

Glossary

Glossary of audiology data terms

Hearing

Hearing is the sense for perceiving sounds and includes regions within the brain where the signals are received and interpreted.

Otitis media

It is a condition with any inflammation, fluid or suppurative infection in the middle ear.

Suppurative

Describes pus produced in response to inflammatory bacterial infections.

Eustachian tube dysfunction

Negative middle ear pressure associated with compromised equalisation impeding middle ear function and causing middle ear fluid accumulation.

Acute otitis media

Describes presence of suppurative (infected) middle ear fluid with intact bulging or recent discharge and or bulging eardrum. May have associated symptoms or signs of infection that include discharge, pain, fever, irritability, vomiting or diarrhoea

Otitis media with effusion

It is the presence of intact eardrum and middle ear fluid without symptoms or signs of infection.

Chronic suppurative otitis media (CSOM)

It is a persistent suppurative discharge from middle ear through a tympanic membrane perforation for more than 6 weeks.

Dry perforation

It refers to a CSOM condition that presents as a hole in the eardrum without any evidence of suppurative otitis media (either acute or chronic).

Persistent

It refers to a hearing loss or otitis media condition that is demonstrated to have been present for 3 months or longer.

Otoscopy

It is the clinical skill of examining the outer and middle ear, including the eardrum, using an otoscope/ auriscope.

Tympanometry

It is an examination used to test the condition of the middle ear and mobility of the eardrum and the conduction bones. It is an objective test of middle-ear function and provides a measure of energy transmission through the middle ear.

Audiometry/ pure tone audiometry

It is the standard technique of testing hearing ability. Pure tone audiometry records a subjective response to threshold (softest) sound stimuli presented through headphone,

bone conductor or speaker at discrete frequencies essential for detecting and discriminating speech. Any response deviation from the normal range, at any sound stimuli, in either ear, is described as a hearing loss and the type of hearing loss is diagnosed.

Visual reinforce observation audiometry (VROA)

It is a hearing assessment technique using specialised sound field facilities that is appropriate for smaller children and babies 9 – 36 months). When able to sit and turn head independently children can be conditioned to repeatedly and reliably respond to frequency specific warble tones, presented via speaker, headphone or bone conductor. This conditioned response is reinforced through provision of a visual reward (puppet) to obtain threshold (softest) measures. Results obtained via speaker (standard test) do not provide separate ear information but determine adequacy of hearing for speech and language development and reflect the better ear.

Hearing loss

It describes any hearing threshold response (using audiometry) outside the normal range, at any sound stimuli, in either ear. Hearing loss in a population describes the number of children who have abnormal hearing. Hearing loss may affect one ear (unilateral) or affect both ears (bilateral).

Fluctuating hearing loss

It refers to hearing loss that changes significantly over time resulting in inconsistent auditory input. Conductive hearing loss is often associated with fluctuations related to changes in the otitis media condition or the impact it is having on sound conduction through the middle ear.

Hearing impairment

It is classification gives estimate of degree of handicap associated with hearing loss in the better ear and links to predicted consequences and recommended rehabilitation. Hearing impairment classification applies a graded scale mild, moderate, severe and profound, based on degree of deviation from normal thresholds in the “better ear” as recorded through audiometry. During data collection it is calculated as a 3 frequency average (3FA) of the threshold of hearing loss (HTL) at 500Hz, 1000Hz and 2000Hz and is only applied to further describe bilateral hearing loss. It is based on pure tone audiometry on the test day and does not account for language, processing, environmental and early onset factors.

Mild hearing impairment

It is predicted to cause problems with hearing some speech components (below threshold), hearing in background noise, hearing over distance, understanding soft voices and understanding non first (native) language speakers. Speech sounds will easily become inaudible and the listening environment is critical for enabling audibility of speech sounds for oral English, literacy and numeracy. Classroom amplification in combination with appropriate acoustic improvements for noise reduction is demonstrated to offer benefit for mild hearing impairment at school. Individual amplification may also be considered.

Moderate hearing impairment

It is predicted to make most average conversational speech unintelligible, when relying on hearing alone, even in ideal listening conditions. Individuals with this degree of hearing impairment are dependent on complimentary information including visual cues (lip-reading, body language and hand talk) raised speech volume (amplification) and contextual cues. Moderate hearing impairment has major consequences for speech,

language, communication, cognition, literacy, numeracy and auditory processing capabilities.

Severe and profound hearing impairment

It results in all conversational speech sounds being inaudible. Individual amplification required for language acquisition and some children may use sign language as main communication mode.

None hearing impairment

It refers to children where the better hearing ear has an average threshold at 500Hz, 1000 Hz and 2000Hz that is within the normal range for the test conditions. These children may have unilateral hearing loss or hearing loss at frequencies outside this range.

Sensorineural hearing loss

It is a deviation of hearing threshold from the normal range attributable to problems in the inner ear or vestibulocochlear nerve.

Conductive hearing loss

It describes a deviation of hearing threshold from normal associated with reduced conduction of sound through the outer ear, tympanic membrane (eardrum) or middle ear including ossicles (middle ear bones).

Mixed hearing loss

It is a hearing loss that has conductive and sensorineural components combined.

Glossary of dental data terms

Diagnostic

Examinations (initial, periodic and emergency oral exams; consultations; written reports; referrals).

Radiographical examination and interpretation (intraoral radiographs; skull radiographs)

Other diagnostic services (bacteriological examination; antibiotic sensitivity test; biopsy; casts).

Preventative

Dental prophylaxis (removal of plaque; removal of calculus; recontouring of existing restorations).

Topical fluoride (application of fluoride solution or gel; instruction on self-application).

Other preventive services (dietary advice; oral hygiene instruction; fissure sealing; mouthguards).

Periodontics

Treatment of gums (treatment of acute infection; root planing; surgical removal of soft tissue).

Surgery

Extractions (removal of permanent or deciduous tooth, tooth fragment).

Surgical extractions (removal of erupted, unerupted tooth; incision; removal of bone fragments).

Surgery for prostheses (preparation for removable prosthesis).

Treatment for maxillo-facial injuries (repair of skin; wiring of teeth).

Endodontics

Pulp treatments (pulp capping; pulpotomy; extirpation or debridement of root canal)

Periradicular surgery (periapical curettage; apicectomy)

Other endodontic services (bleaching; removal of root filling)

Restorative

Amalgams (filling of 1, 2, 3+ surfaces).

Glass ionomer, silicate and composite resins (filling of 1, 2, 3+ surfaces).

Gold foil (filling of cavity with small increments of gold foil).

Inlays/onlays (construction and insertion of inlay or onlay).

Other restorative services (recementing of inlay; temporary filling, crown, bridge).

Crown and bridge

Crowns (resin; porcelain; gold jacket; amalgam core for crown; cast post).

Bridges (enamel bonded – metal frame, cast metal and porcelain, cast metal and resin).

Repairs and other services (recementing crown, bridge; removal of crown; repair of crown).

Prosthetics

New dentures and denture components (upper and lower, partial dentures; tooth replacement).

Denture maintenance (adjustment; relining; remodelling; rebasing).

Denture repairs (reattaching tooth; replacing clasp; repairing base).

Implant prostheses (implants to stabilise and retain prostheses).

Occasion of service

Refers to occasions of examination, consultation, treatment or other service provided to a patient.

Orthodontics

Removable appliances (passive, active; one, two arches).

Fixed appliances (partial, full arch banding; space maintainer).

Extra-oral appliances (harness appliances).

Attachments (restoration with wire hook).

Other

Emergencies: palliative emergency treatment; sedative dressing.

Drug therapy: drug administration – intravenous, intramuscular, oral; drug prescription.

Professional visits: professionals visit patient at their home or hospital.

References

ABS (Australian Bureau of Statistics) 2006. National Aboriginal and Torres Strait Islander Health Survey 2004–05. ABS Cat. no. 4715.0. Canberra: ABS.

ACIR (Australian Childhood Immunisation Register) 2007. Australian childhood immunisation register: national due and overdue rules for childhood immunisation. Viewed May 2008, <<http://www.medicareaustralia.gov.au/provider/patients/acir/files/national-due-and-overdue-rules-for-childhood-immunisation.pdf>>

AHMAC (Australian Health Ministers' Advisory Council), 2008. Aboriginal and Torres Strait Islander health performance framework report 2008. Canberra: AHMAC.

AIHW (Australian Institute of Health and Welfare) 2007. Aboriginal and Torres Strait Islander health performance framework, 2006 report: detailed analyses. Cat. no. IHW 20. Canberra: AIHW.

Andrews R & Kearns T 2007. East Arnhem Regional health skin project: final report. Darwin: Menzies School of Health Research.

Andrews R 2008. Unpublished data from the 'East Arnhem Regional health skin project' provided by Ross Andrews (May 2008).

Coates HL, Morris PS, Leach AJ & Couzos S 2002. Otitis media in Aboriginal children: tackling a major health problem. *Medical Journal of Australia* 177(4): 177-178.

Couzos S & Murray R 2008. Ear health. *Aboriginal primary health care: an evidence-based approach*. 3rd ed: 308-354

CDC (USA Department of Health and Human Services Centres for Disease Control and Prevention) 2008. 2000 CDC Growth Charts: United States. Viewed April 2008, <<http://www.cdc.gov/growthcharts/>>

DoHA (Department of Health and Ageing) & AIHW 2008a. Progress of the Northern Territory Emergency Response Child Health Check Initiative: health conditions and referrals, May 2008. Viewed 9 August 2009. <<http://www.health.gov.au/internet/main/publishing.nsf/Content/nterchciProgressReport>>.

DoHA & AIHW 2008b. Progress of the Northern Territory Emergency Response Child Health Check Initiative: preliminary results from the Child Health Check and follow-up data collections, December 2008. Viewed 9 August 2009. <<http://www.aihw.gov.au/publications/index.cfm/title/10700>>

FAHCSIA (Department of Families, Housing, Community Services and Indigenous Affairs) 2009. Canberra: Commonwealth of Australia. Viewed 9 August 2009, <<http://www.fahcsia.gov.au/sa/indigenous/progserv/ntresponse/Pages/default.aspx>>

Morris PS, Leach AJ, Silberberg P, Mellon G, Wilson C & Hamilton E et al. 2005. Otitis media in young Aboriginal children from remote communities in Northern and Central Australia: a cross-sectional survey. *BMC Paediatrics* 5(27): 1471-2431.

Northern Territory Board of Inquiry into the Protection of Aboriginal Children from Sexual Abuse 2007. *Little Children are Sacred*. <<http://www.nt.gov.au/dcm/inquirysaac/>>.

NT DHCS (Northern Territory Department of Health and Community Services) 2007. Growth Action and Assessment (GAA) Data Processing Business Rules, version 1.2 dated October 2007, unpublished.

NT DHCS 2008a. Child Growth Charts in the Northern Territory: Discussion Paper 08. Darwin: NT DHCS.

NT DHCS 2008b. Growth Assessment and Action (GAA) Data Collection April 2007. Darwin: NT DHCS.

NT DHCS 2008c. Unpublished data from the HSAK program provided by the Health Gains Planning area, Northern Territory Department of Health and Community Services (May 2008).

NT DHCS & NT DEET (Northern Territory Department of Employment, Education and Training) 2007, 2nd edition. Healthy School-Age Kids: The Northern Territory School-Age child health promotion program manual for remote communities. Darwin: NT DHCS & NT DEET.

Wiertsema & Leach 2009. Theories of otitis media pathogenesis, with a focus on Indigenous children. *Medical Journal of Australia* 191 (9): S50-S54.

Zubrick SR, Lawrence DM, Silburn SR, Blair E, Milroy H, Wilkes T et al. 2004. The Western Australian Aboriginal child health survey: The health of Aboriginal children and young people. Perth: Telethon Institute for Child Health Research.

List of tables

Table 1.1:	Overview of the AIHW CHCI data collections	8
Table 2.1:	Number of NTER Child Health Check forms received and processed, by region	16
Table 2.2:	Number and proportion of children who had a valid NTER Child Health Check and coverage of NTER CHCs by region.....	18
Table 2.3:	Indigenous children who had an NTER CHC, by age group and sex	19
Table 2.4:	Health conditions, Indigenous children who had a NTER Child Health Check	19
Table 2.5:	Type of health management received by Indigenous children during the NTER CHC.....	22
Table 2.6:	Children who received a clinical test during a NTER Child Health Check, by test type.....	23
Table 2.7:	Children for whom further testing was arranged, by test type	23
Table 2.8:	Medications administered during CHC, by medication type, and provision of vaccinations to Indigenous children who had a NTER Child Health Check	24
Table 2.9:	Medical procedures performed during NTER Child Health Checks, by procedure type.....	24
Table 2.10:	Health advice given, by type of advice, to Indigenous children who had a NTER Child Health Check	25
Table 2.11:	Referrals of Indigenous children who had a NTER Child Health Check.....	26
Table 2.12:	Changes in health conditions between first and latest Child Health Check, for Indigenous children who had at least two CHCs.....	28
Table 3.1:	Indigenous children who had a NTER CHC and a chart review, by region.....	36
Table 3.2:	Indigenous children who had a NTER CHC and a chart review, by age group and sex.....	36
Table 3.3:	Children with a complete chart review who received at least one referral at their first CHC, by type of health condition for which the referral was made	39
Table 3.4:	Follow-up status of Indigenous children given referrals during NTER Child Health Checks, by type of referral.....	40
Table 3.5:	Children with additional referrals at chart review by type of health condition	41
Table 3.6:	Follow-up status of Indigenous children given additional referrals during chart review, by referral	42

Table 3.7:	Children with further action required at exit chart review, by type of referral.....	43
Table 3.8:	Time elapsed between CHC and initial chart review.....	44
Table 4.1:	Number of audiology forms received, by region.....	48
Table 4.2:	Number of audiology checks per child, Indigenous children who had an audiology check as part of the NTER CHCI.....	49
Table 4.3:	Demographic characteristics, Indigenous children who had an audiology check as part of the NTER CHCI.....	50
Table 4.4:	Hearing loss, Indigenous children who had an audiology check with consent	51
Table 4.5:	Type of hearing loss in Indigenous children for whom hearing loss was not ruled out during an audiology check.....	51
Table 4.6:	Degree of hearing impairment in Indigenous children with hearing loss	52
Table 4.7:	Type of middle ear condition, Indigenous children who had an audiology check as part of the NTER CHCI.....	53
Table 4.8:	Type of further action required after audiology check, Indigenous children who had an audiology check as part of the NTER CHCI	54
Table 4.9:	Hearing loss at first and latest check, Indigenous children who had at least two audiology checks as part of the NTER CHCI	55
Table 4.10:	Degree of hearing impairment at first and latest check, Indigenous children who had at least two audiology checks as part of the NTER CHCI.....	55
Table 4.11:	Changes in degree of hearing impairment between first and latest check, Indigenous children with some hearing impairment.....	56
Table 4.12:	Audiology referral status at CHC by whether audiology check follow-up had been received, ear condition status of Indigenous children who had a Child Health Check.....	58
Table 4.13:	Hearing loss by whether or not a Child Health Check was undertaken, Indigenous children who had an audiology check as part of the NTER CHCI.....	60
Table 4.14:	Middle ear conditions by whether or not a Child Health Check was undertaken, Indigenous children who had an audiology check as part of the NTER CHCI.....	61
Table 5.1:	Number of dental checks per child, Indigenous children who had a dental check as part of the NTER CHCI.....	64
Table 5.2:	Number of dental forms received, by region	65
Table 5.3:	Demographic characteristics, Indigenous children who had a dental check as part of the NTER CHCI.....	65
Table 5.4:	Dental services provided by dental clinicians, by number of Indigenous children who received a dental check as part of the NTER CHCI	66

Table 5.5:	Dental problems treated by dental clinicians, by number of Indigenous children who received a dental check as part of the NTER CHCI	67
Table 5.6:	Children requiring follow-up treatment at latest dental check, by region.....	68
Table 5.7:	Dental referral status at CHC by whether dental check follow-up had been received and oral health status of Indigenous children who had a Child Health Check as part of the NTER CHCI	70
Table 5.8:	Problems treated by whether or not a Child Health Check was undertaken, Indigenous children who had dental check as part of the NTER CHCI.....	71
Table 6.1:	Number of follow-up services received by type of service, Indigenous children who had a NTER Child Health Check and were referred for follow-up services.....	75
Table 6.2:	Number of follow-up services received by type of service, Indigenous children who had a NTER Child Health Check and were not referred for follow-up services.....	76
Table A3.1:	Health conditions of Indigenous children who had a NTER Child Health Check in Central Australia	88
Table A3.2:	Health conditions of Indigenous children who had a NTER Child Health Check in Arnhem.....	90
Table A3.3:	Health conditions of Indigenous children who had a NTER Child Health Check in Barkly/Katherine	92
Table A3.4:	Health conditions of Indigenous children who had a NTER Child Health Check in Darwin Rural	94
Table A4.1:	Referrals of Indigenous children who had a NTER Child Health Check in Central Australia	96
Table A4.2:	Referrals of Indigenous children who had a NTER Child Health Check in Arnhem.....	97
Table A4.3:	Referrals of Indigenous children who had a NTER Child Health Check in Barkly/Katherine	98
Table A4.4:	Referrals of Indigenous children who had a NTER Child Health Check in Darwin Rural	99
Table A7.1:	The structure of ICPC-2 and component names	112
Table A7.2:	Medication groups and their corresponding ICPC-2 Plus codes	113
Table A7.3:	Coding of common 'tests done' (questions 82 to 85).....	113
Table A7.4:	Medical procedure groups and their corresponding ICPC-2 Plus codes	114
Table A7.5:	Coding scheme for 'other' referrals' (question 89).....	114

List of figures

Figure 3.1: Number and per cent of children who have had a CHC and subsequent chart reviews, Indigenous Australian children who had a NTER CHC.....35

Figure 3.2: Number of Indigenous Australian children who had a CHC, whether they had a chart review following the check, and whether those with a complete chart review had been given a referral at CHC.....37

Figure 4.1: Audiology check and Child Health Check status, Indigenous Australian children who had an audiology check as part of the NTER CHCI.....59

Figure 5.1: Dental check and Child Health Check status, Indigenous Australian children who had a dental check as part of the NTER CHCI.....71