



| PROCEDURE | |
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| Audiometry | |
| Scope (Staff): | Community health staff |
| Scope (Area): | CAHS-CH, WACHS |
| <p style="text-align: center;">Child Safe Organisation Statement of Commitment</p> <p>The Child and Adolescent Health Service (CAHS) commits to being a child safe organisation by meeting the National Child Safe Principles and National Child Safe Standards. This is a commitment to a strong culture supported by robust policy documents to ensure the safety and wellbeing of children at CAHS.</p> | |

This document should be read in conjunction with this [DISCLAIMER](#)

Aim

To conduct hearing screening assessments for clients from the age of 3 years.

Risk

Unrecognised or unmanaged hearing impairment can have a significant effect on a child's social, psychological and educational progress, including speech and language development, and long term social and vocational outcomes.^{1, 2, 3, 4}

Background

Audiometry is part of comprehensive ear health and hearing screening for children. Screening includes otoscopy and may also include video otoscopy and/or tympanometry. The ear health and hearing screening schedule for Western Australian children can be viewed in the *Hearing and ear health* guideline.

Audiometry measures how well a person hears the range of sound frequencies that correspond to frequencies used in normal speech.² Frequencies are measured in hertz (Hz) and intensity (loudness) is measured in decibels (decibels Hearing Level or dB HL). (refer to the *Hearing and ear health guideline* for information regarding grades of hearing loss in children).

Results are recorded to indicate hearing within normal limits, or reduced response or no response which indicate a need to repeat the test at a later date, and/or refer for further assessment and treatment.

Audiometry may be used for children from the age of 3 years depending on the child's development, the setting and circumstances. Key Points

- If there is evidence that the child is under the care of a relevant health professional, clinical judgement about the need for audiometry is required.
- Otoscopy is to be performed prior to audiometry. If there is any evidence of discharge from the ear, audiometry should not be performed and the child should be referred to a medical practitioner for further assessment and treatment.³
- Audiometry is only to be performed by staff who have completed CAHS-CH or

WACHS training.

- Each audiometer model has specific cleaning requirements. In general, detergent wipes are appropriate, but staff should refer to manufacturers for specific cleaning requirements. Earphones are to be cleaned between each child.
- When a child is not willing to have the procedure and staff or parent have concerns, discuss referral to a medical practitioner with parent.
- Regular and opportunistic ear health screening for Aboriginal children aged 0 – 5 years is critical to preventing ear disease and optimising health and development.⁴
- Ear health screening for WA children is outlined in the *Hearing and ear health* guideline.
- Both ears are to be tested at 50/35/25 dB, at both 1000 and 4000 Hz.
- Key health education messages for families, children and school staff are to be provided as appropriate for the audience (*refer to Hearing and Ear Health guideline*).
- Community health staff must follow the organisation's overarching Infection Control Policies and perform hand hygiene in accordance with WA Health Guidelines at all appropriate stages of the procedure.

Equipment

- Audiometer (calibrated annually). Calibration date to be indicated on the machine.
- Blocks in a container

Process

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| <p>1. Preparation for screening session</p> <ul style="list-style-type: none"> • Check the operation of the audiometer before use. • Secure a quiet room with minimal external noise. • Check health records to obtain relevant health history. | <ul style="list-style-type: none"> • Audiometer models differ in layout of the controls, but each machine offers the same functions. • If a quiet room is not available, do not continue with audiometry testing. • Ask teacher about any concerns for individual children. |
| <p>2. Engagement and consent</p> <ul style="list-style-type: none"> • Ask parent/caregiver about health history, and/or • Check parent/caregiver responses in CHS 409-1, CHS409-5 or CHS 719. • Explain the procedure to the child and parent/caregiver, if present. Allow time | <ul style="list-style-type: none"> • See <i>Hearing and ear health</i> guideline for ear health history guide. • If parent/caregivers are present, ask to sit nearby, but to avoid giving cues. |

| Steps | Additional Information |
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| <p>for discussion of concerns.</p> <ul style="list-style-type: none"> • Ensure written or verbal parental consent has been obtained prior to audiology. | |
| <p>3. Prior to audiometry</p> <ul style="list-style-type: none"> • Child to be seated facing and within one arm length of the examiner, and in a position where the child cannot see the examiner's use of the controls. • Conduct otoscopy first. If evidence of pain or discharge, do not proceed to audiometry. • Select age appropriate task to accurately identify the child's ability to hear the test sounds. • Demonstrate the sound and the task. Take time to enable the child to understand and practice the task. | <ul style="list-style-type: none"> • The examiner to be seated at the same level as the child, enabling observation of the child's facial expressions. • Assess child's understanding and ability to undertake audiometry. • Tasks for specific ages may include: <ul style="list-style-type: none"> ○ Prior to school age; "When you hear the sound (whistle or noise), give me the block." Blocks need to be passed easily between the child and tester. ○ Kindergarten and Pre-primary children; "When you hear the sound (whistle or noise), put the block in the bucket/on the table." ○ Older children; "When you hear the sound, wave or raise your hand." |
| <p>4. Audiometry procedure: <i>Right ear</i></p> <ul style="list-style-type: none"> • Ensure earphones fit comfortably, remove glasses, and place hair (and any head covering) behind ears. • Ensure red earphone is on the right ear. • Give simple, clear instructions. • Set intensity at 50 dB HL at 1000 Hz in the right ear. • Present the tone for 2-3 seconds. • If the child responds, lower to 35 dB HL and then to 25 dB HL. • Repeat last sound heard to ensure accuracy of results. • Repeat procedure at 4000 Hz. • Record result. | <ul style="list-style-type: none"> • Endeavour to keep child engaged and on task throughout the procedure. • Occasionally praise the child's responses throughout the procedure. Always start at the loudest noise level 50 dB HL in order to obtain a positive response from the child. • If there is no response at 50 dB HL the result should be documented as 'no response'. • Vary the rhythm in the tone presentation to ensure you can tell that the child is responding to the signal rather than guessing the timing. |
| <p>5. Audiology procedure: <i>Left ear</i></p> <ul style="list-style-type: none"> • Reset intensity at 50 dB HL at 1000 Hz. | <ul style="list-style-type: none"> • As above |

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| <ul style="list-style-type: none"> Repeat as above and record result. Repeat procedure at 4000 Hz in the left ear and record result. | |
| <p>The child is required to respond twice at 25 dB HL at both 1000 and 4000 Hz in each ear for 'no concerns' to be recorded in the audiometry screening.</p> | |
| <p>6. Reduced response</p> <ul style="list-style-type: none"> If a correct response is not obtained (twice) at 25 dB HL, record the last level at which the child did respond. If the child does not respond at 50 dB HL, recheck equipment, re-instruct and try again. If there is still no response record No Response on the results sheet. 'No concern' is recorded when a client achieves 25 dB HL twice in each ear. | <ul style="list-style-type: none"> Recheck audiometer as battery may have gone flat. Check that the headphones are connected and working. Consider recheck after 4-6 weeks to allow time for temporary issues to resolve. |
| <p>7. Communicate results with parents</p> <ul style="list-style-type: none"> If parent/caregiver present, discuss audiometry findings including any concerns. If hearing loss is evident, provide information on strategies to encourage speech and language development. If parent/caregiver not present; <ul style="list-style-type: none"> Contact to discuss if there are any concerns, and if need for recheck. Provide results in writing using CHS409-6A <i>Results for parents</i> sheet or other relevant form. | <ul style="list-style-type: none"> If unable to contact parent/caregiver by phone to discuss a concern, follow CAHS-CH or WACHS processes to provide effective communication with family. |
| <p>8. Recheck procedure</p> <p>Repeat steps 4 and 5.</p> <ul style="list-style-type: none"> Recheck hearing at 1000 Hz and 4000 Hz, starting at 50 dB then 35 dB, then 25 dB twice. If a child does not achieve 25 dB HL (twice) in either ear, undertake expanded screening and refer for further audiological assessment. | <ul style="list-style-type: none"> No action required if results are 25 dB HL (x2) in both ears at 1000//4000Hz. |

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| <p>9. Expanded screening</p> <ul style="list-style-type: none"> Expanded screening involves testing at two additional frequencies - 500 Hz and 2000 Hz. Start at 50 dB, then 35dB then 25 dB twice. | <ul style="list-style-type: none"> Expanded screening to be preceded by normal audiometry procedures described in steps 4 and 5. Results provide more information about the child's hearing and can begin to suggest a pattern of hearing loss to the person receiving the referral. |
| <p>10. Referral and review</p> <ul style="list-style-type: none"> Where results and clinical judgement indicate, provide referral to a medical practitioner or other health practitioner. Discuss and seek consent for referral from parent/caregiver. Include otoscopy results in referral. Include tympanometry results, if conducted. | <ul style="list-style-type: none"> Adherence to CAHS-CH and WACHS clinical handover processes is required when handing over, or referring a client within, or outside of, the health service. Refer to medical practitioner to assess if hearing loss is due to a medical problem. Refer for audiologist assessment, as required. Follow up with patients/caregivers to determine if the referral has been actioned. |

Documentation

Community health staff will document relevant findings according to CAHS-CH and WACHS processes.

References

- American Speech-Language-Hearing Association. *Effects of hearing loss on development: ASHA*; 2014. Available from: <http://www.asha.org/public/hearing/Effects-of-Hearing-Loss-on-Development/>.
- Coates H, Kong K, Mackendrick A, Bumbak P, Perry C, Friedland P, Morris P & Chunghyeon, O. *Aboriginal, Torres Strait Islander and Pacific Islander Ear Health Manual*. Perth: Garnett Passe and Rodney Williams Foundation, 2020.
- Commonwealth Department of Health and Ageing. *Recommendations for clinical care guidelines on the management of otitis media in Aboriginal and Torres Strait Islander population*. Menzies School of Health Research, Commonwealth Department of Health and Ageing: Canberra. 2011.
- Government of Western Australia. *WA Child Ear Health Strategy*. Perth; 2017.
- Centre for Remote Health. 2017. *CARPA Standard Treatment Manual (7th edition)*. Alice Springs, NT: Centre for Remote Health.

Related policies, procedures and guidelines

The following documents can be accessed in the **Clinical Nursing Manual** via the

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| HealthPoint link, Internet link or for WACHS staff in the WACHS Policy link |
| Clinical Handover - Nursing |
| Hearing and ear health |
| Otoscopy |
| Physical assessment 0 – 4 years |
| School-aged health services - primary |
| School-aged health services - secondary |
| Tympanometry |
| Universal Contact - School Entry Health Assessment |
| Vulnerable Populations |
| The following documents can be accessed in the CAHS-CH Operational Manual |
| Client identification |
| Consent for Services |
| Hand Hygiene |
| Infection Control manual |
| The following documents can be accessed in WACHS Policy |
| Ear tissue spearing, irrigation and ear drop installation procedure |
| Enhanced Child Health Schedule |
| The following documents can be accessed in the Department of Health Policy Frameworks |
| Clinical Governance, Safety and Quality |


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| Related CAHS-CH forms |
| The following forms can be accessed from the CAHS-Community Health Forms page on HealthPoint |
| CHS409-1 SEHA Parent Questionnaire |
| CHS409-5 School Entry Health Consultation for Education Support Students |
| CHS409-6A Results for parents |
| CHS423 Ear Health Assessment Results |

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| CHS423A School Ear Health Assessment – Results for Parents |
| CHS663 Clinical Handover/Referral |
| CHS719 Ear Health Screening Consent – (located on the Aboriginal Health forms page) |

| Related WACHS resources |
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| The following resources can be accessed from WACHS Learning Management System |
| Ear Health Module 1 – Overview (EHOV EL1) |
| Ear Health Module 2 – Otoscopy (EHOT EL1) |
| Ear Health Module 3 – Tympanometry (EHTT EL1) |
| Ear Health Module 4 – Play Audiometry (EHPA EL1) |
| Ear Health Module 5 – Referrals (EHRE EL1) |

| Related external resources |
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| Coates H, Kong K, Mackendrick A, Bumbak P, Perry C, Friedland P, Morrisw P & Chunghyeon, O. Aboriginal, Torres Strait Islander and Pacific Islander Ear Health Manual . Perth: Garnett Passe and Rodney Williams Foundation, 2020. |
| PLUM and HATS speech resource – Pictures and questions to assist with talking to parents about hearing, speech and language, National Acoustic Laboratories. |
| Blow-Breathe-Cough Program . Hearing Australia resources for teachers and early childhood educators to promote ear health. |
| Care for Kid's Ears . A wealth of information and resources for parents, early childhood educators, teachers and health professionals. Includes material in several different language groups. |

This document can be made available in alternative formats on request for a person with a disability.

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Collaboration

Accountability

Equity

Respect

Neonatology | Community Health | Mental Health | Perth Children's Hospital