

evaluated by an eye care professional. The information on the form is needed by the school to determine if any adjustments or accommodations need to be made to the student's education program.

2. Maintain contact with the parent/guardian to ascertain if the student has received the needed examination and necessary care. If necessary, refer any parent/guardian in need of financial assistance to an appropriate community resource. Depending on need, such resources may include:
  - Local county department of social services for Medicaid assistance.
  - Lions Club for refractions, glasses, and eye examinations.
  - PTA and other service organizations.
  - The local county physically impaired children's program.
  - Health insurance plans.
  - Vision Service Plan (VSP) program available through the [National Association of School Nurses](#) or your local Boys and Girls Club.
3. Consult with teachers and recommend necessary educational adjustments or accommodations to meet individual needs (e.g., color perception impairment).

## Hearing Screening

[Tenn. Code Ann. § 49-6-5004](#) *Promotion of eye, hearing and dental care awareness.*

- a. Upon registration or as early as is otherwise possible and appropriate, public schools, nursery schools, kindergartens, preschools or childcare facilities are encouraged to make reasonable efforts to apprise parents of the health benefits of obtaining appropriate eye, hearing and dental care for children.
- b. A health care professional is authorized to indicate the need for an eye, hearing or dental examination on any report or form used in reporting the immunization status for a child as required under this part. Health care professionals shall provide a copy of the report or form to the parents or guardians indicating the need to seek appropriate examinations for the child.
- c. If the parent or guardian of a child with a need for an eye or hearing examination is unable to afford the examination, an LEA of a county or municipality may use revenues from gifts, grants and state and local appropriations to provide the eye or hearing examinations.
- d. LEAs are encouraged to seek free or reduced-cost eye examinations from optometrists or ophthalmologists and free or reduced-cost hearing examinations from physicians or audiologists willing to donate their services for children who are unable to afford the eye or hearing examinations.
- e. The commissioner shall promulgate rules and regulations in accordance with the Uniform Administrative Procedures Act, compiled in title 4, chapter 5, which are necessary to carry out this section.

### **Hearing Screening Recommendations**

The TDOE encourages LEAs to conduct annual hearing screenings for all students in grades Pre-K, K, 2, 4, 6, and 8. LEAs may also conduct annual hearing screenings for high school students. If LEAs choose to conduct annual hearing screenings in high school, the LEA should screen the same grade-level or class year after year. For example, if the LEA conducts hearing screenings for those students enrolled in a wellness class, then the LEA should conduct vision screenings for students enrolled in the same wellness classes every year thereafter. The TDOE also encourages LEAs to conduct annual hearing

screenings for students that are new to the school system and/or suspected of having a hearing problem by their teachers. A student may be referred for screening per local school district protocol at any point.

Some students may not need screening as they are already under the care of a medical professional for regular, periodic evaluation for their hearing impairment. Students falling into this category would include:

1. Students with known hearing loss.
2. Any student coded Deaf or Hard of Hearing.
3. Any student enrolled who is unable to respond, for any reason, to screening procedures. The school nursing personnel should follow these students to ensure that they are receiving periodic evaluations and/or care as determined by their hearing care specialist. Documentation of these evaluations should become part of the cumulative health record (CHR) or in the electronic student management system.

## **Hearing Screening Rationale**

The purpose of hearing screening is to identify students with hearing loss to refer for diagnosis and management. Hearing loss is the most common birth defect, with a prevalence of 1.7 per 1,000 babies screened for hearing loss. (CDC, 2019). Hearing loss prevalence increases to an estimated 9 - 10 per thousand in school-age children due to late-identification, late-onset or acquired hearing loss (White, 2010). Hearing loss can impact communication, development, and classroom learning. Children with hearing loss are at increased risk for academic, speech and language, social, emotional, and behavioral problems. According to the CDC, 14.9% of children 6-19 years of age have low- or high-frequency hearing loss of at least 16-decibel hearing level in one or both ears. Even mild or unilateral hearing loss can be impactful, and it is reported that more than one-third of children with minimal or unilateral hearing loss fail a grade.

### *Sources:*

Center for Disease Control and Prevention. (2019, August). *Summary of 2017 National CDC ELDI Data*. <https://www.cdc.gov/ncbddd/hearingloss/2017-data/documents/01-2017-HSFS-Data-Summary.pdf>

McKay, S., Gravel, J. S., & Tharpe, A. M. (2008, March). Amplification considerations for children with minimal or mild bilateral hearing loss and unilateral hearing loss. *Trends Amplif*, 12(1), 43-54.

White, K. (2010). *Twenty years of early hearing detection and intervention (EHLI): Where we've been and what we've learned*. Paper presented at the ASHA Audiology Virtual Conference.

## **Hearing Screening Program**

Screening program guidelines from American Academy of Audiology recommend that training for screeners be managed or supervised by an audiologist whenever possible.

### **Screeners and Volunteers**

Volunteers may assist with the flow of students through the screening procedure and may be trained to conduct the hearing screening (initial sweep screen). Holding a volunteer instruction session is helpful and should be scheduled close to the day of the screening. During the training session, volunteers

should be familiarized with the audiometers, screening forms, and procedures. Having volunteers who feel comfortable with the equipment increases the accuracy of screening results.

Some screeners may opt to complete a formal training program and exam to obtain certification as an Occupational Hearing Conservationist through the [Council for Accreditation in Occupational Hearing Conservation \(CAOHC\)](#).

#### *Sources:*

American Academy of Audiology. (2011, September). *Childhood Hearing Screening Guidelines*.

[https://www.cdc.gov/ncbddd/hearingloss/documents/AAA\\_Childhood%20Hearing%20Guidelines\\_2011.pdf](https://www.cdc.gov/ncbddd/hearingloss/documents/AAA_Childhood%20Hearing%20Guidelines_2011.pdf)

Child Hearing Screening. (n.d.) American Speech Language Hearing Association.

[https://www.asha.org/practice-portal/professional-issues/childhood-hearing-screening/#collapse\\_0](https://www.asha.org/practice-portal/professional-issues/childhood-hearing-screening/#collapse_0)

### **Screening Equipment**

- Audiometer with headphones

### **Setting Up the Screening Area**

1. Schedule a room that is as quiet as possible. Consider all potential nearby noise sources such as plumbing, heating/cooling systems, traffic, office machines, appliances, fluorescent light “buzz”, as well as music or talking in adjoining rooms or hallways.
2. Have a desk or table that will provide space for the audiometer and recording materials. Two chairs will be needed: one for the screener and one for the individual to be screened.
3. The chair for the child should be placed so that the child cannot see the screener during testing (e.g., pushing the presentation button, facial expressions).
4. Leave the audiometer on all day when screening.
5. Set all connections, dials, and switches on the audiometer in the correct position per manufacturer’s instructions.
6. Screen yourself or another person who is known to have good hearing before the screening to ensure the audiometer is working properly.
7. Audiometers should be calibrated annually by a qualified technician.
8. There should be a “standard precautions” policy and procedure in place to ensure earphones are properly cleaned between each child.

### **General Overview of School Screening Procedure**

1. If ears appear clear (no apparent drainage), instruct the child, and position earphones over the ears.
2. Administer an individual sweep screen - presenting tones at 1,000, 2,000, and 4,000 Hz in each ear at 20 decibels. (*Further sweep screen details to follow in [Individual Sweep Screen Procedure Section](#).)*
3. Record responses as Pass or Fail at each frequency.
4. If any frequencies fail in either ear, same-day rescreening should be done immediately, preferably by a different tester using a different audiometer. Reinstruct the child, replace the earphones, and repeat the screening procedure.
5. Record responses as Pass or Fail at each frequency.
  - a. A child that passes the same day rescreen receives a pass.

- b. A child who fails the same day rescreen will be rescreened again in 6–8 weeks (about 2 months).<sup>2</sup>
6. If a 6-8 week (about 2 months) rescreen is needed, use the same procedure. If the student still fails one or more frequencies in one or both ears, they should be referred for further (diagnostic) evaluation. If the school has an audiologist, he/she may be asked to perform an individual threshold test to determine the need for a referral.
7. It is not appropriate to adjust for a noisy environment (e.g., increasing the level of decibels above 20 for the screening). The range of normal hearing is –10 to 20 decibels. Increasing the decibel level during screening could result in passing a child that should be referred for evaluation.

A sample hearing screening result form to retain in school records can be found in [Appendix A](#).

## ***Student Preparation for Hearing Screening***

Do not screen any children with a known hearing loss who receive regular audiologic management. Consider each student individually; some precocious three-year-olds can be screened audiometrically, but some ten-year-old children cannot.

Bypass screening and refer to physician for medical consultation if blood or other discharge is observed in either ear.

1. Visually inspect the ears for signs of drainage or blood. If the ears appear clear, proceed with screening.
2. Seat the student in a chair facing away from the examiner so the person whose hearing is being screened cannot watch the audiometer or the screener's movements and expressions. Children who are shy or difficult to screen may be screened facing the examiner with their eyes closed.
3. Give test instructions and determine how the child will respond to the sounds (e.g., hand raise or conditioned response such as dropping a block in a bucket) before putting on the earphones.
4. Tell the child that they will hear some tones or "beeps" and that they should respond to the sound even if it is "very soft or tiny." The response method should be agreed upon between the screener and the student before beginning. The individual could respond in one of the following ways:
  - a. Raising hand
  - b. Saying "yes" or "I hear it"
  - c. Nodding head
  - d. Holding block, chip, or bead close to ear then dropping it into a container when the sound is heard (for use with young children)

## ***Hearing Screening Procedure***

### **Individual Sweep Screen Procedure**

After the student has been instructed in the procedure, begin the screening:

1. Perform a visual inspection of the ear. If no drainage is observed, proceed with screening.

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<sup>2</sup> ASHA and AAA guidelines recommend a two-tiered screening approach (same-day rescreen followed by subsequent rescreening [6-8 weeks later]) for failures to reduce false positive referrals.

2. Position the earphones over the ears. Adjust earphones so they fit snugly over the outer ear, with the speaker (center) of the earphone over the ear canal. Make sure hair is not under the earphones.
3. The RED earphone should be placed on the RIGHT ear and the BLUE earphone on the LEFT ear.
4. Set the LOUDNESS dial to 20 decibels (dB). If you are in an environment with some ambient noise that cannot be eliminated, the screening should be rescheduled or relocated to a quieter environment.<sup>3</sup>
5. Set control so that the tone comes on when the examiner activates the switch or presses the button.
6. Start screening the RIGHT ear.
7. Present a short tone of approximately 1-2 seconds and note if the child responded. Each tone should be presented a minimum of 2, but no more than 3 times, at each screening frequency.
8. Do not present the stimulus in such a rhythm that the person being screened is given clues as to when to respond. Screen the frequencies in this order:
  - 1,000
  - 2,000
  - 4,000
9. Record the results as Pass or Fail by marking a “P” for those sounds heard at 20 dB on at least two of three presentations; record as “F” for those tones not heard at 20 dB on at least two of three presentations. See [Interpretation of Screening Results](#) for more information.
10. Screen the LEFT ear in the same manner. Tell the child being screened when you are changing to the other ear.

### Rescreening Procedure

Same-day (immediate) rescreening should be completed for children who refer on the initial screening. It is recommended that same-day rescreening be completed by a different screener on an alternate piece of equipment if possible. Children who fail the same-day rescreening should be rescreened a final time 6–8 weeks (about 2 months) later. Prior to the rescreening:

1. Earphones should be removed and repositioned.
2. Instructions should be repeated to ensure students understand the procedure.
3. Complete [Individual Sweep Screen Procedure](#) (above).
4. Refer for medical and/or audiological evaluation for any individual who fails one or more frequencies in one or both ears. In schools, an audiologist may be asked to do an “individual threshold test” prior to referral. This information may be helpful to the professional doing the evaluation.
5. It is estimated that about 3-9% of students will fail a hearing screen and warrant a referral.

### Interpretation of Screening Results

Individuals who pass all frequencies in each ear are presumed to have normal hearing at those pitches.

1. **PASS:** Student reliably responds to at least two of the three presentations at each frequency in both ears.

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<sup>3</sup> Guidelines from the American Academy of Audiology (AAA) (Sept 2011) pertaining to the screening environment indicate that sound level “should not exceed 50, 58, and 76 dB SPL respectively for 1000, 2000, and 4000 Hz as measured by a sound level meter. If no sound level meter is available, the screening environment should be quiet enough for a normal hearing adult to perceive 1000, 2000, and 4000 Hz tones presented at 10 dB HL.”

2. **FAIL:** Student misses two of three presentations at any frequency in either ear.
3. Rescreen any individual who fails one or more frequencies in one or both ears.
4. Rescreens may also be done based on observations, symptoms, or for children with responses that are judged to be of fair or poor reliability.

## ***Otoacoustic Emissions (OAE)***

OAE screening may be appropriate for screening children who are difficult to test using pure-tone screening<sup>4</sup>. This may include students who cannot respond to conditioned play techniques (putting a block in a box, putting pegs in a hole or putting a ring on a cone are examples of conditioned play techniques), or traditional pure tone testing. Otoacoustic emissions, the sounds given off by the inner ear when responding to a sound, are measured using a microphone inserted into the ear canal. The microphone puts sound into the ear and measures the sound that returns.

OAE screenings do not technically test hearing, but OAE results determine how well the cochlea, or inner ear, works. It is important to note that OAE screening may miss some cases of mild hearing loss, hearing loss at select frequencies, and Auditory Neuropathy Spectrum Disorder (ANSD). ANSD is a rare condition that affects the transmission of sounds from the ear to the brain, and students with ANSD may present with varying levels of hearing ability.

### **OAE Screening Procedure**

1. Complete visual inspection of ear and make note of abnormalities.
2. Place a small probe in the ear to deliver sound stimuli.
3. Read results. Automated OAE screeners will provide a “pass” or “fail/refer” result. Diagnostic units will require interpretation of the findings by audiologists. Screeners should not change the parameters of the test equipment or provide interpretation of findings.

### **OAE Screening Results**

Use Pre-set stimulus and pass/fail parameters according to manufacturer’s instructions.

*Source: American Speech-Language-Hearing Association (ASHA), 2021*

## ***Parent/Guardian and Teacher Notification***

### **Parent/Guardian**

The success of the screenings is dependent on the implementation of a systematic follow-up procedure. See [Appendix B](#) for a sample form.

Send a referral letter home for a student who fails the hearing screening. See The letter will recommend the student be seen by an audiologist, which may require a physician referral.

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<sup>4</sup> OAE protocols may result in refer rates that are higher than those of pure tone testing.

Maintain contact with the parent/guardian to determine if the student has received the needed examination and necessary care. If necessary, assist the parent/guardian in need of financial assistance through a referral to an appropriate community resource.

### **Teacher Notification**

The nurse should notify the student's teacher(s) if a student refers to the hearing screening. In addition to being alert to the possibility the student is having difficulty hearing, the school personnel are often able to reinforce the need to follow through on the referral. It is important to monitor the student closely and to document any concerns the nurse and/or teacher may have regarding the impact of the suspected hearing impairment on the student's education. These concerns also need to be communicated to the parent/guardian. School personnel are encouraged to explore the reason for failure to follow-up on a hearing screening referral. This may result in the identification of the need for additional resources or information.

Until the student's hearing status is clearly defined by medical and/or audiological evaluation, the following measures should occur:

1. The student should be given preferential seating so that he/she is in the direct line of the teacher's/speaker's voice. Optimum distance is four to six feet from the teacher. If a better ear has been identified, the student's better ear should be closest to the teacher.
2. Teachers should use appropriate clarification strategies to ensure that the student understands oral information (repeat, rephrase, speak louder or closer, etc.).
3. Whenever possible, teachers should avoid:
  - a. Standing in front of a bright window while speaking.
  - b. Speaking while writing on the chalkboard (back to class).
  - c. Positioning themselves so that their faces are not visible to students.
4. Noisy learning environments should be avoided or minimized.

### ***Hearing Loss Symptom Checklist***

If a student has one or more of these symptoms, the student may have difficulty hearing and should have their hearing checked as soon as possible.

#### **Medical Symptoms**

- If a child has an unpleasant odor or smell from his/her ear.
- If a child has repeated bouts of upper respiratory infections, runny nose, chronic cough, or ear infections.
- If a child pulls, rubs or digs in his/her ears.
- If a child's outer ear looks red or feels warm.
- If a child seems off-balance or falls frequently.
- If there is a strong family history of hearing loss (parents, grandparents, cousins, aunts, or uncles).

#### **Listening Symptoms**

- If a child is easily distracted or frustrated in a group.
- If a child does not respond consistently to his/her name or live voice.
- If a child cannot understand you when his/her back is turned.
- If a child has difficulty finding the source of a sound.

- If a child needs verbal instructions repeated several times before he/she understands.
- If a child consistently turns up the volume of the television, music, or computer.

### **Behavioral Symptoms**

- If a child does not particularly like listening to music or television or listening activities such as rhymes, sound games, etc.
- If a child is very inattentive during story time.
- If a child watches your face and eyes for visual cues of meaning.
- If a child depends on visual cues to successfully complete simple verbal tasks.
- If a child has a short attention span for his/her age.

### **Speech/Language Symptoms**

- If a child has poor or delayed language development.
- If a child has poor articulation of speech sounds.
- If a child has poor sentence structure and speech patterns.
- If a child talks in an extremely loud voice or extremely soft voice.

Source: [Vanderbilt Bill Wilkerson Center](#)

## **Body Mass Index (BMI)/Height and Weight**

[Tenn. Code Ann. § 49-6-1404](#) *Nutrition and physical activity programs in schools where aggregate data suggests high rates of obesity.*

Schools where aggregate data suggests that high rates of overweight children may be a problem are encouraged to expand existing or implement new school-based nutrition and physical activity programs designed to reduce those rates. The effectiveness of these results could be determined by completing a BMI-for-age on the school's students whose parents or guardians have not requested exclusion from the testing at the end of the school year.

### ***BMI Screening Recommendations***

The TDOE encourages LEAs to conduct annual BMI screenings for all students in grades Pre-K, K, 2, 4, 6, 8, and one year or class of high school (usually wellness class). The LEA should screen the same high school grade-level or class year after year. For example, if the LEA conducts BMI screenings for those students enrolled in a wellness class, then the LEA should conduct BMI screenings for students enrolled in the same wellness classes every year thereafter. Staff training for BMI screenings is required. Specific protocols must be used.

### ***BMI Rationale***

Childhood obesity is a serious problem in the United States and is associated with health risks. Since the 1970s, the percentage of children and adolescents affected by obesity has more than tripled. According to 2015-2016 data, the prevalence of obesity was 13.9% among 2- to 5- year olds, 18.4% among 6- to 11- year-olds, and 20.6% among 12- to 19- year olds. Obesity is defined as a BMI at or above the 95th percentile for children and teens of the same age and sex. Overweight is defined as a BMI at or above the 85th percentile and below the 95th percentile for children and teens of the same age and sex.