Department of Health
Children with Special Health Needs
Hearing Advisory Council
108 Cherry Street,
PO Box 70, Drawer 28
Burlington, VT 05402

CHILDREN WITH SPECIAL HEALTH NEEDS ADVISORY COUNCIL

Suggested Protocols for Hearing Screening in Children (birth – 18 years)

The following suggestions are based on guidelines recommended by the American Speech, Language, and Hearing Association *(ASHA Desk Reference, Volume 4, Audiologic Screening, 1996)* and the Joint Commission on Infant Hearing *(JCIH 2007 Position Statement*).

Birth-3 years:

Newborn Hearing Screening:

Every baby born in Vermont is offered an initial hearing screening prior to discharge from the hospital; or on an outpatient basis if born at home or not screened in the hospital. The state and national goals are to: screen all newborns by one month of age, diagnose hearing loss by 3 months of age, and enroll children diagnosed with hearing loss into early intervention by 6 months of age.

Newborn hearing screening is conducted by using objective, physiological testing, such as Otoacoustic Emissions (OAE) or Automated Auditory Brainstem Response (AABR).

The Joint Committee on Infant Hearing (JCIH) Year 2007 Position Statement recommends newborns:

- admitted to the Neonatal Intensive Care Unit (NICU) should be screened by AABR
- who do not pass an initial hearing screening via AABR need to receive a second screening by AABR
- who do not pass an initial screening in one or both ears should receive a second screening in both ears
- who have one or more risk factors should have repeat hearing screenings periodically; and a full audiological evaluation by the third birthday (see page 3)

Outpatient Hearing Screenings:

Newborns that do not pass or do not receive an initial hearing screening from the hospital should be referred for an outpatient hearing screening.

- Outpatient screenings are available at:
  - birthing hospitals
  - local and regional audiology facilities
  - primary care provider offices

****** All personnel providing in-office hearing screenings (i.e., nurse, assistant, or technician) should receive training from a licensed audiologist prior to performing behavioral hearing screenings. ******

Contact the Vermont Early Hearing Detection and Intervention (EHDI) Program at 800-537-0076 (toll free)/802-651-1872 or VTEHDI@ahs.state.vt.us for more information about outpatient screening options and licensed audiologists in your area.

Age 3-18 years:

Behavioral Testing Methods

Conditioned play audiometry:

This testing method uses a conditioned play response from the child and is recommended for any child who is unable to respond via the conventional hand-raising method.

Traditional audiometric procedure:

This testing method uses conventional hand-raising method of response and is recommended for any child who understands the task.

Preliminary Testing Considerations

- all screening equipment should be calibrated on an annual basis
- prior to performing the hearing screening, a listening check of the equipment should be performed by the screening personnel
- testing should be conducted in a quiet environment, free of visual distractions or cues
- testing should be conducted under headphones so ear specific information can be obtained

Testing Method:

- *test frequencies*: 500 Hz, 1000 Hz, 2000 Hz, and 4000 Hz in both ears
- *familiarization & conditioning of the task:* initial presentations of test frequencies should be clearly audible (i.e., 40-50 dB HL)
- *passing response at a test frequency:* appropriate response at 20 dB HL at least two out of three times
- test one ear at a time; raising either hand, regardless of which ear you are testing, is a response

Results of Testing:

PASS: child must respond to each test frequency consistently at 20 dB HL in each ear
REFER: child does not respond at 20 dB HL at any one test frequency in either ear *

** if the child does not pass, re-instruct, reposition headphones, and re-screen within the same session using the same testing procedure*

Next Steps:

- Any newborn or child who passes the re-screening is considered a PASS

- Any newborn or child who does not pass the re-screening, or who does not condition properly to the test procedure, should be referred to a licensed audiologist for further testing

- Follow-up diagnostic testing with a licensed audiologist should be performed within 1 month (no later than 3 months) from the initial hearing screening

The following are considered inappropriate hearing screening methods according to the guidelines set forth by ASHA:

- behavioral measures to screen newborns and very young infants up to 6 months of age
- presentation signals that are not frequency specific (i.e. speech, music, and broadband noises)
- use of non-calibrated signals (i.e. rattles, noise-makers, and finger snapping)

High Risk Factors for Delayed, Late-Onset and/or Progressive Hearing Loss

The following risk factors require periodic screening, as indicated, after passing newborn hearing screening in both ears:

- Family history of permanent hearing loss in childhood- **6 months, 1 year, yearly**
- Maternal infections during pregnancy or delivery (such as Toxoplasmosis , Syphilis, HIV, Hepatitis B, Rubella , CMV, Herpes simplex, and others)- **6 months, 1 years, yearly for CMV**
- Physical problems of the head, face, ears, or neck (cleft lip/palate, ear pits/tags and others)**- 3 months, 6 months, yearly; 1 year for pits/tags**
- Ototoxic medications given in the neonatal period**- 1 year (sooner and more frequent if medications continue or are re-administered)**
- Syndrome associated with hearing loss**- 3 months, 6 months, 1 year, yearly**
- Admission to a neonatal intensive care unit greater than 5 days**- 1 year**
- Prematurity (< 37 weeks)**- 1 year**
- Hyperbilirubinemia**- 1 year (based on severity; check with primary care provider)**

Any child with one or more risk factors listed above should have, at a minimum, one full audiological evaluation before the third birthday. This is recommended by the Joint Committee on Infant Hearing (JCIH) and endorsed by the American Academy of Pediatrics (AAP).

http://pediatrics.aappublications.org/cgi/content/extract/120/4/898?etoc

http://pediatrics.aappublications.org/cgi/content/full/124/4/1252

Other reasons to schedule a hearing test:

- Parent/caregiver concern regarding hearing
- Delays in speech/language development
- Recurrent middle ear infections or one episode lasting ≤ 3 months
- Head trauma associated with loss of consciousness or skull fracture
- Bacterial meningitis and other infections (mumps; encephalitis; viral labrynthitis)
- Exposure to potentially damaging noise levels
- Ototoxic medications received at any time.