
The goal of successful school hearing screening programs is to identify children who may have hearing loss, which in turn leads to appropriate referrals for further audiological and/or medical evaluation.

The effects of untreated hearing loss can be detrimental to a child’s development and academic achievement. Early identification of hearing loss and appropriate management can improve a child’s speech and language development and educational performance (Yoshinaga-Itano, 1995). While the universal newborn hearing screening program has proven successful in earlier identification of hearing loss in children, there is a continued need for school-aged screening due to late-onset and progressive hearing loss, as well as fluctuating conductive hearing loss due to ear infections.

**Late-onset or progressive hearing loss may occur due to:**

- Exposure to loud noise or music (dependent upon intensity and duration of noise/music exposure)
- Disorders such as enlarged vestibular aqueduct
- Genetic disorders such as Connexin 26 mutations
- Nonsyndromic progressive sensorineural hearing loss
- Syndromes such as Usher or Hunter syndrome
- Infectious diseases such as: Congenital Cytomegalovirus (CMV), meningitis or measles
- Ototoxicity from chemotherapy or aminoglycoside antibiotics

**Who Should Be Screened for Hearing Loss?**

- All children upon entry to school
- Annually, all children from kindergarten to third grade
- All children in the seventh grade
- All children in the eleventh grade
- New entrants to school who do not have records of passing a hearing screening
• Annually, all children in a special education program
• Children who have failed a grade
• Any child in which parent or school personnel suspect a hearing loss

Who Should Not Be Screened for Hearing Loss?

• Any children who wear hearing aids
• Any children who have a cochlear implant
• For the above, follow-up with parents is recommended to ensure the child is under the care of a physician and/or audiologist.

What Tests are Recommended?

• Pure tone screening at 1000, 2000, 4000 Hz
  o Include 6000 Hz for 7th & 11th grades
• Tympanometry $^1$ -- Performed on all children in kindergarten, and children who fail the pure-tone screening
  o If tympanometry cannot be performed, a screening at 500 Hz should be done.
• Otoacoustic Emissions $^1$ (DP- or TEOAEs) are recommended for difficult-to-test children
• Otoscopy $^1$ performed on all failed tympanograms to determine the presence of excessive cerumen, Otitis Media (OM), tympanic membrane (TM) perforation and/or pressure equalization tubes
• Results/referral sent home on day of screening, if OM or TM perforation present

$^1$-These procedures should be completed or supervised by an audiologist

Hearing Screening Protocol

• Pure-tone Screening: Trained personnel will screen all children at 1000, 2000, and 4000 Hz, with a passing criteria maximum of 25 dB HL at ALL frequencies in BOTH ears.
  o For children in 7th and 11th grades, 6000 Hz will also be included to screen for noise-induced hearing loss.
• Tympanometry should be performed on all kindergarteners and children who fail the pure-tone screen. A “Refer/Fail” is any tympanogram in which peak admittance is < 0.2 mmho or tympanometric width greater than 200 daPa. A rescreen should take place within 4 – 6 weeks.
  o Otoscopy should be completed on every failed tympanogram, to rule-out if an immediate medical referral (e.g. OM, TM perforation) is needed.
• Otoacoustic emissions (OAEs) may be substituted for pure-tone screening when a child is unable to complete the task due to young age, physical or developmental challenges. It is not a replacement for other students who can complete pure-tone screening.
  o A child who passes the OAE will not be rescreened until the following school year.
Children whose test results indicate “refer” shall be retested immediately.

Children whose test results indicate “refer” again, OR if unable to obtain OAEs during screening period, a referral for diagnostic audiological evaluation must be provided.

**Where Will the Screening Take Place?**

Hearing screening must be conducted in a quiet room, as rooms with excessive ambient noise will increase the failure rate unnecessarily. It is recommended that a test room is away from known sources of noise such as gymnasiums, cafeterias, playgrounds, and heating/air-conditioning units.

**Who Will Administer/Supervise the Screening?**

It is recommended that all school hearing screening programs be supervised by an audiologist; however, personnel may include trained speech-language pathologists, hearing assistants and school nurses.

**What is the Follow-up Protocol?**

A hearing screening program is only as successful as its follow-up procedures. If referrals are not made, then the program will not succeed.

1. Children who have failed the first hearing screening should be rescreened within 4 – 6 weeks.
2. If the child fails the second screening, a referral letter/form for an audiological diagnostic evaluation and to their primary care physician should be sent home with the child.
3. Children referred for audiological evaluation should be seen within 3 months.

We hope this hearing screening protocol will provide a more unified, consistent and evidence-based approach to the hearing screening process. Any questions or comments you have are welcomed. Please don’t hesitate to contact us.

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