



Hearing Screening in the Office Setting

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Hearing Screening: Birth-3 years

The implementation of universal newborn hearing screening has the potential to identify the 1 to 3 per 1,000 newborns in the nursery with sensorineural hearing loss, and the

two to four per 100 newborns in the NICU.¹ Early identification of hearing loss is necessary to receive timely diagnosis and intervention, which promotes speech/language, social, and cognitive development.

According to established guidelines, all newborns are to be screened at birth. The primary care provider has an essential role in encouraging parents to follow up if an infant does not pass the newborn hearing screening, did not receive a newborn hearing screening at the hospital, or was born outside the hospital. A hearing rescreen should be completed by two weeks of age. This time frame is important to allow opportunity for CMV screening in an infant who fails (or refers on) the rescreen. In those infants, a CMV screen should be completed before 21 days of life. When congenital CMV is confirmed, antiviral therapy should be started by 30 days of life, if indicated.²

Newborns who pass their hearing screen, but have risk factors for acquired hearing loss, are next screened at either six months* or 18-24 months** of age (see information on page 2). Otherwise, risk assessment

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should be reviewed at every well child visit, and the child should be screened if there is positive risk.^{3,4}

The following information regarding risk factors is taken from the Iowa EHD website for primary care providers, idph.iowa.gov/ehdi/primary-care, and is based on the Joint Committee on Infant Hearing 2007 position statement.⁴

*A 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 permanent, sensorineural hearing loss since childhood
- Head injury (especially basal skull/temporal bone fracture requiring hospitalization)
- Neurodegenerative disorder (includes Hunter syndrome, Friedreich's ataxia, Charcot-Marie-Tooth syndrome)
- Parental concern regarding hearing status
- Syndromes (includes: Trisomy 21-Down syndrome, Goldenhar, Pierre Robin, CHARGE association, Rubinstein-Taybi, Stickler, Usher, osteopetrosis, Neurofibromatosis type II, Treacher Collins)

**A 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:

- Craniofacial anomalies (includes cleft lip or palate, microtia, atresia, or choanal atresia)
- Exchange transfusion for elevated bilirubin
- Herpes infection confirmed in infant
- NICU stay longer than five days
- Other congenital infection
- Ototoxic medications administered (includes: Gentamicin, Vancomycin, Kanamycin, Streptomycin, Tobramycin)



- PPHN (persistent pulmonary hypertension) associated with mechanical ventilation
- Rubella infection confirmed in infant
- Syphilis infection confirmed in infant
- Toxoplasmosis infection confirmed in infant

Infant hearing screening is objectively assessed by **Otoacoustic Emissions (OAE)** or **Automated Auditory Brainstem Response (AABR)**. Otoacoustic emissions are cochlear responses that are measured by placing a small earphone in the ear canal. Auditory brainstem response uses surface electrodes placed on the head to record evoked potentials from the auditory nerve. Infants who do not pass an AABR newborn hearing screen should not be reassessed with OAE only, because the OAE screen does not detect a neural hearing loss.¹ Of note, in accordance with the Iowa EHD law, all hearing screening performed on a child under three years of age must be reported to the Iowa Department of Public Health to assist in effective follow up. Resources for families and providers can be found on the Iowa EHD website: idph.iowa.gov/ehdi.

The Iowa Family Support Network (888-425-4371) can be contacted for information about outpatient hearing screening and diagnostic hearing testing locations and providers.

Hearing Screening: 4-21 years

Most pediatricians and family practice physicians have become believers of early hearing detection and intervention. However, the screening for older children and adolescents has not generated much interest in the primary care doctor's office. It is recommended that a primary care provider carry out the AAP/Bright Futures guidelines using the information presented in this article.

Six out of 1,000 children are found to have hearing loss by six years of age per 2005 CDC/EHDI data. Approximately 15 percent of children between six and 19 years of age have at least 16 decibels of either low- or high-frequency hearing loss.⁵ According to the AAP Recommendations for Preventive Health Care Periodicity Schedule, hearing screening for childhood hearing loss is recommended at four, five, six, eight, and 10 years of age with a pure tone sweep at 1,000, 2,000, and 4,000 Hz at 20 dB hearing loss. After that, screening also should include 6,000 and 8,000 Hz and occur once between 11 and 14 years, once between 15 and 17 years, and once between 18 and 21 years. Screening also should occur when risk assessment is positive at other well visits.

The National Institutes of Health has identified the following questions in "10 Ways to Identify Hearing Loss," medlineplus.gov/magazine/issues/spring07/articles/spring07pg25.html, which can be used to identify older children and adolescents for whom a hearing screen may be necessary:

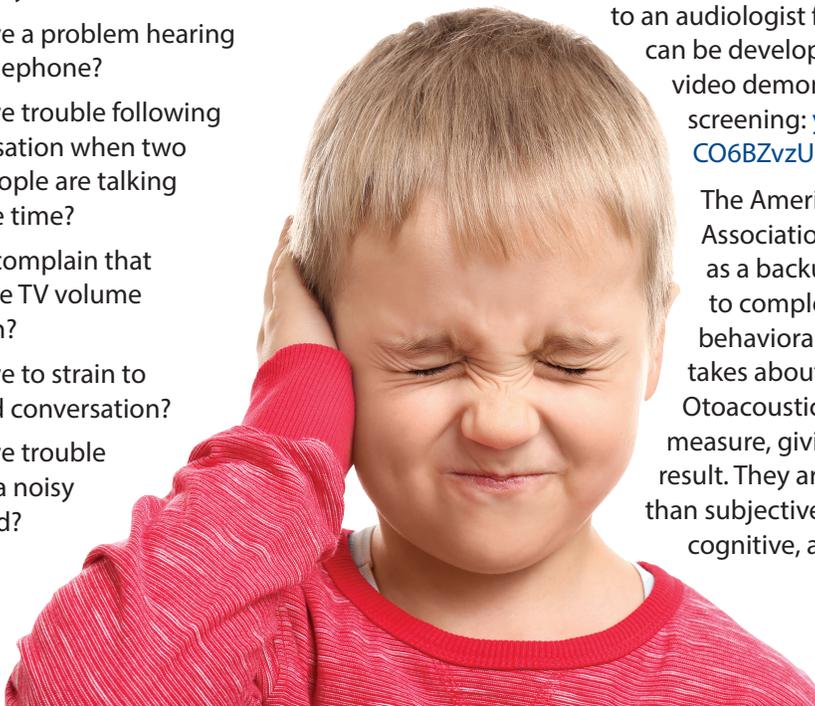
- Do you have a problem hearing over the telephone?
- Do you have trouble following the conversation when two or more people are talking at the same time?
- Do others complain that you turn the TV volume up too high?
- Do you have to strain to understand conversation?
- Do you have trouble hearing in a noisy background?

- Do you find yourself asking other people to repeat themselves?
- Do many people you talk to seem to mumble (or not speak clearly)?
- Do you misunderstand what others are saying and respond inappropriately?
- Do you have trouble understanding the speech of women and children?
- Do people get annoyed because you misunderstand what they say?

A pure tone hearing audiometry screening program is best practice for assessing a child's hearing. Audiometry screening takes about 5-10 minutes for the initial screen. Testing hearing with pure tone audiometry provides the opportunity to detect hearing loss in the low, mid, or high frequencies. There are a number of different portable audiometers available, which can be compared at: infanthearing.org/screening/equipment.html. The cost averages \$1,000 and clinical staff can learn hearing screening easily. Pure tone testing is done by performing 'listen and respond' tasks. Older children and adolescents should raise their hand in response to the stimulus. Younger children may need a conditioned play task to complete the testing, such as putting a toy in a bucket when they hear the sound. An audioscope is a pure tone screener, sufficient for testing older children, however it is no longer available. Protocols for referral to an audiologist for abnormal hearing screens can be developed. The following YouTube video demonstrates a pure tone audiometry screening: [youtube.com/watch?v=CO6BZvzUFBA](https://www.youtube.com/watch?v=CO6BZvzUFBA).

The American Speech and Hearing Association endorses OAE screening as a backup for children who are unable to complete hearing screening using behavioral methods. An OAE screen takes about four minutes to complete. Otoacoustic emissions are an objective measure, giving the tester a 'pass' or 'refer' result. They are a valuable resource, better than subjective distraction methods,⁶ when cognitive, attention, or language barriers

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prevent successful pure tone testing. There are several OAE screeners available (infanthearing.org/screening/equipment.html), and they typically cost around \$4,500. A disposable tip is used for this testing, adding to the cost of the screening. OAE screeners test only mid-high frequency hearing, typically 2,000-5,000 Hz. Therefore, a screening program using only OAE testing will miss low-frequency hearing loss, very high-frequency hearing loss, and some mild hearing losses.

Tympanometry is used to assess middle ear function and is not an assessment of hearing. This is a valuable tool when determining if middle ear health is contributing to a failed hearing screen. Tympanometers are typically \$3,500 to purchase. Otoscopy is necessary to look for evidence of an ear infection, middle ear effusion, tympanic perforation, cerumen impaction, or foreign body in ear canal, which could help explain a conductive hearing loss.

Coding

The following resource from the American Academy of Pediatrics can provide some guidance for coding for hearing screening in the office setting, including possible diagnoses and procedures.

aap.org/en-us/Documents/coding_factsheet_hearing_testing.pdf

Contrary to CPT® guidelines, some payers may inappropriately bundle the screening audiometry

service(s) with the preventive medicine evaluation and management (E/M) code. Appending modifier 25 to the preventive medicine service may unbundle the services.

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1. Wroblewska-Seniuk KE, Dabrowski P, Szyfter W, Mazela J. Universal newborn hearing screening: methods and results, obstacles and benefits. *Pediatric Research*. 2017;81(3):415-422.
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3. Dumanch KA, Holte L, O'Hollearn T, Walker E, Clark J, Oleson J. High Risk Factors Associated With Early Childhood Hearing Loss: A 3-Year Review. *American Journal of Audiology*. 2017;1-14.
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Meningococcal B Update

New data published in the January 2019 issue of *Pediatrics* impacts clinical decision-making associated with the Meningococcal B vaccine and updates an article concerning the vaccine that appeared in the Winter 2019 EPSDT *Care for Kids* newsletter.

The study analyzed data from the National Notifiable Diseases Surveillance System and enhanced meningococcal disease surveillance from 2014 to 2016. It shows that the relative risk (RR) of serogroup B meningococcal (MenB) disease in college students versus noncollege students was 3.54.¹ Serogroup B disease accounted for 58 percent of all meningococcal disease in the 18 to 24 year age group during the study. The authors concluded that college students are at an increased risk for sporadic and

outbreak-associated MenB disease, and that providers, college students, and parents should be made aware of the availability of MenB vaccines. An accompanying editorial suggests that based on these data, pediatricians and primary care providers have a more compelling reason to recommend the vaccine to their patients who anticipate attending college.²

1. *Pediatrics*. Meningococcal Disease Among College-Aged Young Adults: 2014–2016. Available at: pediatrics.aappublications.org/content/143/1/e20182130. Accessed January 9, 2019.
2. *Pediatrics*. Increased Risk of MenB Infection in College Students: Time to Reconsider Vaccine Recommendations? Available at: pediatrics.aappublications.org/content/143/1/e20183372. Accessed January 9, 2019.



Coding Fact Sheet for Primary Care Pediatricians

While coding for hearing screening is relatively straightforward, ensuring that appropriate payment is received for such services is a more complicated matter. This Coding Fact Sheet will provide you with a guide to coding for pediatric hearing screening. While we have provided you with some suggested codes, it should be noted that payer recognition of codes might vary. Most plans are now required to cover hearing screen services under the Affordable Care Act, however, that may still vary.

Diagnosis Codes

International Classification of Diseases, Tenth Revision, Clinical Modification
(ICD-10-CM) Codes (On or after October 1, 2015)

Commonly Reported Diagnosis Codes Related To Primary Care Pediatricians & Hearing Loss

H90.0	Conductive hearing loss, bilateral
H90.11	Conductive hearing loss, unilateral with unrestricted hearing on the contralateral side; right ear
H90.12	left ear
H90.2	Conductive hearing loss, unspecified
H90.41	Sensorineural hearing loss, unilateral, right ear, with unrestricted hearing on the contralateral side
H90.42	Sensorineural hearing loss, unilateral, left ear, with unrestricted hearing on the contralateral side
H90.5	Unspecified sensorineural hearing loss
H90.3	Sensorineural hearing loss, bilateral
H90.41	Sensorineural hearing loss, unilateral, right ear, with unrestricted hearing on the contralateral side
H90.42	Sensorineural hearing loss, unilateral, left ear, with unrestricted hearing on the contralateral side
H90.5	Unspecified sensorineural hearing loss
H90.6	Mixed conductive and sensorineural hearing loss, bilateral
H90.71	Mixed conductive and sensorineural hearing loss, unilateral, right ear, with unrestricted hearing on the contralateral side
H90.72	Mixed conductive and sensorineural hearing loss, unilateral, left ear, with unrestricted hearing on the contralateral side
H90.8	Mixed conductive and sensorineural hearing loss, unspecified
H91.9	Unspecified hearing loss - For 5th digit use; 1= Right ear; 2=Left ear; 3=Bilateral

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- Indicates the ICD-10-CM code requires an additional character



Procedure Codes: Current Procedural Terminology (CPT®) Codes

Commonly Reported Diagnosis Codes Related To Primary Care Pediatricians & Hearing Loss

92550	Tympanometry and reflex threshold measurements
92551	Screening test, pure tone, air only
92552	Pure tone audiometry (threshold); air only
92567	Tympanometry (impedance testing)
92568	Acoustic reflex testing, threshold
92570	Acoustic immittance testing, includes tympanometry (impedance testing), acoustic reflex threshold testing and acoustic reflex decay testing (Do not report with 92567, 92568)
92558	Evoked otoacoustic emissions, screening (qualitative measurement of distortion product or transient evoked otoacoustic emissions), automated analysis (Use this code when the results are interpreted by the machine – ie, pass/fail result)
92587	Distortion product evoked otoacoustic emissions; limited evaluation (to confirm the presence or absence of hearing disorder, 3-6 frequencies) or transient evoked otoacoustic emissions, with interpretation and report
92588	Distortion product evoked otoacoustic emissions; comprehensive diagnostic evaluation (quantitative analysis of outer hair cell function by cochlear mapping, minimum 12 frequencies)
69200	Removal of foreign body from external auditory canal; without general anesthesia
69209	Removal impacted cerumen using irrigation/lavage, unilateral (May be reported when clinical staff perform; do not report with 69210 for the same ear, same day; for bilateral removal, use modifier 50)
69210	Removal impacted cerumen requiring instrumentation, unilateral (For bilateral removal, use modifier 50) Note: Not to be reported when done by clinical staff, see 69209
69420	Myringotomy including aspiration and/or eustachian tube inflation

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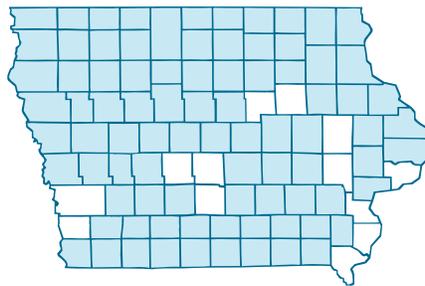
Iowa Pediatric Mental Health Collaborative

Thomas Scholz, MD, Director, University of Iowa Division of Child and Community Health

Introduction

The Iowa Pediatric Mental Health Collaborative is a new Health Services and Resource Administration (HRSA)-funded program designed to increase the capacity of primary care providers to treat children and youth with mild to moderate mental and behavioral health challenges within their medical home. Administered by the Iowa Department of Public Health and the University of Iowa Division of Child and Community Health (DCCCH), this program will expand upon current Regional Pediatric Mental Health Teams and the Child and Youth Psychiatric Consult Project of Iowa (CYC-I).

Iowa children, youth, and families face a number of challenges to receiving mental health care including a shortage of child psychiatrists and other mental health care providers, lack of access to specialty providers, and access barriers to care for rural Iowa families. Eighty-six of Iowa's 99 counties are classified as Mental Health Professional Shortage Areas.¹ These counties include 52 percent of Iowa's population. Results from the 2016 Iowa Maternal and Child Health Title V Program Needs Assessment identified access to specialists as one of the state's highest needs.² More than 20 percent of Iowa's children and youth (approximately 133,000) have one or more emotional, behavioral, or developmental conditions. These include autism, developmental delays, depression or anxiety, attention deficit disorder/attention deficit hyperactivity disorder (ADHD), and behavioral/conduct problems.³ In a given year, less than 50 percent of children with a diagnosable mental health disorder receive the mental health services they need.⁴



■ Mental Health Shortage Area (County)

Program Goals

The program aims to develop and strengthen the capacity of Iowa's primary care workforce to treat children and youth with mild to moderate mental health needs within their medical home. This will be accomplished through workforce development training and education opportunities and the creation of a comprehensive online resource. Three regional conferences and six webinars will be held per year, including Continuing Medical Education (CME) and Continuing Education Unit (CEU) credits. Topics will include: common pediatric mental health diagnoses, rural suicide, disordered eating, trauma-informed care, and Adverse Childhood Experiences among others. In addition to providing training and education, the conferences also will facilitate networking and connections among Regional Pediatric Mental Health Teams, primary care providers, and community-based mental health providers.

The Iowa Pediatric Mental Health Collaborative will offer consultations between primary care providers and University of Iowa Child and Adolescent Psychiatrists through the expansion of CYC-I. The structure of the CYC-I consultation model has been in place for several years. Since 2016, 14 providers from 11 different Iowa counties have requested one or more consultations. This service is of particular use to providers with

patients waiting for access to a specialty provider. The HRSA-funding will support the expansion of this model to give more providers access to psychiatric expertise. If necessary, children, youth, and families can be referred to Regional Pediatric Mental Health Teams or complete an appointment with a child psychiatrist through telehealth. In 2018, DCCCH provided direct clinical care, care coordination, and family-to-family support for more than 6,000 Iowa children and youth with special health care needs and their families, including 1,440 telepsychiatry appointments.

The online resource will include webinar recordings, referral sources and quick guides for providers and families, instructions for requesting a consultation, and family referrals to local Regional Centers and Regional Pediatric Mental Health Teams, as well as information about scheduling and technical assistance.

The web site below includes resources for providers and upcoming training opportunities. This site will be updated as additional information becomes available. chsciowa.org/programs/iowa-pediatric-mental-health-collaborative.

For more information contact Kafi Dixon at kafi-dixon@uiowa.edu.

1. Health Resources and Services Administration Data Warehouse. Accessed January 9, 2019 from datawarehouse.hrsa.gov.
2. Title V Needs Assessment. Accessed January 9, 2019 from idph.iowa.gov/hpcdp/titlev-needs-assessment.
3. 2018 Kids County Data Book: State Trends in Child Well-Being. Annie E. Casey Foundation. Accessed January 9, 2019 from aecf.org/resources/2018-kids-count-data-book/.
4. National Survey of Child Health. Accessed January 9, 2019 from childhealthdata.org.



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