

HEARING SCREENING FOR CHILDREN

PURPOSE

Audiologic (hearing) screening identifies those persons who are likely to have hearing impairments or disorders that may interfere with body function/structure and/or activity/participation as defined by the World Health Organization (WHO) (ASHA, 2004). Hearing screening for children has four purposes:

1. To identify children with hearing impairment that can potentially interfere with communication and class work.
2. To possibly detect those children with a fluctuating hearing loss.
3. To make teachers and others aware of hearing problems.
4. To provide for the special educational needs of children whose hearing cannot be restored to normal limits through medical or surgical treatment.

Screening may result in recommendations for re-screening, or referral for an audiologic assessment or other medical examinations or services (ASHA, 2004).

PROCEDURE

Setting up for the screening:

1. Find a quiet room away from any crowded areas.
2. The items that should be available in the test room are:
 - A table
 - Two chairs
 - An electrical outlet
3. Position the audiometer on the table so that the child cannot see any movement when the tone is being presented.
4. Prepare the audiometer (directions given below).
5. Have the parents or guardian complete the "History of Ear and Hearing Problems" form, if appropriate.

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Setting up the audiometer:

1. Plug in the audiometer.
2. Check the earphones to be sure they are correctly plugged in.
3. Turn the power on.
4. Make a check of the audiometer:

Check all connection points for secure insertion.

Check that the earphones are securely attached to the headset.

Make a biological check of the equipment (directions given below).

Biological Check:

1. Put the headset on your head.
2. Present a tone and make sure it comes through the appropriate earphone.
3. Check for smooth onset and offset of the tone.
4. Check for unwanted noise when the signal is off.
5. Turn the attenuator dial and listen for increases and decreases in loudness.
6. Turn the FREQUENCY dial with the attenuator set at a comfortable loudness and listen to each frequency.
7. Jiggle the earphone cords and listen for continuous tone presentation.
8. Check known thresholds and look for a shift of +/- 5 dB.

In all of the above situations listen for audible clicks, discontinuous presentation of the tone, static, crosstalk - a signal from the nontest earphone, background noise, a dead earphone or any undesired interference with the presentation of the tone. If problems exist that cannot be solved, then testing cannot be done.

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Check the screening levels at each frequency to be sure the sounds, which the child is expected to hear, can be heard in the environment.

Instructions to the child:

1. Give the instructions before placing the earphones on the ears, using language that is appropriate for the child.
2. Tell the child that you are going to test his or her hearing.
3. Tell the child that you are going to put the earphones on his or her ears.
4. Tell the child to raise his or her hand when the tone is heard. The instructions may have to be modified for a younger child. The child may drop a block when the tone is heard or may give another appropriate response.

Placing the headset on the child's head securely and correctly:

1. Before placing the earphones on the child check the ear canal for blockage by wax or for drainage. This may be accomplished with an otoscope.
2. Check for interferences such as long hair, earrings, hats, eyeglasses, hearing aids, or chewing gum.
3. When placing the earphones on the child's head check for ear malformations and hearing aid(s). If the child is wearing a hearing aid, do not do the screening.
4. Proper way to put on earphones
 - Hold earphones in place by the headband.
 - The earphone grid should be directly over the entrance to the ear canal.
 - The right (red) earphone should go on the right ear and the left (blue), on the left ear

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5. Make sure that the ear is completely covered and no hair is over the child's ear.
6. If the earphones are loose then the threshold for low frequency sounds will be decreased.

Actual Test:

Set the attenuator dial at 40 dB HL at 1000 Hz (optional). Present tones beginning with the right ear at 1000 Hz at 40 dB HL. Once the child responds, decrease the tone to 20 dB HL at 1000 Hz and present the tone again. Follow this order:

Right ear - 1000 Hz at 20 dB HL
Right ear - 2000 Hz at 20 dB HL
Right ear - 4000 Hz at 20 dB HL
Left ear - 4000 Hz at 20 dB HL
Left ear - 2000 Hz at 20 dB HL
Left ear - 1000 Hz at 20 dB HL

Be sure to present the tones in a random manner; do not use the same tempo for all presentations.

Do not look at the child each time you present the tone or give any other signals that might cue the child to respond.

Remove and clean the headset, if necessary.

Modifications to the procedure:

1. For some screenings the examiner may want to also test 6000 Hz presented at 20 dB HL.
2. The above method is only a suggested procedure. It is advisable for examiners to devise a comfortable test method based on the given protocols and needs for the particular situation.

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INTERPRETATION

If using the Hearing Screening form (found in the Audiology Manual), mark an X at all levels in which the child does not hear the tone. The child fails the hearing screening if two frequencies in either ear are not heard. If 500 Hz is not screened, then the child fails the screening if one frequency in either ear is not heard.

Letters should be sent to the parents concerning the screening. Examples of a "pass" letter and a "refer" letter are in the Audiology Manual.

Reporting the results:

1. The hearing screening must be reported as a pass or fail, not as normal hearing or a hearing loss.
2. If the results are to be placed in a diagnostic report then the results may be described as follows:
 - a. Hearing was screened bilaterally at 20 dB HL for the frequencies 500, 1000, 2000, and 4000 Hz. The client passed the screening.
 - b. John Doe passed a hearing screening conducted bilaterally at 20 dB HL at 1000 Hz, 2000 Hz, and 4000 Hz on March 15, 1992.