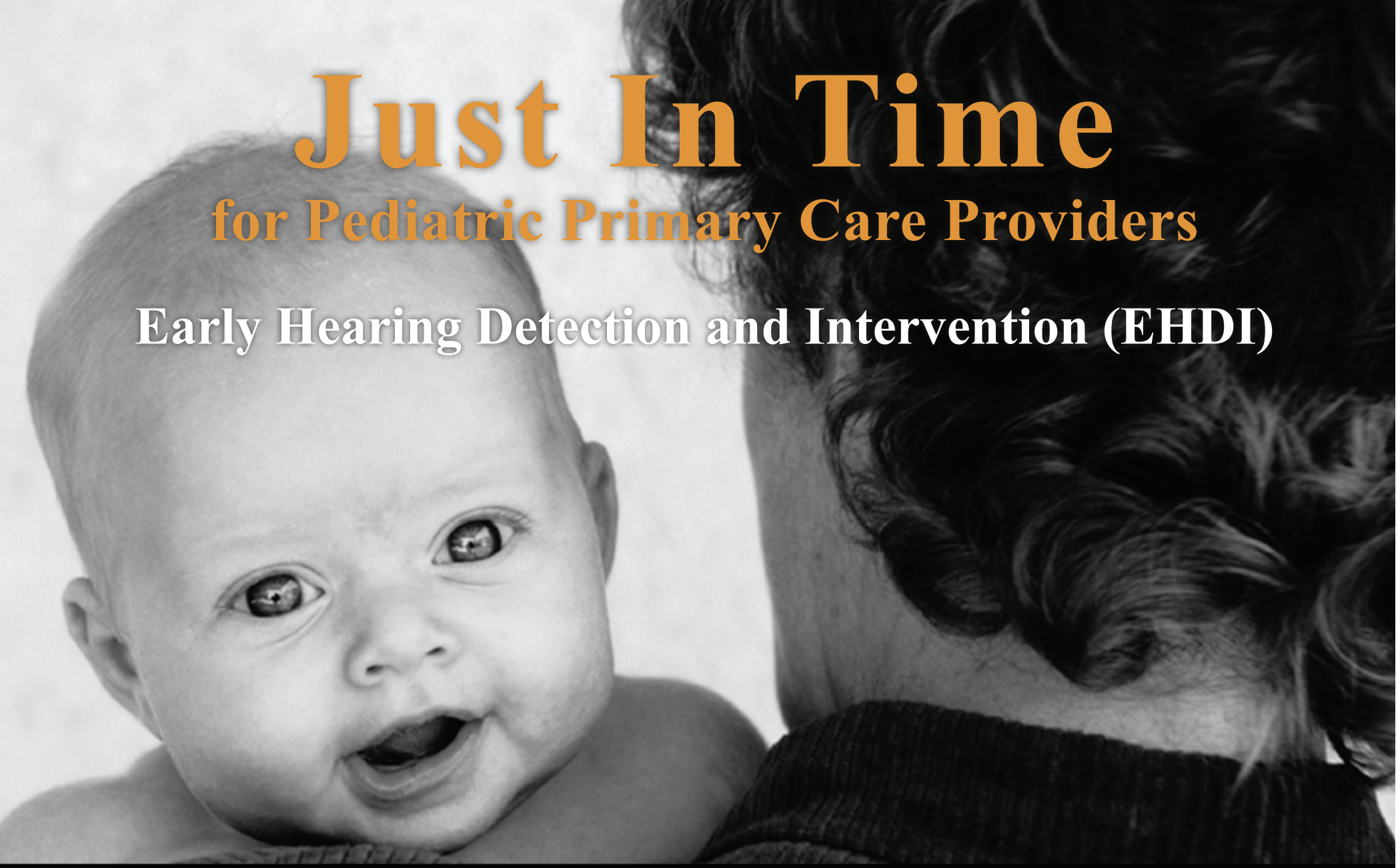


Just In Time

for Pediatric Primary Care Providers

Early Hearing Detection and Intervention (EHDI)

Based on 2007 recommendations of the Joint Committee on Infant Hearing (JCIH)

National Center on Birth Defects and Developmental Disabilities
Division of Human Development and Disability

Just In Time

So That Your Patient's Care Is Right On Time

1 **No later than ONE month of age:**
Hearing Screening

3 **No later than THREE months of age:**
Diagnostic Audiologic Evaluation

6 **No later than SIX months of age:**
Early Intervention

A Message for the Primary Care Provider

These materials will help you provide hearing health care for the infants and children in your practice

Just in Time materials can assist you and the families you serve meet the 1-3-6 goals of Early Hearing Detection and Intervention (EHDI)

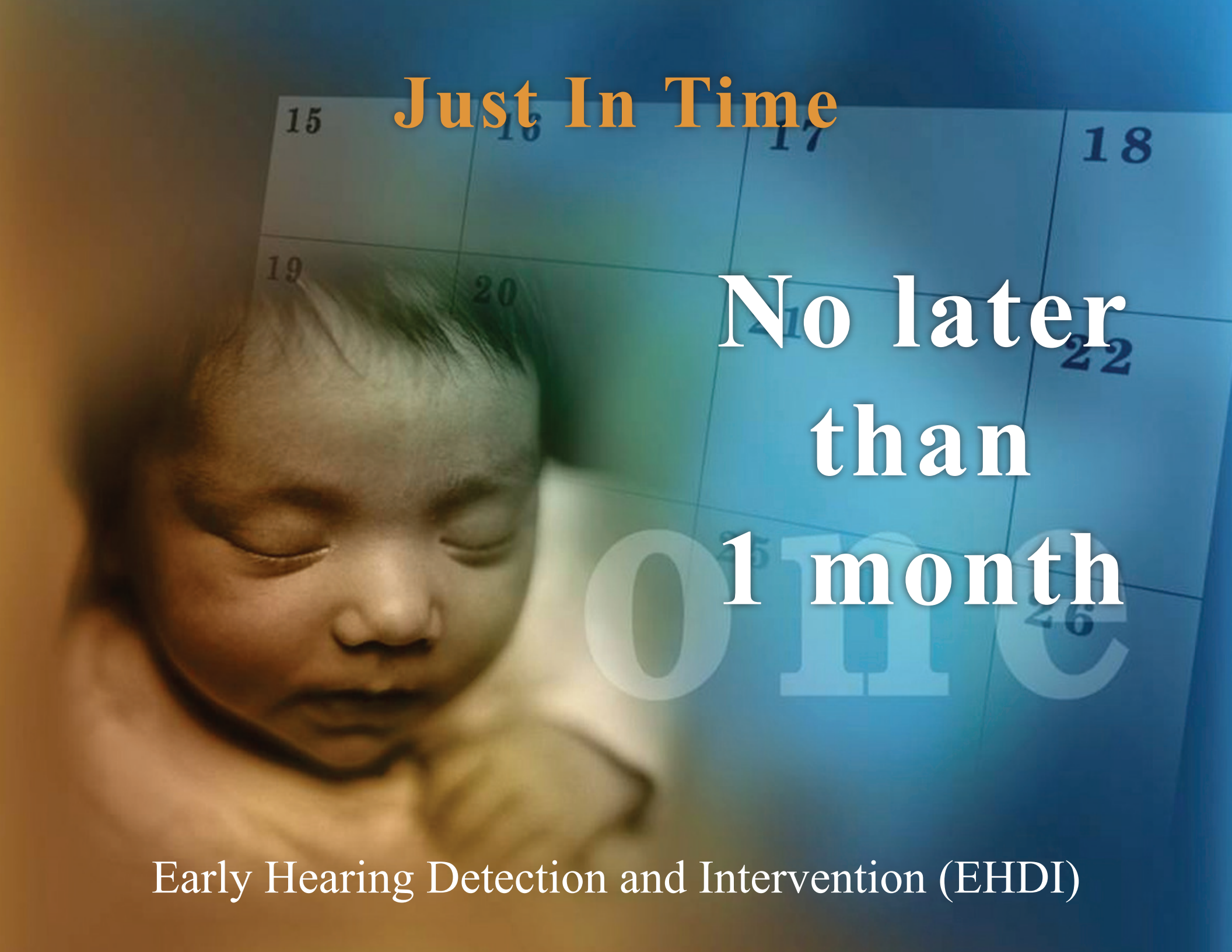
This material is based on the 2007 recommendations of the Joint Committee on Infant Hearing

As of July 2008, the U.S. Preventive Services Task Force (USPSTF) recommends screening for hearing loss in all newborn infants

Facts About Infant Hearing Loss

- As many as 3 infants out of every 1,000 have a hearing loss
- Hearing loss is one of the most common congenital disorders
- Only 50% of infants with hearing loss have an identified risk factor
- There are no visible signs of hearing loss; physiologic testing is needed for diagnosis
- 90% of infants born with hearing loss have two hearing parents
- Early intervention (services from health care and educational professionals with expertise in hearing loss) no later than 6 months of age provides improved communication outcomes

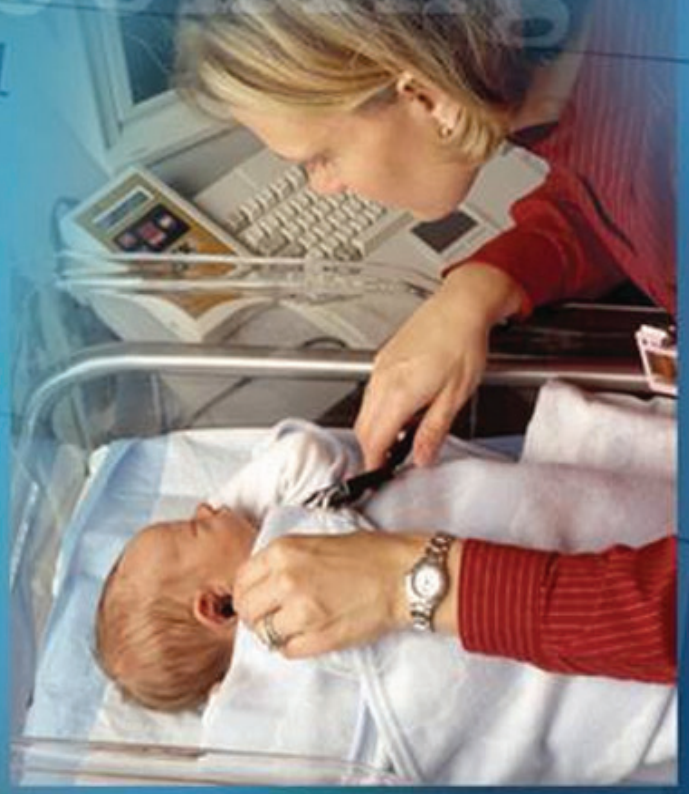
Early Hearing Detection and Intervention, Centers for Disease Control and Prevention website www.cdc.gov/ncbddd/ehdi/


Just In Time
No later than 1 month
Early Hearing Detection and Intervention (EHDI)

Just In Time

No later than 1 month of age: Hearing Screening

- Ensure hearing screening process is complete for all newborns. (Refer to your state protocol.)
- Review results and risk factors for late-onset or progressive hearing loss with parent or guardian. (Refer to Risk Factors page.)
- Schedule diagnostic audiologic evaluation for all "Refers" ("Fail," "Did not pass")



A repeat hearing screening is recommended before discharge for all infants who are readmitted to a hospital within the first month of life for conditions associated with potential hearing loss

Hearing Screening Technologies

Newborns are screened using either of these methods

Otoacoustic Emissions (OAE)

- **OAE measures sound waves generated by the outer hair cells in the cochlea**

Automated Auditory Brainstem Response (AABR)*

- **AABR uses electrodes to measure neural responses to sound**

**** Any child who has been in the NICU for 5 or more days should have an AABR***


Just In Time
No later
than
3 months

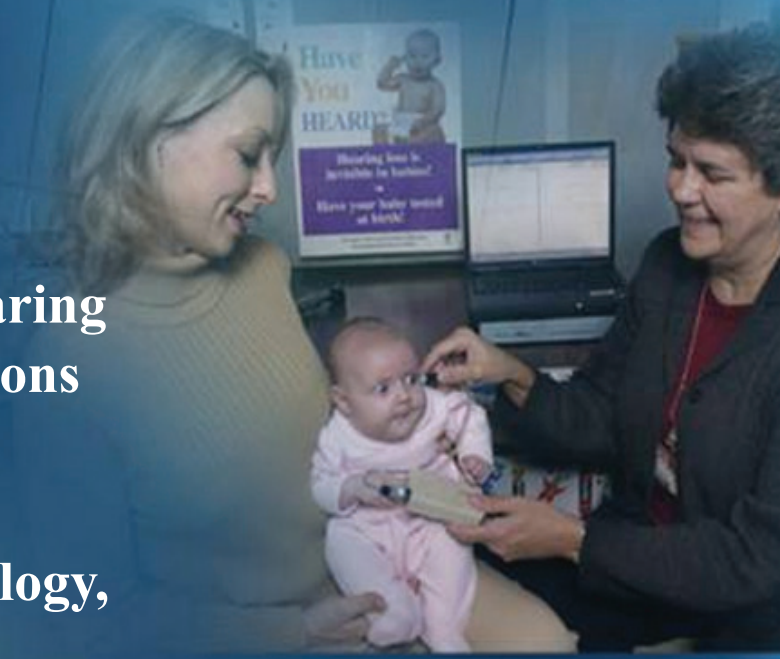
Just In Time

No later than 3 months of age

Note results of diagnostic audiologic evaluation for babies who do not pass the initial screen or re-screen and discuss results with parents

If a diagnosis is confirmed:

- Schedule an otolaryngology exam
- Counsel parents about amplification options (hearing aids, cochlear implants) and communication options (*see Communication Options page)
- Provide medical clearance as appropriate
- Provide medical referrals: ophthalmology, neurology, developmental pediatrics
- Offer the family a referral for a genetics consultation
- Refer to early intervention services (Part C)



Diagnostic Audiologic Evaluation

Just In Time

No later than 6 months

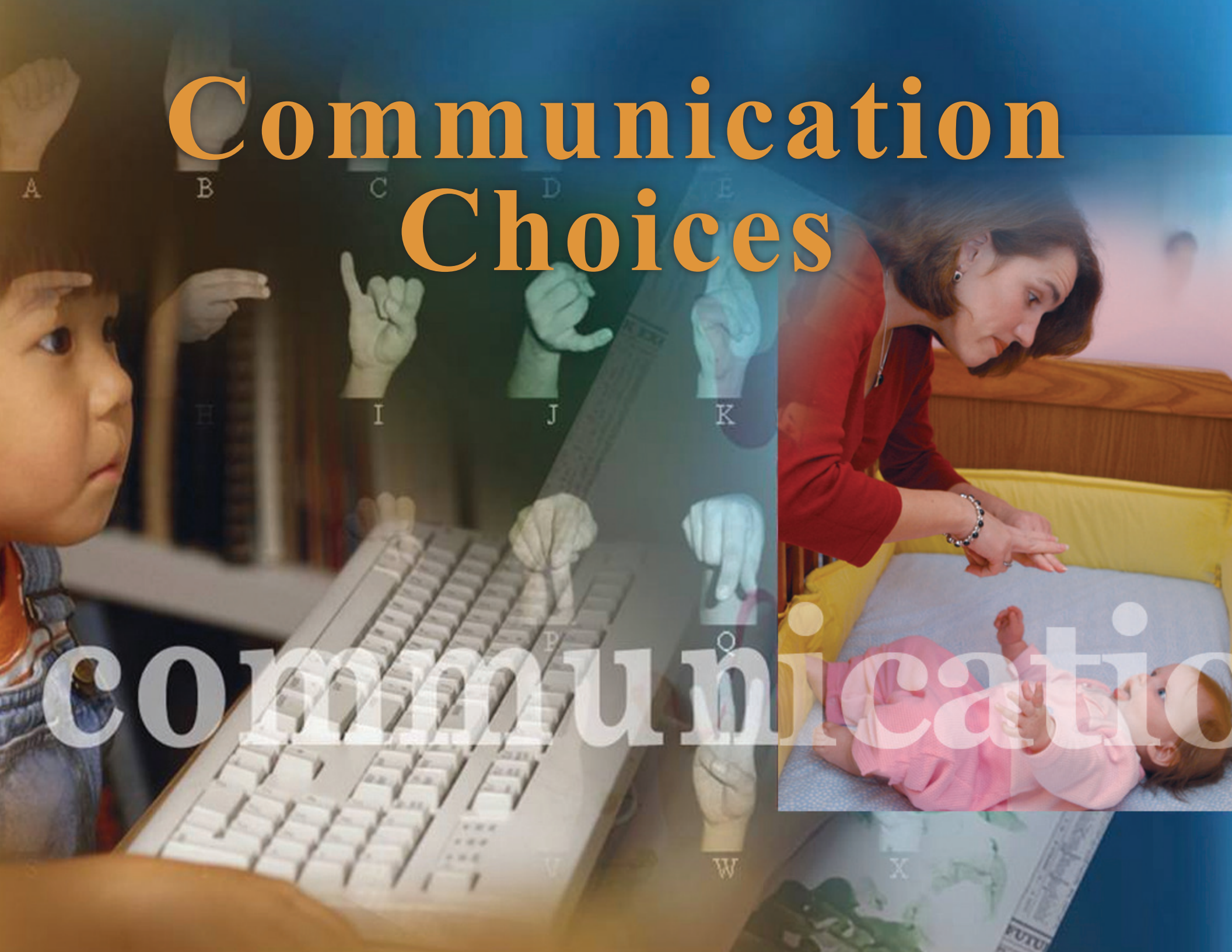
Just In Time

No later than 6 months of age

- Communicate with the family about ongoing audiology services
- Ensure child is enrolled in early intervention services (Part C)
- Provide family with information about communication options (See Communication Options page)
- Communicate with the family and other service providers for continuity of care

For contact information for the Part C Program in your state, visit www.nectac.org/contact/ptccoord.asp

Communication Choices



Communication Options

It is the *family's* choice

Specific communication methods may include:

- **American Sign Language (ASL)**
- **Auditory-oral**
- **Auditory-verbal**
- **Cued speech**
- **Total communication**

Families could benefit from visiting their state or local early intervention programs and talking with professionals, deaf and hard of hearing adults, and other parents of infants and young children with hearing loss to determine which method meets the needs of the child and the family.

Primary Care Provider's Role
(Medical Home)

What is a medical home?

Care for children with special health care needs should be provided and coordinated through a "medical home" that is accessible, family-centered, continuous, comprehensive, coordinated, compassionate, culturally competent, and linguistically appropriate. Physicians and parents share the responsibility for ensuring that children and their families have access to all of the medical and nonmedical services needed to help them achieve their maximum potential.

-Healthy People 2010

Pediatricians, family physicians, and other allied health care professionals, working in partnership with parents and other professionals such as audiologists, therapists, and educators, constitute the infant's medical home.

- JCIH 2007

Just In Time
A Message

Pediatric primary care provider's role

- **Ensure that all newborns in your practice have been screened before hospital discharge or no later than 1 month of age**
- **Refer all babies who do not pass screening for pediatric diagnostic audiology evaluation**
- **Assess any risk factors and discuss hearing monitoring with parents**

-JCIH 2007

Risk Factors for Late-Onset or Progressive Hearing Loss

Facts About Late-Onset or Progressive Hearing Loss

- **Late-onset or progressive hearing loss can occur at any time after birth**
- **Babies who "pass" their initial screening test can develop a hearing loss**

***"Because some important indicators, such as family history of hearing loss, may not be determined during the course of Universal Newborn Hearing Screening (UNHS), the presence of all risk indicators for acquired hearing loss should be determined in the medical home during early well-infant visits"* (JCIH 2007)**

- **The medical home should ensure that a diagnostic audiologic evaluation is completed for children at risk of hearing loss at least once by 24 to 30 months of age**

- **Regardless of previous hearing screening outcomes, all infants with or without risk factors should receive continued surveillance of auditory skills, language milestones, parental concerns, and middle ear status during well-child visits in the medical home**

Risk Factors for Late-Onset or Progressive Hearing Loss

- Caregiver concern* about communication
- Family history* of permanent childhood hearing loss
- NICU care for more than 5 days or any of the following:
  - ECMO*-assisted ventilation, ototoxic medications, hyperbilirubinemia that requires exchange transfusion
- In utero infections, such as CMV*, herpes, rubella, syphilis, and toxoplasmosis
- Craniofacial anomalies, including those that involve the pinna, ear canal, ear tags, ear pits, and temporal bone anomalies
- Physical findings, such as white forelock, that are associated with a syndrome known to include a sensorineural or permanent conductive hearing loss
- Syndromes associated with hearing loss or progressive or late-onset hearing loss*, such as neurofibromatosis, osteopetrosis, and Usher syndrome; other frequently identified syndromes include Waardenburg, Alport, Pendred, and Jervell and Lange-Nielson

Risk Factors for Late-Onset or Progressive Hearing Loss

- **Neurodegenerative disorders*, such as Hunter syndrome, or sensory motor neuropathies, such as Friedreich ataxia and Charcot-Marie-Tooth syndrome**
- **Culture-positive postnatal infections associated with sensorineural hearing loss*, including confirmed bacterial and viral meningitis (especially when caused by herpes viruses or varicella)**
- **Head trauma, especially basal skull/temporal bone fracture that requires hospitalization**
- **Chemotherapy***

From the JCIH 2007 position statement; see www.jcih.org

**** Factors indicated with an asterisk may require earlier and more frequent audiologic evaluation***

Thank you for your time.

For state program contact information, visit
www.cdc.gov/ncbddd/ehdi/documents/EHDI_Contact.pdf

For the JCIH 2007 position statement,
see *www.jcih.org*

Please refer to the websites on the next pages for further information

For more information

WEBSITES

DISCLAIMER: Information about organizations, books, videos, and any other material outside the Centers for Disease Control and Prevention (CDC) is included for information purposes only. CDC has no control over the information at these sites. Views and opinions of these organizations are not necessarily those of CDC, the U.S. Department of Health and Human Services (HHS), or the U.S. Public Health Service (PHS).

American Academy of Audiology

www.audiology.org

American Academy of Family Physicians Patient-Centered Medical Home Checklist

www.aafp.org/online/etc/medialib/aafp_org/documents/membership/pcmh/checklist.Par.0001.File.tmp/PCMHChecklist.pdf

American Academy of Otolaryngology

Head and Neck Surgery

www.entnet.org

American Academy of Pediatrics

Newborn and Infant Hearing Screening Activities

www.medicalhomeinfo.org/screening/hearing.html

Medical Home Initiative

www.medicalhomeinfo.org

American Speech-Language-Hearing Association (ASHA)

www.asha.org

Boys Town National Research Hospital

www.boystownhospital.org

CDC Hearing Loss in Children

www.cdc.gov/ncbddd/hearingloss/index.html

Conference of Educational Administrators of Schools and Programs for the Deaf
www.ceasd.org

Deafness Research Foundation
www.drf.org

Health Resources and Services Administration (HRSA) *http://mchb.hrsa.gov/*

Joint Committee on Infant Hearing (JCIH)
www.jcih.org

The Laurent Clerc National Deaf Education Center at Gallaudet University
http://clerccenter.gallaudet.edu/

Marion Downs National Center For Newborn Hearing Screening
http://www.mariondowns.com/research.htm

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

- **State Newborn Hearing Programs**
  www.infanthearing.org/states/index.html

National Early Childhood Technical Assistance Center (NECTAC)
www.nectac.org/
Use search to find the Part C Coordinator for your state

National Institutes of Health, National Institute on Deafness and Other Communication Disorders
www.nidcd.nih.gov

Office of Special Education and Rehabilitative Services
www.ed.gov/about/offices/list/osers/index.html

Raising Deaf Kids
www.raisingdeafkids.org

Telecommunications for the Deaf and Hard of Hearing, Inc.
www.tdi-online.org