Three - Newborn Hearing Screening Protocol.....</b>	<b>9</b>
Policy	
Background	
Equipment	
Otoacoustic Emissions	
Automated auditory brainstem response	
Screening parameters – DPOAE	
Screening parameters – TEOAE	
Screening parameters – AABR	
When to stop screening	
Stop criteria for Well Baby Nursery	
Stop criteria for NICU	
Stop criteria for outpatient screen	
Tips for screening	

<b>Chapter Four – Communication with Parents and Primary Care Providers.....</b>	<b>14</b>
Policy	
Background	
Communication with parents/guardians	
Communication with primary care provider/medical home	
<b>Chapter Five – Quality Assurance for Screening Programs .....</b>	<b>15</b>
Policy	
Background	
Birthing facilities policies and procedures	
Quality assurance of data reporting	
Tools to measure quality screening and reporting	
Reducing the number of children “lost to follow-up”	
<b>Chapter Six – Diagnostic Assessment .....</b>	<b>18</b>
Policy	
Background	
Re-screens and follow-up screening	
Audiological assessments, birth to six months of age	
Audiological assessments, six to 36 months of age	
Audiologist reporting requirements	
<b>Chapter Seven – Pediatric Hearing Aid Fitting .....</b>	<b>21</b>
Policy	
Background	
Personnel Qualifications	
Candidacy	
Pre-selection	
Verification	
Parent Orientation	
Validation	
Follow-Up and Monitoring	
<b>Chapter Eight – Early ACCESS and EHDI Follow Up .....</b>	<b>26</b>
Policy	
Background	
Access to Statewide EHDI Data Management System	
Referral Process	
EA pre service coordination activities	
When a family does not respond	
EA reporting referral outcomes	
EHDI program follow-up	
Follow-up status	

<b>Chapter Nine – Monitoring Children with Risk Factors .....</b>	<b>29</b>
Policy	
Background	
Hospital/AEA/private audiologists/health care provider protocol	
Risk factors follow-up procedures	
<b>Chapter Ten – Family Support.....</b>	<b>31</b>
Policy	
Background	
Guide by Your Side program	
GBYS parent guides	
GBYS Deaf or hard-of-hearing guides	
Role of GBYS guides	
Referral form for GBYS	
Other family support	
<b>Appendices</b>	
<b>Appendix A – Early Hearing Detection and Intervention Law .....</b>	<b>33</b>
<b>Appendix B – Early Hearing Detection and Intervention Administrative Rules.....</b>	<b>35</b>
<b>Appendix C - Risk Factors Associated with Childhood Hearing Loss.....</b>	<b>41</b>
<b>Appendix D – Flow Chart for Pediatric Medical Home Providers.....</b>	<b>43</b>
<b>Appendix E – Iowa Newborn Hearing Screening Protocol.....</b>	<b>44</b>
<b>Appendix F – Hearing Screening Equipment Log.....</b>	<b>49</b>
<b>Appendix G –Pediatric Audiologic Diagnostic Assessment Protocol.....</b>	<b>50</b>
<b>Appendix H – What to Tell Parents About Hearing Screen Results .....</b>	<b>52</b>
<b>Appendix I – EHDI Technical Assistance Team.....</b>	<b>53</b>
<b>Appendix J - EA-EHDI Questions and Answers.....</b>	<b>54</b>
<b>Appendix K – Risk Factors Letters.....</b>	<b>59</b>

# Background

## **EHDI Advisory Committee**

In 1992, a grassroots group of professionals and consumers created the Iowa Newborn Audiology Committee. They believed that Iowa infants and toddlers with hearing loss were not being identified as early as possible. Late identification resulted in missed opportunities for language input during the critical period for language learning. The group approached the Iowa Department of Public Health (IDPH) in 1994 for assistance in developing a uniform, statewide identification and intervention program for very young children with hearing loss.

Early on, Iowa established a Newborn Hearing Screening Advisory Committee which is now known as Iowa Early Hearing Detection and Intervention Advisory Committee. The committee has representation from different facets of the health care community including the Iowa Hospital Association, private practice audiologists, pediatricians, family practice physicians, and otolaryngologists. The committee also includes representation from the Deaf community, parents of children with hearing loss, advocates, Early ACCESS (IDEA, Part C), Department of Education, Iowa School for the Deaf, Area Education Agencies, and other stakeholders who are affected by or involved with newborn hearing screening. The committee was designed to build partnerships and advise the EHDI staff as the Iowa Department of Public Health moved toward establishing and implementing project goals. The committee has been and continues to be an integral part of the EHDI system.

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## **EHDI Law and Rules**

In 2003, the Iowa legislature passed a new law to require that all babies born in Iowa on or after January 1, 2004, have a hearing screening prior to hospital discharge. The requirements also apply to children who are born at a location other than a birthing hospital or birth center.

The law further requires that the results of all screenings, re-screenings, and diagnostic assessments for children under the age of three be reported to IDPH. The law and administrative rules outline specific requirements for hospitals, birth centers, Area Education Agencies, private practice audiologists and health care professionals who undertake primary pediatric responsibility of newborns delivered in the hospital setting. See Appendix A for a copy of the law and Appendix B for a copy of the administrative rules for EHDI.

# Iowa EHDI Program

**Overview** Iowa's EHDI program is a collaborative effort of two projects, one funded by the Centers for Disease Control and Prevention (CDC) and one funded by the Health Resources and Services Administration (HRSA). The two projects work together seamlessly to achieve a comprehensive and coordinated statewide EHDI system. They are co-located at the IDPH Bureau of Family Health, Iowa's Title V program for maternal and child health.

The CDC project is administered by the Iowa Department of Public Health (IDPH). In Iowa, IDPH is designated as the agency responsible for collection of hearing screening and diagnostic assessment information under the Universal Newborn Hearing Screening legislation.

The HRSA project is administered by Child Health Specialty Clinics (CHSC), Iowa's Title V program for children with special health care needs. The CHSC EHDI project focuses on assuring that all infants and toddlers that are Deaf or hard-of-hearing receive timely and appropriate follow-up services. The CHSC EHDI project also provides family support.

---

**Program Goals** Each grant has numerous goals associated with programming, however the three primary goals that guide the state EHDI program are:

- 1 Month**
  - All infants will be **screened** for hearing loss before **1 month** of age, preferably before hospital discharge.
- 3 Months**
  - All infants who do not pass the screening will have a **diagnostic audiologic evaluation** before **3 months** of age.
- 6 Months**
  - All infants identified with hearing loss receive appropriate **early intervention services** before **6 months** of age.



# Chapter One

## EHDI Partner Roles and Responsibilities

<b>Policy</b>	Each facility and/or entity providing hearing screening and diagnostic assessment services to children under the age of three is responsible for reporting results to the IDPH as required by law.
<b>Background</b>	It is essential for all partners to fulfill their responsibilities within the EHDI law and/or protocols developed by the state EHDI system to assure children with hearing loss are identified and entered into early intervention services in a timely manner.
<b>State Responsibilities</b>	Iowa Department of Public Health and Child Health Specialty Clinics oversee the state early hearing detection and intervention system including: <ul style="list-style-type: none"><li>• management of surveillance system</li><li>• oversight of reporting requirements</li><li>• audiological technical assistance</li><li>• follow-up and referral</li><li>• family support referral</li></ul>
<b>Birthing Hospitals</b>	<p><i>Reference: 641 IAC 35(135.131) – Appendix B</i></p> Each birthing hospital shall: <ul style="list-style-type: none"><li>• Designate an employee of the hospital to be responsible for the newborn hearing screening program in that institution</li><li>• Provide hearing screening for the newborn prior to discharge, except in the following circumstances:<ul style="list-style-type: none"><li>○ <i>The newborn is transferred for acute care prior to completion of the hearing screening. In this situation, the birth hospital must notify the receiving hospital of the status of the hearing screening. The receiving facility shall then be responsible for completion of the newborn hearing screening prior to discharge of the newborn from the nursery.</i></li><li>○ <i>The newborn is born with a condition that is incompatible with life. If child dies, mark child as deceased in data management system.</i></li></ul></li><li>• Ensure newborn hearing screening is performed by an audiologist, audiology assistant, audiometrist, registered nurse, licensed physician, or other person for whom newborn hearing screening is within the person’s scope of practice.</li><li>• Report newborn hearing screening results to the parent or guardian in written form.</li><li>• Report newborn hearing screening results to the child’s primary care</li></ul>

physician.

- Assist family in scheduling any needed follow up appointments for hearing re-screen or high risk monitoring and connect family to a primary care provider/medical home if they are not already connected.
    - *If the baby does not pass an automated auditory brainstem response (AABR) birth screen, the child needs a re-screen at a location that uses AABR. It is not recommended to re-screen with otoacoustic emissions (OAE) in this situation.*
  - Report newborn hearing screening results to the department in a manner prescribed in 641 IAC 3.8(135.131).
  - Report newborn hearing screening results to the department within six days of birth, including refusals, deceased, and transfers.
- 

**Birth Centers**      *Reference: 641 IAC 3.6(135.131)-Appendix B*

Each birth center shall:

- Designate an employee of the birth center to be responsible for the newborn hearing screening program in that institution.
  - Refer every newborn delivered in the birth center to an audiologist, physician, or hospital for a newborn hearing screening.
  - Arrange an appointment for the newborn hearing screening and report to the parent the appointment time, date, and location prior to the infant's discharge.
  - The facility to which the newborn is referred for screening shall complete the screening within 30 days of the newborn's discharge from the birth center, unless the parent fails to attend the appointment. If the parent fails to attend the appointment, the facility shall document such failure in the medical or educational record and shall report such failure to the Iowa Department of Public Health (IDPH).
  - The person who completes the newborn hearing screening shall report screening results to the parent in written form.
  - The person who completes the newborn hearing screening shall report screening results to the IDPH in the manner prescribed in 641 IAC 3.8(135.131).
- 

**Outpatient  
Screen  
Provider**

Babies referred from a birth center:

- The facility to which the newborn is referred for screening shall complete the screening within 30 days of the newborn's discharge from the birth center, unless the parent fails to attend the appointment. If the parent fails to attend the appointment, the facility shall document such failure in the medical or educational record and shall report such failure to the IDPH.
- The person who completes the newborn hearing screening shall report screening results to the parent in written form.
- The person who completes the newborn hearing screening shall report

screening results to the department in the manner prescribed in 3.8(135.131).

The following should occur for babies that require a hearing re-screen:

- Both ears should be retested, even if the baby referred in just one ear.
- If a baby does not pass an AABR for their birth screen, they should not be re-screened with OAE alone, the baby should be re-screened with AABR. For a list of providers, please visit the EHDI Web site at [www.idph.state.ia.us/iaehdi](http://www.idph.state.ia.us/iaehdi). Click on the “Professionals” tab to locate provider lists.
- If one or both ears refer on the re-screen using OAE or AABR, the baby should be referred to a pediatric audiologist for diagnostic testing. **DO NOT CONTINUE TO SCREEN.**

---

**Any audiologist conducting hearing screens and/or diagnostic assessments**

Any audiologist providing newborn hearing screen, re-screen, or diagnostic audiologic assessment to a child under three years of age shall report all of the following information relating to each child’s screening, re-screen or diagnostic assessment to the department utilizing the department’s designated reporting system within six working days of the screen or assessment.

- The name and date of birth of the child.
- The name, address, and telephone number, if available, of the mother of the child. If the mother is not the person designated as legally responsible for the child’s care, the name, address, and telephone number of the parent, as defined in 641 IAC 3.1(135.131), shall be reported.
- The name of the primary care provider for the child.
- Known risk factors (i.e. syndrome, family history of hearing loss, prenatal infections, ototoxic medications [see Appendix C]).
- The results of any hearing screening performed, either “**pass**” or “**refer**” for each ear separately.
- The results of any re-screening performed either “**pass**” or “**refer**” for each ear separately.

The results of any diagnostic assessment performed on children under three years of age as described in Chapter 6 of this manual should include the following and be reported to the department utilizing the department’s designated reporting system within six working days of the assessment:

- If an assessment results in a diagnosis of normal hearing for both ears, this shall be reported.
- Any diagnosis of hearing loss shall also be reported except for transient conductive hearing loss lasting for less than 90 days in the professional judgment of the practitioner.
- Results of assessment by each ear.
- Reported results shall also include a statement of the severity (mild,

moderate, moderately severe, severe, profound, or undetermined) and type (sensorineural, conductive, mixed, or undetermined) of hearing loss.

- Report child’s risk factors for hearing loss.
- Report amplification fitting date and technology used.
- Report recommendations for future follow up.

---

**Primary Care  
Provider/  
Medical Home  
Responsibilities**

*Reference: 641 IAC 3.7(135.131) – Appendix B*

The role of the primary care provider is to assure that each baby under their case has access to:

- Newborn hearing screening before **1** month of age, preferably before hospital discharge. If a newborn is delivered in a location other than a birthing hospital or birth center, the primary care provider shall:
  - Refer the newborn to an audiologist, physician, or hospital for completion of the newborn hearing screening within three months of the newborn’s birth.
  - Arrange an appointment for the newborn hearing screening and report to the parent the appointment time, date, and location.
- Diagnostic audiological evaluation before **3** months of age, if the baby does not pass the initial hearing screen.
- Medical evaluation to determine the etiology of the hearing loss and assess for associated conditions.
- Early intervention services and hearing aids before **6** months of age, if the baby is diagnosed with sensorineural, permanent conductive, mixed hearing loss or auditory neuropathy.
- For all infants, regular surveillance of developmental milestones, auditory skills, parental concerns, and middle ear status should be performed. Infants should have an objective standardized screening of global development with a validated assessment tool at nine, 18, 24, and 30 months of age or any time parents and/or professionals have a concern. Infants not passing the speech-language portion of the screening or for whom there is a concern regarding hearing or language should be referred for a speech-language and audiological evaluation.
- See Appendix D for a flowchart which outlines the guidelines for medical home providers to follow when guiding a family through the EHDI process.

## Chapter Two

### Qualifications and Training of Newborn Hearing

#### Screening Personnel

<b>Policy</b>	All qualified newborn hearing screening personnel shall complete the competency criteria outlined below.
<b>Background</b>	A wide variety of personnel including nurses, audiologists, and technicians perform newborn hearing screens in Iowa. It is essential that all screeners have an understanding of newborn hearing screening, the need for follow-up and demonstrate competency to complete their duties.
<b>Newborn Hearing Screening Personnel</b>	Newborn hearing screening shall be performed by one of the following personnel: <ul style="list-style-type: none"><li>• Audiologist</li><li>• Audiology assistant</li><li>• Audiometrist</li><li>• Registered nurse</li><li>• Licensed physician</li><li>• Other person for whom newborn hearing screening is within the person's scope of practice (i.e. LPNs).</li></ul>
<b>Qualifications</b>	Each person who screens the hearing of newborns and infants shall meet the following criteria: <ul style="list-style-type: none"><li>• be 18 years of age or older</li><li>• have a high school diploma or its equivalent</li><li>• be current with immunizations and meet all health and safety requirements required by the facility and</li><li>• complete required training as specified in the following section (Training Program)</li></ul>
<b>Training Program</b>	A training program for the hearing screening personnel at each facility shall be established under the direction of the staff audiologist, state consulting audiologist, or physician responsible for overseeing the medical aspects of the facility. The training program shall include: <ul style="list-style-type: none"><li>• knowledge of the technology used for screening: AABR and/or OAE</li><li>• operation and care of the screening equipment</li><li>• anatomy and physiology of the ear</li><li>• nature of the responses being measured</li></ul>

- patient and non-patient factors that influence responses
  - hearing screening procedures, including documentation of results
  - importance of documenting high-risk factors
  - follow up for infants who are missed, refer, or have a high-risk factor(s)
  - confidentiality requirements for sharing information
  - communication skills necessary to provide accurate and appropriate information to the parent(s) and/or guardian(s)
  - safety and infection control procedures, including universal precautions for blood-borne pathogens and tuberculosis, according to the medical care facility's guidelines
  - medical care facility's emergency procedures
  - supervised practice and individual observation outlined in the following section (Supervised Practice and Individual Observation)
- 

**Supervised  
Practice and  
Individual  
Observation**

Supervised practice, observation and assessment should be used to determine the ability of personnel to perform duties associated with hearing screening. Hearing screening personnel shall demonstrate the following abilities:

- working independently, accurately and consistently
- following the precise sequence of instructions contained in the hearing screening protocol

Ongoing assessment of proficiency should be conducted through individual observation by the assigned state EHDI audiologist for that facility or the facility EHDI coordinator.

---

# Chapter Three

## Newborn Hearing Screening Protocol

*A copy of the following protocol can be found in Appendix E should you decide to post the protocol.*

**Policy** All newborns and infants born in Iowa, except those born with a condition that is incompatible with life, shall be screened for hearing loss to aid in the identification of infants with permanent hearing loss.

---

**Background** It has long been recognized that unidentified hearing loss at birth can adversely affect speech and language development as well as academic achievement and social-emotional development.<sup>2</sup>

---

**Equipment** All newborns and infants born in Iowa, except those born with a condition that is incompatible with life, shall be screened for hearing loss using at least one of the following procedures:

1. Automated auditory brainstem response (AABR), or
2. Evoked otoacoustic emissions (OAE)

Equipment shall be calibrated in accordance with manufacturer's recommendation and a log sheet will be kept documenting the dates of calibration, repair, or replacement of parts. See example log documentation in Appendix F.

Disposable components of equipment shall not be reused.

*The state EHDI program will not recommend or endorse a particular brand of equipment; however, the following technologies are acceptable. AABR is the only acceptable screening in the NICU.*

**Otoacoustic Emissions** A miniature earphone and microphone are placed in the ear. Sounds are played and a response is measured. If the ear reacts, a response can be measured in the ear canal by the microphone. When a baby has a hearing loss, no response can be measured on the OAE test. The two types of OAE screening are:

1. Transient Evoked Otoacoustic Emissions (TEOAE) - Sounds emitted in response to an acoustic stimulus of very short duration; usually clicks but can be tone-bursts.

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<sup>2</sup> Joint Committee on Infant Hearing. (2007). Year 2007 Position Statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. *American Academy of Pediatrics*. 120: 898-921. <http://pediatrics.aappublications.org/cgi/content/full/120/4/898>.

2. Distortion Product Otoacoustic Emissions (DPOAE) - Sounds emitted in response to two simultaneous tones of different frequencies.

---

**Automated auditory brainstem response (AABR)**

Sounds are played to the baby's ears after band-aid like electrodes are placed on the baby's head to detect responses. This screening measures how the hearing nerve responds to sounds and can identify babies who have a hearing loss.

---

**Screening Parameters and Pass Criteria for DPOAE**

**DPOAE**

**Collection parameters**

Stimulus type: Two primary pure tones, response measured at 2f1-f2 for each stimulus tone pair

Stimulus intensity: L1 65 dB SPL, L2 55 dB SPL

Frequency ratio (f2/f1): 1.22

F2 Frequency region: 2-5 kHz

**Pass criteria**

Response presence can be determined by examining response level or by examining the response level relative to the noise floor (SNR) (ASHA 2004). SNR should be at least 6 dB, with a minimum response level of -5 to -8 dB SPL and an acceptably low noise floor (-4 dB SPL or less) at a minimum of three of four F2 frequencies.

---

**Screening Parameters and Pass Criteria for TEOAE**

**TEOAE**

**Collection parameters**

Stimulus type: click

Click rate: 50-80 per second

Stimulus intensity: 78-82 dB SPL

Frequency region: 1-5 kHz

**Pass criteria**

Common clinical practice defines presence of a response as a SNR of at least 6 dB, or an overall minimum amplitude (wideband) response of 6 dB, with a reproducibility of 50 percent or greater.

---

**Screening Parameters for AABR**

**AABR**

**Stimulus Parameters**

Stimulus type: 0.1 msec click

Intensity: 35 dB HL



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**When to stop screening**

Many factors influence the outcome of a hearing screen, such as:

- technology used
- skill of the screener
- state of the baby
- noise level in the room
- age at which the infant is screened
- hearing sensitivity of the baby

To reduce the refer rate at the time of discharge, babies who refer on the first screen are often screened again. While this is a viable means of reducing the false positive rate (referring babies with normal hearing), **excessive re-screening** can increase the false negative rate (passing babies with actual hearing loss).

No guidelines are currently available that address the number of times a hearing screen should be repeated on a baby before hospital discharge or at outpatient follow-up. Because birthing debris in the ear canal is the primary cause of false positive results, the preferable age of initial screening is 24 hours of age in the well-baby nursery, and at least five days of age in the NICU. Ear canal massage between screens is recommended.

The following guidelines can be used until published data are available.

---

**Stop Criteria for Well Baby Nursery**

Assuming that screening conditions are adequate (quiet baby, quiet room, acceptable probe fit):

- **OAE screening in the well-baby nursery** - Two screening sessions of no more than three screens per ear are recommended, for a total of six screens per ear. The screening sessions should be conducted several hours apart.
  - **AABR screening in the well-baby nursery** – No more than two screens per ear are recommended. The screens should be conducted several hours apart.
- 

**Stop Criteria for NICU**

Assuming that screening conditions are adequate (quiet baby with little or no muscle movement, quiet room, acceptable electrode impedance and headphone placement):

- **OAE screening is not recommended in the NICU, the recommended screening equipment is AABR.**
- Baby should be screened close to the time of discharge.
- If the baby is less than five days old, follow the well-baby protocol for

AABR.

- If the baby is at least five days of age, recommended stopping criterion is one screen per ear.
- 

### Stopping Criteria for Outpatient Screening

Assuming that the babies are at least five days of age, and screening conditions are adequate:

#### OAEs

- Three screenings per ear.
- If baby passes on the third attempt, the screen should be immediately repeated. If the pass result cannot be replicated, the result should be recorded as “refer.”
- Proceed to AABR, if available.
- ***A baby who refers on an AABR in the NICU, should not be re-screened with OAE alone. AABR re-screening is required if AABR was used to screen the baby. If both types of screens are utilized, record both sets of results in the statewide EHDI data management system.***
- Scheduling a second outpatient OAE re-screen is not recommended.
- Proceed to a comprehensive evaluation following *Recommended Guidelines for Pediatric Audiologic Assessment – Appendix G.*

#### AABR

- One screen per ear.
  - Scheduling a second outpatient screening AABR is not recommended.
  - Proceed to a comprehensive evaluation following *Recommended Guidelines for Pediatric Audiologic Assessment – Appendix G.*
- 

### Tips for Screening

**Here are some practical tips to make OAE infant hearing screening go as smoothly as possible and to lower refer rates.**

- **Find a quiet room in which to screen.** Noisy heating and cooling systems, people talking, telephones ringing, and crying babies can make testing unnecessarily challenging. Avoid waking neonates during a ride down the hall, if possible. Sometimes an empty patient room is sufficient.
- **The screening room should be in close proximity to the nursery.** Have cleaning supplies, extra tips, etc., readily available. It may be helpful to dim the lights.
- **Wait until the baby is at least 24 hours old, if possible.** Birthing debris clogging the ear canal can result in a higher number of referrals. The longer you wait, the greater your chances are for a successful screen.
- **Screen while the baby is asleep.** It is possible to screen a baby when it’s awake, but this may slow down the screen time and increase your

frustration level. If a baby is breathing rapidly in an alert state and is actively sucking on a pacifier, the baby's internal noise level can be louder than the emission you're trying to measure. This will result in a technical fail.

- **Swaddle the babies snugly on their sides.** You may wish to place a rolled towel along the back for support.
  - **Place the probe tip deeply and firmly into the baby's ear canal.** A deep, snug probe fit often is the key to obtaining a good screen. Pull back on the ear with one hand, while inserting the probe with the other hand. Comfort the baby by putting pressure on the shoulder after placing the probe into the ear canal.
  - **Massage the ear if you suspect significant birthing debris in the ear canal.** Move your index finger in a circular motion just in front of the ear canal. (Think of it as a zip-lock baggy stuck together with peanut butter and you're pulling it apart.)
  - **If your first screening session is not successful, try again before the baby goes home.**
-

## Chapter Four

### Communication with Parents and Primary Care Providers

**Policy** Parent(s) and/or guardian(s) and primary care providers will be notified of the newborn hearing screen results.

---

**Background** Information at all stages of the EHDI process is to be communicated to the parents and/or guardians in a culturally sensitive and understandable format. Individual hearing screening information should be promptly transmitted to the primary care provider.

---

**Communication with Parents and/or Guardians** While communicating with a parent about newborn hearing screening, the following points should be covered (*see Appendix H for a script to use when speaking with families about hearing screen results*):

- Tell them a newborn hearing screen will be completed prior to discharge.
- Tell them why the hearing screen is important.
- Give them the option of watching you perform the hearing screen.
- Explain the screen results and discuss next steps, as needed.
- Provide them with a copy of the EHDI brochure (*Infant Hearing Screening, A Sound Beginning for Your New Baby*) and point out the speech and language milestones on the back cover.
- Give all parents and/or guardians the hearing screen results, whether they are “pass” or “refer” in writing in their native language, if available. The EHDI brochure is available in English and Spanish and letters are available in statewide EHDI data management system in the following languages: English, Spanish, Chinese, Nuer, Vietnamese, Bosnian, and Arabic.

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**Communication with Primary Care Provider/Medical Home** Hearing screening results for all babies will be reported to the primary care provider/medical home in writing. This communication should include the hearing screen results, risk factors, and recommendations for further follow-up.

Letters are available in the EHDI data management system for Primary Care Provider/Medical Home.

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## Chapter Five

### Quality Assurance for Screening Programs

**Policy** The birth facility will have a system of checks and balances in place to ensure a quality newborn hearing screening program.

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**Background** High quality programs are essential to successfully meet national EHDI goals. Because there are many details that compromise a successful newborn hearing screening program, monitoring of specific data elements is essential to ensure appropriate and timely follow up for children who are Deaf or hard-of-hearing.

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**Birthing Facilities Policy and Procedures** Written policy and procedures outline and describe various steps of the newborn hearing screening program. Elements of the policy should outline the following:

- screening personnel;
- initial and annual screening personnel training requirements;
- screening procedures;
- parent education and information;
- timelines and procedure for reporting to parent, PCP/Medical Home, and the department;
- procedures for children who are missed, refer, and/or have high risk factors; and
- documentation of screening results and risk factors in statewide EHDI data management system;

Screeners should have easy access to written protocols (i.e. located in a notebook in the nursery, posted on the wall in a nursery, or located at a desk or area accessible by all screeners).

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**Quality Assurance of Data Reporting** All newborns and infants in Iowa must be reported to the department as prescribed in 641 IAC 3.1 (135.131). Instructions for data entry are included in the eSP User Manual for the following instances:

- **Deceased** (*eSP Manual-page 32*)  
Occasionally a baby may die during the course of care. In these instances, it is very important to mark the patient as deceased within the record.
- **Transfer** (*eSP Manual-page 33*)  
There may be times when you need to transfer a baby to another facility for specialized care. You may also need to transfer a patient when a child needs further follow-up care. These transfers should be

included in the statewide EHDI data management system.

- **Refusal** (*eSP Manual-page 33*)  
Although parent consent is not necessary to perform newborn hearing screening, parental objection to the screening is valid. If a parent refuses to have their infant screened, it is very important to obtain a written refusal from the parent or guardian on the **IDPH newborn hearing screening refusal form** and record the refusal in the patient's record. A copy of the form should be sent to IDPH and the original maintained in the infant's medical record.
- **Miss** (*eSP Manual-page 73*)  
Hospitals should have procedures in place to ensure children are screened prior to discharge. In the event that screening is not possible, the child still needs to be entered into the statewide EHDI data management system. A case note confirming the miss will indicate to the EHDI program that follow-up is needed.

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**Tools to Measure Quality Screening and Reporting**

In order to ensure all babies are accounted for in the EHDI data system, compare your hospital birth records report with the records in the EHDI data system.

The following reports may be generated when conducting quality assurance checks for hospital newborn hearing screening programs:

- Screening report (numbers of babies screened, referred, in process, or missed)
- Deceased report (names of deceased babies)
- Missed report (names of missed babies)

Utilize case notes to report additional important information such as: babies transferred to another facility (list facility), reason for refusal, reason for missed screen, screening equipment down, family circumstances, risk factor details, adoptions or other information a follow-up provider would want to know.

Receiving hospitals should always search for the baby's record in the statewide EHDI data management system rather than creating a new record for a transferred baby. If you do not find the record, contact EHDI program staff for further assistance.

Best practice indicates birthing hospitals should reconcile birth records and hearing screen reports monthly.

See Appendix I for the EHDI Technical Assistance Team listing if you need further assistance.

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**Reducing the number of Children “Lost to Follow-Up”**

Hospitals should have procedures in place to reduce the number of children who do not return for the follow-up screening (children “lost to follow-up”). Procedures to reduce the number of children lost to follow-up should include:

- **Following a scripted message to explain screening results to parents.** Suggested messages are available in Appendix H. Do not rely solely on a letter or brochure to communicate this information.
- **Getting a second point of contact (other than parent) for each family.** For example, ask families, “If you won the lottery and we couldn’t reach you at your phone number, who would we call?” Include that contact in the statewide EHDI data management system as another contact.
- **Before the infant goes home, verify the infant’s primary medical care provider (PCP) before discharge.** This should be the *PCP following the child after discharge*. This allows the EHDI program to contact the primary care provider to assist when a child needs follow-up.
- **Make or assist the family in making the follow-up appointment prior to discharge and explain its importance.** This makes it more likely the family will attend the follow-up appointment. If the baby 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.

See Appendix I for the EHDI Technical Assistance Team listing if you need further assistance

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## Chapter Six

### Diagnostic Assessment

**Policy** Iowa audiologists must provide high quality care for very young children with hearing loss and children in need of follow-up from the newborn hearing screen.

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**Background** Audiologists are a key partner in assuring that timeline goals are met and that all infants are screened before one month of age, diagnosed before three months of age and entered into early intervention services before six months of age to assist in providing the best possible outcomes for children.

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**Re-screens and Follow-up Screening** Audiologists may provide re-screening and follow-up screening services to those infants that did not have a newborn hearing screen or did not pass their initial newborn hearing screen.

- Even if the infant did not pass in only one ear, it is important to re-screen both ears for the follow-up screen. This ensures accurate results (as recommended by the Joint Committee on Infant Hearing Screening).
- All infants who do not pass AABR screen **should be re-screened with AABR. They should not be re-screened with OAEs only.**
- If the infant does not pass the re-screen, refer the child for a diagnostic assessment. **DO NOT** schedule another re-screen. If your clinic does not provide diagnostic assessment, please refer to the EHDI Web site, [www.idph.state.ia.us/iaehdi/professionals.asp](http://www.idph.state.ia.us/iaehdi/professionals.asp), contact Early ACCESS Iowa by calling (888) 425-4371 or visit the Web site at [www.earlyaccessiowa.org](http://www.earlyaccessiowa.org) to find the closest diagnostic site for the family.

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**Audiological Assessments; Birth to Six Months of Age** Please refer to the Pediatric Diagnostic Protocol in Appendix G for additional guidelines.

In order for timely referral to early intervention services to occur, all infants that have not passed a hearing re-screen should have a diagnostic audiological assessment to determine hearing sensitivity. This assessment should include:

- Detailed child and family case history.
- Auditory Brainstem Response measures may be performed under natural sleep for very young infants or under sedation for older children. At the minimum, click-evoked air conduction ABR at multiple intensities and one low-frequency tone burst, preferably 500 Hz, should be administered.
- Distortion Product Otoacoustic Emissions (DPOAE) or Transient



Evoked Otoacoustic Emissions (TEOAE) may be used to help verify results.

- Behavioral measures may be used as the child begins to actively search for sound, around six months of age.
  - Tympanometry at 1000 Hz should be performed to help determine middle ear status.
  - Acoustic reflex testing at a minimum of two activator frequencies (1000 and 2000 Hz) at a probe tone of 800 or 1000 Hz should be done ipsilaterally or contralaterally.
- 

**Audiological  
Assessments;  
Six to 36  
Months of Age**

In order for timely referral to early intervention services to occur, all infants that have not passed a hearing re-screen should have a diagnostic audiological assessment to determine hearing sensitivity. This assessment should include:

- Detailed child and family case history. This should include parent report of auditory and visual behaviors and communication milestones.
  - Behavioral audiometry, which is likely to include Visual Reinforcement Audiometry (VRA) and/or Conditioned Play Audiometry (CPA) throughout this age range. Although some children will be intolerant of earphone placement, every effort should be made to obtain ear-specific thresholds.
  - Distortion Product or Transient Evoked Otoacoustic Emissions
  - Otoscopy and tympanometry to help determine middle ear status
  - Acoustic reflex testing
  - Auditory Brainstem Response testing should be employed if results are questionable or if behavioral audiometry does not yield reliable results.
-

**Audiologist  
Reporting  
Requirements**

The results of any diagnostic assessment performed as described in Chapter 6 is required to be reported to the Iowa Department of Public Health Early Hearing Detection and Intervention Program via the statewide EHDI data management system or through paper reporting forms located on the EHDI Web site [www.idph.state.ia.us/iaehdi/professionals.asp](http://www.idph.state.ia.us/iaehdi/professionals.asp). Please report the following:

- Normal hearing and any diagnosis of hearing loss except for transient conductive hearing loss lasting for less than 90 days in the professional judgment of the practitioner.
- Results of assessment by each ear.
- Statement of the severity (mild, moderate, moderately severe, severe, profound, or undetermined) and type (sensorineural, conductive, mixed, or undetermined) of hearing loss.
- Risk factors for hearing loss of child.
- Amplification fitting date and technology used.
- Recommendations for future follow-up.

***Report to the department the screen and/or diagnostic results within six working days of screen or assessment.***

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# Chapter Seven

## Pediatric Amplification Protocol

**Policy** All Iowa children who are Deaf or hard-of-hearing and who can benefit from amplification will receive hearing aid services in a timely manner with the best contemporary hearing aid fitting strategies.

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**Background** Because a child’s development of speech and language depends on the optimal audibility of the speech signal, audiologists need to have the equipment and skills to provide state-of-the art hearing aid and FM services.

This pediatric amplification protocol was developed using guidelines published by the American Academy of Audiology, American Speech-Language-Hearing Association, and the Pediatric Working Group Conference on Amplification for Children with Auditory Deficits, along with the following book chapter: Simmons, Jeffrey, Beauchaine, Kathryn Laudin, and Eiten, Leisha, R. “Hearing Instrument Fitting for Infants and Young Children.” An Essential Guide to Hearing and Balance Disorders. Ed. Ackley, R. Steven, Decker, T. Newell, and Limb, Charles J. Lawrence Erlbaum Associates, 2007, 217-247.

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- Personnel Qualifications**
- Qualified audiologists are the most appropriate professionals to select and fit all forms of amplification for children (including personal hearing aids, FM systems, cochlear implants, and other assistive listening devices).
  - Qualified audiologists have a master’s and or doctoral degree in audiology from an accredited university and meet all state licensure and/or regulatory requirements. Qualified audiologists fitting hearing instruments on infants and young children should have experience and expertise with this population as well as the test equipment necessary to complete the tests described in this protocol.
- 

- Candidacy**
- Amplification should be considered if a child has any degree of hearing loss, including sensorineural, conductive, or mixed type hearing losses.
  - Expected outcomes may be influenced by factors such as degree and configuration of hearing loss, and the child’s cognitive, medical, or socio-economic status.
-

## Pre-selection

The following should be considered in device selection:

- Electroacoustic appropriateness, including frequency response
- Listening needs
- FM compatibility
- Tamper resistant features (battery compartment, volume control, program switches)
- Advanced features (directional microphones, multiple memories)
- Pediatric sized tone hooks
- Ear mold considerations (style, venting, material)
- Cost
- Durability
- Warranty
- Battery life
- Color options

Binaural amplification for those with binaural hearing loss is considered a standard recommendation. Decisions regarding amplification for unilateral hearing losses should be made on a case-by-case basis.

Air conduction hearing aids are the most common hearing aid type and are used for a majority of pediatric hearing aid fittings. However, bone conduction hearing aids may be considered for children who are unable to wear air conduction devices as a result of malformation of the outer ear or recurrent middle ear drainage.

It is generally accepted that the compression threshold should be as low as possible to ensure that softer speech or softer speech components have the maximum likelihood of being audible.

Multiple channels allow for more flexibility in frequency shaping, although some frequency shaping can also be accomplished by using filtered tone hooks.

Using multiple programs or memories may have some usefulness with children, such as using FM + environmental microphone program with older children. However, multiple programs with very young children should be approached with caution, as the programs may be inadvertently changed during everyday use.

The importance of a young child to learn the meaning of environmental sounds and the impact of incidental listening on language learning should be considered when directional microphones and noise reduction strategies are considered. These should be used with caution with young children.

<b>Verification</b>	The goal of amplification is to provide optimal access to the speech spectrum for soft, average and loud inputs. Evidence-based verification strategies should be used to determine if the goal of amplification is accomplished.
<b>Behavioral Verification</b>	Behavioral methods include amplified speech perception testing and amplified sound field thresholds (ASFTs). Behavioral methods are not recommended as the primary method for verifying amplification fittings in children.
<b>Electroacoustic Verification</b>	<p>Real-ear-to-coupler differences (RECDs) are the procedure that allows audiologists to use probe tube measurements for children who are very young, incapable of maintaining necessary head control or cooperation for extensive probe tube measurements.</p> <ul style="list-style-type: none"> <li>• RECDs measure the acoustics of a coupler and the ear canal and the difference of the two is added to the coupler response to estimate the real-ear responses. The measurement represents the acoustic properties of the child’s ear.</li> <li>• RECDs vary with age, with the most change occurring over the first two years of life and approaches average adult values by approximately seven years of age.</li> <li>• If an audiologist can only measure the RECD for one ear, it is more appropriate to use that RECD for the opposite ear, rather than using an average RECD for the opposite ear.</li> <li>• For more information on probe microphone and RECD measures, including video tutorials, please visit: <a href="http://www.babyhearing.org/Audiologists/verification/index.asp">http://www.babyhearing.org/Audiologists/verification/index.asp</a>.</li> </ul>

**Parent Orientation** The audiologist should provide information to parents/caregivers and allow time for practice and skill development in use and care of the hearing instruments. Orientation should not be viewed as a one time event, but rather an ongoing process throughout the child’s life.

Orientation and training with the hearing instruments should include:

- Demonstrate/review function of main components (ear mold, microphone, battery compartment, volume control, receiver, switches/remote controls)
- Daily use and care
- Listening checks
- Cleaning
- Moisture prevention and solutions
- Suggested wearing schedule
- Insertion, removal, retention and storage of devices and ear molds
- Insertion, removal, and storage of batteries

- Battery life, disposal, and toxicity
- Maintenance of devices
- Troubleshooting
- Use with telephone and assistive devices
- Tools for maintenance and care (battery tester, listening stethoscope, ear mold air blower, dehumidifying system)
- Recommended follow-up appointments to monitor use and effectiveness

**Hearing Instrument Tool Kits**

Some hearing instrument manufactures make care kits that have most of all the tools that are important for hearing aid use and care. The tools are:

- Extra batteries and battery tester
- Listening tube or hearing instrument stethoscope
- Hearing instrument dehumidifier
- Brush and wax pick
- Retention devices
- Ear mold blower

**Validation**

Validation of amplified auditory function is an ongoing process and should demonstrate the benefits and limitations of the child’s aided listening abilities, and begins immediately after amplification use is initiated. Validation measures are either subjective or objective.

Subjective verification involves use of functional assessment tools, often questionnaires. Parents, teachers, and sometimes children are asked to judge attention and listening performance in a variety of real-world environments. An example is the MAIS/IT-MAIS (Meaningful Auditory Integration Scale; Infant/Toddler Version).

Objective validation measures often are completed in a controlled clinical environment, such as an audiological test booth. These tools typically evaluate how well the child can identify or understand environmental signals and/or speech. They compare performance before and after hearing instrument fitting or modification, or performance in aided and unaided conditions. Language and vocabulary development of the child will determine which objective measures can be used, many are not applicable for children under 36 months of age.

**Follow-Up and Monitoring**

A planned, regular schedule for follow-up testing and monitoring is important for the long term success of a child with hearing loss.

At a minimum, follow-up is recommended every three months during the first two years of life, and every six months until five to six years of age. More frequent follow-up may be necessary if signs of fluctuating hearing or

progression in hearing thresholds are present.

Follow-up appointments should include:

- Behavioral audiometric evaluation and tympanometry
  - Check the fit and condition of the child's ear molds, with ear mold replacements as needed
  - Repeat RECD measures with new ear molds or at least annually if ear molds are not replaced
  - Test hearing instrument performance, including both electroacoustic evaluation and listening checks
  - Adjust hearing instruments as needed.
  - Complete measures of amplified auditory performance, as appropriate for the child's age and developmental level.
-

## Chapter Eight

### Early ACCESS and EHDI Follow-Up

<b>Policy</b>	Children will receive services in accordance with the 1-3-6 goal: hearing screened before 1 month of age, hearing loss diagnosed before 3 months of age, and early intervention services provided before 6 months of age.
<b>Background</b>	The Early ACCESS (EA) and EHDI programs work together to follow-up with families of children who need additional hearing services. Early ACCESS personnel make initial contact attempts and EHDI personnel make final contact attempts when necessary.
<b>Access to Statewide EHDI Data Management System</b>	<p>One person from each EA region has access to all babies in the EHDI database. This system is to facilitate timely data entry and referral, while maintaining confidentiality and access to medical records on “need to know” basis only.</p> <p>The designee is able to search the database at anytime to find children in his/her region needing further follow-up. This practice or something similar is encouraged between local hospitals and Area Education Agencies to make follow-up and referral as efficient and timely as possible.</p>
<b>Referral Process</b>	The EHDI program sends referrals to each EA region once a month. These referrals are usually sent two months following the birth. The babies referred to EA are children who were missed at birth and/or did not pass their newborn hearing screen and are not recorded in the EHDI data base as having returned for a follow-up screen. The following pre-service coordinator activities will take place in each region after the referral is received.



**EA Pre-Service Coordinator Activities**

Pre-service coordination does not include the full complement of EA services. It does include the following:

- Explain the importance of follow-up
- Provide *all* options for where a screening can be completed (AEA, hospital, private practice audiology clinic, etc.)
- Assist with removing barriers that may keep families from attending appointments (transportation, child care, etc.)

EA pre-service coordinators attempt contact with families via mail and telephone according to the following procedure approved by the EHDI Quality Assurance Committee and AEA Leadership Committee:

- Within 48 hours of receiving the EA referral from state EHDI personnel, EA will make an attempt to reach the family by phone (or letter if that has been more successful in the EA region). If a call is made and no one answers and voice mail is available, EA will leave a message. If the phone has been disconnected, move directly to the third bullet below (mail a letter).
- After seven to ten days, a second attempt to reach the family will be made by phone.
- After seven to ten days, a final attempt will be made to reach the family through a written letter for those regions who chose to make a call first. For those regions that chose to send a letter, one final attempt to reach the family by phone will take place.
- EA will notify the EHDI program if the attempts were unsuccessful and a case note will be made in the child’s EHDI data management system record. See EA Reporting Referral Outcomes.

See Appendix J for a copy of the EA-EHDI Questions and Answers Summary regarding the referral and follow up process, reporting, and the EHDI data management system.

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**EA Reporting Referral Outcomes**

EA regions are responsible for reporting referral outcomes back to the EHDI program. This can be done via:

- EA-EHDI referral form
- E-mail to EHDI Follow-Up Coordinator or state EHDI Coordinator
- Phone
- Statewide EHDI data management system

If outcomes are reported through the statewide EHDI data management system, the region must notify the EHDI program that information is available. This allows the EHDI program to perform timely follow-up and avoid further delays.

For a listing of the EHDI technical assistance team, see Appendix I.

**EHDI  
Program  
Follow-Up**

When the Early ACCESS pre service coordinator does not get a response from the family, the pre-service coordinator contacts the EHDI program immediately. The EHDI program makes a final attempt to get the child in for follow-up. This will include the following:

- A letter will be mailed to the family from the EHDI program
- A letter and fax-back form will be sent to the primary care physician (PCP) of record and recorded in the statewide EHDI data management system. If the PCP responds with updated information, EHDI staff members update the statewide EHDI data management system and provide further follow-up as appropriate.

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**Follow-Up  
Status**

EHDI staff members will change the status of children in the data system when appropriate to one of the following:

- Lost contact
- Moved out of state
- Refused

A change in status will only occur when all attempts to locate the child/family have failed, including attempts to locate the family through other programs such as WIC, immunization, newborn metabolic screening program, and the child health program.

Early ACCESS/AEA personnel **should not** change children's status, as the EHDI program will make final attempts to reach the family as described above. If a parent refuses screening or reports that the child has moved out of state, EA staff should report the information to the EHDI program. The EHDI staff will ensure the record is complete and make the status change.

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## Chapter Nine

### Monitoring Children with Risk Factors

**Policy** Children with risk factors related to late onset or progressive hearing loss will be monitored so that if hearing loss develops, it will be detected as early as possible.

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**Background** The Iowa EHDI High-Risk Monitoring Protocol is based on the Joint Committee on Infant Hearing 2007 position statement. Emphasis is placed on follow-up as deemed appropriate by the primary health care provider and audiologist. The Iowa protocol describes the follow-up process for children with risk factors.

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**Hospital/AEA/  
Private  
Audiologists/  
Health Care  
Provider  
Protocol** Best practice indicates that risk factors for late onset hearing loss be reported through the statewide EHDI data management or by reporting the risk factors on the screening and diagnostic reporting forms. Follow-up with families of children at risk for hearing loss can only be successful if risk factors for late onset hearing loss are reported to the EHDI program.

See Appendix C for a list of risk factors for late onset hearing loss.

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**Risk Factors  
Follow-Up  
Procedures** These procedures will apply to babies born in 2008 and beyond.

- Each month, EHDI staff members will search for babies born two months prior who have risk factors listed in the statewide EHDI data management system. (For example, in March, staff members will run a report of babies born in January who have a risk factor for hearing loss.)
- Babies will be sorted based on the risk factor they have. The risk factors will determine when follow-up is recommended.
- EHDI staff members will send the letters in Appendix K to families and primary health care providers of children with risk factors. The letters state:
  - The child should see an audiologist for a hearing evaluation by six months of age if one or more of the following risk factors are present:
    - Bacterial and viral meningitis
    - Congenital Cytomegalovirus (CMV) confirmed in infant
    - Extra-corporeal membrane oxygenation (ECMO)
    - Family history of hearing loss

- Head injury
  - Neurodegenerative disorder
  - Other postnatal infections
  - Parental concern regarding hearing status
  - Syndromes
- The child should see an audiologist for a hearing evaluation by 24 to 30 months of age if one or more of the following risk factors are present:
  - Cranio-facial anomalies
  - Exchange transfusion for elevated bilirubin
  - Herpes infection confirmed in infant
  - NICU stay longer than five days
  - Other congenital infection
  - Ototoxic medications administered
  - PPHN (persistent pulmonary hypertension) associated with mechanical ventilation
  - Rubella infection confirmed in infant
  - Syphilis infection confirmed in infant
  - Toxoplasmosis infection confirmed in infant
- Babies having a risk factor(s) requiring follow-up at six months and a risk factor(s) requiring follow-up at 24 to 30 months will receive only a six month letter.
- The EHDI staff will periodically search for babies born in earlier months so children whose records are entered into statewide EHDI data management system late will receive risk factor follow-up.

# Chapter Ten

## Family Support

**Policy** All families of children who are Deaf or hard-of-hearing will have access to appropriate family support services.

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**Background** The EHDI program and Iowa Hands & Voices have collaborated to make the Guide By Your Side (GBYS) program available to Iowa families. There are also other family support organizations across Iowa. Each organization has its own mission and appeals to different families.

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**Guide by Your Side Program** The GBYS program provides families with the opportunity to meet with guides for support and information.

GBYS services are free to families. GBYS guides can spend up to six hours meeting with families. If additional support is desired, the guides will connect families to those resources.

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**GBYS Parent Guides** GBYS parent guides are parents of children who are Deaf or hard-of-hearing. The guides and their children have made a variety of choices regarding communication, technology and education.

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**GBYS Deaf or hard-of-hearing** GBYS Deaf or hard-of-hearing guides are adults who can share their life experiences and provide support. Iowa GBYS guides have made different choices about communication and technology and can share that information with families.

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**Role of GBYS Guides** Guides can provide the following:

- Unbiased information about communication, technology and education
- Referrals to experts when families need more in-depth information about a topic
- Emotional support
- Answers to questions about parenting a child with a hearing loss
- Answers to questions about having a hearing loss
- Connection to other family support organizations
- Connection to the Deaf and hard-of-hearing communities

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**Referral Form for GBYS** A family, primary care provider, audiologist, early interventionist, family support personnel or a parent themselves can request GBYS services. Referral forms are available on the EHDI Web site at <http://www.idph.state.ia.us/iaehdi>. Click on “Guide By Your Side”. The EHDI program can also be contacted at (800) 383-3826. Ask for the EHDI Follow-Up Coordinator.

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**Other Family Support** The EHDI program is working to collect information about all family support available to families of children who are Deaf or hard-of-hearing. For information about support in your area, contact the EHDI Family Support Coordinator at (800) 383-3826.

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## Appendix A

### 135.131 UNIVERSAL NEWBORN AND INFANT HEARING SCREENING.

1. For the purposes of this section, unless the context otherwise requires:
  - a. "*Birth center*" means birth center as defined in section 135.61.
  - b. "*Birthing hospital*" means a private or public hospital licensed pursuant to chapter 135B that has a licensed obstetric unit or is licensed to provide obstetric services.
2. Beginning January 1, 2004, all newborns and infants born in this state shall be screened for hearing loss in accordance with this section. The person required to perform the screening shall use at least one of the following procedures:
  - a. Automated or diagnostic auditory brainstem response.
  - b. Otoacoustic emissions.
  - c. Any other technology approved by the department.
3. Beginning January 1, 2004, a birthing hospital shall screen every newborn delivered in the hospital for hearing loss prior to discharge of the newborn from the birthing hospital. A birthing hospital that transfers a newborn for acute care prior to completion of the hearing screening shall notify the receiving facility of the status of the hearing screening. The receiving facility shall be responsible for completion of the newborn hearing screening. The birthing hospital or other facility completing the hearing screening under this subsection shall report the results of the screening to the parent or guardian of the newborn and to the department in a manner prescribed by rule of the department.
4. Beginning January 1, 2004, a birth center shall refer the newborn to a licensed audiologist, physician, or hospital for screening for hearing loss prior to discharge of the newborn from the birth center. The hearing screening shall be completed within thirty days following discharge of the newborn. The person completing the hearing screening shall report the results of the screening to the parent or guardian of the newborn and to the department in a manner prescribed by rule of the department.
5. Beginning January 1, 2004, if a newborn is delivered in a location other than a birthing hospital or a birth center, the physician or other health care professional who undertakes the pediatric care of the newborn or infant shall ensure that the hearing screening is performed within three months of the date of the newborn's or infant's birth. The physician or other health care professional shall report the results of the hearing screening to the parent or guardian of the newborn or infant and to the department in a manner prescribed by rule of the department.
6. A birthing hospital, birth center, physician, or other health care professional required to report information under subsection 3, 4, or 5 shall report all of the following information to the department relating to a newborn's or infant's hearing screening, as applicable:
  - a. The name, address, and telephone number, if available, of the mother of the newborn or infant.

## Appendix A

b. The primary care provider at the birthing hospital or birth center for the newborn or infant.

c. The results of the hearing screening.

d. Any rescreenings and the diagnostic audiological assessment procedures used.

7. The department may share information with agencies and persons involved with newborn and infant hearing screenings, follow-up, and intervention services, including the local birth-to-three coordinator or similar agency, the local area education agency, and local health care providers. The department shall adopt rules to protect the confidentiality of the individuals involved.

8. An area education agency with which information is shared pursuant to subsection 7 shall report all of the following information to the department relating to a newborn's or infant's hearing, follow-up, and intervention services, as applicable:

a. The name, address, and telephone number, if available, of the mother of the newborn or infant.

b. The results of the hearing screening and any rescreenings, including the diagnostic audiological assessment procedures used.

c. The nature of any follow-up or other intervention services provided to the newborn or infant.

9. This section shall not apply if the parent objects to the screening. If a parent objects to the screening, the birthing hospital, birth center, physician, or other health care professional required to report information under subsection 3, 4, or 5 to the department shall obtain a written refusal from the parent, shall document the refusal in the newborn's or infant's medical record, and shall report the refusal to the department in the manner prescribed by rule of the department.

10. A person who acts in good faith in complying with this section shall not be civilly or criminally liable for reporting the information required to be reported by this section.

### **Section History: Recent Form**

2003 Acts, ch 102, §1

Referred to in § 135B.18A

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Previous Section [135.130](#)

Next Section [135.132](#)

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## Appendix B

### CHAPTER 3 EARLY HEARING DETECTION AND INTERVENTION

**641—3.1(80GA,ch102) Definitions.** For the purposes of this chapter, the following definitions will apply:

“*Area education agency*” or “*AEA*” means an intermediate educational unit created by Iowa Code chapter 273.

“*Audiologist*” means a person licensed pursuant to Iowa Code chapter 147 or certified by the Iowa board of educational examiners pursuant to 282—15.3(272) or a person appropriately licensed in the state where the person practices.

“*Birth center*” means “*birth center*” as defined in Iowa Code section 135.61.

“*Birthing hospital*” means a private or public hospital licensed pursuant to Iowa Code chapter 135B that has a licensed obstetric unit or is licensed to provide obstetric services.

“*Department*” means the Iowa department of public health.

“*Diagnostic audiologic assessment*” means physiologic or behavioral procedures completed by an audiologist to evaluate and diagnose hearing loss.

“*Discharge*” means a release from a hospital to the parent or legal guardian of the child.

“*Early ACCESS*” means Iowa’s Individuals with Disabilities Education Act (IDEA), Part C, program for infants and toddlers. It is a statewide, comprehensive, interagency system of integrated early intervention services that supports eligible children and their families as defined in 281—Chapter 120.

“*Guardian*” means a person who is not the parent of a minor child, but who has legal authority to make decisions regarding life or program issues for the child. A guardian may be a court or a juvenile court. “*Guardian*” does not mean conservator, as defined in Iowa Code section 633.3, although a person who is appointed to be a guardian may also be appointed to be a conservator.

“*Hearing loss*” means a permanent unilateral or bilateral hearing loss of greater than 30 dB HL in the frequency region important for speech recognition (500-4000 Hz).

“*Hearing screening*” means a physiological measurement of hearing of a newborn or infant with a “pass” or “refer” result. Screening is used to determine the newborn’s or infant’s need for further testing and must be performed bilaterally, when applicable.

“*Initial screening*” means a newborn hearing screening performed during the birth admission for an infant born in a birthing hospital, or the first newborn hearing screening performed on a newborn born in a facility other than a hospital.

“*Newborn hearing screening*” means a physiological test to separate those newborns with normal hearing from those newborns who may have hearing thresholds of greater than 30 dB HL in either ear in the frequency region important for speech recognition (500-4000 Hz).

“*Normal hearing*” means hearing thresholds in both ears of 30 dB HL or less in the frequency region important for speech recognition (500-4000 Hz).

“*Parent*” means:

1. A biological or adoptive parent of a child;
2. A guardian, but not the state if the child is a ward of the state;
3. A person acting in the place of a parent, such as a grandparent or stepparent with whom a child lives, or a person who is legally responsible for the child’s welfare;
4. A surrogate parent who has been assigned in accordance with 281—120.68(34CFR303); or
5. A foster parent, if:
  - A biological parent’s authority to make the decisions required of parents under state law has been terminated; and
  - The foster parent has an ongoing, long-term parental relationship with the child; is willing to make the decisions required of a parent; and has no interest that would conflict with the interests of the child.

## Appendix B

“*Physician*” means an individual licensed under Iowa Code chapter 148, 150, or 150A.

“*Rescreen*” means a newborn hearing screening performed after two weeks of age on an infant who did not pass the initial screening.

**641—3.2(80GA,ch102) Purpose.** The overall purpose of this chapter is to establish administrative rules in accordance with 2003 Iowa Acts, chapter 102, relative to the following:

1. Universal hearing screening of all newborns and infants in Iowa.
2. Facilitating the transfer of data to the department to enhance the capacity of agencies and practitioners to provide services to children and their families.

**641—3.3(80GA,ch102) Goal and outcomes.** The goal of universal hearing screening of all newborns and infants in Iowa is early detection of hearing loss to allow children and their families the earliest possible opportunity to obtain appropriate early intervention services.

**641—3.4(80GA,ch102) Screening the hearing of all newborns.** Beginning January 1, 2004, all newborns and infants born in Iowa, except those born with a condition that is incompatible with life, shall be screened for hearing loss. The person required to perform the screening shall use at least one of the following procedures:

1. Automated or screening auditory brainstem response, or
2. Evoked otoacoustic emissions.

**641—3.5(80GA,ch102) Procedures required of birthing hospitals.** Beginning January 1, 2004, each birthing hospital in Iowa shall follow these procedures:

**3.5(1)** Each birthing hospital shall designate an employee of the hospital to be responsible for the newborn hearing screening program in that institution.

**3.5(2)** Prior to the discharge of the newborn, each birthing hospital shall provide hearing screening to every newborn delivered in the hospital, except in the following circumstances:

- a. The newborn is transferred for acute care prior to completion of the hearing screening.
- b. The newborn is born with a condition that is incompatible with life.

**3.5(3)** If a newborn is transferred for acute care, the birthing hospital shall notify the receiving facility of the status of the hearing screening. The receiving facility shall then be responsible for completion of the newborn hearing screening prior to discharge of the newborn from the nursery.

**3.5(4)** Newborn hearing screening shall be performed by an audiologist, audiology assistant, audiometrist, registered nurse, licensed physician, or other person for whom newborn hearing screening is within the person’s scope of practice.

**3.5(5)** The hospital shall report newborn hearing screening results to the parent or guardian in written form.

**3.5(6)** The hospital shall report newborn hearing screening results to the department in a manner prescribed in 3.8(80GA,ch102).

## Appendix B

**641—3.6(80GA,ch102) Procedures required of birth centers.** Beginning January 1, 2004, each birth center in Iowa shall follow these procedures:

**3.6(1)** Each birth center shall designate an employee of the birth center to be responsible for the newborn hearing screening program in that institution.

**3.6(2)** Prior to the discharge of the newborn, each birth center shall refer every newborn delivered in the birth center to an audiologist, physician, or hospital for a newborn hearing screening. Before discharge of the newborn, the birth center shall arrange an appointment for the newborn hearing screening and report to the parent the appointment time, date, and location.

**3.6(3)** The facility to which the newborn is referred for screening shall complete the screening within 30 days of the newborn's discharge from the birth center, unless the parent fails to attend the appointment. If the parent fails to attend the appointment, the facility shall document such failure in the medical or educational record and shall report such failure to the department.

**3.6(4)** The person who completes the newborn hearing screening shall report screening results to the parent in written form.

**3.6(5)** The person who completes the newborn hearing screening shall report screening results to the department in the manner prescribed in 3.8(80GA,ch102).

**641—3.7(80GA,ch102) Procedures to ensure that children born in locations other than a birth center or birthing hospital receive a hearing screening.**

**3.7(1)** Beginning January 1, 2004, a physician or other health care professional who undertakes primary pediatric care of a newborn delivered in a location other than a birthing hospital or birth center shall refer the newborn to an audiologist, physician, or hospital for completion of the newborn hearing screening within three months of the newborn's birth. The health care professional who undertakes primary pediatric care of the newborn shall arrange an appointment for the newborn hearing screening and report to the parent the appointment time, date, and location.

**3.7(2)** The person who completes the newborn hearing screening shall report screening results to the parent in written form.

**3.7(3)** The person who completes the newborn hearing screening shall report screening results to the department in the manner prescribed in 3.8(80GA,ch102). If the parent fails to attend the appointment, the facility shall document such failure in the medical or educational record and shall report such failure to the department.

**641—3.8(80GA,ch102) Reporting hearing screening results and information to the department.**

Beginning January 1, 2004, any birthing hospital, birth center, physician, or other health care professional required to report information pursuant to 2003 Iowa Acts, chapter 102, shall report all of the following information to the department relating to each newborn's hearing screening within six days of the birth of the newborn utilizing the department's designated reporting system.

**3.8(1)** The name and date of birth of the newborn.

**3.8(2)** The name, address, and telephone number, if available, of the mother of the newborn. If the mother is not the person designated as legally responsible for the child's care, the name, address, and telephone number of the parent, as defined in 3.1(80GA,ch10), shall be reported.

**3.8(3)** The name of the primary care provider for the newborn at the birthing hospital or birth center.

**3.8(4)** The results of the newborn hearing screening, either "pass," "refer," or "not screened," for each ear separately.

**3.8(5)** The results of any rescreening, either "pass" or "refer," and the diagnostic audiologic assessment procedures used for each ear separately.

**641—3.9(80GA,ch102) Conducting and reporting diagnostic audiologic assessments to the department.**

Beginning January 1, 2004, any facility, including AEAs, conducting diagnostic audiologic assessments shall report the results of the assessments for any child under three years of age to the department. The facility shall conduct the assessment in accordance with the Pediatric Audiologic Diagnostic Protocol contained at Appendix A. Results shall be reported as follows:

**3.9(1)** Results shall be reported for each ear separately.

**3.9(2)** If an assessment results in a diagnosis of normal hearing for both ears, this shall be reported.

**3.9(3)** Any diagnosis of hearing loss shall also be reported except for transient conductive hearing loss lasting for less than 90 days in the professional judgment of the practitioner.

**3.9(4)** Reported results shall include a statement of the severity (mild, moderate, moderately severe, severe, profound, or undetermined) and type (sensorineural, conductive, mixed, or undetermined) of hearing loss.

**641—3.10(80GA,ch102) Sharing of information and confidentiality.** Reports, records, and other information collected by or provided to the department relating to a child's newborn hearing screening, rescreen, and diagnostic audiologic assessment are confidential records pursuant to Iowa Code section 22.7.

**3.10(1)** Personnel of the department shall maintain the confidentiality of all information and records used in the review and analysis of newborn hearing screenings, rescreens, and diagnostic audiologic assessments, including information which is confidential under Iowa Code chapter 22 or any other provisions of state law.

**3.10(2)** No individual or organization providing information to the department in accordance with this rule shall be deemed to be or held liable for divulging confidential information.

**3.10(3)** The department shall not release confidential information except to the following persons and entities under the following conditions:

*a.* The parent or guardian of an infant or child for whom the report is made.

*b.* A local birth-to-three coordinator with the Early ACCESS program or an agency under contract with the department to administer the children with special health care needs program.

*c.* A local health care provider.

*d.* A representative of a federal or state agency, to the extent that the information is necessary to perform a legally authorized function of that agency.

*e.* A representative of a state agency, or an entity bound by that state, to the extent that the information is necessary to perform newborn hearing screening follow-up. The state agency or the entity bound by that state shall be subject to confidentiality regulations that are the same as or more stringent than those in the state of Iowa. The state agency or the entity bound by that state shall not use the information obtained from the department to market services to patients or nonpatients or identify patients for any purposes other than those expressly provided in this rule.

**3.10(4)** Research purposes. All proposals for research using the department's data to be conducted by persons other than program staff shall first be submitted to and accepted by the researchers' institutional review board. Proposals shall then be reviewed and approved by the department before research can commence.

**641—3.11(80GA,ch102) Reporting requirements for AEAs.** Beginning January 1, 2004, any AEA providing newborn hearing screening, rescreen, or diagnostic audiologic assessment to an infant shall report all of the following information relating to each infant's screening, rescreen or assessment to the department utilizing the department's designated reporting system.

**3.11(1)** The name and date of birth of the infant.

**3.11(2)** The name, address, and telephone number, if available, of the mother of the infant. If the mother is not the person designated as legally responsible for the child's care, the name, address, and telephone number of the parent, as defined in 3.1(80GA,ch102), shall be reported.

## Appendix B

IAC 12/10/03

Public Health[641]

Ch 3, p.5

**3.11(3)** The name of the primary care provider for the infant.

**3.11(4)** The results of any newborn hearing screening performed at the AEA, either “pass” or “refer,” for each ear separately.

**3.11(5)** The results of any rescreening performed at the AEA, either “pass” or “refer,” for each ear separately.

**3.11(6)** The results of any diagnostic assessment performed at the AEA, for each ear separately.

**641—3.12(80GA,ch102) Procedure to accommodate parental objection.** These rules shall not apply if the parent objects to the hearing screening.

**3.12(1)** If a parent objects to the screening, the birthing hospital, birth center, physician, or other health care professional shall obtain a written refusal from the parent or guardian on the department newborn hearing screening refusal form and shall maintain the original copy of the written refusal in the newborn’s or infant’s medical record.

**3.12(2)** The birthing hospital, birth center, physician, or other health care professional shall send a copy of the written newborn hearing screening refusal form to the department within six days of the birth of the newborn.

**641—3.13(80GA,ch102) Civil/criminal liability.** A person who acts in good faith in complying with these rules shall not be held civilly or criminally liable for reporting the information required.

These rules are intended to implement 2003 Iowa Acts, chapter 102.

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## Appendix A

### Pediatric Audiologic Diagnostic Protocol

The following protocol should be used to facilitate the diagnosis of hearing loss by three months of age and entry into early intervention for infants with hearing loss by six months of age. This diagnostic protocol should be implemented by an audiologist licensed by the Iowa board of speech pathology and audiology examiners or certified by the Iowa board of educational examiners.

Infants should be referred for a diagnostic evaluation after receiving a “refer” result from one or both ears on a newborn hearing screening and a hearing rescreen performed at two to six weeks of age. Timely referral for diagnostic auditory brainstem response (ABR) testing may negate the need for sedation for this test in very young infants. Infants who are identified at risk for late-onset hearing loss (JCIH, 2000) should receive audiologic monitoring and follow-up by age-appropriate test procedures at six-month intervals until the age of five years.

#### **Audiologic diagnostic centers should be prepared to provide the following services:**

##### I. Measures of auditory sensitivity

###### A. Auditory brainstem response (ABR)

Infants who do not pass the newborn hearing screening or rescreen should be evaluated with a click-evoked air-conduction ABR and at least one low-frequency tone burst ABR, preferably at 500 Hz. Response waveforms should be measured at several levels to allow threshold determination and latency-intensity functions. When thresholds are determined to be elevated, the audiologist may measure the ABR with frequency-specific stimuli at other frequencies as well. Infants suspected of having significant conductive hearing loss should be considered for bone-conduction ABR testing. Clinicians should be aware that technological advances will continually improve recommended protocols.

###### B. Evoked otoacoustic emissions

Transient evoked otoacoustic emissions (TEOAE) or distortion product otoacoustic emissions (DPOAE) should be used to confirm the magnitude and configuration of the hearing loss as determined by the ABR.

###### C. Behavioral measures

At a developmental age of six months or older, it is possible to obtain reliable behavioral audiometric information using visual reinforcement audiometry (VRA). While this test has traditionally been performed in the sound field, ear-specific threshold information can be obtained using insert earphones. VRA is an important technique for use in monitoring auditory thresholds, especially during the first few years of hearing aid use.

##### II. Measures of middle ear function

###### A. Tympanometry

Although pass/fail criteria for tympanograms from infants younger than six months of age are currently being developed, an infant audiologic evaluation should include an admittance tympanogram at 1000 Hz to help determine middle ear function.

###### B. Acoustic reflexes

Ipsilateral or contralateral acoustic reflexes should be measured at a minimum of two activator frequencies (1000 and 2000 Hz) at a probe tone of 800 or 1000 Hz.



## **Risk Factors Associated With Childhood Hearing Loss**

### **Care Giver Concern of Hearing Loss**

### **Chemotherapy**

### **Congenital Infection - confirmed in infant**

Includes: cytomegalovirus, rubella, syphilis, herpes, toxoplasmosis

### **Craniofacial Anomalies**

Includes: Cleft lip or palate, microtia (abnormally small ear), atresia (blocked or abnormally small ear canal), choanal atresia

### **Family History**

A family history of permanent, sensorineural hearing loss during childhood

### **Head Trauma**

Especially basal skull/temporal bone fracture requiring hospitalization

### **Hyperbilirubinemia**

Requiring exchange transfusion

### **Mechanical Ventilation or Extracorporeal Membrane Oxygenation (ECMO)**

Associated with respiratory complications such as bronchopulmonary dysplasia (BPD), persistent pulmonary hypertension of the newborn (PPHN), and respiratory distress syndrome (RDS)

### **Neonatal Intensive Care Unit (NICU) Admission Greater Than Five Days**

Generally indicates health complications, and possible ototoxic medication treatment

### **Neurodegenerative Disorders**

Hunter syndrome, Friedreich's ataxia, Charcot-Marie-Tooth syndrome

### **Neurological Conditions and Syndromes**

Includes: seizures, hydrocephalus, intra-ventricular hemorrhage, retinopathy of prematurity

### **Ototoxic Medications**

Includes: Gentamycin, Vacomycin, Kanamycin, Streptomycin, Tobramycin

### **Physical Findings Associated with Sensorineural or Permanent Conductive Hearing Loss**

Example: White forelock

## Appendix C

### **Postnatal Infection**

Includes: Bacterial meningitis, herpes, varicella

### **Recurrent or Persistent Otitis Media with Effusion Greater Than Three Months**

### **Syndromes Associated with Sensorineural, Conductive, or Progressive Hearing Loss**

Includes: Trisomy 21-Down syndrome, Goldenhar, Pierre Robin, CHARGE association, Rubinstein-Taybi, Stickler, Usher, osteopetrosis, Neurofibromatosis type II, Treacher Collins

*This list of risk factors above is based on the Joint Committee on Infant Hearing Recommendations (JCIH ) published Fall 2007.*

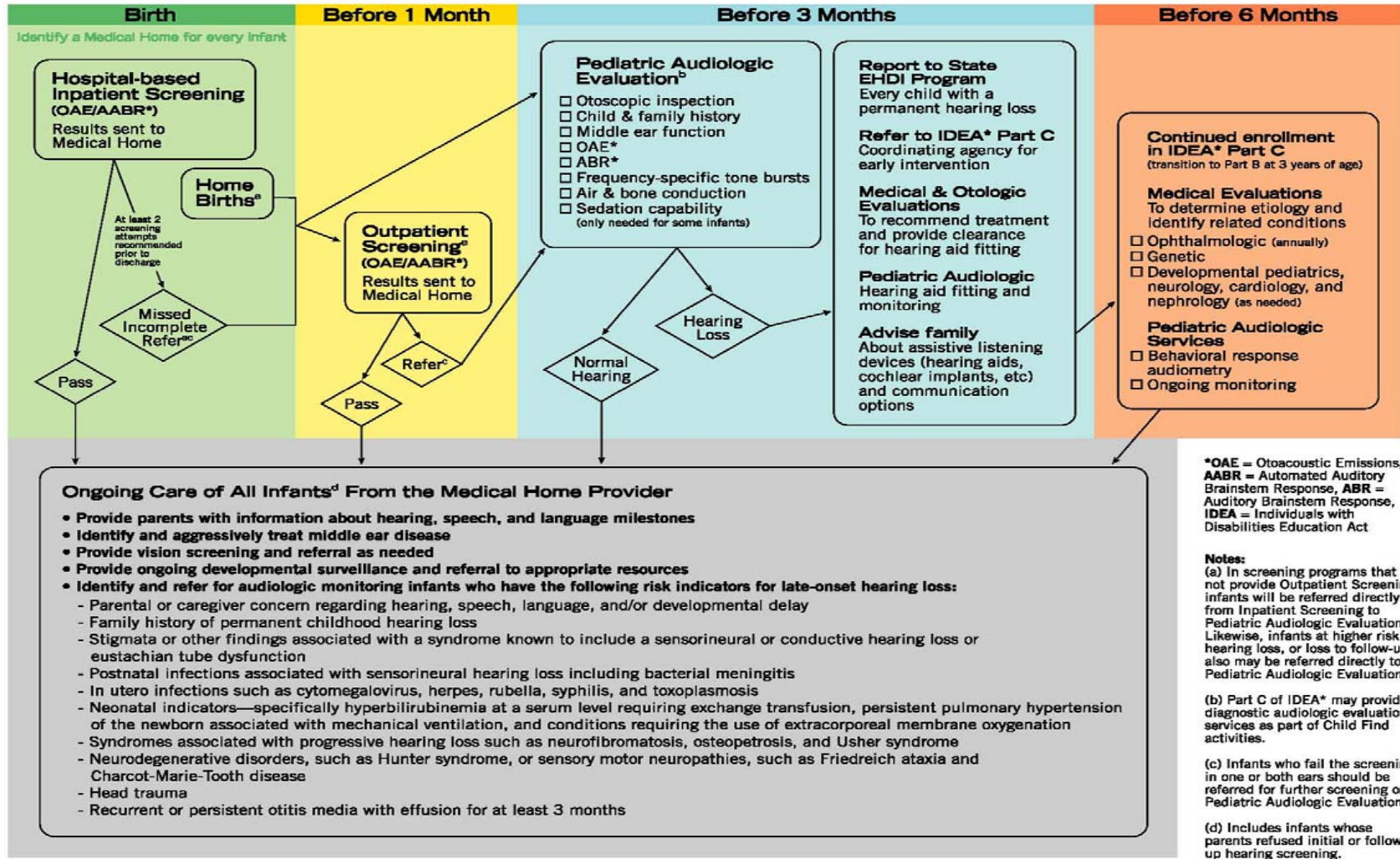
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# Universal Newborn Hearing Screening, Diagnosis, and Intervention Guidelines for Pediatric Medical Home Providers



January 2003



## Newborn Hearing Screening Protocol

**Policy** All newborns and infants born in Iowa, except those born with a condition that is incompatible with life, shall be screened for hearing loss to aid in the identification of infants with permanent hearing loss.

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**Background** It has long been recognized that unidentified hearing loss at birth can adversely affect speech and language development as well as academic achievement and social-emotional development.

National recommendations are to have an infant's hearing screened before ONE month of age, hearing loss identified by THREE months of age and early intervention services in place by SIX months of age.

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**Personnel** Every birth hospital or birth center shall designate an employee to be responsible for the newborn hearing screening program in that institution.

Newborn hearing screen shall be performed by an audiologist, audiology assistant, audiometrist, registered nurse, licensed physician, or other person for whom newborn hearing screening is within the person's scope of practice.

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**Equipment** All newborns and infants born in Iowa, except those born with a condition that is incompatible with life, shall be screened for hearing loss using at least one of the following procedures:

1. Automated auditory brainstem response (AABR), or
2. Evoked otoacoustic emissions (OAE)

Equipment shall be calibrated in accordance with manufacturer's recommendation and a log sheet will be kept documenting the dates of calibration, repair, or replacement of parts.

Disposable components of equipment shall not be reused.

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***The state EHDI program will not recommend or endorse a particular brand of equipment; however, the following technologies are acceptable.***

**Otoacoustic Emissions** A miniature earphone and microphone are placed in the ear. Sounds are played and a response is measured. If a baby hears normally, an echo is reflected back into the ear canal and measured by the microphone. When a baby has a hearing loss, no echo can be measured on the OAE test. Two most commonly used are:

## Appendix E

- Transient Evoked Otoacoustic Emissions (TEOAE) - Sounds emitted in response to an acoustic stimulus of very short duration; usually clicks but can be tone-bursts.
  - Distortion Product Otoacoustic Emissions (DPOAE) - Sounds emitted in response to two simultaneous tones of different frequencies.
- 

### **Automated auditory brainstem response (AABR)**

Sounds are played to the baby's ears after band-aid like electrodes are placed on the baby's head to detect responses. This screening measures how the hearing nerve responds to sounds and can identify babies who have a hearing loss.

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### **Screening Parameters and Pass Criteria for DPOAE**

#### **DPOAE**

##### **Collection parameters**

- Stimulus type: two primary pure tones, response measured at  $2f_1-f_2$  for each
- stimulus tone pair
- Stimulus intensity: L1 65 dB SPL, L2 55 dB SPL
- Frequency ratio ( $f_2/f_1$ ): 1.22
- F2 Frequency region: 2-5 kHz

##### **Pass criteria**

- Response presence can be determined by examining response level or by examining the response level relative to the noise floor (SNR) (ASHA 2004).
  - SNR should be at least 6 dB, with a minimum response level of -5 to -8 dB SPL and an acceptably low noise floor (-4 dB SPL or less) at a minimum of 3 of 4 F2 frequencies.
- 

### **Screening Parameters and Pass Criteria for TEOAE**

#### **TEOAE**

##### **Collection parameters**

- Stimulus type: click
- Click rate: 50-80 per second
- Stimulus intensity: 78-82 dB SPL
- Frequency region: 1-5 kHz

##### **Pass criteria**

Common clinical practice defines presence of a response as a SNR of at least 6 dB, or an overall minimum amplitude (wideband) response of 6 dB, with a reproducibility of 50 percent or greater.

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## Appendix E

### Screening Parameters for AABR

**AABR Stimulus Parameters**  
Stimulus type: 0.1 msec click  
Intensity: 35 dB nHL

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### When to stop screening

Many factors influence the outcome of a hearing screen, such as:

- technology used
- skill of the screener
- state of the baby
- noise level in the room
- age at which the infant is screened
- hearing sensitivity of the baby

To reduce the refer rate at the time of discharge, babies who refer on the first screen are often screened again. While this is a viable means of reducing the false positive rate (referring babies with normal hearing), **excessive re-screening** can increase the false negative rate (passing babies with actual hearing loss).

No guidelines are currently available that address the number of times a hearing screen should be repeated on a baby before hospital discharge or at outpatient follow-up. Because birthing debris in the ear canal is the primary cause of false positive results, the preferable age of initial screening is 24 hours of age in the well-baby nursery, and at least five days of age in the NICU. Ear canal massage between screens is recommended.

The following guidelines can be used until published data are available.

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### Stop Criteria for Well Baby Nursery

Assuming that screening conditions are adequate (quiet baby, quiet room, acceptable probe fit):

#### **OAE screening in the well-baby nursery**

- Two screening sessions of no more than three screens per ear are recommended, for a total of six screens per ear.
- The screening sessions should be conducted several hours apart.

#### **AABR screening in the well-baby nursery**

- No more than two screens per ear are recommended.

The screens should be conducted several hours apart.

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### Stop Criteria for NICU

Assuming that screen conditions are adequate (quiet baby with little or no muscle movement, quiet room, acceptable electrode impedance and headphone placement):

**OAE screening is not recommended.**

**AABR screening in the NICU**

- Baby should be screened close to the time of discharge.
  - If the baby is less than five days old, follow the well-baby protocol for AABR.
  - If the baby is at least five days of age, recommended stopping criterion is one screen per ear.
- 

**Stopping  
Criteria for  
Outpatient  
Screening**

Assuming that the babies are at least five days of age, and screening conditions are adequate:

**OAEs**

- Three screenings per ear.
- If baby passes on the third attempt, the screen should be immediately repeated. If the pass result cannot be replicated, the result should be recorded as “refer.”
- Proceed to AABR, if available.

*A baby who referred on an AABR in the NICU, should not be re-screened with OAE alone. AABR re-screening is required. If both types of screens are utilized, record results in the statewide EHDI data management system.*

- Scheduling a second outpatient OAE re-screen is not recommended.
- Proceed to a comprehensive evaluation following *Pediatric Audiologic Diagnostic Protocol* at [www.idph.state.ia.us/iaehdi/professionals.asp](http://www.idph.state.ia.us/iaehdi/professionals.asp).

**AABR**

- One screen per ear.
- Scheduling a second outpatient screening AABR is not recommended.

Proceed to a comprehensive evaluation following *Pediatric Audiologic Diagnostic Assessment Protocol* at [www.idph.state.ia.us/iaehdi/professionals.asp](http://www.idph.state.ia.us/iaehdi/professionals.asp)

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**Parent  
Notification**

The person who completes the newborn hearing screening shall report newborn hearing screening results to the parent or guardian in written form. Although not required by law, it is also wise to discuss the results verbally in language the parents can understand.

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## Appendix E

### **Parent Refusal**

Although parental consent is not necessary to perform newborn hearing screening, parental objection to the screening is valid. If a parent refuses the newborn hearing screen, obtain a written refusal from the parent or guardian (form available at [www.idph.state.ia.us/IAEHDI/professionals.asp](http://www.idph.state.ia.us/IAEHDI/professionals.asp), go to parent refusal form). Maintain the original copy in the infant's medical record. A copy of the refusal should be sent to the Iowa Department of Public Health within six days of the infant's birth.

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### **Required Reporting of Hearing Screen Results**

The following information shall be reported to the Iowa Department of Public Health within six days of the birth of the newborn, utilizing the department's designated reporting system.

1. The name and date of the birth of the newborn.
  2. The name, address and telephone number, if available, of the mother of the newborn. If the mother is not the person designated as legally responsible for the child's care, the name address and telephone number of the guardian shall be reported.
  3. The name of the primary care healthcare provider for the newborn once they leave the hospital or birth center.
  4. The results of the newborn hearing screening, either 'pass', 'refer', or 'not screened', for each ear separately.
  5. The results of any re-screening, either 'pass' or 'refer', and the diagnostic audiologic assessment procedures used for each ear separately.
  6. The name, address and telephone number, if available, of the mother of the newborn. If the mother is not the person designated as legally responsible for the child's care, the name address and telephone number of the guardian shall be reported.
  7. The name of the primary care provider for the newborn at the birthing hospital or birth center.
  8. The results of the newborn hearing screening, either 'pass', 'refer', or 'not screened', for each ear separately.
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### **Confidentiality**

Reports, records, and other information collected by or provided to the department relating to a child's newborn hearing screening, re-screen, and diagnostic audiologic assessment are confidential records.

Personnel of the Iowa Department of Public Health shall maintain the confidentiality of all the information and records used in its review.

No individual or organization providing information to the department in accordance with its rules shall be deemed to be or held liable for divulging confidential information.

Reference: Code of Iowa – 135.131







## Pediatric Audiologic Diagnostic Assessment Protocol

The following protocol should be used to facilitate the diagnosis of hearing loss by three months of age and entry into early intervention for infants with hearing loss by six months of age. This diagnostic protocol should be implemented by an audiologist licensed by the Iowa Board of Speech Pathology and Audiology Examiners.

Infants should be referred for a diagnostic evaluation after receiving a refer result from one or both ears on a newborn hearing screen and a hearing re-screen performed at two to six weeks of age. Timely referral for diagnostic Auditory Brainstem Response testing may negate the need for sedation for this test in very young infants. Infants who are identified as at-risk for congenital or late-onset hearing loss (JCIH, 2007-link to the EHDI Web site page for the list of risk factors, [http://www.idph.state.ia.us/iaehdi/common/pdf/risk\\_factors.pdf](http://www.idph.state.ia.us/iaehdi/common/pdf/risk_factors.pdf)) should receive an audiological assessment at least once by 24 to 30 months of age. Children with risk indicators that are highly associated with delayed-onset hearing loss, such as having received ECMO or having congenital CMV infection, should have more frequent audiological assessments based on infant or toddler needs. All infants for whom the family has significant concerns regarding hearing or communication should be promptly referred for an audiological and speech-language assessment.

### **Audiologic diagnostic centers should be prepared to provide the following services:**

#### I. Measures of auditory sensitivity

##### A. Auditory brainstem response (ABR)

Infants who do not pass the newborn hearing screen or re-screen should be evaluated with a click-evoked air-conduction ABR and at least one low-frequency tone burst ABR, preferably at 500 Hz. Response waveforms should be measured at several levels to allow threshold determination and latency-intensity functions. When thresholds are determined to be elevated, the audiologist may measure the ABR with frequency-specific stimuli at other frequencies as well. Infants suspected of having significant conductive hearing loss should be considered for bone-conduction ABR testing. Clinicians should be aware that technological advances will continually improve recommended protocols.

##### B. Evoked otoacoustic emissions (OAE)

Transient evoked otoacoustic emissions (TEOAE) or distortion product otoacoustic emissions (DPOAE) should be used to confirm the magnitude and configuration of the hearing loss, as determined by the ABR.

##### C. Behavioral measures

At a developmental age of six months or older it is possible to obtain reliable behavioral audiometric information using Visual Reinforcement Audiometry (VRA). While this test has traditionally been performed in the sound field, ear-specific threshold information can be obtained using insert earphones. VRA is an important technique for use in monitoring auditory thresholds, especially during the first few years of hearing aid use.



## Appendix G

### II. Measures of middle ear function

#### A. Tympanometry

Although pass/fail criteria for tympanograms from infants under six months of age are currently being developed, an infant audiologic evaluation should include an admittance tympanogram at 1000 Hz to help determine middle ear function.

#### B. Acoustic reflexes

Ipsilateral or contralateral acoustic reflexes should be measured at a minimum of two activator frequencies (1000 and 2000 Hz) at a probe tone of 800 or 1000 Hz.



## What to Tell Parents about Hearing Screen Results

### **Bilateral Pass**

When a baby passes the hearing screen for both ears, this indicates that the structures of the ear are working normally, and should indicate that peripheral auditory function is normal. Remind parents that the screening indicates how their baby is hearing on the day of the test and does not predict how they will be hearing in the future. Encourage parents to seek further evaluation if, at any time, they are concerned about their baby's hearing. If their baby is at risk for delayed onset/progressive hearing loss (e.g., risk indicators such as CMV, family history of hearing loss at an early age), re-evaluation is strongly recommended at six to eight months of age by an audiologist. A re-evaluation is recommended between 24-30 months for children with risk factors such as ototoxic medication administration, craniofacial anomalies, and NICU greater than five days. In addition, parents should seek further evaluation if speech and language milestones fail to develop as predicted by eight months of age. Include the EHDI brochure which includes speech and language milestones on the back in the parents' discharge packet for their reference.

### **Unilateral Refer**

Stress the importance of seeking re-evaluation to determine hearing sensitivity in the ear that did not pass. The most common reason for a baby not passing the screen within the first three days of life is the presence of birthing debris blocking the ear canal, followed by middle ear fluid. Of course, there is the possibility that permanent hearing loss exists. *Please note that many children with normal hearing in just one ear develop normal speech and language; however, some children may not or they may have difficulty learning.* Babies born with hearing loss in one ear are at risk for developing hearing loss in the other ear as well. Help parents arrange for follow-up testing within one to two weeks of discharge, while their baby is still sleeping frequently. Parents often prefer to have someone discuss the results with them before leaving the hospital. Avoid using the word fail! This is an initial screen and indicates that a hearing problem **may** exist.

### **Bilateral Refer**

Stress the importance of seeking re-evaluation to determine hearing sensitivity. Again, the most common reason for not passing the screen within the first three days of life is the presence of birthing debris in the ear canal, followed by middle ear fluid. Of course, the possibility of permanent hearing loss exists. *Inform parents of the importance of identifying permanent hearing loss at a young age, so that their child can learn to talk and develop at the same rate as children with normal hearing.* Help parents make arrangements for follow-up testing within one to two weeks of discharge, while their baby is still sleeping frequently. Parents often prefer to have someone discuss the results with them before leaving the hospital. Avoid using the word fail! This is an initial screen and indicates that a hearing problem **may** exist.



## **EHDI Technical Assistance Team**

### **State EHDI Coordinator**

Tammy O'Hollearn  
Iowa Department of Public Health  
(515) 242-5639  
[tohollea@idph.state.ia.us](mailto:tohollea@idph.state.ia.us)

### **EHDI Follow-Up Coordinator**

Erin Kongshaug  
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(515) 281-4653  
[erin-kongshaug@uiowa.edu](mailto:erin-kongshaug@uiowa.edu)

## **Audiology Technical Assistance**

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University of Iowa Hospitals and Clinics  
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Nick Salmon  
University of Iowa Hospitals and Clinics  
Center for Disabilities and Development  
(515) 576-5312  
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Emily Andrews  
University of Iowa Hospitals and Clinics  
Center for Disabilities and Development  
(319) 384-6894  
[emily-andrews@uiowa.edu](mailto:emily-andrews@uiowa.edu)

**Early ACCESS (EA) – Early Hearing Detection and Intervention (EHDI)  
Questions and Answers Summary**

**The Referral and Follow-up Process**

<p><b>Can our region receive referrals more often?</b></p>
<p>The EHDI program does not plan to make referrals more than once a month. However, each AEA region can search for babies needing follow-up in the eSP data system as often as they wish. If you need help with this search, contact a member of the EHDI staff for assistance.</p>
<p><b>When I search for babies in my area that need follow-up, I sometimes find babies for whom I have not received a referral. Why does this happen?</b></p>
<p>There are many reasons that this may have happened. It should happen less and less, but it will continue to occur from time to time. The records may have been entered after the initial referrals were sent for that month. Hospitals occasionally take longer than the six day timeline to get children entered or they miss entering a child for one reason or another. EHDI staff members compare what is in eSP with vital records reports to find children that were missed. We then ask hospitals to add those children that were missed.</p>
<p><b>How many referrals should EA expect from the EHDI program?</b></p>
<p>We expect to make approximately 100 referrals each month. However, we expect the number to decrease as EHDI services improve. As hearing screening results are reported, the EHDI program is able to identify hospitals in need of technical assistance to lower their failed/missed screening rate. In addition, some of these babies may have already received follow-up services that were not reported to the state, and will not need anything further.</p> <p>We estimate that, of the children born each year in Iowa, approximately 100 will be diagnosed with a hearing loss.</p>
<p><b>Who at the AEA will receive the referrals?</b></p>
<p>The person designated by the region to receive EHDI referrals.</p>
<p><b>Should the Pre-Service Coordinator check the EHDI data management system before contacting families referred to EA?</b></p>
<p>Yes. Information is updated and/or entered into the data management system on a daily basis. The child’s record may have been updated since the referral was created.</p>
<p><b>Who should be the family’s Pre-Service Coordinator?</b></p>
<p>The Pre-Service Coordinator could be the audiologist who has carried out this task in your agency in the past. Others within the AEA or from the interagency service coordinator pool could also be Pre-Service Coordinators.</p>
<p><b>What are the family’s options for the follow-up hearing screening (re-screen)?</b></p>
<p>Families have a number of options. Some hospitals will allow the family to bring the baby back to the hospital for the follow-up hearing screening or the family’s pediatrician might provide the follow-up hearing screening. Private practice audiologists can also perform the re-screen. AEA audiologists offer follow-up hearing screenings at no charge. Whether or not there will be an</p>

## Appendix J

expense for the family depends on the family's insurance status, providers' insurance billing practices and fees, and the family's preferences. The Pre-Service Coordinator would work with the family to inform them of which options are at no cost.

Parents have the right to choose where they want to take their child for the follow-up screening, so it is important that all these options be presented to them and the cost implications discussed.

### **Will parents have consented to the referral for pre-service coordination services?**

No. The Early Hearing Detection and Intervention (EHDI) law allows the Iowa EHDI system to refer to EA without obtaining parental consent. The following statement is from the EHDI law: *"The department may share information with agencies and persons involved with newborn and infant hearing screenings, follow-up, and intervention services, including the local birth-to-three coordinator or similar agency, the local area education agency, and local health care providers."*

### **What does a "refer" result mean on the hearing screening?**

In general, hospitals and audiologists use "pass" or "refer" to describe the baby's hearing screening result. "Refer" generally means the baby did not pass the hearing screening. When used to describe a screening result, "refer" does not necessarily mean that a referral for further services was made.

### **What should I do when a family cancels due to difficulty making it to the appointment (transportation, child care, etc.)?**

Helping the family work through these difficulties is a part of Early ACCESS pre-service coordination. If you are not an EA pre-service coordinator, please contact that person in your region for assistance.

## **Reporting**

### **Should an *Early ACCESS Authorization for Exchange of Information* be signed?**

The *EA Authorization for Exchange of Information* is not required for an audiologist to enter information into the eSP database. Audiologists are required by law to report hearing screening, re-screen and diagnostic results (including no-show appointments) for children under three to IDPH. If the family refuses a re-screen and the pre-service coordinator is not an audiologist, the pre-service coordinator should communicate that refusal to an audiologist. That audiologist should report the refusal in eSP, otherwise that child will keep showing up as needing follow-up until it is reported in eSP.

The *EA Authorization for Exchange of Information* would be used in a couple of circumstances:

- In cases where audiologists are not pre-service coordinators, EA personnel need a signature on the *Authorization for Exchange of Information* form to report contact with the family to IDPH due to FERPA. Pre-service coordinators can then send the completed *Referral for Hearing/Audiology Follow Up Services* form to IDPH.

Appendix J

- In cases where EA is providing early intervention services to a child, the family must sign the *EA Authorization for Exchange of Information* form so they can report enrollment in EA to the IDPH. An audiologist would still be required by law to report the screen, re-screen, or diagnostic results on a child in EA.

When in doubt, it is better to err on the side of getting a signed release and list the pre-service coordinator's agency as one of the agencies. It is documentation that families were well-informed about who will be exchanging information.

**If the family reports that the child has already had a re-screen and does not need any further follow-up, does the Pre-Service Coordinator need to get results from the screening facility to complete the bottom of the *Referral for Hearing/Audiology Follow Up Services* form?**

No. However, if the Pre-Service Coordinator is able to get more information (especially screening location), the EHDI program would appreciate knowing that. If the parent doesn't know the exact date of the re-screen, the closest they can come is fine (for example, June of 2007, or 2 weeks before date of call). Please ask the parent who the screener was (i.e. hospital, private audiologist, etc.) and include that information on the form so that we can follow-up directly with the provider. That will also provide us with the opportunity to provide some technical assistance regarding reporting requirements.

**Do all *Referral for Hearing/Audiology Follow Up Services* forms need to be faxed back to the EHDI program?**

No. Please enter all possible information into the data management system. If you are not successful in reaching the family, you do need to fax back the form or notify the EHDI staff via e-mail or phone.

**The results in the data management system for some children are different than what the local hospital reported to the AEA. What do I need to do?**

Please get the names of the children to the state EHDI office. We will follow-up with the birth hospital to determine the correct results. This will also give us a chance to discuss quality assurance issues with the hospital.

**How does the EHDI program get results of hearing screenings done at doctors' offices?**

Physician offices that offer hearing re-screens should be reporting results to the EHDI program just as hospitals and AEAs do. Please notify the EHDI program staff of any physician offices in your area that provide re-screens so that we can ensure that they are reporting results.

**If an AEA refers the child on for further assessment, and the diagnostic facility reports to the EHDI program and not the AEA, how will the AEA audiologist know the results of the diagnostic assessment?**

If the AEA audiologist has access to the child’s record in the eSP database because they have been working with the child already, they will be able to see the results provided by the other service provider once they are entered in eSP. If they want to get the results directly from the diagnostic facility, they can send a completed *Early ACCESS Authorization for Exchange of Information with the parent to take to the assessment*. Note: If it is a health entity that has HIPPA requirements, use the *EA Authorization for Release of Health Information*.

**Are hospitals reporting screening results to children’s physicians?**

It depends on the hospital. The EHDI program encourages every hospital to inform physicians of their patients’ results.

**The EHDI Data Management System**

**Do hospitals assign the AEA as a service provider for children who do not pass or miss their newborn hearing screening?**

The EHDI program does strongly encourage hospitals to add AEAs as service providers for children who need follow-up screening. This is not required by law, however, and hospitals must have a signed release of information before assigning the AEA as a provider.

**If AEA personnel cannot find a baby in the eSP system, should they add it?**

Not necessarily. In order to avoid duplicate records, please first let the state EHDI Coordinator know the name, date of birth, birth hospital, and mother’s name of the child you can’t find. She will then attempt to locate the baby in the system. Tammy will let the AEA know whether the child should be added or how to find the baby in the data management system.

If a baby was born out of the state or country, it will probably need to be added to the data management system. Please search for the baby first, however, so that duplicates can be avoided. If you have determined that you need to enter the baby and you need help doing that, contact the state EHDI Coordinator.

**Should the AEA use the appointment function in the data management system to note the date and time of upcoming audiological appointments?**

If the AEA has the appointment scheduled, it is a good idea to use the appointment feature. This acts as a reminder for you, and lets the EHDI program know that follow-up is scheduled, so a referral for pre-service coordination is not needed.

**How do I enter a baby born out-of-state into eSP?**

If a child is born out of state or country, first search (if you have access to IDPH) to ensure they are not in the system. Once in a while Tammy will get referrals from other states and she automatically enters them into the system before making the referral to the AEA.

## Appendix J

If you are a token user that has access to IDPH, never enter them under IDPH or it will show IDPH as the birth screen provider. EHDI also does not want the AEA's listed as the birth screen provider either otherwise the EHDI program staff have to go back and correct all the records to get accurate data. To add the babies to the system you can do it one of two ways depending on what your access is. The instructions are listed below.

**If you have access to IDPH:**, select "Out of State Babies" facility. Once you have selected that facility, click on patients, add patient and begin filling out the form as much as possible. We realize that most likely you will not have time of birth and/or GA and weight. Add the PCP/Medical Home (primary care physician as a provider. The instructions are in your user manual on page 18. Add your AEA as an audiologist. That would then give you or anyone else in your AEA access to that child's record. To add the child's results, you would select your AEA as the facility and enter the results as you normally would.

**If you have access to your AEA only:** add the baby as you normally would (go to patients, add patient and begin working your way through the form). When you get to place of birth select Hospital or Home depending on which one it is. Then you will see hospital and it will give you a drop down list to select from. Some of the bordering state hospitals are included in that list, otherwise select "Out of State Babies" or "Out of Country Babies" accordingly. Add the AEA as an audiologist and the primary care physician as PCP/Medical Home. Once you return to the demographics tab after you have entered the PCP and AEA as an audiologist, you will see your AEA also listed as the birth screen provider on the demographics tab under Patient Professional Contacts. We don't want the AEA listed as the birth screen provider. To remove the AEA as birth screen provider, you first want to add the hospital of birth or "out of state babies" as the birth screen provider. After you see the following example

	Name	Service Type
View Remove	Olk, Douglas (MD)	PCP/Medical Home
View Remove	Mercy Medical Center-Dubuque	Birth Screen Provider

there is a remove button to the left of the AEA-birth screen provider. Click on that button. You will only want to hit remove if you are listed as the audiologist or you will no longer have access to the record. You don't want that. You will want to go back and select birth screen provider as the service, select search for a place (facility), locate professional contact. Then enter "out" by facility name, hit enter, and then you will get either "Out of State Babies" or "Out of Country Babies", select the correct one and click on save and return to the demographics tab. Once you have saved it, both AEA 14 and Out of State Babies will be listed as the birth screen provider. Click on the "remove" button that is next to the AEA 1 – birth screen provider. That will then remove the AEA as the birth screen provider. Keep "Out of State Babies" as the birth screen provider and keep AEA 14-Green Valley as the Audiologist.

If you are confused regarding the directions, just e-mail or call! Tammy can walk you through it. Please share these directions with any other audiologist in your AEA that may access the system and have kids to enter who are out of state or out of country.



Appendix K – Risk Factors Letters

December 12, 2008

«RecipientTitle» «RecipientFirstname» «RecipientLastName»  
«RecipientAddress» «RecipientAptOrSuite»  
«RecipientCity», «FacilityState» «RecipientZipCode»

**Baby's Name:** «PatientFirstName» «PatientLastName»

**Baby's DOB:** «PatientDOB»

**Risk factor(s) for hearing loss:**

Dear «RecipientTitle» «RecipientLastName»:

Congratulations on the birth of your baby! As required by law, the hospital where your baby was born reported information about the newborn hearing screening to the Iowa Department of Public Health. **The hospital has reported that your baby has a risk factor that is strongly associated with hearing loss that develops at a later date and that affects speech and language development. This type of hearing loss can happen after the newborn hearing screening is done at the hospital.** The steps below tell you about the follow-up your baby needs.

- By 6 months of age you should have your baby's hearing checked again (even if he or she passed the newborn hearing screening). If you think your baby may not be hearing well before then, get his or her hearing checked sooner.
- Make an appointment with an audiologist for the hearing check. Your audiologist will decide what tests your baby needs, and if more tests will be done in the future.
- If you need help scheduling the hearing check, please call Early ACCESS Iowa at 1-888-IAKIDS1 (1-888-425-4371). They can tell you about audiologists in your area. You can also ask your doctor about audiologists in your area.

Please go to the Iowa Early Hearing Detection and Intervention (EHDI) web site at <http://www.idph.state.ia.us/iaehdi> for information about:

- Risk factors
- Audiologists who serve children
- Developmental milestones to help you know whether your baby needs a hearing recheck sooner than 6 months

We have also notified your child's primary healthcare provider of your baby's risk factors. Your doctor can help you find an audiologist and can tell you more about your baby's risk factor(s).

Sincerely,

Tammy O'Hollearn  
Iowa EHDI Coordinator  
Cc: Physician name

Erin Kongshaug  
Iowa EHDI Follow-Up Coordinator

Appendix K – Risk Factors Letters

December 12, 2008

Dr. «RecipientFirstname» «RecipientLastName»  
«RecipientAddress» «RecipientAptOrSuite»  
«RecipientCity», «FacilityState» «RecipientZipCode»

**Patient's Name:** «PatientFirstName» «PatientLastName»  
**Mother's Name:**  
**Patient's DOB:** «PatientDOB»  
**Patient's Medical Record Number:** «PatientMedicalRecNo»  
**Risk factor(s):**

Dear Dr. «RecipientLastName»:

This baby's birth hospital has reported that he or she has a **high-risk indicator(s) that is strongly associated with late-onset hearing loss** that affects speech and language development (see <http://pediatrics.aappublications.org/cgi/content/full/120/4/898#SEC10> for more information on risk factors). **This type of hearing loss can occur after the newborn hearing screening is done. Additional assessment is recommended to rule out hearing loss that occurred after the birth screen.**

A fax back form is enclosed. **If you have new or additional information, please complete the form and fax it back to the Iowa EHDI program.**

Please work with the family to ensure the following:

- A hearing assessment should be done around 6 months-of-age. The assessment should be conducted regardless of the results of his or her newborn hearing screening. If there are concerns about his or her hearing before that age, the assessment should happen sooner.
- An audiologist should conduct the hearing assessment. Please refer the family to an audiologist in your area. A list is available at [http://www.idph.state.ia.us/iaehdi/common/pdf/iowa\\_audiology\\_centers.pdf](http://www.idph.state.ia.us/iaehdi/common/pdf/iowa_audiology_centers.pdf).

Resources are available to you and the family:

- Iowa Early Hearing Detection and Intervention (EHDI) web site: <http://www.idph.state.ia.us/iaehdi>
- Early ACCESS Iowa: 1-888-IAKIDS1 (1-888-425-4371) and <http://www.earlyaccessiowa.org/>
  - Information about audiologists and Early ACCESS

Thank you for your assistance in assuring that this baby gets necessary follow-up.

Sincerely,



Tammy O'Hollearn  
Iowa EHDI Coordinator



**Iowa Early Hearing Detection and Intervention  
Physician Follow-up  
Fax-Back Form**

**Complete and Fax to:  
Tammy O'Hollearn at (515) 242-6013**

**Note: Please complete and return this form only if you have new information to report.**

Dr. «Dr First Name» «Dr Last Name»  
«Dr Address 1» «Dr Address 2»  
«Dr City», «Dr State» «Dr Zip»

Patient's Name: «Patient First Name» «Patient Last Name»

**Patient's DOB:** «Patient DOB»

**Patient's Medical Record Number:** «Med Record #»

**I am still this child's primary care physician (PCP).**

- Yes
- No

If no, please list the new PCP, if known: \_\_\_\_\_

**Results of any hearing assessment (s) done after discharge:**

(Newborn hearing screening results were reported by the hospital)

Right ear: <ul style="list-style-type: none"> <li><input type="checkbox"/> Pass</li> <li><input type="checkbox"/> Did not pass</li> <li><input type="checkbox"/> Assessment will be done at a later date</li> <li><input type="checkbox"/> Unknown</li> </ul> Date: _____ Location: _____	Left ear: <ul style="list-style-type: none"> <li><input type="checkbox"/> Pass</li> <li><input type="checkbox"/> Did not pass</li> <li><input type="checkbox"/> Assessment will be done at a later date</li> <li><input type="checkbox"/> Unknown</li> </ul> Date: _____ Location: _____
--	---

**Parent/Guardian for this child:**

<b>Information provided by hospital:</b>	<b>Updated information (if applicable):</b>
--	---

Appendix K – Risk Factors Letters

December 12, 2008

«RecipientTitle» «RecipientFirstname» «RecipientLastName»  
«RecipientAddress» «RecipientAptOrSuite»  
«RecipientCity», «FacilityState» «RecipientZipCode»

**Baby's Name:** «PatientFirstName» «PatientLastName»

**Baby's DOB:** «PatientDOB»

**Risk factor(s) for hearing loss:**

Dear «RecipientTitle» «RecipientLastName»:

Congratulations on the birth of your baby! As required by law, the hospital where your baby was born reported information about the newborn hearing screening to the Iowa Department of Public Health. **The hospital has reported that your baby has a risk factor that may mean he/she could later develop a hearing loss that affects speech and language development. This type of hearing loss can happen after the newborn hearing screening is done at the hospital.** The steps below tell you about the follow-up your baby needs.

- By 24 to 30 months of age you should have your baby's hearing checked again (even if he or she passed the newborn hearing screening). If you think your baby may not be hearing well before then, get his or her hearing checked sooner.
- Make an appointment with an audiologist for the hearing check. Your audiologist will decide what tests your baby needs, and if more tests will be done in the future.
- If you need help scheduling the hearing check, please call Early ACCESS Iowa at 1-888-IAKIDS1 (1-888-425-4371). They can tell you about audiologists in your area. You can also ask your doctor about audiologists in your area.

Please go to the Iowa Early Hearing Detection and Intervention (EHDI) web site at <http://www.idph.state.ia.us/iaehdi> for information about:

- Risk factors
- Audiologists who serve children
- Developmental milestones to help you know whether your baby needs a hearing recheck sooner than 24 – 30 months

We have also notified your child's primary healthcare provider of your baby's risk factors. Please talk to your doctor or the hospital where your baby was born if you have questions about the risk factor(s) listed.

Sincerely,

Tammy O'Hollearn  
Iowa EHDI Coordinator

Erin Kongshaug  
Iowa EHDI Follow-Up Coordinator

Cc: Physician

Appendix K – Risk Factors Letters

December 12, 2008

Dr. «RecipientFirstname» «RecipientLastName»  
«RecipientAddress» «RecipientAptOrSuite»  
«RecipientCity», «FacilityState» «RecipientZipCode»

**Patient's Name:** «PatientFirstName» «PatientLastName»  
**Patient's DOB:** «PatientDOB»  
**Patient's Medical Record Number:** «PatientMedicalRecNo»  
**Risk factor(s):**

Dear Dr. «RecipientLastName»:

This baby's birth hospital has reported that he or she has a **high-risk indicator(s) for late-onset hearing loss that affects speech and language development** (see <http://pediatrics.aappublications.org/cgi/content/full/120/4/898#SEC10> for more information on risk factors). **This type of hearing loss can occur after the newborn hearing screening is done. Additional assessment is recommended to rule out hearing loss that occurred after the birth screen.**

A fax back form is enclosed. **If you have new or additional information, please complete the form and fax it back to the Iowa EHDI program.**

Please work with the family to ensure the following:

- A hearing assessment should be done around 24 – 30 months-of-age. The assessment should be conducted regardless of the results of his or her newborn hearing screening. If there are concerns about his or her hearing before that age, the assessment should happen sooner.
- An audiologist should conduct the hearing assessment. Please refer the family to an audiologist in your area. A list is available at [http://www.idph.state.ia.us/iaehdi/common/pdf/iowa\\_audiology\\_centers.pdf](http://www.idph.state.ia.us/iaehdi/common/pdf/iowa_audiology_centers.pdf).

Resources are available to you and the family:

- Iowa Early Hearing Detection and Intervention (EHDI) web site: <http://www.idph.state.ia.us/iaehdi>
- Early ACCESS Iowa: 1-888-IAKIDS1 (1-888-425-4371) and <http://www.earlyaccessiowa.org>.
  - Information about audiologists and Early ACCESS

Thank you for your assistance in assuring that this baby gets necessary follow-up.

Sincerely,



Tammy O'Hollearn  
Iowa EHDI Coordinator



**Iowa Early Hearing Detection and Intervention  
Physician Follow-up  
Fax-Back Form**

Complete and Fax to:  
Tammy O’Hollearn at (515) 242-6013

**Note: Please complete and return this form only if you have new information to report.**

Dr. «Dr First Name» «Dr Last Name»  
«Dr Address 1» «Dr Address 2»  
«Dr City», «Dr State» «Dr Zip»

Patient’s Name: «Patient First Name» «Patient Last Name»

**Patient’s DOB:** «Patient DOB»

**Patient’s Medical Record Number:** «Med Record #»

**I am still this child’s primary care physician (PCP).**

- Yes
- No

If no, please list the new PCP, if known: \_\_\_\_\_

**Results of any hearing assessment(s) done after discharge:**

(Newborn hearing screening results were reported by the hospital)

Right ear: <ul style="list-style-type: none"> <li><input type="checkbox"/> Pass</li> <li><input type="checkbox"/> Did not pass</li> <li><input type="checkbox"/> Assessment will be done at a later date</li> <li><input type="checkbox"/> Unknown</li> </ul> Date: _____ Location: _____	Left ear: <ul style="list-style-type: none"> <li><input type="checkbox"/> Pass</li> <li><input type="checkbox"/> Did not pass</li> <li><input type="checkbox"/> Assessment will be done at a later date</li> <li><input type="checkbox"/> Unknown</li> </ul> Date: _____ Location: _____
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**Parent/Guardian for this child:**

<b>Information provided by hospital:</b>	<b>Updated information (if applicable):</b>
--	---