

# Child Health Notes

Promoting early identification and partnerships between families, primary health care providers & the community.

Distributed by: Spokane Regional Health District - Children with Special Health Care Needs Program. Contributors: Washington State Department of Health and University of Washington - Center on Human Development and Disability. Spokane Child Health Notes online: [www.srhd.org/chn](http://www.srhd.org/chn)



## When should routine hearing screening be done?

The American Academy of Pediatrics recommends newborn hearing screening and objective hearing screening at well-child visits at 4,5,6,8 and 10 years of age for all children. Children identified as having a risk factor for hearing loss should be screened yearly. Any child who fails a hearing screening in the provider's office should be referred for an evaluation by an audiologist.

## Hearing Screening in Infants and Children

### Why screen hearing?

The goal of hearing screening in childhood is to identify hearing loss as early as possible and intervene. Research has demonstrated that children with hearing loss who received early intervention services before 6 months of age had better outcomes than children who received services later.

### Newborn hearing screening:

All newborns in the state of Washington have their hearing screened prior to hospital discharge. Infants who are not born in a hospital should be screened as outpatients. Newborn hearing screening detects congenital hearing impairment, but hearing needs to be assessed throughout childhood, since hearing impairments can be acquired after the newborn period. The screening of newborns and infants involves use of non-invasive, objective physiologic measures that include otoacoustic emissions (OAE or EOAE) and/or auditory brainstem response (ABR or BAER). Both procedures can be done painlessly while the infant is resting quietly. Infants who do not pass newborn hearing screening should have a re-screen within one month of discharge. Babies not passing a re-screen should be referred to an audiologist for a diagnostic evaluation before 3 months of age. Multiple re-screenings often result in a delay of the diagnosis of hearing loss and are not recommended.

### Methods of hearing screening:

- **Evoked otoacoustic emissions (OAE or EOAE):** OAEs are acoustic signals generated from the cochlea in response to an auditory stimulus. This test allows for individual ear assessment and the child can be either asleep or awake. This test will not pick up neural abnormalities. A failed test only implies that a hearing loss of more than 30-40 dB may exist or that the middle ear status is abnormal.
- **Automated auditory brainstem response/brainstem auditory evoked response (ABR or BAER):** Electrodes are placed on the head, and brain wave activity is recorded in response to a broadband click stimulus in each ear. ABR can detect conductive hearing loss, sensorineural hearing loss and neural hearing loss (auditory neuropathy). It tests each ear individually and is best done on a sleeping infant or child. A "fail" report implies a hearing level of worse than 30 to 35 dB.
- **Conventional screening audiometry:** Children 4 years and older are asked to raise a hand when a sound is heard. Testing is performed in a quiet environment using earphones. A "fail" implies a hearing level worse than 25 dB.

## Risk Factors for Hearing Loss:

Any parental concern about hearing loss should be taken seriously and followed up with hearing screening. Other risk factors include language delay, inattention, and school or behavior problems. Concerning medical history includes recurrent or persistent otitis media, NICU admission greater than 5 days, in utero infection, postnatal infections including meningitis, craniofacial anomalies, genetic syndromes or neurodegenerative disorders that include hearing loss, and family history of permanent hearing loss.

## Follow-up and diagnostic testing:

Any child who does not pass a hearing screening/re-screening or with hearing thresholds greater than 20 dB should be referred to an audiologist who can perform one of the following tests.

### Behavioral Hearing Tests:

- ♦ Visual reinforced audiometry (VRA): VRA is appropriate for infants and toddlers, 6-30 months old. The child is taught to give a head turn in response to sound and is then rewarded with a reinforcement stimulus, such as a lighted mechanical toy.
- ♦ Conditioned play audiometry (CPA): Children 2-4 years of age are conditioned to respond to an auditory stimulus by engaging in a game such as placing a peg in a board, or a block in a bucket.
- ♦ Conventional audiometry: Children 4 years of age and older are asked to raise a hand when a sound is heard.

### Physiological Hearing Test:

Diagnostic ABR/BAER: This can usually be done in natural sleep for infants under 6 months of age, and under sedation for older infants or children who cannot be tested behaviorally. It can be performed with bone conduction to separate conductive from sensorineural hearing loss. Diagnostic ABR provides information that is valid for determining type and degree of hearing loss and allows hearing aid fitting.

#### References:

- ♦ Harlor, Bower, Hearing Assessment in Infants and Children: Recommendations Beyond Neonatal Screening. Pediatrics. 2009; 124; 1252-1263.
- ♦ Recommendations for preventive pediatric health care. Pediatrics. 2007;120(6): 1376
- ♦ Clinical practice guideline: otitis media with effusion. Pediatrics. 2004;113(5): 1412-1429
- ♦ Joint Committee on Infant Hearing. (2007). Year 2007 position statement: Principles and guidelines for early hearing detection and intervention. Available from [www.asha.org/policy](http://www.asha.org/policy).

## Resources for Early Intervention Services in Spokane County

### For children under 36 months-of-age, please contact:

The Infant Toddler Network at Spokane Regional Health District (SRHD) . . . . . (509) 324-1651

### For children of any age, please contact:

The Children with Special Health Care Needs (CSHCN) Program at SRHD . . . . . (509) 324-1696

## Special Announcement:

**Washington Hands & Voices recently started their Guide By Your Side (GBYS) program for families in the state of Washington.** Families who are just beginning the journey can learn from veteran parents, the challenges as well as the joys, of raising a child who is deaf or hard of hearing. For many parents, their only regret in the 'early years', is not connecting to other parents sooner! There are currently nine Parent Guides who are trained to provide unbiased, emotional support, and resources to families with children with hearing loss. There is no cost for this service and one-on-one consultation via phone, email, or home visit on issues such as communication choices, emotional support, educational choices, sibling and extended family issues, transitions, etc is available. To receive more information or to request a Parent Guide contact Christine Griffin, Program Coordinator at 425-268-7087 or email [GBYS@WAhandsandvoices.org](mailto:GBYS@WAhandsandvoices.org)



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We're Online!!  
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