Clinical Hearing Screening Guidelines for children ages 7 months to 19 years

Site Applicability

All VCH Community Audiology Clinics (Vancouver, Richmond, North Shore, Powell River, Squamish)

Practice Level

- Clinical Audiologist – basic skill
  - Audiology Support Personnel (Audiometric Technician, Audio/Vis Technician, Sensory Screener) – advanced skill requiring on-the-job training and general supervision by an Audiologist

Need to Know

Public Health Audiology receives a high volume of pediatric referrals to rule out hearing loss and/or ensure adequate hearing for children with concerns such as communication delay, developmental delay, attention deficits, learning difficulties, and Autism Spectrum Disorder. This screening guideline has been created to establish evidence-based guidelines to support accurate and efficient identification of hearing loss that could be a factor in the presenting concerns in this population. These guidelines below should be viewed as ***a minimum practice standard for ruling out hearing loss*.**

All referrals are reviewed by a Registered Audiologist (Audiologist) to determine whether clinical hearing screening is the appropriate level of service. Referrals that indicate any hearing concerns and/or auditory or otological dysfunction will receive a full diagnostic assessment with an Audiologist and referral on to other professionals as needed.

Screening may be conducted by an Audiologist or Audiology Support Personnel (for ages 3-19 years only) under the supervision of an Audiologist. Audiologists may move from clinical hearing screening to a full audiology assessment if indicated by results and clinical judgment. Audiology Support Personnel will follow appropriate written screening and referral protocols and cannot make any clinical decisions.

Equipment & Supplies

The following equipment is necessary to meet this CPD:

- Clinical audiometer
- Immittance bridge
- Otoscope
- Diagnostic otoacoustic emissions
- Disposable, single-use insert earphones, ear tips, and probes for above equipment

Practice Guideline

1 **Case History:** Must include history of ear infections in the last 6 months

2 **Behavioural Testing:**

Age Range	Personnel	Pass Criteria (Gold Standard)	Acceptable alternate procedures (Minimum Standard)
7-36 months or developmental equivalent	Registered Audiologist with optional SP to assist	**Ear-specific VRA[1]:** 25 dB HL warble and/or NBN at 2 and 4 kHz, as well as EITHER .5 and 1 kHz bilaterally. Pass response requires two reliable head turn responses at each frequency. **Ear specific Play Audiometry[2]:** 20 dB HL screening at 1, 2, and 4 kHz bilaterally. Testing at .5 kHz is optional.	**Soundfield VRA / Play Audiometry:** 25 dB HL warble and/or NBN at 2 and 4 kHz, as well as EITHER .5 and 1 kHz bilaterally. Pass response requires two reliable head turn responses at each frequency **Cannot participate in behavioural testing (VRA / Play):** Bilateral DPOAE[3] screening criteria: ▪ Mandatory presence of 2, 3, and 4 kHz; ▪ SNR at least 3 dB above 2 standard deviations of the noise floor; ▪ Absolute amplitude of at least -5 dB and an acceptably low noise floor (-4dB SPL or less). Behavioural testing should be attempted in conjunction with DPOAE testing whenever possible, as DPOAE testing does not rule out ANSD or reflect low frequency hearing.
3-19 years	Registered Audiologist Audiology SP under Audiologist supervision	**Ear specific Play or Standard Audiometry:** 20 dB HL screening at 1, 2, and 4 kHz bilaterally. Testing at other frequencies is optional.	

Legend:

Acronym	Full name	Acronym	Full name	Acronym	Full Name
ANSD	Auditory neuropathy spectrum disorder	dB SPL	Decibel Sound Pressure Level	NBN	Narrow band noise
DPOAE	Distortion product otoacoustic emissions	VRA	Visual reinforcement audiometry	SNR	Signal-to-noise ratio
DB HL	Decibel Hearing Level	SP	Support Personnel		

3 Middle Ear Testing:

Tympanometry and otoscopy should be attempted if:

- Child does not pass hearing screening
- Otoacoustic emissions are absent, even in the presence of good soundfield hearing.
- History of middle ear problems (greater than or equal to 1 ear infection in the last 6 months)

4 Counseling:

If the child passes the clinical hearing screening, families should receive the following counseling as appropriate:

- The hearing screening indicates that hearing is adequate for speech / language / educational / home needs.
- Soundfield results alone are not ear-specific and represent how both ears are working together.
- Otoacoustic emissions indicate that the auditory pathway(s) through to the inner ears is working well and are consistent with good hearing.
- Hearing can change. Families can call us if they are concerned about their child's hearing at any point in the future.
- If assessment results indicate hearing loss and/or possible medical conditions, the family should be counseled about the nature of the condition(s), necessary follow-up, and appropriate communication strategies.

Expected Patient Outcomes

Children referred to Public Health Audiology with non-auditory concerns will receive clinical hearing screening instead of a full audiology assessment. If screening outcome indicates a need for a full audiology assessment, this may be completed in the same appointment or at a separate appointment with an Audiologist.

Site Specific Practices

Individual sites may use their discretion in determining if an Audiologist or Audiology Support Personnel conducts clinical hearing screening.

Documentation

The clinical screening must be documented in a PARIS casenote (reason: Audiologist – Hearing Screening) and paper clinical records according to standards set out by VCH and the College of Speech and Hearing Health Professionals of BC[4].

A hard copy of screening results and recommendations should be sent to any external referral sources and other involved agencies as needed with signed Information Consent.

Involved VCH team members such as SLPs and PHNs may access information through PARIS.

References

1. American Academy of Audiology. Childhood Screening Guidelines (September 2011). Retrieved from: http://www.cdc.gov/ncbddd/hearingloss/documents/aaa_childhood-hearing-guidelines_2011.pdf.
2. American Speech Language and Hearing Association. Guidelines for Audiologic Screening (1996). Retrieved from: http://www.asha.org/policy/GL1997-00199.htm.
3. BC Early Hearing Program. Audiology Assessment Protocol, Version 4.1, November 2012.
4. College of Speech and Hearing Health Professionals of British Columbia. Documentation and Record Management Clinical practice Guideline. Retrieved from: http://www.cshhpbc.org/docs/cpg-04_-_documentation_and_records_management_(revised_130801).pdf

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