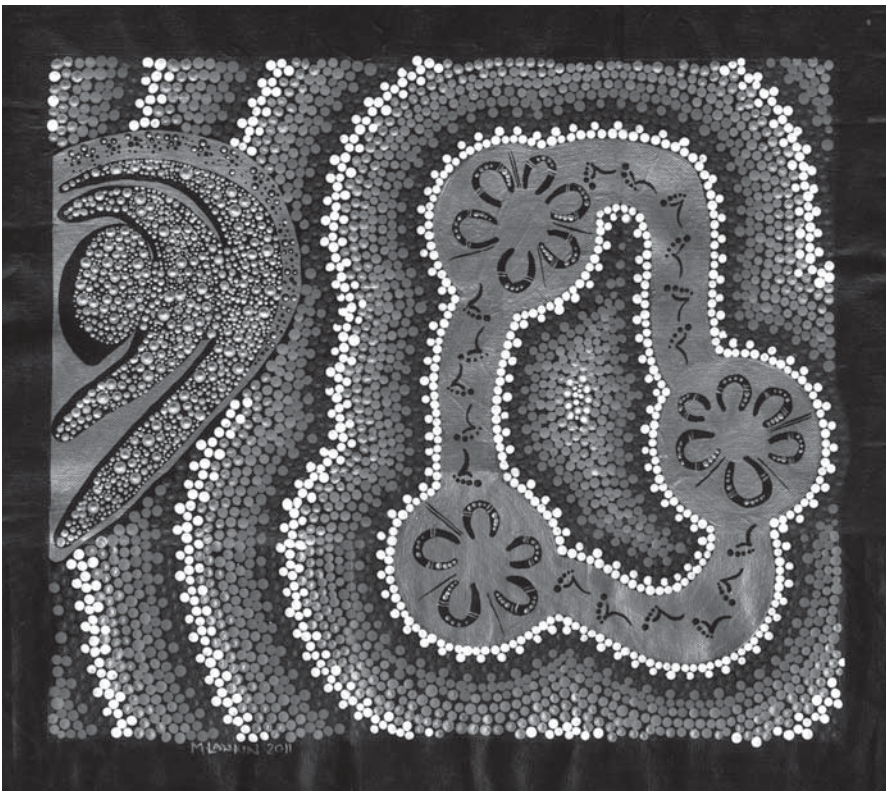


Chronic Otitis Media and Hearing Loss Practice (COMHeLP)



A MANUAL FOR AUDIOLOGICAL PRACTICE WITH
ABORIGINAL AND TORRES STRAIT ISLANDER AUSTRALIANS

March 2012



Artist: **M. Lankin**

Oil colour on canvas. 49cm x 44cm

This painting was commissioned by Audiology Australia to represent audiology and audiologists working in remote areas.

The dots throughout represent the country and are arranged as sound waves going towards the ear. The ear image (left hand side) is arranged in 3 parts representing the inner, middle and outer ear, and the dots within the ear indicate sound processing through the 3 parts. The 'U' shapes (right hand side) represent people: Men (with double line to the right), Women (with single line to the right) and Small Children. Those with silver dots are for community workers, gold dots are community members/parents. The larger figures are visiting professionals, community nurses, audiologists, education workers & Aboriginal health workers. Smaller figures are the children being seen by these visitors and community workers. The path of connected 'footsteps' represent the journey of going out to communities: Rural, Remote and Urban joined together to prevent ear disease and to achieve better outcomes.

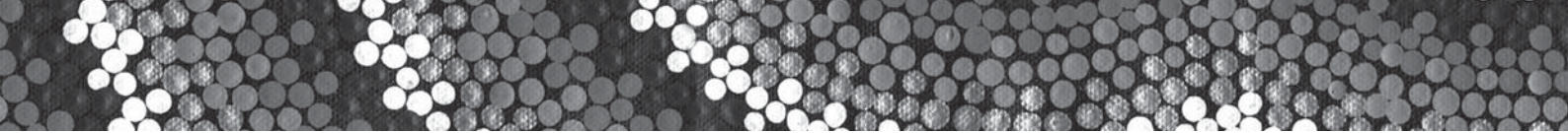


CHRONIC OTITIS MEDIA AND HEARING LOSS PRACTICE (COMHeLP)

A MANUAL FOR AUDIOLOGICAL PRACTICE WITH
ABORIGINAL AND TORRES STRAIT ISLANDER AUSTRALIANS
MARCH 2012



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2001 Edition - General Guidelines for Audiological Practice with Indigenous Australians

Original Working Group:

Amarjit Anand, Judith Boswell, Chris Burton, Bev Hayhurst, Samantha Harkus, Alison King, Lou Leidwinger, Rebecca McCulloch, Kate Meiklejohn, Sharon Page, Jeanette Scott, Sharon Weeks, Leslie Yonovitz, Al Yonovitz.

2012 Edition - Chronic Otitis Media and Hearing Loss Practice (COMHeLP)

Review Working Group:

Rebecca Allnutt^{1,2}, Amarjit Anand¹, Hayley Baldwin³, Judith Boswell⁴, Kathy Currie⁵, Renee Garuccio¹, Samantha Harkus⁶, Paul Hickey^{1,6}, Alison King⁶, Jeanette Scott⁷, Karen Sparrow⁸.

1 NT Hearing Services, NT

2 Alice Audiology, NT

3 Deadly Ears, QLD

4 Adelaide Hearing Consultants, SA

5 Hearing Health Program, NT

6 Australian Hearing

7 Winnunga Nimmityjah Aboriginal Health Service, ACT

8 Flinders University, SA

Supplementary Reviewers:

Katie Hart, Andrea Lovatt, Monica Persson, Sally Regan, Linnett Sanchez, Sharan Westcott, Sharon Weeks.

Additional Comments:

Denyse Bainbridge (Hearing Team Co-ordinator, Student Services, NT)

Damien Howard (Psychologist, Phoenix Consulting, NT)

Bonny Marsh, Helen Sargison (Speech Pathologists, Deadly Ears Program, QLD)

Jillian Scholes (Allied Health Team Leader, Deadly Ears Program, QLD)

Further Information:

Audiology Australia

ceo@audiology.asn.au

Tel: +61 3 9416 4606

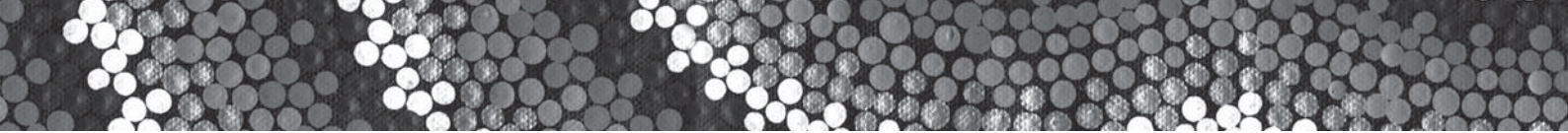
Fax: +61 3 9416 4607

Web: www.audiology.asn.au

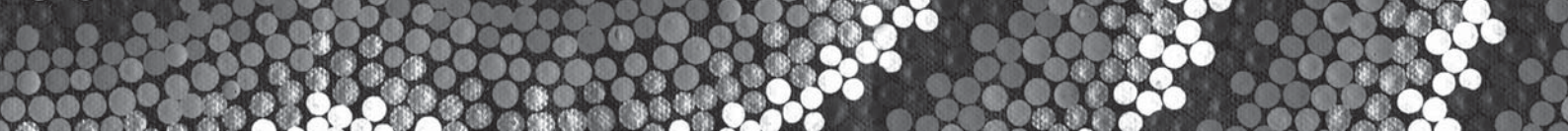


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PREFACE

EDITION 1 (JUNE 2001)

These General Audiological Practice Guidelines are designed to inform and support audiologists and related personnel who provide hearing services for Indigenous Australians (Aboriginal and Torres Strait Islander populations) in urban, rural and remote areas.

Indigenous Australians, as a group, have the highest rates of hearing loss described in the medical and audiological literature. Conductive hearing loss secondary to otitis media accounts for much of the hearing impairment but higher rates of sensorineural hearing loss have also been reported. The clinical management of conductive hearing loss in this population is significantly different from that recommended for other populations because the underlying middle ear disease is highly persistent and difficult to manage medically. Consequently audiological management is required in parallel with medical and educational management, often for long periods of time.

While Indigenous Australians are present in all parts of the country, in central and northern parts many reside in rural or remote locations. Hence, geographical distance and isolation are additional considerations for the management of hearing loss in this group. Some of these general factors are relevant for all clients living in a rural or remote location. For instance, distance from major centres has implications for the cost of providing services and for access to the whole range of specialist health, education and social services. With increased distance from urban centres, health professionals must co-operate closely, learning skills from each other to enhance identification and management of their clients' conditions. Hence much of the advice provided in these Guidelines will apply equally to non-indigenous and indigenous Australian populations in rural and remote locations. Moreover, some of the advice regarding cross-cultural consultation and sensitivity highlights these general issues for hearing professionals working with other minority cultural or ethnic groups.

These Guidelines represent patterns of preferred practice resulting from a synthesis of information derived from expert opinion and supported by the available literature as there have been no systematic reviews of the audiological literature in this specific area. They are, however, informed by the *Recommendations for Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and Torres Strait Islander Populations* and by other available literature on audiological diagnosis and intervention in Indigenous populations. As randomised controlled trials and other recognised high-quality research evidence are lacking in this field, the Guidelines also indicate some strategic research directions.

The group responsible for developing the Guidelines acknowledges that existing audiological practice guidelines (e.g. *ASA Professional Practice Standards*) are universal for all populations regardless of their ethnicity, culture, demographics or age. The group has agreed, however, that there are special considerations for providing audiological services to Indigenous Australians and that specific recommendations are required to enable new practitioners and associated hearing professionals to achieve better practice. These Guidelines should therefore be used in conjunction with the *ASA Professional Practice Standards*.

The primary target for these recommendations is audiologists working with Aboriginal and Torres Strait Islander populations. However, community health nurses, Aboriginal health and education workers, teachers of the hearing-impaired and others providing hearing-related services will also find them helpful in their pursuit of better practice.

PREFACE

EDITION 2 (MARCH 2012)

In 2010 the Audiological Society of Australia (ASA or Audiology Australia) began a review of the General Guidelines for Audiological Practice with Aboriginal and Torres Strait Islanders (the Guidelines), originally published in 2001. There were a number of reasons for reviewing the Guidelines at this time including:

- Surveys indicated that the prevalence of otitis media (OM) and associated conductive hearing loss in Aboriginal and Torres Strait Islander (A&TSI) people had remained high since 2001.

Morris et al (2005)¹, for example, showed that of 709 children aged 6-30 months in Central and Northern Australia that 80% had either bilateral ear disease or suppurative otitis media (presence of a pus producing infection). They reported prevalence of 31% bilateral otitis media with effusion (OME), 48% with suppurative otitis media and 24% had a perforation of the eardrum.

- The Northern Territory Emergency Response (NTER)² was announced by the Australian Government in June 2007 in response to the 'Little Children are Sacred' report.

The NTER was made up of a series of measures which included child health checks, medical follow-up and treatment. The NTER Review Board reported³ an analysis of 8,324 child health checks up to June 2008 which showed 88.2 per cent of children had one or more of the 17 health conditions identified as the most common. The extent of ear disease in NT Aboriginal communities was confirmed and highlighted in comparison with the other conditions:

- 43.6% had oral health problems.
- 29.8% had ear disease.
- 15.8% had anaemia.
- 10.2% had four or more skin sores.

The NTER Review Board recommended that urgent priority be given to the ongoing treatment of children with health issues identified by the child health checks. As a result, improved funding and resources was made available for ear and hearing health services including:

- primary ear health follow-up.
- audiological referral and management.
- ENT referral and management.
- ENT nursing care co-ordination.
- ENT nursing support of ENT surgical pathways.

Subsequently, hearing facilities (sound booths with audiological equipment) were established in 19 remote NT communities to enable appropriate services in a local environment.

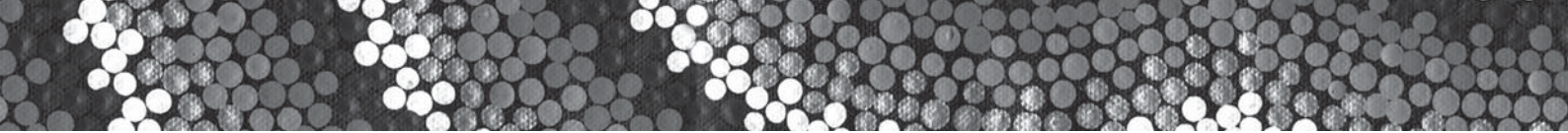
- Access Economics had prepared a report⁴ on the financial cost of hearing loss in Australia which reported that, "In 2005, the real financial cost of hearing loss was \$11.75 billion or 1.4% of GDP. This figure represents an average cost of \$3,314 per person per annum for each of the 3.55 million Australians who have hearing loss or \$578 for every Australian".

Within this study, the costs associated with OM were not included but where hearing loss results from OM, associated costs were included. An analysis of costs by ethnicity was not within the scope of the report.

- In 2009, Access Economics⁵ calculated that in 2008, approximately 659,000 Australians had OM, 65,000 of whom (9.9%) were Indigenous. Of these, 365,000 Australians with OM were aged less than 15 years (55%), with 47,000 Indigenous in this age group (12.8%).

Access Economics estimated the incidence, financial impact and burden of disease from otitis media in Australia for 2008 using two approaches with estimates of incidence and prevalence developed accordingly:

- the costs of OM in the 2008 birth cohort for the first five years of life.
The burden of disease was estimated to be around 5,171 disability adjusted life years (DALYs). The net cost of lost wellbeing was \$1.4 million (\$845-\$1.9 million).



- the costs of OM cases occurring for all Australians in the year 2008. Based on the minimum to high estimate of cases, the burden of cases was 3,974 - 9,758 DALYs (887 - 2,178 DALYs among Indigenous Australians). The net cost of lost wellbeing was estimated to be \$1.05 billion to \$2.6 billion.

- The Office of Aboriginal and Torres Strait Islander Health (OATSIH) Otitis Media Treatment Guidelines had been reviewed in 2010⁶. These guidelines assist primary health care providers in the delivery of comprehensive, effective and appropriate care for Aboriginal and Torres Strait Islander people with otitis media. They are based on earlier 2001 guidelines, subsequent research studies and the synthesis and critical appraisal of information.
- In July 2009, the Australian Government commenced a new initiative, Improving Eye and Ear Health Services for Indigenous Australians for Better Education and Employment Outcomes⁷. The target group of this measure is Indigenous children and young people under 21 years of age. There are four key components that relate to ear health:
 - training of health workers in early detection of ear and hearing health conditions⁸.
 - maintenance and purchase of medical equipment for hearing screening.
 - additional ear surgery, particularly for remote Indigenous clients.
 - hearing health promotion and a review of activities⁹.
- The Senate published a Community Affairs Reference Committee report ('Hear Us: Inquiry into Hearing Health in Australia', May 2010^{10,11}) which included specific issues and recommendations relating to hearing health issues affecting Indigenous communities. Recommendations included:
 - addressing educational needs of hearing impaired Aboriginal and Torres Strait Islander children.
 - the installation and maintenance of soundfield systems in classrooms where there is a significant population of Aboriginal and Torres Strait Islander children.
 - improved teacher training programs on hearing health and teaching strategies for hearing impaired children in the classroom.
 - funding reform to better enable ear telehealth.
 - improved access to hearing assessments for those serving custodial sentences.
 - developing training programs for those working in the criminal justice system to better understand effects of hearing impairment and communication with hearing impaired people in courtroom environments.
- Audiology Australia produced a position paper in 2010 (Hearing the Need - Audiology and Primary Ear Health Care Reform¹²) regarding the wider health reform agenda and which included Aboriginal and Torres Strait Islander ear and hearing health challenges. It advocated reform to strengthen primary ear health care and improve health access and outcomes through:
 - a patient-centred health system and smoother pathways for ear and hearing care.
 - an improved role for audiologists and audiological services in primary health care services and structures.
 - development of the audiological workforce by extended and advanced scopes of practice for primary ear health care through training, credentialing and application of evidence-based research.
 - flexible funding and frameworks of ear and hearing health service delivery.
 - integrated electronic health networks and systems accessible by audiologists in all sectors of ear and hearing care
 - primary, secondary, tertiary and private audiology services.
 - research to evaluate and improve primary ear health strategies and reforms.
- The House of Representatives Standing Committee on Aboriginal and Torres Strait Islander Affairs presented a report (Doing Time - Time for Doing, Indigenous Youth in the Criminal Justice System¹³), in June 2011.

This addressed a range of issues such as the link between health and the criminal justice system (including hearing loss) and improving education for Indigenous youth. It endorsed some recommendations from the earlier Senate report (Hear Us: Inquiry into Hearing Health in Australia - see above) as well as recommending a training program for police to better identify and respond to individuals with hearing loss, particularly in Indigenous communities.

- There had been substantial developments in equipment and information technology since 2001, including the introduction of telehealth techniques for examining ears, diagnosing ear disease and providing audiological services remotely, e.g. tele-otology, tele-audiology^{14,15}.
- Universal Newborn Hearing Screening (UNHS) for significant congenital hearing loss has progressively been introduced in every State and Territory of Australia¹⁶. UNHS had a national coverage of screening 95% of all newborn babies at 31 March 2011¹⁷.

Hence, it was time to update the Guidelines with new information and perspectives relevant to audiological practice with Indigenous Australians, based upon recent research and changes to clinical practice. The revised Guidelines include more practical advice and are designed to be used as a manual for the conduct of certain activities.

The title for the revised document is Chronic Otitis Media and Hearing Loss Practice (COMHeLP) - A Manual for Audiological Practice with Aboriginal and Torres Strait Islander Australians.

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USING THIS MANUAL

This COMHeLP manual has been written with the collective experience of audiologists who have worked with Aboriginal and Torres Strait Islander communities in different fields including primary health, diagnostic assessment, Ear-Nose-Throat (ENT) services, rehabilitation, research, university teaching and supervision, health workforce development and service program management.

The reader may be an experienced audiologist seeking specific information or clarification based on recent or anticipated experience in the field of Aboriginal and Torres Strait Islander ear and hearing health. Or the reader may be an audiology student or audiologist contemplating a career path in this field. Alternatively, the reader may be another professional or interested person working in areas associated with ear and hearing health and/or with Aboriginal and Torres Strait Islander peoples.

The introductory parts of COMHeLP are designed to:

1. inform and set the context of ear and hearing health in Aboriginal and Torres Strait Islander communities.
2. provide a resource to improve understanding of the challenges and complexities of otitis media and hearing loss.
3. present an overview of the role provided by audiologists.

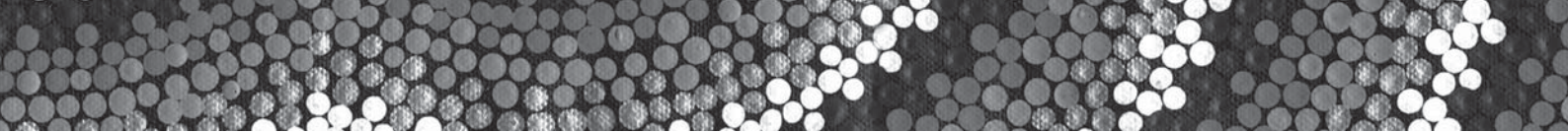
The specific sections of COMHeLP present a broad scope of material with brief discussion points and recommended strategies. References are provided in introductory sections and at the end of practical discussions to guide the reader to further research evidence and discussion. The appendices provide additional resources and information.

For readers who are audiologists:

- The COMHeLP working group encourages audiologists to read the introductory sections initially before focusing on the sections which apply to their direct field of work. COMHeLP offers a resource to help guide activity-planning and decision-making as well as describing a benchmark for a quality and safe service against which to measure improvement.
- It should be noted that neither one single agency nor one single practitioner provides the comprehensive spectrum of services described in the COMHeLP sections at any one given time. An audiologist new to the field of Aboriginal and Torres Strait Islander ear and hearing health should not feel overwhelmed about COMHeLP's full range of strategies not yet tried or fully implemented in a given community nor feel anxious about any recommended skills and knowledge not yet mastered.
- An audiologist employed in this field may be working alone or with extremely limited access to available resources. In contrast, they may work in a well organised, supportive and appropriately resourced service with established relationships within a community. In both cases, however, circumstances may sometimes arise which challenge the audiologist's expertise and knowledge or require a clinical decision of a nature that is outside their prime scope of practice.

It is recommended, therefore, that audiologists use COMHeLP to better understand the role of other services and professionals (particularly community-based Aboriginal Health Workers) and the ways in which information transfer, communication, training, collaboration and innovation might be better facilitated.

- By being better informed and through the acquisition of additional skills and knowledge, audiologists will be able to work with increased effectiveness towards improving clinical outcomes for both individuals and communities.
- Audiologists are encouraged to undertake research, support research initiatives and publish their own case studies to add to the evidence base and knowledge of clinical practice relating to Aboriginal and Torres Strait Islander ear and hearing health. In doing so, be mindful of appropriate guidelines in Section 6 Research, Evaluation and Quality Improvement of this manual.



It is recommended that readers who are audiologists or workers in a primary health setting also become more familiar with the Office of Aboriginal and Torres Strait Islander Health (OATSIH) Otitis Media Treatment Guidelines. Awareness of these and the extent to which they interface with pre-existing local primary health treatment guidelines are important to understand (including preventive health messages and strategies). Both the OATSIH OM Treatment Guidelines and COMHeLP should be complementary and help enable better informed parallel and collaborative primary health and audiological practice.

Readers working in the associated fields of health, early childhood development, educational, vocational or community services will benefit from reading the introductory sections in order to better understand OM, hearing loss and the consequences on both individuals and communities where prevalence is significant. Preventive strategies and messages apply across these sectors so attention is drawn to Section 2 as well as Section 5 for information on the management and rehabilitation of hearing loss.

Education workers such as teachers and early childhood workers are especially important in assisting the work of audiologists. They may contribute by identification of symptoms of OM and hearing loss as well as application and support of educational and rehabilitative strategies to manage hearing loss. Education workers should seek out and/or support appropriate training from audiologists as discussed in Section 1.6 Training and Development of Other Professionals - Recommended Training Content for Teachers and Schools and Early Childhood Personnel.

Those working in a primary health setting are also particularly directed to Section 3 regarding Otitis Media Surveillance and Section 1.6 Training and Development of Other Professionals - Recommended Training Content for Health Practitioners. This would assist in verification of existing skills, knowledge and referral pathways and to help identify needs in knowledge for further training or gaps in processes to improve service delivery.

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CONTEXT OF AUDIOLOGY

Scope of Audiological Practice

Audiologists are hearing specialists who manage hearing health¹. They master skills and knowledge from their university study and clinical application of:

- acoustics
- acoustic phonetics
- psycho-acoustics
- anatomy and physiology of auditory and vestibular systems
- speech and language development
- communication and auditory behaviours over the lifespan
- hearing loss prevention and screening
- diagnostic assessment
- early intervention
- auditory re/habilitation
- audiological service delivery
- other aspects of professional practice.

Using their specialist skills and knowledge, audiologists primarily assess how people of all ages hear. With the application of technology, re/habilitation and therapy, audiologists help people with hearing loss and related disorders. This extends to tinnitus and balance disorders.

They have considerable knowledge and expertise to independently:

- recognise signs or symptoms of basic otological conditions affecting the auditory pathway.
- determine an individual's need for medical opinion and intervention.
- ascertain the likely effectiveness of hearing rehabilitation.
- make independent decisions about whether to proceed with medical referral and/or hearing rehabilitation.
- select, prescribe, fit and maintain appropriate technology to aid in hearing rehabilitation. This includes hearing aids, cochlear implants and other implantable technology, FM and wireless audio systems and other assistive listening equipment.
- provide hearing health care education and promotion.
- train other health and education workers in primary ear and hearing health care.
- provide acoustic measurements and environmental acoustic advice in public and educational facilities.

Audiologists are not generally expected to diagnose basic otological or ear conditions and they do not prescribe medication.

Currently, if pathology, such as otitis media (OM), is suspected, an audiologist will refer the patient for clinical diagnosis and treatment. Depending upon the location and State/Territory, the audiologist might refer to a medical practitioner, a registered nurse or an Aboriginal or Torres Strait Islander Health Worker.

However, when providing service to Aboriginal or Torres Strait Islander clients in some localities, audiologists may be asked or expected to undertake extended or more advanced scope of practice such as:

- diagnosis of basic otological conditions in addition to diagnosing and managing hearing loss. In these circumstances, audiologists require additional knowledge and skill development in:
 - advanced diagnostic otoscopy of the outer ear, eardrum (tympanic membrane) and middle ear.
 - diagnosis of otological conditions of the outer and middle ear (such as otitis media, otitis externa, excessive wax build-up or presence of a foreign body in the ear canal).

- recommendation of primary health treatment for certain pathologies and basic otological conditions. Audiologists do not have prescription rights at this time but they should be aware of the clinical guidelines which are applied in their local region. For example:
 - Northern Territory CARPA Manual
 - Queensland Health Primary Clinical Care Manual (PCCM)
 - National OATSIH OM Treatment Guidelines.

These offer guidance to primary health staff on how to treat OM and when to refer to medical specialists and allied health practitioners.

In some remote or rural settings, non-medical primary health staff (Remote Area Nurses, Aboriginal Health Workers) can prescribe medications, if they follow these recommended guidelines.

Refer to Appendix B - Ear and Hearing Health Resources.

- In some special circumstances, audiologists may refer directly to an Ear, Nose and Throat Specialist (ENT) (e.g. when part of a collaborative ear health team, in a hospital setting or when facilitated by local electronic patient health records to flag on an ENT list). At present however, direct ENT referral by audiologists does not apply generally.

Extended and advanced scope of practice for primary ear health may relate to specific otological conditions with respect to:

- diagnosis
- treatment
- restricted or delegated pharmaceutical prescription rights
- direct ENT referral.

Audiology Australia recommends that audiologists expected to provide extended and advanced scope of practice should develop skills and/or knowledge through:

- recognised training
- credentialing of qualifications
- ongoing learning
- application of evidence- based practice and research.

Audiologists have the content knowledge and professional responsibility to provide information (with appropriate consent) to:

- patients, clients and families about their hearing loss and its consequences.
- health professionals involved in the patient's/client's management.
- education professionals and personnel.

Audiologists are also the best professionals to provide education and training for other health and education personnel in the identification and management of hearing loss.

Ear and Hearing Health Service Provision and Funding

There are three levels of services² delivered to Aboriginal and Torres Strait Islander communities by providers who receive funding from Commonwealth, State and/or Territory governments:

1. Primary services:

- **Ear health surveillance or screening**

The purpose of regular and routine ear health surveillance is to identify the likelihood of normal or abnormal conditions of the outer and middle ear. Annual hearing screening may be a component of some surveillance activity. Identification of abnormal outer or middle ear features is the basis for primary health intervention. The outcome may be primary health intervention and/or referral to secondary service providers.

- **Hearing screening**

The purpose of hearing screening is to identify the likelihood of normal or abnormal hearing function. Ear examination through otoscopy may be a component of hearing screening. A hearing screening result indicates whether there is a need for referral. A hearing loss cannot be diagnosed on the basis of a screening as hearing thresholds are not determined.

A failed hearing screening may be the basis for:

- primary health intervention where an abnormal outer or middle ear condition has also been identified.
- audiological referral (to a secondary service provider) to establish the presence or otherwise of hearing loss.

- **Primary clinical care for outer and middle ear conditions**

Primary ear and hearing health services include the clinical care of otological conditions such as otitis media, otitis externa and removal of some foreign bodies.

- **Preventive ear and hearing health education**

Preventive education and health promotion programs are fundamentally a primary service. However, secondary and tertiary service providers have a role to also improve both individual and community awareness and understanding of:

- Ear and hearing health.
- Preventive strategies.
- How to minimise adverse outcomes.

Regular and routine ear health surveillance and annual hearing screening are typically carried out by primary health care practitioners (e.g. Aboriginal Health Workers and community nurses) who are trained to identify the signs and symptoms of ear disease and/or hearing loss.

Primary clinical care services may be provided by a doctor, nurse or Aboriginal Health Worker. State/Territory and national guidelines will provide the framework for clinical care recommendations.

The primary health service often provides a case management role for multidisciplinary care to those with ear and hearing conditions.

2. Secondary services:

- **Ear health - ENT services**

ENTs specialise in the medical diagnosis, treatment and management of ear, hearing and related disorders. Otological conditions which cannot be resolved at the primary health level are referred to ENT services. Other reasons for ENT referral may include the investigation and management of suspected otoneurological or balance conditions. ENTs often require hearing diagnosis to assist with clinical decision making and evaluation of treatment outcomes.

- **Hearing health - diagnostic audiological services**

The purposes of diagnostic audiology are to:

- establish hearing thresholds.
- determine the type and degree of any hearing loss present.
- measure other hearing-related functions and determine impairments.

The outcome of audiological assessment may be to refer for primary health treatment, ENT opinion and treatment and/or rehabilitation services if indicated.

Assessment of children less than three years developmental age requires specialist skills, procedures and facilities. Young children should be assessed by audiologists, preferably in sound treated conditions.

Diagnosis of hearing loss is also performed by audiometrists and nurse audiometrists, generally for older age groups.

Audiologists practise within either the public or private health care sectors. Audiologists often work in association with ENT specialists to provide holistic ear and hearing health care.

3. Tertiary services

- **Ear health - specialised ENT services**

Ear health conditions which require more specialised or complex ENT or otoneurological management may be referred to a specialist tertiary setting.

- **Hearing health - hearing rehabilitation**

The purpose of hearing rehabilitation is to reduce the impact of hearing loss. Strategies include communication assessment and training, and, where indicated, the fitting and maintenance of hearing aids or other amplification systems.

Hearing aid audiometrists may prescribe and fit hearing aids to adults.

Only audiologists have the skills and knowledge to manage hearing rehabilitation across the lifespan from neonates to the elderly.

Audiologists may work in a collaborative team with ENTs in programs that specialise in implantable technology such as cochlear implants.

Figure: - Overview of Ear and Hearing Health Services:

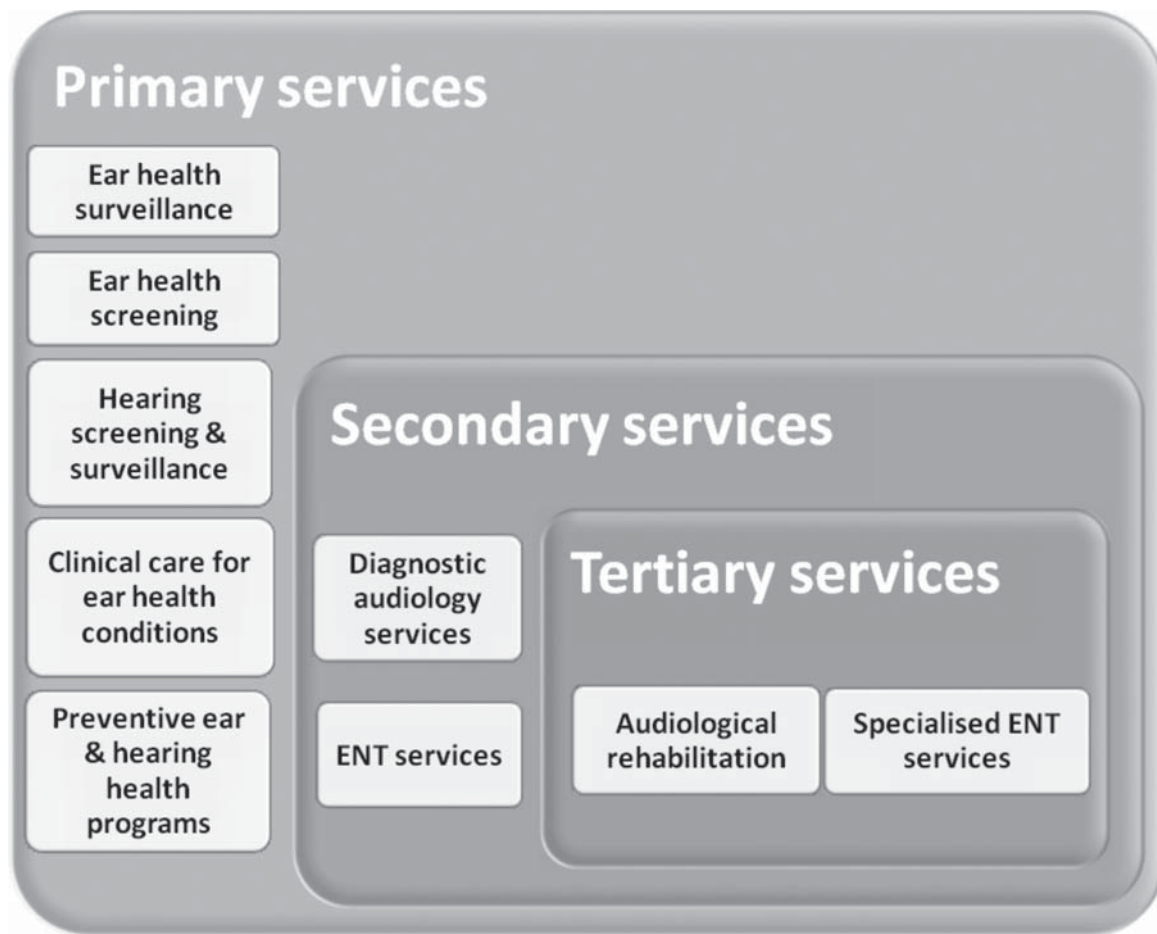
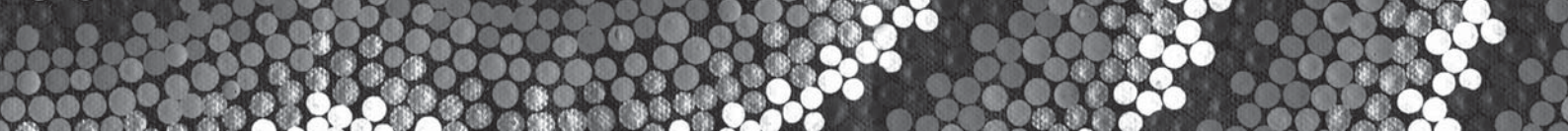


Table - Roles of Health Professionals:

	Other Health Staff	Audiologist
Hearing Loss	Hearing screening Hearing surveillance Preventive education Onward referral NOT diagnostic assessment	Hearing screening Hearing surveillance Diagnostic assessment Rehabilitation Onward referral Preventive education
Otitis Media & Other Ear Health Conditions	Ear health screening Ear health surveillance Basic otological diagnosis Clinical care and follow-up Onward referral Preventive education	Ear health screening Ear health diagnosis* Clinical care* Onward referral Preventive education NOT ear health surveillance * Limited unless trained for advanced scopes of practice



Service provision by audiologists to Aboriginal and Torres Strait Islander peoples may occur in a few different ways and settings according to service funding and program eligibility:

- Aboriginal Community Controlled Health Services
- State/Territory
 - General Ear and Hearing Services
 - Specific Ear and Hearing Programs for Aboriginal and Torres Strait Islander People
- Commonwealth Hearing Services Program
- Medicare items on the Medicare Benefits Schedule (MBS)
- Private audiology services

Refer to Appendix E - Access to Hearing Services and Funding.

Referrals to Audiologists

When there are any concerns about an individual's hearing, listening, response to sound, speech and language development, developmental behaviour or unresolved ear health, a hearing assessment should be arranged.

Refer to Appendix G - Normal Hearing and Baby Development - Useful Questions to help guide when young children should be referred.

Health professionals who may typically refer to audiologists include:

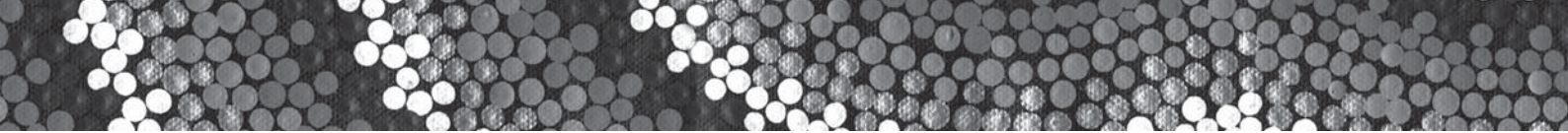
- medical officers and GPs
- nurses
- Aboriginal and Torres Strait Islander health workers
- speech pathologists
- psychologists
- occupational therapists
- social workers
- mental health workers

Educational professionals who may typically refer to audiologists include:

- teachers
- special needs teachers
- early childhood teachers
- teachers of the deaf
- school counsellors
- principals and co-ordinators

Other health professionals involved in collaborative care for ear and hearing health include:

- Aboriginal and Torres Strait Islander Health Workers
- audiometrists
- nurse audiometrists
- newborn-hearing screeners
- hearing health care co-ordinators
- medical officers and GPs
- Ear-Nose-Throat (ENT) specialists and otologists
- paediatricians
- nurses including remote area nurses, general practice nurses, maternal and child health nurses
- ENT surgical care co-ordinators



Referrals should be made to audiological services according to:

- established local health care and professional protocols, policies, treatment and referral guidelines (e.g. OATSIH Otitis Media Treatment Guidelines or NT CARPA Manual).
- established local educational protocols, policies and referral guidelines.

In particular, the following should be referred to an appropriate audiologist for assessment and management as required:

- Any child:
 - with suspected sensorineural hearing loss
 - under the age of three years and who needs diagnostic or comprehensive hearing assessment
 - with delayed speech-language development
 - with persistent and/or recurrent bilateral otitis media of more than three months in duration
 - with a learning disability
 - with suspected auditory processing difficulties.
- Any client with particular symptoms or clinical findings as indicated in:
 - Section 4 - Identification: Diagnostic Audiological Assessment.

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OTITIS MEDIA AND HEARING LOSS IN ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE

Prevalence of Otitis Media

In non-Aboriginal and Torres Strait Islander Australian children, acute otitis media comprises 1.3% of total general practice presentations and 8% of children's health presentations ¹. It is the most common reason for children with fevers under the age of 4 years to present to the GP. Its annual incidence is about 1 in 100 for adults, and 1 in 10 for children. Otitis media with chronic effusion interferes with the hearing of about 5% of 5 year olds ².

In these children, OM presents primarily as disease behind an intact eardrum, that is, episodic acute infection (acute OM or AOM) or fluid in the middle ear (OM with effusion or OME), and rarely as eardrum perforation. AOM and OME typically resolve spontaneously or respond to antibiotic treatment. Only a small percentage of children experience chronic OM and very few have chronic eardrum perforations.

In contrast, otitis media is highly prevalent in Aboriginal and Torres Strait Islanders, especially those living in rural or remote areas and chronic disease is common:

- A 2001 survey ³ of children aged 6-30 months in four health regions of the Northern Territory found that 91% had OM in one or both ears. It was also reported that eardrum perforations affected 40% of children in their first 18 months of life.
- An analysis of WA screening data of Aboriginal children in Perth 1998-2004 indicated 42% of 4-12 year-olds had ear disease and 19.1% failed the hearing screening ⁴.
- The Kalgoorlie Otitis Media Research Project also observed frequent, early onset of OM in the first year of life ^{5,6}.

OM is highly prevalent in Aboriginal and Torres Strait Islander populations, hence:

- There is a great need for diagnosis and management of ear disease and its effects and consequences in Aboriginal and Torres Strait Islanders.
- Clinical pathways for managing ear disease and its effects should be established by all health and educational agencies serving Indigenous populations, as the majority of individuals from these agencies will encounter people who have hearing loss.
- Population-based ear health or hearing screening (beyond the newborn period) will identify large numbers of Indigenous individuals requiring services. Referral services should be consulted before such screenings are undertaken or other methods of service-delivery developed.

Onset

In non-Indigenous children, the peak incidence of AOM is between 6 and 12 months of age. In Indigenous Australian children the disease commences in the first weeks, or even days, of life ^{7,8}. Early onset puts infants at risk for chronic disease, due to the immaturity of their immune systems and the potential for chronic ear damage ⁹.

OM has a very early onset, hence:

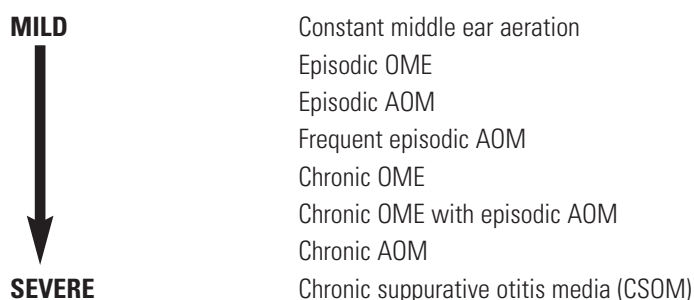
- Health services need information and training in identifying early ear disease and possible hearing loss, starting from infancy.
- Audiological techniques can contribute to the identification of early otitis media.
- Children with chronic OM should be known to local health services from an early age, well before they enter the education system.
- Education providers should be made aware of children with a history of chronic OM upon enrolment by enquiring with families and carers.

Presentation

Aboriginal and Torres Strait Islanders are prone to severe OM - see spectrum, below ¹⁰. Both 'closed' ear disease (AOM, OME) and 'open' ear disease (eardrum perforation - acute or chronic) are highly prevalent in Indigenous Australian children. In a 2001 Northern Territory survey, the perforation prevalence ranged from 0-60% between communities and from 19-33% between regions. Overall, 1 in every 2 children examined had otoscopic signs consistent with suppurative ear disease and 1 in 4 children had a perforated eardrum.

Acute OM without perforation in infants is often 'subclinical', that is, it is not associated with obvious fever or ear pain ¹¹. Symptoms may be absent or subtle and generalised, such as irritability or sleeplessness. In Aboriginal and Torres Strait Islander children 'AOM' may be present for prolonged periods. AOM is diagnosed when the eardrum is inflamed and bulging or perforated.

Spectrum of OM¹⁰:



Early OM can be asymptomatic, hence:

- Families might not suspect that their child has OM, so health staff need to examine children's ears at each health centre visit to identify early episodes (regular surveillance).
- Standard audiometric procedures can help improve diagnostic accuracy.

Chronicity

Otitis media is a highly persistent condition amongst Aboriginal and Torres Strait Islanders and may be present in individuals of any age, including adults ¹². It is a chronic but variable condition, so Indigenous individuals may present with different patterns of chronic ear disease. Disease patterns include ¹³:

- chronic OME, with or without occasional episodes of AOM without perforation.
- recurrent AOM, with or without perforation.
- chronic eardrum perforation, with intermittent or chronic discharge.

Inner ear damage and sensorineural hearing loss can also result from chronic OM ¹⁴.

OM is not only a disease of early childhood, hence:

- Health service personnel need information and training in identifying ear disease and possible hearing loss in all age groups.
- Repeated observations are required to describe patterns of ear disease. When an individual presents with OM, staff should review their health record for past episodes of OM.
- Local educational and vocational services, employers and community services need to understand the chronic and prevalent nature of OM and hearing loss within a community.

Hearing Loss - Its Effects

For children, hearing is critical to development of auditory skills (localising sounds and comprehending meaning of acoustic messages), speech and language. Hearing loss in children can impact on literacy, learning, education, behaviour and later employment options ¹⁵.

For adults, hearing loss results in a reduced capacity to communicate which can then impact on relationships, education, employment and sometimes result in social isolation and decreased quality of life ¹⁵.

Hearing loss caused by ear disease varies with ear disease stage/state. The hearing loss associated with OME or AOM is conductive in nature and generally averages 15-30dB ¹⁴. In ears with perforated eardrums (CSOM or dry perforations), the hearing loss is often greater and can be as much as 70dB ^{16,17}.

OM can also have a substantial effect upon hearing for frequencies outside those routinely tested, that is, at frequencies below 500Hz and above 4000Hz ¹⁸. In addition, a conductive air-bone gap can be present even when air conduction thresholds are in the normal range ¹⁹.

Hence, a three-frequency average hearing loss (500, 1kHz and 2kHz) often used as a measure in audiological practice and based upon a single assessment could underestimate the degree of impairment. Moreover, the usual classifications of degrees of hearing impairment are based on pure-tone audiometry on a single test day and do not take into account other exacerbating factors.

As OM commences in infancy, hearing loss can be present from an early age. Prospective research evidence for the long-term impact of early, intermittent, mild conductive hearing loss on attention, language and learning in non-Indigenous research populations is weak. In Aboriginal and Torres Strait Islander children, however, there are exacerbating factors (listed below) which would be likely to contribute to significant disability and handicap as a result of OM and associated hearing loss.

Factors which might exacerbate adverse outcomes include:

1. **Disease severity**
 - early OM onset
 - recurrent, persistent or chronically deteriorating OM and its physical sequelae
 - limited access to primary health care, ENT and audiological services
 - fluctuations in hearing levels in one or both ears associated with OM
 - frequent ill health
 - other chronic diseases which are life-threatening determining resource allocation and priority
2. **Social environment**^{20,21}
 - local 'normalisation' of hearing impairment and/or forms of OM
 - generational hearing loss
 - generational educational disadvantage
 - lack of awareness (amongst individuals, families and professionals) of the effect of ear disease on hearing and associated outcomes
 - tendency across sectors and agencies to explain communication difficulties due to language and cultural differences without adequate realisation of the impact of hearing loss
 - social conditions, e.g. parental trauma, family adversity, welfare encounters, financial stress
 - inhibited motivation to address symptoms of OM and seek treatment
 - limited access to technological equipment, maintenance and support
 - adverse environmental conditions and variable acceptance affecting hearing device use
3. **Language environment**²²
 - inconsistent language exposure (multiple caregivers)
 - multiple language demands in the home environment
 - limited exposure to Standard Australian English prior to school-entry
 - major grammatical and phonological differences between Indigenous Australian languages and Standard English
4. **Learning environment**²³
 - limited access to hearing devices across the lifespan and low acceptance
 - limited exposure to reading material in the home environment
 - lack of access to pre-school/early childhood learning opportunities
 - adverse acoustic conditions in classrooms
 - cultural differences in learning style

The effects of OM on hearing are often significant, hence:

- A referral for a full hearing assessment by an audiologist should be made for any child:
 - with bilateral OM (all types) persisting longer than 3 months.
 - who has failed a hearing screening on two consecutive occasions.
- Families and caregivers should be informed of the effects of OM on hearing.
- Health and education staff, employers and community services should be informed of the symptoms and consequences of hearing loss.
- Health and education staff should follow established clinical pathways for diagnosis and management of hearing loss.
- Audiological services should be available to individuals of all ages.

Access to Services

Aboriginal and Torres Strait Islander people in all regions access mainstream health services at a very much lower rate than non-Indigenous people. Aboriginal people will often not access mainstream services until their health is in crisis.

As an example, the uptake of Medicare targeted health checks in 2009-10 by Aboriginal and Torres Strait Islander Australians was low, at less than 12% of the identified population. An additional issue is the difficulty of tracking the timeliness of intervention for health problems uncovered in the course of health checks ²⁴.

Barriers to equitable access include the ability of service providers to offer culturally appropriate services, low health literacy, lack of knowledge of the available services and health systems, lack of transport to reach services, cost of services and/or a concern that a service provider may be racist or judgmental ²⁵.

While the majority of Aboriginal and Torres Strait Islanders live in urban areas, in remote parts of the Centre and North of the country they constitute a high proportion of the local population ²⁶.

People living in rural or remote areas have poorer access to specialist health services because of the distances to be travelled, the cost of travel, the challenges posed by weather conditions, and the difficulties of being absent from their family and/or workplace.

There are various barriers to service access, hence:

- Health professionals, service providers and agencies need to be flexible in their scopes of practice and collaborate for service delivery whilst ensuring effective communication and appropriate accountability.
- Professionals might need to 'team up' and travel together to rural and remote areas to save costs and deliver a more co-ordinated service.
- Professionals need to be aware of the particular geographic and weather conditions in the areas they visit.

Cultural Differences

Understanding and respect are important to recognise the complexities of Aboriginal and Torres Strait Islander culture and cultural differences. Aboriginal and Torres Strait Islander peoples vary widely in terms of history and geography with major cultural and socio-economic differences. For example, there is a growing middle class of educated and employed Aboriginal and Torres Strait Islander people in urban Australia as well as those living more traditionally with their own language, kinship structure, beliefs and lifestyle.

Attitudes towards health, health care, hearing, hearing loss and education vary across cultures and between communities. Service providers may have expectations of clients which are unreasonable for a particular setting and vice versa.

Developmental research to inform Aboriginal and Torres Strait Islander social marketing campaigns (CIRCA, 2010²⁰) found within Aboriginal and Torres Strait Islander communities:

- There is a low level of awareness of how to identify OM, its causes and risk factors and how to seek help or specific treatments.
- The major barriers perceived by caregivers to improving ear health are limited awareness of the symptoms and causes of OM, service access issues and home-based treatment issues.

Important cultural differences exist, hence:

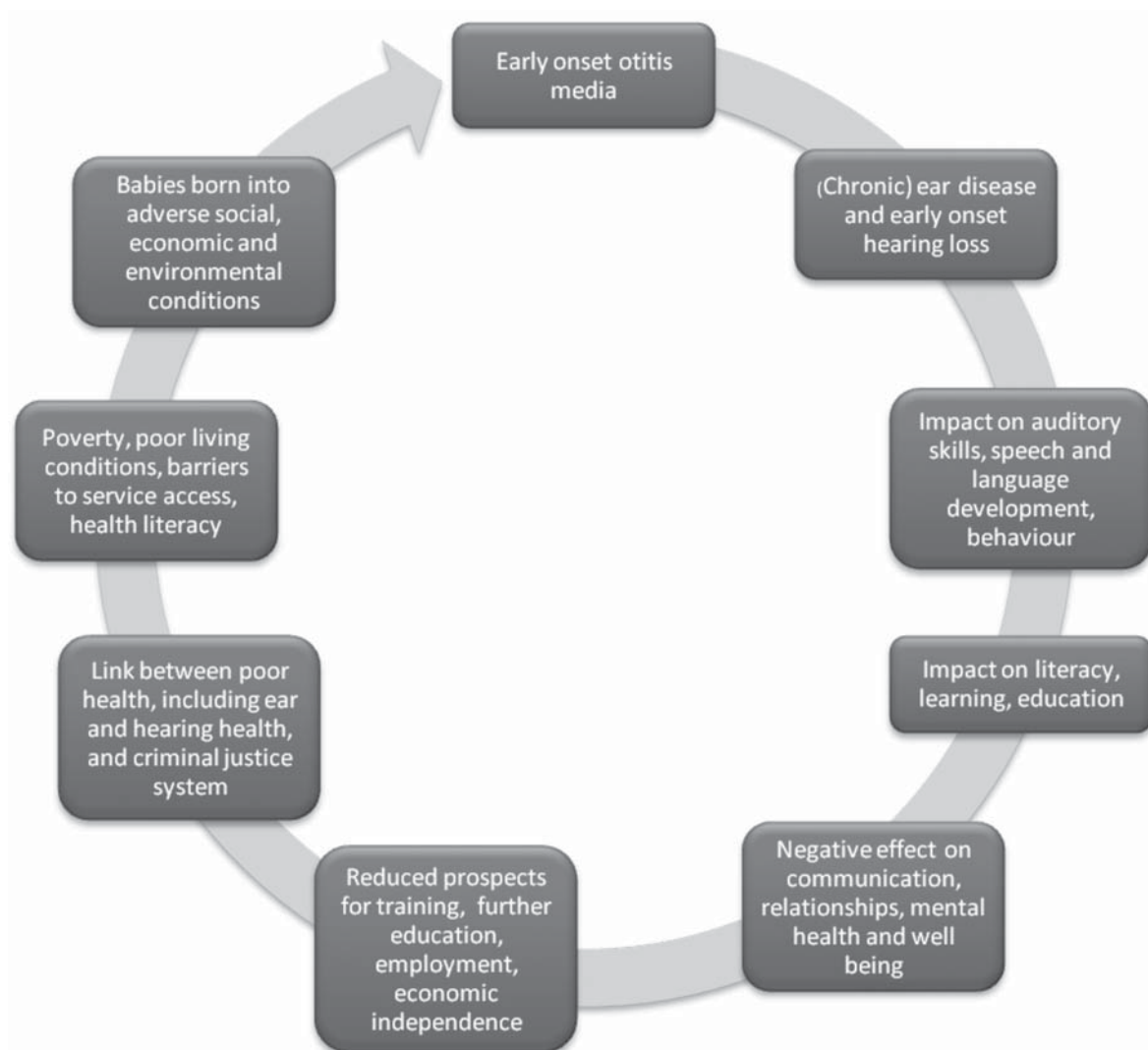
- Professionals cannot assume that experience in one cultural setting will be directly comparable or relevant in another setting.
- Professionals working with different cultural groups need to establish the points of similarity and difference between their own and their prospective clients' attitudes.
- Professionals should seek cross-cultural education/training.
- Professionals should work as closely as possible with local personnel so that communication and cultural difficulties are minimised.

The Ear Ring - Generational Cycle of Chronic Otitis Media and Hearing Loss

Figure: -

The Ear Ring - Generational Cycle of Chronic Otitis Media and Hearing Loss in Disadvantaged Communities

A visual representation of the life cycle of determinants and consequences of chronic otitis media and hearing loss in disadvantaged communities. (Adapted from a draft model by NAL/Australian Hearing.)



Framework for Ear Health Management

World Health Organization (WHO). International Classification of Functioning, Disability and Health (ICF) ²⁷

LEVEL OF PREVENTION	INTERVENTION	HEALTH PROMOTION & EDUCATION	KEY PROVIDERS
PREVENTING ACUTE EAR INFECTIONS (Preventing impairment)	Antenatal/perinatal care & advice Immunisation 'Well baby' checks Face, nose & hand hygiene	Promote breast-feeding, fresh fruit/vegies, immunisation, access to personal and home health hardware Reduce passive smoking Promote nose-blowing, face & hand-washing Reduce exposure of others to sick child	Primary and community health services Population / environmental health services Early Childhood Educators & staff: Day Care, pre-school Families & community members (Audiologists: reinforce health messages)
PREVENTING CHRONIC EAR INFECTIONS & HEARING LOSS (Preventing impairment)	Medications Supported case management Ear toilet Surgery Hearing screening / surveillance / assessment	Promote early diagnosis and prompt management of ear disease to reduce duration, severity, recurrence Promote early identification of hearing loss	Primary health, GP and Aboriginal medical services Specialist medical & hospital services State / Territory / ACCHO hearing services Early Childhood Educators: Day Care, pre-school Families & community members (Audiologists: screening, diagnosis, training, supervision)
PREVENTING COMMUNICATION DIFFICULTY (Preventing limitations on activities)	Hearing / communication advice & support Classroom assistive listening devices Personal hearing aids Hearing therapy	Advise families: language stimulation, school readiness, pre-literacy skills Promote recognition of hearing loss effects in workplace, school, at home	Early Childhood Educators and staff: Day Care, pre-school State & Territory Education Departments Specialist allied health services

LEVEL OF PREVENTION	INTERVENTION	HEALTH PROMOTION & EDUCATION	KEY PROVIDERS
PREVENTING COMMUNICATION DIFFICULTY (Preventing limitations on activities)	English as second language teaching - children & adults Explicit phonics teaching	Promote access to hearing services for all ages Promote recognition of interactions between hearing loss and other social, linguistic, acoustic factors	State / Territory / Commonwealth hearing services (Audiologists: hearing (re)habilitation and education, training, supervision)
PREVENTING HEARING HANDICAP (Preventing restrictions on participation)	Accommodations Public education Anti-discrimination law Universal design	Employment strategies - visual/aural learning Accessible services - PA systems, loops Acoustic design Lobbying for change	State & Territory Education Departments Local Government bodies State / Territory / Commonwealth bodies (Audiologists: advocacy, information, advice)

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SECTION 1

PRACTICAL CONSIDERATIONS

Effective, high-quality care can be achieved for all clients/patients by careful attention to cultural, personal, professional and logistical detail.

1.1 Client/Patient Communication

Strategy and Recommendations

Cross-cultural Communication

- Be aware that Standard Australian English may not be the primary language of Aboriginal and Torres Strait Islander peoples and explanations of information should be clearly and concisely presented. Avoid jargon.
- Enquire the availability of professional interpreter services for people from remote communities who do not have strong English skills. Although families may speak some English, complex and new information is best discussed with the service of a trained interpreter.
- Arrange an interpreter if indicated. If an interpreter is not available, try to have a suitable local language speaker present.
- Be sensitive to gender differences between audiologist and client. Facilitate a choice of female or male audiologist when appropriate.
- Be aware that family members of clients may also have a hearing loss that will impact on their communication with the audiologist, adding to the complexity of cross-cultural communication.
- Consider whether the person you are asking is able to provide you with the information you require from both a practical and cultural perspective. Seek additional information if required.
- Establish if the appropriate person within the family or kinship network has been consulted when decisions for case management or care are to be made for children. For example, enquire 'Who are the important people that I should speak with about this child?'
- Seek out a local and recognised cross-cultural training course as a priority.
- Refer to Appendix B - Ear and Hearing Health Resources - Cross Cultural Training and Communication for suggested links and resources.

History-taking/Gathering Information

- Search the service's database thoroughly before creating a new client record. Be aware that people may change names for cultural reasons, be referred to by different names in the community, have variations in the spelling of names or move between different communities. Clinical decision-making relies on complete client information.
- Where possible, read the client/patient's health records prior to consultation according to local protocols.
- Counselling or history taking may not always be best conducted in the health centre. If clinical treatment is not required, ask where and when it is most suitable to meet with the family.
- Ascertain the client or family's understanding of hearing loss and ear disease by asking open-ended questions. For example, 'Why is good hearing important?' or 'Why do your child's ears get wet (or sore)?'
- Use visual resources to help gather information.



Management/Information Counselling

- Explain assessment results and management recommendations in a practical manner to ensure relevance to the client's environment and access to resources.
- Use visual materials such as video-otoscopy, posters, pictures and charts. Supplement information with diagrams and drawings as required.
- Provide clients with the information and opportunities for clarification to help them make decisions.
- Negotiate care plans with clients/families and provide explanations regarding realistic outcomes in the short, medium and long term.
- Be prepared for this process to take some time.

Documentation/Sharing Information

- Privacy legislation applies in all service delivery settings.
- Obtain consent from the patient/family before referring on or discussing results with other people involved in the management of the patient.
- Provide individual client reports to community health centres and other appropriate agencies. Reports may be electronic or paper-based depending on agency protocols.
- Discuss the expectations of particular services or organisations (e.g. school or council) regarding individual and/or group information to be reported. Customise information accordingly.
- Document results using:
 - appropriate language for the receiver/user.
 - relevant detail of audiological findings.
 - any implications for communication and development.
 - recommended and relevant management plans:
 - audiological
 - rehabilitative
 - medical
 - educational
 - health promotional.
- Refer to Appendix I - Report Writing Suggestions for suggestions regarding report writing.

1.2 Planning and Consultation

Deliver the hearing health program to achieve goals identified in consultation with the community and to promote a shared responsibility for achieving outcomes.

Strategy and Recommendations

Introduction

- Introduce yourself and your service to a broad range of key stakeholders in the community to ensure support is obtained from many different groups. This may include staff from the health centre, school and preschool, representatives of land councils and mothers or elders groups.
- Find out about current and previous activities and programs and their outcomes.
- Consider and focus on the issues for consultation within the community:
 - What does the community perceive as the hearing health needs?
 - What services are currently or have historically been provided?
 - How does the community gauge the value or success of programs generally?
 - How does the community feel about previous programs?
 - What services does the community want?

Relationship Building

- Identify one or two key people in community with whom you could form a relationship and maintain regular communication. Each community is different so this person may or may not have previous experience and interest in ear and hearing health. They may be from the health centre (e.g. health worker or manager), community council, women's centre or a local community person (elder or community person).
- Identify suitable persons in the community over time who are elders, strong community members or in positions of influence and have firsthand experience of ear and hearing health problems, either themselves or through a family member. Build a relationship and invite these people to consider how they may help improve awareness and understanding of ear and hearing health issues.

Research

- Seek information from other professionals regarding their experience and resources that may be available to assist you.
- Gather any data related to hearing health or other services provided to different client groups e.g. parenting groups, playgroups.
- Refer to internet-based community profiles that provide current information on the services, infrastructure, programs and personnel. It is useful to understand the broader community issues and consider the context of how hearing health fits into the overall community profile.

Refer to Appendix B - Ear and Hearing Health Resources - Community Information for suggested websites from different States and Territories.

- Consider other reports, programs and initiatives which have been tried, evaluated and which may have produced public information.



Planning Overview

- Enquire if the community and health centre have any local and regional planning frameworks to guide ear and hearing health objectives.
- Discuss and negotiate the services you are able to provide - keep any plan or service level agreement simple, measurable, achievable, realistic and timely (SMART).
- Negotiate how your hearing service may contribute to the broader community development, community health and health literacy.
- Identify the roles and responsibilities your agency or organisation will undertake, associated timelines and outcomes.
- Get to know your local and visiting ear and hearing, allied health and education personnel: names, contact information, role obligations and restrictions and referral protocols. Review and update frequently, depending on the staff turnover in these roles.

Planning Services and Resources for Communities

- Formulate a written hearing health management plan or service level agreement with the community, being mindful of the following:
 - linking into existing community planning frameworks.
 - seeking advice on how to include relevant community members and other services in the planning process.
 - basing the plan on the outcome of negotiations with community.
 - defining individual and agency roles.
 - setting jointly-devised, measurable goals designed to achieve outcomes with clearly defined responsibility for outcomes.
 - identifying the local and visiting health, educational and other services, personnel and resources required to implement the plan. With the community's consent facilitate contact with identified resources if required.
 - identifying mechanisms for communication between involved agencies.
 - meeting agencies to discuss progress and modify the plan as needs change.
 - adopting a quality improvement model for ongoing review and continuous improvement.
- Offer to train local assistants with the skills and knowledge necessary to support community members' hearing health needs between face-to-face visits.
- Maintain communication and provide information and support via email and/or video conference, where possible. Use video communication links already established by other services e.g. Registered Training Organisations, other government departments.
- Investigate remote service delivery options and programs when formulating management plan, for example:
 - early intervention and educational support via videoconference
 - use of remotely operated audiological equipment including ENT tele-otoscopy and video conferencing in conjunction with trained assistants to provide services between face-to-face visits
 - existing tele-otology or other telehealth programs.

1.3 Sharing Skills, Knowledge and Information

Build relationships with community members to enable opportunities for two-way learning and improve existing ear and hearing health knowledge by aiming to:

- learn more about the community's cultural perspectives on health, wellbeing and service delivery.
- discuss what community members know about hearing health.
- discuss how hearing health is regarded in the particular community context and consider its relative importance.
- identify gaps between pre-existing knowledge and the knowledge needed for the community to manage their hearing health needs in partnership with services.
- build on the existing knowledge and skills base.

Strategy and Recommendations

Two-way Cross-cultural Education

- Identify those elements of local Aboriginal culture that affect the delivery of hearing health services.
- Review service delivery practices to ensure they are culturally secure and appropriate.
- Act to modify service delivery practices where necessary.
- Monitor service activity to ensure that services continue to meet culturally safe standards.
- Share cross-cultural education both ways within the community as an ongoing process through both formal and informal channels.

Sharing of Information

- Exchange information and skills with the key stakeholders who will essentially form the local 'hearing health team'.
- Develop mutual understanding of each member's relevant skills, knowledge and expertise.
- Review outcomes of ear and hearing programs at an individual and community level - discuss formally and informally.
- Obtain feedback from teachers and health staff about their needs relating to ear and hearing health service, knowledge gaps and skill development.
- Discuss how ear and hearing programs could work more effectively.
- Schedule regular opportunities for community-based hearing health information sessions at a range of different location to different audiences. Foster a respectful environment whereby skills can be shared and identify the core and associated knowledge of each member, especially education staff.
- Invite local elders, strong community members or people in positions of influence who have firsthand experience of ear and hearing health problems to share their stories. Aboriginal people telling their stories about the outcomes of ear disease and hearing loss in their family's lives is a powerful motivator for awareness and action by others about ear disease.
- Ask schools/health centres when they have time for professional development activities. Consider the transient nature of staff in rural/remote areas when planning how frequently this should be done.

Advocacy and Collaboration

- Use interagency or regional planning meetings to advocate community ear and hearing health needs.
- Encourage local health workers to write about ear and hearing programs. Contribute information to regional newsletters or start a newsletter of your own. Share 'good news' stories.
- Collaborate with local services and health workers to present your work to community members, local and community councils, schools, health centres and other health professionals at every opportunity.
- Use presentations as a forum to advocate community needs. Show others what has worked and what hasn't worked. Always include recommendations.
- Take professional responsibility to advocate more broadly for the ear and hearing health needs of Aboriginal and Torres Strait Islander Australians. Consider individual and collective actions.

1.4 Community Trips and Visits

Be aware of personal safety, health, legal and cultural considerations, particularly in remote communities.

- Drink frequently to avoid dehydration.
- Do not walk alone at night or in unsafe areas.
- Consider appropriate and sensible standards of dress in remote localities.
- Beware of aggressive or threatening dogs when walking around remote communities.
- Do not take alcohol into remote communities where alcohol is prohibited or restricted.
- Be aware of legal implications of other restrictions in a community.

Refer Appendices for more detailed information:

- Appendix F - Checklist - Community Trips and Visits
- Appendix J - Expecting the Unexpected

1.5 Professional and Personal Support

Delivery of services to Aboriginal and Torres Strait Islander peoples is a specialised field and it is necessary to be up-to-date with current knowledge and practice.

Working in remote Aboriginal and Torres Strait Islander communities may present personal challenges and a peer support network is vital.

Audiologists new to this field of work need guidance and supervision from an experienced colleague.

Strategy and Recommendations

Professional Development

- Seek professional and personal development through libraries and the internet.
- Establish or join e-mail networks and ASA interest groups. Attend ASA branch meetings or conferences and continuing professional development (CPD) activities.

- Keep abreast of Aboriginal and Torres Strait Islander health and general issues via websites, blogs, newspapers, TV and other media.
- Support research, share stories and publish outcomes.
- Improve your own clinical practice, service delivery and field of expertise. Advocate for the ear and hearing health needs of communities in your area as well as nationally e.g. via ASA.
- For additional information refer to Appendix B - Ear and Hearing Health Resources.

Professional Orientation and Support

- Develop effective networks with relevant professionals in your region,
- A local community mentor or buddy is recommended when you are starting work in a remote position with Aboriginal and Torres Strait Islander peoples.

Training of Student Audiologists

- Encourage the clinical placements of students in your practice or organisation so that you introduce students to the hearing health issues of Aboriginal and Torres Strait Islander peoples.

Personal Health, Behaviour and Safety

- Seek professional support and counselling if emotional and mental health affects work performance or work stress affects personal wellbeing and relationships.

Refer Personal and Professional Support Services below.

- For additional information refer to:

Appendix F - Checklist - Community Trips and Visits

Appendix D - Infection Prevention and Control Guidelines.

Personal and Professional Support Services

- **Services for Australian Rural and Remote Allied Health (SARRAH)**

SARRAH's primary objective is to advocate for, develop and provide services to enable Allied Health Professionals who live and work in rural and remote areas of Australia to confidently and competently carry out their professional duties in providing a variety of health services.

Membership is open to individuals who support SARRAH's primary objective.

SARRAH has on-line training and support resources which includes a training package for professionals making a transition to remote and rural practice.

www.sarrah.org.au

- **CRANaplus**

CRANaplus is a member-based organisation dedicated to the development and delivery of safe, high-quality primary healthcare to remote and isolated areas of Australia through the education and support of remote health practitioners. They advocate for the issues affecting members and the people in their care. Membership is open to all remote health professionals.

It has a Bush Services Division which provides a range of support services and resources including self-care booklets and information.

The Bush Support Line 1800 805 391 is a free 24-hour telephone and support service staffed by psychologists with rural and remote experience. Callers are NOT required to be members of CRANAPlus.

bss.crana.org.au

- **beyondblue**

beyondblue is a national, independent, not-for-profit organisation working to address issues associated with depression, anxiety and related disorders in Australia.

beyondblue information telephone line: 1300 22 4636

If you are deaf or have a hearing or speech impairment, call through the National Relay Service:

TTY: Ph 133 677 and ask for 1300 22 4636.

Speak and Listen (SSR): Ph 1300 555 727 and ask for 1300 22 4636.

Internet Relay: connect to www.relayservice.com.au and ask for 1300 22 4636.

www.beyondblue.org.au

- **LifeLine - Telephone 13 11 14**

Lifeline connects people with care by providing services in Suicide Prevention, Crisis Support and Mental Health Support.

Talk to someone today if you feel you aren't coping and reach out to others if you can provide support.

Call Lifeline's 24 hour crisis line on 13 11 14 for support or dial 000 if life is in danger.

www.lifeline.org.au

1.6 Training and Development of Other Professionals

Strategy and Recommendations

Training Standards

- Use accredited training materials, where available, or materials which have already been developed and trialled.
- Use established providers, where available, or deliver under the auspices of a Registered Training Organisation (RTO).
- Deliver training with experienced clinicians, preferably with qualifications in training/education (e.g. train-the-trainer courses).
- Use audiologists to supervise training in tympanometry, audiometric and otoscopy skills for screeners and health workers.
- Define training objectives for trainers and participants.
- Be aware of any local or national standards pertaining to audiological or Indigenous health practice, e.g. most states have guidelines for communicating with Aboriginal and Torres Strait Islander people and communities.

Target Groups for Training

- Target training opportunities to:
 - local health personnel in community health centres and hospitals such as doctors, health workers, nurses and community workers.
 - visiting health personnel such as Royal Flying Doctor Service (RFDS) doctors and child health nurses.
 - local education personnel in schools.
 - local community services, vocational training services and employers.
- Work with the community/ health centre/school to ensure the individuals selected for training are the most suitable.

Access to Training

- Offer training in community health centres, hospitals and schools in regional and urban centres depending on need, cost, and accessibility.
- Offer training via teleconference/videoconference or on-line self learning modules.
- Combine ear/hearing training with other scheduled activities for staff, e.g. regular remote area nurses' meetings, staff meetings.
- Use Indigenous training facilities where possible.
- Consult the participants or supervisors for advice regarding the best location and content for training.
- Use interpreters where appropriate.

Evaluation and Sustainability of Training

- Evaluate the content and process of the training program.
- Use pre- and post-training questionnaires on learning goals and outcomes to evaluate the training.
- Keep records of all training activities undertaken and the names of staff attending and their communities. Consent should be obtained to share this information with others when necessary.
- Plan for ongoing support to ensure that skills are maintained..
- Involve local community health personnel in training to ensure that the community maintains and develops the skills.

Recommended Training Content

- Plan for flexibility of content according to previous knowledge and needs of groups.

Health Practitioners

The following skills and knowledge are relevant to health personnel:

- understanding otitis media in Aboriginal and Torres Strait Islander children - prevalence, underlying reasons, natural sequelae etc.
- understanding:
 - the importance of ear and hearing health for listening, communication, language development, education and employment.
 - the association of otitis media and hearing loss.
 - the fluctuating nature of associated hearing loss.
 - the impact of hearing loss through a practical demonstration or simulation of hearing impairment (e.g. participants use earplugs or block their ears for a listening exercise using speech discrimination materials).
- recognising behaviour indicative of hearing loss in infants, children and adults.
- recognising the signs and symptoms of middle ear disease and familiarity with otitis media diagnosis and standard treatments.
- understanding that otitis media surveillance refers to tympanometry and otoscopic ear examination.

- understanding that otitis media surveillance may be used in different regions to:
 - identify anomalies and refer, or
 - diagnose, treat and manage ear disease.
- understanding local protocols regarding who is responsible for surveillance and case management of otitis media.
- performing regular and routine otitis media surveillance. Early otitis media may be asymptomatic and chronic disease may follow different patterns.
- identifying opportunities for otitis media surveillance such as well-baby checks, immunisation clinics, school screenings, opportunistically when the child presents at health centre with other acute presentations. Also to incorporate otitis media surveillance into regular routines.
- encouraging otitis media surveillance and ear health promotion at all health centre contacts in children less than three years.
- practical skills training for otoscopy, otitis media surveillance and ear health promotion activities.
- using examination and assessment techniques to describe ear status.
- following clinical protocols for the treatment and ongoing case management of middle ear disease including review and referral processes (e.g. OATSIH Otitis Media Guidelines).
- maintaining records of ear examinations and treatment provided using nationally recommended definitions and diagnosis (e.g. OATSIH Otitis Media Guidelines).
- recording communication or hearing development milestones for children in their health record.
- counselling families and others when a hearing screening has occurred:
 - advising that any screening results are not definitive and are an indication only of the need or otherwise for further investigation.
 - explaining openly and clearly any hearing screening results obtained.
 - using hearing screening results as a starting point for developing ear health literacy in the family where appropriate. For example, for a child with recurrent ear discharge, discuss with the family how seeking primary health management and regular mopping of ear discharge can help prevent significant fluctuation in hearing levels.
 - explaining how to help the child in the meantime with primary health treatment as appropriate, communication strategies, etc
- following referral protocols for audiological, ENT and educational services.
- understanding the need for diagnostic audiology to:
 - investigate suspected sensorineural hearing loss.
 - confirm hearing loss if otitis media has persisted for more than three months.
 - monitor effectiveness of clinical or ENT interventions.

Teachers and Schools

It is important for local educational personnel to have the following skills and knowledge as they will understand the school and student background and will more likely be consistently present in the school and community:

- understanding otitis media in Aboriginal and Torres Strait Islander children - prevalence, underlying reasons, natural sequelae etc.
- understanding:
 - the importance of ear and hearing health for listening, communication, language development, education and employment.
 - the association of otitis media and hearing loss.
 - the fluctuating nature of associated hearing loss.
 - the impact of hearing loss through a practical demonstration or simulation of hearing impairment (e.g. participants use earplugs or block their ears for a listening exercise using speech discrimination materials).
- recognising behaviour indicative of hearing loss in infants, children and young adults.
- recognising the signs and symptoms of middle ear disease.
- understanding and supporting key primary prevention messages.
- conducting preventive health and education programs in the classroom/community.
- understanding the role of the audiologist in the identification and management of ear disease and hearing loss.
- understanding the objectives of ear and hearing health programs, the roles and responsibilities of relative agencies and how educational facilities can support these.
- following referral protocols for audiological services.

- identifying and practising communication strategies to assist infants, children and adults with hearing impairment. In many communities there may be a considerable lag between possible identification and confirmation of hearing loss, so educators need to know how to support affected students in meantime.
- identifying and accessing rehabilitation options. In the training environment, discuss and refer where possible to specific and relevant scenarios in the community or school:
 - hearing aids
 - bone conductor hearing hats
 - classroom modification
 - acoustic considerations
 - soundfield amplification
 - cochlear implants
 - communication strategies.
- identifying and accessing early intervention support services for babies and young children with permanent hearing loss.
- identifying and accessing educational support services for school aged children with permanent hearing loss.
- recognising the need for support from other allied health professionals and how to access it e.g. speech pathologists, optometrists, educational psychologists.

Early Childhood Personnel

The above skills and knowledge for Teachers and Schools are relevant to educate and reinforce to early childhood personnel but include more specific reference to:

- key language and hearing development benchmarks
- language and listening development ideas and strategies
- key primary health prevention messages
- considerations for children with English as a second language or with multiple languages whose degree of impairment from hearing loss may be exacerbated by the child's:
 - ear disease severity
 - social environment
 - language environment
 - learning environment.

For example, language environment considerations may include:

- inconsistent language exposure (e.g. multiple caregivers).
- multiple language demands in the home environment .
- limited exposure to Standard Australian English prior to joining early childhood programs.
- major grammatical and phonological differences between Indigenous Australian languages and Standard Australian English.

Community Service Workers, Employers or Community Members

- Mix of above content according to existing knowledge and needs.



SECTION 2

PREVENTIVE STRATEGIES AND MESSAGES TO IMPROVE HEALTH LITERACY

Preventive Strategies

There is no single preventive strategy for promoting ear and hearing health. Rather, prevention should be thought of as a continuum that relates to the presence or absence of ear conditions or hearing loss in a child or adult. (Refer to earlier section 'Otitis Media and Hearing Loss in Aboriginal and Torres Strait Islander People - Framework for Ear Health Management').

For instance preventive strategies could be used to encourage behavioural change that limits the:

- occurrence of OM or sensorineural hearing loss.
- severity of OM.
- recurrence of OM.
- impact of OM on hearing.
- impact of hearing loss on educational outcomes, social development and employment.

Health Literacy

Health literacy ¹ as defined by the World Health Organization (WHO), implies the achievement of a level of knowledge, personal skills and confidence to take action to improve personal and community health by changing personal lifestyles and living conditions.

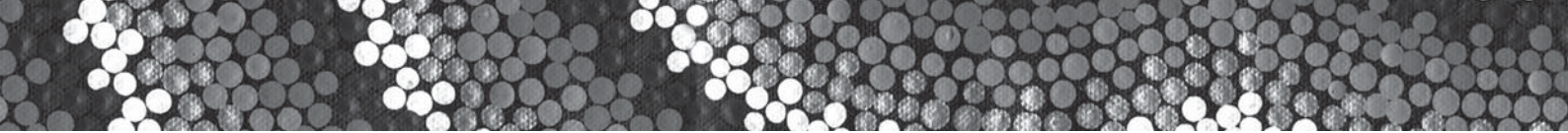
Health literacy is itself dependent upon more general levels of literacy. Poor literacy can affect people's health directly by limiting their personal, social and cultural development, as well as hindering the development of health literacy.

Improving ear and hearing health literacy is fundamental to improving ear and hearing health.

Ear and Hearing Health Literacy

- Discuss strategies for reducing the spread of bacteria that cause middle ear infection. Foundational germ theory may first need to be discussed (See Appendix A - Definitions and Abbreviations).
- Use visual tools such as large ear models and clear cut-away diagrams.
- If providing written information, ensure it is culturally and literacy-appropriate.

The Cultural and Indigenous Research Centre Australia (CIRCA) produced a report - 'Indigenous Ear Health. Developmental Research to Inform Indigenous Social Marketing Campaigns' (2010) ². This research is to inform the development of a national ear health education campaign targeting Indigenous people.



2.1 Delivery of Health Promotion Programs

Strategy and Recommendations

Community Strengths and Indirect Processes

- Base health promotion strategies on a community strengths model. Amongst Aboriginal and Torres Strait Islander peoples, strengths include:
 - extended family and shared care arrangements.
 - commitment to community and culture.
 - neighbourhood networks.
 - community organisations.
 - community events.
- Understand that Aboriginal and Torres Strait Islander people talking about their own and family's experiences is a powerful and motivating tool for awareness and action.
- Understand that effective ways to inform and motivate carers and individuals is often an indirect process by targeting those with influence over community and family members. For example, elders, 'strong men' and 'strong women', community leaders and older family members.
- Consider credibility of the message-giver and provide them with appropriate information to help direct and reinforce key messages to others from within their personal stories.
- Use identified community members as a resource to share their stories of ear and hearing health experiences. Stories could highlight relevant issues such as early childhood ear disease, signs of hearing loss, impact on social, educational and employment outcomes, and primary health and rehabilitation outcomes.

Awareness of Ear Disease and Hearing Loss

- Improve awareness of the symptoms and causes of OM and issues associated with service access and home based treatment.
- Improve understanding of the importance of ear and hearing health in all age groups.
- Improve understanding of the implications of ear disease and hearing loss in all age groups.

Medical and Primary Care

- Familiarise yourself and encourage local health centre staff to use OATSIH Otitis Media Treatment Guidelines or other locally recommended treatment and referral guidelines (e.g. NT CARPA Guidelines) for consideration of clinical care and surgical intervention for ear disease. Explain the treatment processes to families and reinforce compliance.
- Help school staff be more aware about existence and broad use of OM treatment guidelines.

Awareness of Support and Interventions

- Improve understanding of healthy living practices and good hearing and communication practices.
- Improve understanding of services available.

Importance of Treating Ear Problems

- Emphasise the link between ear problems and hearing loss. Do not assume that most people understand that ear problems are important. Discuss why good hearing is important.
- Provide examples relevant to the local context such as typical anecdotal stories that may have occurred without identifying individuals.

Intermediaries

- Use intermediaries such as primary health care workers and teachers who play a key role in promoting ear health and often have advantage of familiarity and regular contact with families.
- Help intermediaries fulfil their primary roles and functions in communities where ear and hearing health is a relevant issue by giving them information, support and practical advice about ear and hearing health. Intermediaries may include:
 - health workers including primary health, child health, mental health, drug and alcohol programs.
 - aged care workers.
 - education workers.
 - employers.
 - workplace and vocational trainers.
 - police and community night patrol workers.
 - sport and recreational workers.
- Consider identifying a person who can assist with co-ordination of all hearing-related visits.

Modes of Delivery

- Provide face-to-face information as often as possible. This is the most culturally appropriate mode of delivery.
- Use an interpreter as required.
- Use multimodal education materials including 3D models, which are not limited to any one language.
- Use resources in a supported environment (e.g. delivered by an Aboriginal and Torres Strait Islander health worker).
- Use resources that have been modified for local needs (e.g. may include familiar words and references in local common usage or traditional language).
- Use formal and informal opportunities to transmit health promotion messages.
- Use electronic and digital media to promote the behavioural messages of health promotion and to facilitate grassroots activities:
 - mobile text messages
 - websites and blogs
 - peer to peer communication forums and social media networks.

Target Audience

- In each location, clients/patients (or their carers) may have different levels of capacity to respond to health promotion and health education messages. For instance, if clients/patients are overwhelmed by other responsibilities or problems, they will need direct assistance rather than merely information and advice.
- Target intermediaries and community people with credibility and influence as they play a crucial role in providing and reinforcing correct information to children and carers.
- Apply a tailored segmentation approach when delivering ear health promotion (e.g. target carer groups, teachers, elders separately).
- CIRCA research² identified five segments, each with different information needs:
 - Segment A - Carers with low personal capacity in areas of low service capacity.
 - Segment B - More capacity than Segment A but needing strong support.
 - Segment C - Consider ear health a priority but lack knowledge about it.
 - Segment D - Highly motivated but living in an area with low service capacity.
 - Segment E - High capacity to act and high service capacity, an 'aspirational' group.

Infants and Young Children

- Target mothers and female carers of young children less than five years of age.
- Target female secondary students in the role of carers of younger siblings and as potential future mothers.
- Identify opportunities for improved education of males involved in care of young children.
- Target workforces engaged in caring for young children.
- Develop the parent/carer's understanding that:
 - babies and toddlers learn to talk by hearing people around them talking clearly and consistently.
 - babies and young children cannot learn to talk if they cannot hear speech.
 - young children need to hear lots of talking to develop a strong first language. This is the essential foundation for learning other languages, e.g. English, at school.
- Strategies to help support speech and language development include the parent or carer:
 - using and developing home language in the first instance.
 - having close conversation with their child throughout the day.
 - talking about what they are seeing or doing.
 - attracting the child's attention before speaking.
 - letting the child see their face as they talk.
 - telling stories, reciting rhymes, singing songs.
 - reading or talking about pictures in books.
 - encouraging consistent device usage at home for children fitted with hearing aids.
 - encouraging oral English programs for ESL children.
- Encourage language stimulation and development of pre-literacy skills through participation in play groups and links with other groups, e.g. 'Parents as Teachers' or 'Families as First Teachers' programs.
- Tell parents/carers that they can create a positive early literacy learning environment in the home by exposing children to books, papers and magazines and encouraging children's early attempts at drawing and writing.

School age children and adolescents

- Target families including the child or adolescent.
- Target the individual within their educational and recreational setting.
- Work collaboratively with school personnel using existing school curriculum at different levels.
- Educate children and adolescents about OM, hearing and hearing loss, importance of treatment and follow-up for OM, effects of excessive noise and some chemicals on hearing.
- Identify opportunities to educate those likely to have significant noise exposure through employment and/or recreational activity (e.g. amplified and personal music devices, shooting).
- Work collaboratively with TAFE personnel and appropriate local vocational and training programs to enable hearing health promotion.

Adults

- Target adults individually as well as workforce involved in care, support, recreation, training and employment.
- Inform local police and justice personnel about hearing loss and its implications for people in justice system. Provide them with information about services.
- A proportion of inmates in adult correctional centres and most in juvenile detention centres will be eligible for assessment and rehabilitation services through the Commonwealth Hearing Services Program.

Refer to Appendix E - Access to Hearing Services and Funding for more information.

Existing Health Promotion Programs

- Identify existing health promotion programs in the community that could include ear and hearing health promotion.

Resources

- Share resources with community members so that ongoing health promotion can take place.
- Assist in developing a 'hearing health plan' with the health centre and community members as part of the health promotion process.

2.2 Preventing Acute Ear Disease and Preventing the Transmission of Ear Disease

Strategy and Recommendations

Finding Opportunities for Ear Health Promotion

- Encourage health staff to examine the ears and communicate basic preventive behaviours to parents and carers during a child's health check.
- Inform adults they may still experience acute infections, usually with other upper respiratory conditions.

Personal Hygiene, Infection Prevention and Control

- Find out what parents/caregivers understand about germs, how they cause sickness and how they are spread around.
- Inform mothers and families about the importance of washing and drying of hands after blowing noses, using tissue spears, changing nappies, before and after handling food, after going to the toilet and after touching animals.
- Encourage mothers to teach children about clearing away mucus from running noses i.e. nose blowing rather than wiping.
- Encourage schools to integrate nose blowing and hand washing into daily routine at schools (provide training if necessary).
- Advise health and education staff to encourage nose blowing regularly throughout the day.
- Encourage children to cough away from people, into their elbows.
- Encourage health and education staff to have tissues/toilet paper readily available.
- Explain to parents/caregivers how germs from one child can spread to another child when they are sleeping close together.

Vaccination

- Encourage mothers to have their children vaccinated through the clinic. Information should be given to all mothers about the importance and benefits of having their child vaccinated.
- Encourage adults to be vaccinated against the flu.

Smoking

- Talk to your local community about the best way to inform people about the link between smoking and ear infections in infants and children.
- Encourage adults to quit smoking or smoke away from children.
- Ensure community workers providing quit-smoking and drug and alcohol programs understand and promote the links between smoking and ear disease.

Breastfeeding

- Encourage mothers to breastfeed babies from birth where possible and until babies are able to handle solids. Explain the links between bottle-feeding and ear disease.

Nutrition

- Talk to parent/caregivers about ensuring their children have several serves of fruit and vegetables and other healthy nutritious food every day.
- Encourage mothers to teach children about making healthy food choices.
- Seek opportunities to link ear and hearing health into health promotion through other allied health workers in communities e.g. nutritionists.

2.3 Preventing Acute Ear Disease from Becoming Chronic

Strategy and Recommendations

Early Medical Intervention

- Provide culturally appropriate information to young mothers, carers and mothers-to-be about the importance of visiting the health centre for child health checks.
- Tell young mothers, families and caregivers that:
 - it might not be obvious that their baby has an ear problem.
 - children younger than three years should have their ears examined every time they visit the health clinic.
 - they should take babies and children to the health centre as soon as ear problems are suspected.
 - discharge from the ear may be the first sign of infection.

Advice for Families, Caregivers or Clients

- First ear infections should be fully treated until completely resolved to offer some protection from recurrent and chronic ear disease.
- Keep returning to the health centre on completion of all medication to check ear status and consider whether further treatment is required.
- Recurrent ear infections require regular visits to the health centre for treatment and regular use of medication.
- Ear infection with discharge may lead to chronic ear infection if not managed appropriately.
- Children with holes in their eardrums should keep soapy water out of their ears and not swim in stagnant water-holes. (Swimming in a clean swimming pool or in the sea should not be discouraged unless there is evidence it has increased or caused ear discharge in the past.)
- For people with holes in their eardrum and infection with discharge (known as chronic suppurative otitis media or CSOM when at a chronic stage):

- Go to the health centre for treatment immediately when ears start to discharge to avoid deterioration of hearing and further structural damage to the ear.
- Daily ear cleaning and antibiotic drops will be needed. Caregivers should ask for help from the health centre, the school and other family members to ensure effective management.
- Weekly review by a health practitioner is recommended to ensure response to treatment.
- There will be periods of active discharge and periods of inactivity (dry perforation) with CSOM.
- Remove discharge by tissue spearing/dry mopping several times daily prior treatment with ear drops. This may also temporarily improve hearing levels.
- People with dry perforations are at risk of further infections and development of CSOM.

Tissue Spears/Dry Mopping ^{3,4}

- Explain to parents, carers and health staff the importance of tissue spears and when to apply them (i.e. only when ear discharge present and/or if advised to apply prior taking any eardrops).
- Demonstrate how to make tissue spears.
- Observe how others make and apply them and suggest any improvement in technique (e.g. if too bulky, not rigid enough and likely to collapse, not long enough, not inserting deep enough into canal).
- Advise the risk if ear discharge not cleared effectively (i.e. infection may persist longer, infection may spread if discharge makes contact with others, hearing may be affected while discharge present, ear drops may not be able to travel to source of infection).
- Advise the risk if tissue spearing not performed correctly (i.e. pieces of tissue may be left behind in ear canal, discharge not cleared effectively).
- Describe safe disposal of spears and promote hand washing and drying after tissue spearing. Sticks or cotton buds should not be used in place of spears.

Administering Medication

- Emphasise the importance of taking medications correctly.

ENT Referral

- Explain If OME does not resolve with health centre management, an ENT referral may be arranged for an opinion and/or ENT management.

2.4 Preventing Chronic Ear Disease from Affecting Auditory and Language Development, School Outcomes and Social Health

Strategy and Recommendations

Understanding the Link between Ear Disease and Hearing Loss

- Explain to parents, carers and health and education personnel the importance of good hearing in:
 - a child's early years for optimum development of language and auditory processing skills.
 - in the school years for learning and developing literacy and numeracy skills.
- Explain there may be mild or moderate hearing loss when a child first experiences a few occasional ear infections. Hearing should return to normal when middle ear fluid resolves.
- Fluid and hearing loss may persist once pain of an ear infection has gone.

- Advise hearing may fluctuate with ear infections and/or if fluid does not clear. The child may then hear inconsistently, may mishear or misunderstand instructions. Hearing may be worse during an acute episode.
- Fluctuating hearing can be hard for a child to adjust to and makes it difficult to develop oral language, literacy and numeracy skills.
- If chronic ear infection is not managed appropriately, hearing loss may become long-term and permanent.

Attendance at Hearing Assessments

- Use trained interpreters when indicated.
- Explain to adult clients, parents, carers and health and education staff the importance of hearing assessments to determine the degree of hearing loss.
- Be aware that some individuals may be anxious about what will happen during a hearing assessment and so may not feel comfortable when attending or avoid assessment.

Use appropriate resources to help familiarise people with what to expect during an assessment (e.g. appropriate visual information through posters, pictures, videos or local word of mouth through Aboriginal health workers or community members who have experienced hearing assessment).

- Explain that the degree of hearing loss and the subsequent handicap will affect the choice of medical, audiological and educational intervention.
- Explain that the degree of hearing loss impacts on a person's ability to understand and develop speech and language.
- Explain that pre- and post-surgical hearing assessments are essential to determine the change in hearing levels and the success of the surgery with respect to hearing loss.
- Explain that the degree of hearing loss may be associated with the extent of hearing improvement with surgery. Some people may still have a degree of hearing loss after surgery and need hearing assistance.

Attendance at ENT Appointments and Surgery

- Explain to adult clients, parents and carers the benefits of obtaining specialist medication advice and possible surgical intervention.
- A child who has had a persistent dry perforation may need surgery to repair the eardrum. In general, pre-school aged children with dry perforations are not candidates for surgical repair.
- Families should be advised that surgery won't always be successful. Chances of success are increased when the family and health centre work together in the periods before and after surgery.
- Potential surgical benefits should be discussed, including improvement in quality of life with reduced or non-existent episodes of discharge.
- Help to explain the hearing benefits and risks of surgery.

Hearing Aids and Devices

- Explain to adult clients, parents, caregivers, teachers, the child and their peers the benefits of hearing aids and other hearing devices, to improve acceptance and usage of hearing devices.

Communication Strategies

- Explain and demonstrate communication strategies for children and adults with hearing loss.
Refer Section 5.1 Re/habilitation Programs - Communication Strategies and Hearing Tactics

Referral to and Attendance at Speech-Language Pathology Services

- Explain to families and carers the impact that hearing loss can have on the development of auditory, speech and language skills (especially in the critical period 0- 3 years of age).
- Explain to adult clients, parents and carers the benefits of obtaining specialist advice from a speech pathologist in terms of optimising speech and language outcomes.
- Advocate and actively refer children suspected of speech and language delays to speech pathology services.

2.5 Preventing Sensorineural Hearing Loss

Strategy and Recommendations

Hearing Conservation

- Provide education on the effects of loud noise on hearing, such as shooting and loud music.
- Discuss noise dosage and safe noise exposure levels related to work and leisure activities and any periods of 'binge listening' ⁵.
- Discuss tinnitus and the association with noise exposure.
- Discuss passive noise exposure, particularly for younger children, and the risks of excessive noise exposure for long and accumulated periods in households and family activities (e.g. loud amplified music in home or while driving long distances, extremely high TV volume) ⁶.
- Consider the increased use of mobile phones and their application as music players as an additional recreational noise source.
- Support Aboriginal and Torres Strait Islander health workers in developing community and family-based noise management and hearing conservation programs.
- Advise appropriate strategies to minimise noise exposure and recommend use of appropriate hearing protection.
- Provide education on the effects of some industrial chemicals, solvents and metals on hearing (including exposure to petrol and glue).
- Encourage the local store to stock earplugs.

Congenital Sensorineural Hearing Loss

- Encourage women to receive rubella immunisation.
- Encourage pregnant women to attend antenatal appointments.

Late Onset Sensorineural Hearing Loss

- Recommend seeing an audiologist when parents are concerned about their child's hearing at any time.

2.6 Minimising Adverse Social Outcomes

Strategy and Recommendations

- Improve the understanding of the family and wider community about the importance of good hearing and the effect of hearing loss to help the client minimise and manage long-term consequences. Provide appropriate messages and relevant advice such as:
 - Hearing is important in the early years for optimum development of language and auditory processing skills.
 - Hearing is important for learning both home language and standard Australian English.
 - Hearing is important for developing literacy and numeracy skills and learning at school.
 - All forms of OM can impair hearing. The more persistent and deteriorating the OM condition, the more severe its effect upon hearing levels and language development.
 - Hearing loss may vary from mild to moderate depending on the size and position of the perforation and the presence of discharge.
 - Children with large perforations will continue to have hearing loss, even without discharge being present.
 - People with chronic ear disease may benefit from hearing devices if associated with ongoing hearing loss.
 - Ear disease can cause permanent hearing loss.
 - Mild-moderate sensorineural hearing loss can occur as a result of CSOM. In combination with an overlying conductive loss, this may result in a moderate to severe mixed hearing loss.
 - Hearing loss may be acquired due to excessive noise, physical trauma, ageing, chronic illness, e.g. renal disease, diabetes.
 - A child with moderate hearing loss or greater may need a hearing device for an extended period.
 - Children with permanent hearing loss will benefit from audiological rehabilitation which may include hearing aid fitting. They will need to have access to speech pathology services to learn to communicate and specialist teaching support to learn in the classroom.
- The overall impact of 'mild' hearing loss can be worse if it occurs in conjunction with one or more of the following factors:
 - very early onset of hearing loss
 - multiple language demands in the home environment
 - lack of access to pre-school
 - limited exposure to Standard Australian English prior to school-entry
 - differences between home language and school English (standard Australian English). This includes differences in grammatical, phonological, pragmatic and semantic aspects of languages.
- Mild-moderate fluctuating hearing loss from birth causes extended periods of auditory deprivation. During the early childhood years, mild-moderate fluctuating hearing loss can impact on learning language and difficulty hearing in group learning environments so that:
 - further assessment to explore speech and language development and auditory skills is recommended.
 - language and auditory processing difficulties may continue even after hearing levels have returned to the normal range.
- Explain hearing loss may affect ability to:
 - listen to speech clearly.
 - listen in groups or background noise.
 - listen over a distance.
 - hear environmental sounds.
 - listen on the telephone.
 - listen to the TV.
 - listen to music.
 - be aware of warning signals and alarms.

Use local and culturally appropriate examples and contexts to highlight meaningful scenarios and for the message to have greater impact.

- Improve understanding that hearing loss may affect:
 - communication ability and communication breakdown.
 - social relationships with family and friends.
 - learning capacity.
 - ability to satisfy cultural responsibilities.
 - employment opportunities.
 - mental health and wellbeing (self-esteem, depression, anxiety, anger, frustration).
- Explain that tinnitus (noises heard in the ears or head) is often associated with hearing loss. It can be successfully managed through counselling and appropriate management strategies.
- Advise that audiological rehabilitation and management of permanent and fluctuating hearing loss can be successful. Success is achieved through a combination of factors an individual:
 - recognising the hearing loss and its effects.
 - identifying communication goals where he/she need listening help.
 - using appropriate communication strategies.
 - using suitable listening technology such as hearing aids or assistive listening devices.
 - being motivated to improve communication needs.
 - having the support of family and the community.
 - having access to ongoing hearing services.

Linkages with Other Agencies

- Provide appropriate and relevant education programs on ear and hearing health to different workforce groups e.g. - school staff, health centre staff, employer groups, justice system.

Support Educational Programs

- Explain how early intervention and specialist hearing education support programs can help children.
- Support specialist hearing educators.

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SECTION 3

PRIMARY SURVEILLANCE, MANAGEMENT AND REFERRAL

Early detection and treatment of ear disease and associated hearing loss are necessary to avoid possible adverse effects.

3.1 Otitis Media Surveillance

Early otitis media may be asymptomatic and chronic disease can follow different patterns therefore regular and routine surveillance is needed.

Tympanometry and otoscopic ear examination are referred as otitis media surveillance in this document.

For additional advice regarding otitis media surveillance and related skills and knowledge, please refer to Section 1- Training and Development of Other Professionals, Training Content for Health Practitioners.

Otitis Media - Diagnostic Terms

Refer Appendix A - Definitions and Abbreviations for more detail

OME	Otitis media with effusion
Persistent OME	Persistent otitis media with effusion
AOMwoP	Acute otitis media without perforation
AOMwiP	Acute otitis media with perforation
rAOM	Recurrent acute otitis media
CSOM	Chronic suppurative otitis media
Dry Perforation	Dry perforation

Refer to OATSIH OM guidelines for treatment guidelines and referral pathways for primary health, audiological and/or ENT care. www.health.gov.au/internet/main/publishing.nsf/Content/health-oatsih-pubs-index.htm

3.2 Screening for Hearing Loss

3.2.1 Screening for Hearing Loss in Children under Three Years of Age

Public Health Programs

Universal Newborn Hearing Screening (UNHS) programs are well established in most States and Territories. Their aim is to identify children born with significant bilateral hearing loss, including sensorineural hearing loss.

Factors such as increased rates of meningitis and lower birth weights may increase the prevalence of sensorineural hearing loss among Aboriginal and Torres Strait Islander infants.

However, newborn hearing screening will not identify children with progressive hearing loss, postnatal or late-onset hearing loss or fluctuating hearing loss. Additional clinical pathways are required for children considered at risk.

Early onset AOM puts Aboriginal and Torres Strait Islander infants at risk of developing chronic disease and ear damage^{1,2,3} due to an immature or compromised immune system.

Strategy and Recommendations

Newborn Hearing Screening Programs and Otitis Media Surveillance

- An infant who has passed a newborn hearing screening must be included in regular and routine otitis media surveillance.
 - An infant who has passed a screening is likely to have normal hearing.
 - Otitis media, however, may develop and is likely to cause fluctuating conductive hearing loss.
 - In the absence of other risk factors, the primary objective is to identify conductive hearing loss caused by ear disease.
 - All infants and children, including those who passed their screening, must therefore be included in regular and routine otitis media surveillance by health centre staff.
- There is an increased likelihood that Aboriginal and Torres Strait Islander babies may miss newborn hearing screening.
 - Mothers may give birth at a location away from a hospital with a UNHS program.
 - Mothers may discharge themselves early and before the screening could be completed.

Note: - Infants who have missed an opportunity for screening would normally be referred by UNHS personnel for appropriate audiological assessment. Health centre staff should monitor that screening has occurred.

'At-risk' Checklists

- Discuss with the health centre whether any of the risk factors for hearing loss occur at increased levels in the community.
- Advise local health centre staff to be aware of any sensorineural hearing loss 'at-risk' criteria at the infant's first visit to the centre.
- Infants who have risk factors for progressive or postnatal sensorineural hearing loss and who have passed newborn screening will have been referred to an audiologist for follow-up diagnostic testing at age appropriate intervals according to UNHS protocols.

(Note - Health centre staff may monitor that assessment has occurred as the child becomes older.)

Behavioural Checklists and Vigilance

- Encourage health staff to be vigilant for the signs of hearing loss for all infants, even those who have passed newborn screening as hearing loss may develop after birth.
- Encourage local health practitioners to periodically question parents about their child's hearing and speech development, preferably at the 'well baby' checks, such as three, six, nine and twelve months of age.

Refer Appendix G - Normal Hearing and Baby Development - Useful Questions.

OM Surveillance to Identify Conductive Hearing Loss Caused by Ear Disease

- Consider local OM surveillance tools and systems which monitor episodes of OM and track ear health.
- Establish and discuss with primary health services how well OM surveillance protocols are practised, surveillance tools used and audiological referral protocols followed.

3.2.2 Screening for Hearing Loss in People over Three Years

A defined screening protocol is outside the scope of this document. Some guidelines are given below pending the development of documentation.

Strategy and Recommendations

Hearing Screening

The OATSIH Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and Torres Strait Islander Populations⁴ recommends:

- Against hearing screening at school entry in populations with near-universal OM and conductive hearing loss.
- Against hearing screening in older asymptomatic children.
- Regular OM surveillance (with appropriate audiometric testing when indicated) in preference to school entry screening.
- A person with ear discharge or ear infections/otitis media that has persisted in both ears for more than three months should not be screened but referred for primary health management and audiological assessment and management.

However, there will be personnel that perform hearing screenings and will therefore need support to do them well.

- Validate competencies or supervise all personnel performing screening.
- Work with local health and education personnel to ensure that personnel have a thorough understanding of logistics involved in organising screening systems and programs.
- Basic principles of hearing screening should include:
 - Rule out contra-indications prior to proceeding with screening. Contra-indications include external pathology and basic otological conditions that require primary health care (e.g. open sores on external ear, wax occlusion, foreign body or discharge in the ear), atresia, unhealed surgery site. These people should be referred for primary health management and/or diagnostic audiological assessment.
 - Conduct screening in a very quiet room with ambient noise levels below 45dBA. Use circumaural headphones (full size which enclose the ear) or insert earphones where possible if not in a sound-treated environment.
 - Screen using frequency-specific tones.
 - Screen at 1000Hz and 4000Hz as a minimum protocol. Pass thresholds are 25dB in both ears (two responses are required).
 - A screening result indicates whether there is a need for referral. It does not indicate the degree of any hearing loss as hearing thresholds are not determined.
 - A failed screening test does not mean that a child's hearing is abnormal nor does a passed hearing screening test mean that a child's hearing is normal.
 - A hearing loss cannot be diagnosed on the basis of a screening result.
 - Screening results cannot be used for prevalence data on hearing loss.
 - Ensure infection control protocols are followed.

Telephone Hearing Screening

- The National Acoustic Laboratories (NAL) was commissioned by Australian Hearing to research and develop 'Telscreen' Telephone Hearing Screening⁵. Telscreen is able to reliably indicate the presence of sensorineural hearing loss (primarily high frequency sensorineural hearing loss). It cannot reliably identify conductive hearing loss.
- The caller hears a series of tone pulses presented in background noise with variable signal-to-noise ratio (SNR). Their task is to press any button on the phone key pad when the test sound is heard. Adults who fail should seek further audiological assessment and advice.
- To access Telscreen, a landline telephone is required. Phone 1800 826 500 - available in English and other (non-Aboriginal and Torres Strait) community languages.

Referral to Audiologists

- Refer a person for diagnostic hearing assessment who has passed the hearing screening but for whom there are still concerns.
- Rescreen any 'fail' results within a reasonable and recommended timeframe according to your local protocols. However, do not screen more than twice.
- Refer a person who has failed two recent screening tests for diagnostic hearing assessment (according to local ear health/hearing screening protocol).

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SECTION 4

IDENTIFICATION: DIAGNOSTIC AUDIOLOGICAL ASSESSMENT

Identify ear disease and diagnose hearing loss leading to relevant and effective management.

4.1 Identification of Ear Disease

Identification requires historical information, ear examination and tympanometry.

Strategy and Recommendations

Otoscopy and Tympanometry

- Identify ear disease using otoscopy and tympanometry.
- Be aware that hearing screening need not be included in ear health surveillance activities where the primary goal is to identify ear disease and refer for treatment.
- Be alert to retraction pockets and cholesteatoma which are likely to be encountered.
- Remove/arrange removal of ear discharge prior to otoscopy (use tissue spears if able to perform procedure. If local protocol differs or unable to clear the ear using tissue spears alone, seek help from local health practitioners.)
- Obtain appropriate training in the use of instruments and tools used in wax management of the ear canal before undertaking wax removal.
- Do not remove wax if the child's hearing is within normal range and there are no symptoms of ear disease.
- Record the appearance of the ear canal and eardrum including presence of any discharge, wax or foreign bodies and the size and location of any perforation(s).
- Consider the use of video-otoscopy and potential use as a tool for the purposes of:
 - diagnosis to explain ear health and the outcomes of ear health treatment.
 - documenting ear images and/or videos to assist subsequent reference, second opinion and diagnosis.
 - communication to assist telehealth including tele-audiology and tele-otology.
 - education for clients and carers with respect to preventative ear health.
 - training for audiologists and health workers developing skills in (advanced) otoscopy.
 - quality assurance for clinical supervision, auditing and continuous improvement.
- Before purchasing video-otoscopy equipment, consider cost-benefit issues such as:
 - intended purpose.
 - equipment expenditure and maintenance.
 - portability and robustness of equipment.
 - user training.
 - storage and access to data images.
 - interface with other client health records.
- Record otoscopy results using video-otoscopy if available.
- Consider confidentiality issues when using video-otoscopy. Note client may not want this to be discussed and shown to others.
- Ensure that appropriate caregivers are present when children are examined. If not possible inform the appropriate caregivers of the results and recommendations.

- Interpret tympanometry results in conjunction with otoscopy observations. Tympanometry and otoscopy may show less apparent consistency in ears with chronic disease.

For example, a type B (flat) tympanogram does not always indicate middle ear effusion (e.g. it may be a thickened eardrum resulting in reduced middle ear compliance or some screening tympanometers may not display sufficient scale to read very low compliance values measured otherwise as a type As (shallow type A) tympanogram with diagnostic tympanometers).

4.2 Diagnosis of Hearing Loss

4.2.1 Diagnosis of Hearing Loss - General Considerations

Strategy and Recommendations

Diagnostic Audiological Assessment

- Use the standard audiological test battery:
 - otoscopy
 - tympanometry
 - behavioural audiometry
 - speech audiometry as available.
- Record or note excessive noise levels when hearing assessments are performed in non-sound treated conditions.
- Insert earphones are not recommended for use when there is significant wax in the ear canal.
- If active ear discharge or canal pathology is present, only use either single-use disposable insert tips or headphones according to infection prevention and control guidelines.
- Apply standard clinical decision making for referrals and review.
- Explore options for telehealth and emerging technologies.
- Assess hearing in the community setting if possible to determine the need for further diagnostic assessment at a distant hearing centre.
- Refer children less than three years of age requiring diagnostic assessment and people requiring electrophysiological testing to a suitably equipped audiological centre.

Audiological Referrals to Other Professionals

- The needs of the client are paramount at all times. Refer clients to other educational, allied health, early intervention and medical professionals as required.
- For example, an audiologist should refer a child to a speech pathologist if they become aware that the:
 - family feels communication development has stopped or gone backwards.
 - child's family/carer/teacher is worried.
 - child appears frustrated by his/her speech or doesn't like to talk.
 - child mixes up sounds more than other children of the same age.
 - child is over four years of age and adults (except family) cannot understand his/her speech.
- Do not be deterred by knowledge that such personnel and services may have workforce shortages, extensive waiting lists or only visit on a limited or ad hoc basis, particularly in rural and remote areas.

4.2.2 People over Three Years of Age - Specific Issues

Strategy and Recommendations

Speech Audiometry

- Speech audiometry may be difficult to perform and/or interpret with clients who do not have Standard Australian English as a first language.
- Use speech audiometry tests in appropriate community languages where available (e.g. Yolngu, Tiwi, Warlpiri) and contact language varieties (which represent the home or first language spoken by up to 80% of Aboriginal and Torres Strait Islander Australians).

Adapt materials for assessment, recognising that normative data may not exist. Use a co-assessor with skills in the test language where possible.

- Publish or share with colleagues any speech audiometry materials in community languages that are developed.

Auditory Processing

- Recognise that there may be several complicating factors contributing to a child's behaviour and that auditory processing may be a factor but possibly only one of a number of factors.
- Talk to the child's support network about the strategies that can be employed to manage the perceived difficulties.
- Children with suspected auditory processing disorder may be assessed and the results interpreted if the child has adequate English and normal hearing. Ascertain the child's English proficiency and the types and level of concern.
- Be aware there are non-language-based auditory processing assessments.

Tinnitus

- Tinnitus (noises perceived in the ears or head in the absence of actual sound) is often associated with hearing loss. It may be successfully managed through counselling and other strategies.

Scopes of Practice - Referral Criteria

- Advise audiometrists and health workers to refer clients with the following conditions to an audiologist:
 - children with suspected sensorineural hearing loss or auditory processing difficulties.
 - people who are difficult to test.
 - sudden hearing loss or hearing loss asymmetry.
 - persistent unilateral or sudden onset tinnitus.
 - reported facial numbness, weakness or asymmetrical facial movements.
 - severe-profound hearing loss.
 - people with balance disturbance who need balance function assessment.
 - those in need of more comprehensive or complex hearing rehabilitation.
 - clients needing tinnitus management.

SECTION 5

MANAGEMENT AND REHABILITATION OF HEARING LOSS

The aim of management and (re)habilitation programs is to minimise the adverse impact of a hearing loss. The communication needs of the individual cannot be separated from the broader family and community context.

A secondary aim is to equip individuals with the knowledge to seek hearing services independently and manage their own or their family's hearing needs.

5.1 Re/habilitation Programs

Strategy and Recommendations

Rehabilitation Programs

- Rehabilitation programs may include some or many of the following:
 - communication strategies and hearing tactics.
 - personal hearing devices e.g. hearing aids or personal FM systems.
 - group amplification e.g. soundfield amplification system.
 - auditory/communication training.
 - environmental modifications.

Planning Management for Individuals with Hearing Loss

- Use a trained interpreter where indicated.
- Establish individual communication goals when discussing management strategies.
- Be aware in some communities there may be individuals with a widely accepted sensory deficit that requires assistance. However, in other communities, individuals with the same sensory deficit may be accepted 'as they are' and not regarded as departing from 'normal' or needing help.
- Aim to build individual hearing health knowledge in order for the client to manage their own or their family member's hearing needs in the future. Include this in the individual management plan.
- Build understanding about hearing by making new information relevant to previously held knowledge. A first step in this process is to establish what individuals already know and to which new information can then be linked. The client can then evaluate new information in light of what is already understood. This can add credibility to the deliverer and is a process that respects older or traditional knowledge.
- Present new information in a locally appropriate context. For example, if hearing is felt to be important for the passing on of stories, then new information about hearing can be introduced in this context.
- Gather and integrate case history and audiology results to determine reasonable courses of action and set individual communication goals. Relevant information may include:
 - age of onset and pattern of OM condition (recurrent, persistent or chronic).
 - previous audiological assessments.
 - ENT or other specialist reports.
 - speech therapy or other relevant allied health information.
 - information from schools, guidance officers or case managers.
 - the client's expressed communication needs and goals.

- family and caregiver observations.
 - the perception of hearing loss within the community context.
 - ease of access to services and resources.
 - local culture.
- Ensure that individuals and relevant family, carers and community members understand benefits and limitations of personal amplification as well as the commitment required to achieve positive outcomes in re/habilitation.
 - Identify the agency responsible for overall case management. This agency must:
 - ensure an individual management and rehabilitation plan is written, in consultation with families/caregivers.
 - ensure consent is obtained to share the plan and provide copies to all individuals and agencies involved.
 - take on responsibility for the review and recall schedule to ensure the management plan is implemented.
 - co-ordinate ongoing communication between all service providers involved in the individual's care.
 - update the plan as the individual's needs change or resources become more or less available.
 - For adults who are very elderly, frail or have high level care needs in aged-care facilities or community care homes, establish an individual communication plan in conjunction with family members and carers.

Communication Strategies and Hearing Tactics

- Model and discuss good communication strategies and hearing tactics.
 - Use the person's first language. Arrange an interpreter or local speaker where indicated.
 - Ensure you have the person's attention prior to speaking.
 - Speak face-to-face though mindful of cultural considerations with a need to adapt this to be side-by-side communication or with minimal direct eye contact.
 - Do not talk from a distance, such as another room.
 - Confirm understanding of instructions.
 - Use clarification techniques if misunderstood.
 - Repeat and re-phrase, using language the person understands.
 - Use visual resources where appropriate.
 - Try to minimise background noise such as competing conversation.
 - Use of hand talk is common in remote Aboriginal communities and this should be discussed and encouraged.
 - Help prepare for situations and contexts that may be new, unfamiliar and challenging (e.g. meetings, hospital visits, job interviews).
- Discuss and review communication strategies/hearing tactics with family members to ensure relevance to their daily lives.
- Take into account cultural issues (e.g. speech-reading may be more challenging if eye contact is not appropriate).

Supporting Speech, Language and Listening Skills Development in Children with Hearing Impairment

- Ensure parents understand that even if a hearing device has been fitted, they will still need to use strategies and access speech pathology services to help develop speech and language.

Refer for more detail:

- Section 2.1 Delivery of Health Promotion Programs - Infants and Young Children
 - Section 2.4 Preventing Chronic Ear Disease from Affecting Auditory and Language Development, School Outcomes and Social Health - Referral to and Attendance at Speech-Language Pathology Services
- Ensure parents/carers/educators are aware that children who are born with a hearing loss achieve best outcomes if:
 - intervention occurs before six months of age.
 - intervention continues through access to an auditory training program.
 - amplification is used consistently and daily.

5.2 Amplification and Listening Devices

Strategy and Recommendations

Amplification - Access to Hearing Services

- Ensure client/family is aware of the available services.
Refer to Appendix E - Access to Hearing Services and Funding for more information.

Amplification - Medical Opinion

- Adults with otological conditions and all children are required to have a medical opinion prior to the fitting of hearing aids.
In remote communities, if an ENT or paediatrician is not easily accessible, then an opinion may be sought from a medical officer.
- Potential medical contra-indications to air conduction hearing aid fitting may include examples where:
 - ENT management is identified, recommended and will occur in a timely manner to improve conductive hearing loss.
 - air conduction aids placed in an ear canal risk aggravating ear health conditions e.g. otitis externa or chronic discharge.
 - ears are prone to recurring and persistent ear discharge.
- Fitting of bone conduction hearing aids need not be delayed while waiting for a medical opinion. Bone conduction hearing aids are very effective in cases of predominantly conductive hearing loss associated with recurring and persistent ear discharge.

Parental/Client Consent

- Obtain and record appropriate informed consent from parents or carers of children prior to fitting personal hearing devices as per Australian Hearing protocols.
- Include parents or carers in the decision-making process.

Factors Influencing Decision to Fit Amplification

- Individual fitting of amplification:
 - Present clients and families with information about audiological appropriate forms of amplification including implantable devices.
 - Provide an opportunity for a client at time of assessment to experience amplification as appropriate such as a bone conductor aid or assistive listening device.
This may help demonstrate the benefits and a client becoming more committed and motivated to being fitted. Conversely, it may help identify when a client is not ready or motivated to be fitted.
 - Involve family members and carers in amplification choices remembering that a conventional hearing aid may not be the most appropriate option for adults who are frail, reside in high level aged care facilities or in community care homes.
 - Consider access to timely audiological services and ongoing management to determine individual device type. For example, issues such as management of ear impressions, fitting replacement earmoulds or access to replacement cochlear implant spare parts.

- In addition, the following considerations may also influence device usage:
 - whether there is a safe place at home to store hearing aid when not being used.
 - the number of hearing-impaired children attending school.
 - the number of other hearing impaired children individually fitted.
 - level of support available to school for users of hearing aids at school.
 - access to technical services (repairs, maintenance, earmoulds, batteries).
 - ability to provide ongoing on-site or remote audiological support.

Device Choice and Appropriateness

- Choose devices according to their audiological suitability, their benefits and limitations, their cultural acceptability, their durability and availability of local support options.
- Regularly review amplification options in light of client's current and emerging needs.
- For cochlear implants, consider access to medical support in case of infection and audiological support for rehabilitation and mapping.

Management and Support of Devices

- Identify the individual who will take responsibility for daily care of any devices and provide them with appropriate training and simple written information. Support from education or health personnel may be required.
- Provide simple written information to parents, carers and community's health service about management of device repairs and battery supply. Include contact address, email and phone numbers.
- Make provisions for alternative means of contact with a child's family or carers if visits to a community fall outside recommended clinical follow-up intervals. For example, telephone calls, electronic communication, telehealth options.
- Arrange to telephone someone in the community (e.g. at the clinic) if unable to contact the family directly between visits.

Soundfield Systems

- Be aware that soundfield systems have been shown to be highly beneficial, in particular for children with mild fluctuating hearing loss associated with OM, and for children for whom English is a second language (ESL).
- Enquire which funding schemes are available for soundfield systems in your area.
- Advocate the use of soundfield systems in instances where there are high numbers of children in group learning environments with ESL or conductive hearing loss.
- Offer to visit classrooms to check or promote usage and functioning of systems. Alternatively, identify and liaise with appropriate personnel who are known to have this responsibility (e.g. teachers-of-the-deaf).
- Soundfield systems in the classroom are most successful:
 - for children with mild or fluctuating hearing loss, although may also improve the signal to noise ratio for children who wear a hearing aid or cochlear implant.
 - with certain classroom teaching styles and lesson types (for example, dual teaching will benefit from a SAS with dual transmitter system).
 - where external noise has been reduced as much as possible.
 - where the physical characteristics of classroom are suitable (for example, it is unlikely to be successful in highly reverberant classrooms).
 - support and training for school staff is available.
 - where FM or infrared technology is available.

- If the decision is made to proceed with soundfield system installation:
 - recruit motivated, technically-aware staff members to manage equipment in school.
 - start small and expand as resources and motivation permit.
 - establish good practice in one classroom at a time.
 - do not over-commit resources (staff and equipment) as this could jeopardise entire program.

Personal FM Systems

- Personal FM systems:
 - are suitable for a child with fluctuating mild-moderate conductive loss.
 - are suitable in classrooms with a high level of ambient noise.
 - may be suitable for a child with very mild sensorineural hearing loss if hearing aids are rejected.
 - may be compatible with soundfield systems installed in classroom.
 - may be used with or without hearing aids.

5.3 Rehabilitation Support

Strategy and Recommendations

Acoustic Environment

- Speak to school staff (teachers and administrators) about why and how we need to improve the acoustic environment of individual classrooms, including reducing background noise and reverberation.
- Recommend an acoustic survey for all classrooms to determine existing acoustic environment and recommend specific improvements, e.g. use of carpets, maintenance of noisy fans and air conditioners.
- Advise schools that strategies for quietening classrooms should be implemented prior to consideration of or in conjunction with soundfield system installation.

Additional Support and Referrals to Other Professionals

- Refer children who have an educationally significant hearing loss (as defined by the local education authority) to early intervention agencies and/or specialist educators such as teachers of the deaf. Referrals should be according to local protocols and so be aware it may not be an audiologist that makes a referral for a school aged child, rather the school itself.
- Refer clients to other allied health professionals as required - e.g. speech pathologists, psychologists, optometrists, counsellors.
- Do not be deterred by knowledge that such personnel and services may have workforce shortages, extensive waiting lists or only visit on a limited or ad hoc basis, particularly in rural and remote areas.
- Inform post-secondary students that Learning Support Units and Disability Support Officers (e.g. in TAFE Colleges) may provide extra help or arrange special consideration of their learning needs.
- Consider and encourage innovative access to additional support services e.g. via video conferencing.
- Inform adults with an injury, disability or health condition about Disability Employment Services which combine vocational rehabilitation with employment assistance.
- Establish and maintain good working relationships and communication with other key professionals and service providers with due consideration of client privacy and consent. It is valuable to better understand the broader context of service delivery within a specific community and learn from other's experience of factors that may facilitate or impede progress.

SECTION 6

RESEARCH, EVALUATION AND QUALITY IMPROVEMENT

Understand guidelines and uphold the appropriate values when collecting, analysing, evaluating and reporting clinical data relating to research and service provision involving Aboriginal and Torres Strait Islander people.

Implement quality improvement reviews and procedures.

6.1 Research

The research values, principles and themes that must inform the design, ethical review and conduct of all human research are set out in the National Statement on Ethical Conduct in Human Research (NHMRC, Updated 2009).

Refer to NHMRC www.nhmrc.gov.au/node/1278

NHMRC provide additional resources to guide research with Aboriginal and Torres Strait Islander communities. Refer to links below.

Strategy and Recommendations

Research Design - Research Merit and Integrity

- Respect and value cultural and language diversity.
- Ensure that research methods are respectful and acknowledge cultural distinctiveness.
- Consult with relevant communities or groups.
- Obtain written evidence of support from relevant communities or groups.
- Do not make service provision conditional upon research involvement.
- Accept any rejection of research involvement by some communities.

Values and Ethics

- Consult 'Values and Ethics Guidelines for Ethical Conduct in Aboriginal and Torres Strait Islander Health Research', NHMRC (2003)
www.nhmrc.gov.au/publications/synopses/e52syn.htm
- Engage with Aboriginal and Torres Strait Islander peoples using six core values and ethics when planning and conducting research:
 - Spirit and Integrity
 - Reciprocity
 - Respect
 - Equality
 - Survival and Protection
 - Responsibility.



Ethics Approval (Respect)

- Seek input from people who have:
 - networks with Aboriginal and Torres Strait Islander peoples and are familiar with culture and practices of the communities to be involved.
 - knowledge of research with Aboriginal and Torres Strait Islander peoples.
- Obtain advice and approval for any research proposal from an appropriate Human Research Ethics Committee.

Benefits

- Discuss the likely benefits with Aboriginal and Torres Strait Islander research stakeholders.
- Ensure that the research outcomes will advance the interests of Aboriginal and Torres Strait Islander peoples.

Consent

- Obtain consent for all research-related procedures from individuals, and/or their families/carers and community representatives, where relevant.
- Negotiate consent from communities to publish with or without identification.

Dissemination of Information

- Identify priority groups for dissemination of research findings (including communities, key stakeholders, health service providers and government organisations).
- Allow for adequate funding in budget proposals to ensure effective information transfer.
- Provide information about research and research outcomes in an appropriate way for each target group. Refer Co-operative Research Centre for Aboriginal Health.
<http://www.crcah.org.au/crcah/research-transfer>
- Provide information to local communities in a variety of ways, culturally appropriate and accessible to Aboriginal and Torres Strait Islander peoples.
- Use formal and informal opportunities to transmit information about research outcomes.

Justice

- Make opportunities to develop trust and a sense of equal research partnerships and opportunities for involvement of Aboriginal and Torres Strait Islander peoples.

6.2 Evaluation

Government departments, statutory bodies and health service organisations collect, analyse and report clinical and routine data arising from service provision.

Strategy and Recommendations

Baseline Measures

- Obtain baseline measures before instigating new programs, e.g. collect prevalence data and review health centre records.

Outcomes

- Define measurable/describable outcomes (performance objectives) for all new activities.
- Collect outcome information at suitable time intervals.
- Modify service/program in accordance with outcomes.

Clinical Data Collection

- Collect and maintain clinical information in a form suitable for identifying outcomes.
- Maintain privacy and security of client information.

Refer Appendix C - Overview of Safety and Quality In Health Care for additional information regarding privacy.

Databases

- Use or link where possible with other service databases to improve efficiency and reduce duplication.

Reporting

- The performance objectives should be clear, concise and meet local requirements.
- Regular reporting and monitoring is important for internal quality assurance of service delivery and continuous improvement.
- Reporting is also important for communities and stakeholders to maintain accountability, share positive outcomes, identify areas for improvement and review service provision.

6.3 Quality Improvement

Continual improvement of overall performance should be a key objective of a workplace or service. This includes improving aspects of processes, clinical care, service delivery and outcomes.

The quality cycle is a continuous process of planning, acting, evaluating and feedback.

Strategy and Recommendations

Areas to consider for quality improvement could include:

- Explore barriers to prompt referral and follow-up.
- Review individual client files, group data and service procedures to identify opportunities to improve individual client care.
- Audit and monitor audiological records for compliance with service protocols.
- Review community level data to identify trends that will inform service delivery planning.
- Evaluate and implement feedback from training - e.g. content, format, style, skill and knowledge development.
- Undertake a structured review to improve the safety and quality of clinical care.

6.4 Evaluation and Research Needs

Areas for further research and evaluation include:

Epidemiology

- Determine the prevalence of sensorineural hearing loss in Aboriginal children.
- Determine the age-related prevalence of conductive and sensorineural hearing loss in Aboriginal and Torres Strait Islander adults.
- Determine age-related prevalence of conductive and sensorineural hearing loss in different cohorts of Aboriginal and Torres Strait Islander adults e.g. employed persons, those in correctional services, those identified with mental illness.
- Determine the extent, frequency and duration of hearing fluctuations associated with otitis media and identify contributing factors, e.g. age, ear state.
- Identify hearing loss patterns associated with different OM conditions.

Clinical Assessment and Evaluation

- Evaluate screening and surveillance protocols for hearing loss and determine sensitivity/specificity.
- Explore options for training, validating and monitoring ear and hearing health screening by local personnel.
- Evaluate otoacoustic emissions, acoustic reflectometry and other objective electrophysiological hearing testing procedures to screen and identify significant conductive hearing loss in children under three years.
- Determine the prevalence and clinical significance of type B tympanograms with normal hearing in Aboriginal and Torres Strait Islander people.
- Develop speech and language development assessment tools and interventions for Aboriginal and Torres Strait children with English as a second language and pre-lingual conductive hearing loss.

- Evaluate use of speech audiometry in English for Aboriginal and Torres Strait Islander populations.
- Develop and evaluate speech audiometry materials in Aboriginal languages.

Clinical Practice and Clinical Outcomes

- Investigate language, cognition and development consequences of early-onset (<6 months) conductive hearing loss associated with chronic and recurrent OM.
- Evaluate primary health and ENT surgical intervention outcomes for OM.
- Evaluate speech therapy interventions and articulate guidelines and best practice models - with a special notation where English is a secondary language in the home environment.
- Determine and evaluate benefits of amplification and most appropriate devices and fitting procedures with special notation related to open ear disease.
- Determine how Aboriginal and Torres Strait Islander adults view hearing and hearing loss. Identify factors that motivate them to take steps towards improving their own or their children's hearing.
- Develop and evaluate means of discouraging Aboriginal and Torres Strait Islander children from putting things in their ears.

References

NHMRC links:

National Statement on Ethical Conduct in Human Research (Updated 2009)
www.nhmrc.gov.au/guidelines/ethics/human_research/index.htm

Values and Ethics: Guidelines for Ethical Conduct in Aboriginal and Torres Strait Islander Health Research (2003)
www.nhmrc.gov.au/publications/synopses/e52syn.htm

Keeping research on track: A guide for Aboriginal and Torres Strait Islander peoples about health research ethics (2006)
www.nhmrc.gov.au/publications/synopses/e65syn.htm

Australian Code for the Responsible Conduct of Research (2007)
www.nhmrc.gov.au/publications/synopses/r39syn.htm

The Lowitja Institute
 (Australia's National Institute for Aboriginal and Torres Strait Islander Health Research)
www.crcah.org.au

Australian Commission on Safety and Quality in Health Care
www.safetyandquality.gov.au

Audiology Australia - Professional Practice Standards
www.audiology.asn.au

APPENDIX A

DEFINITIONS AND ABBREVIATIONS

General Clinical Terms

Care Plan: An agreed course of action or clinical pathway relevant to a particular condition, e.g. CSOM Care Plan.

CARPA Manual: Treatment Manual from the Central Australian Rural Practitioners' Association. Guides diagnosis and treatment of health conditions, including otitis media, in remote primary care settings.

Clinical Pathway: Standardised, evidence-based multidisciplinary management plans, which identify an appropriate sequence of treatment or management, follow-up, review and referral for a given condition.

Disability Adjusted Life Year (DALY): A measure of overall disease burden, expressed as the number of years lost due to ill-health, disability or early death. Originally developed by Harvard University for the World Bank in 1990, the World Health Organization subsequently adopted the method in 2000.

ENT: Ear Nose and Throat specialist. A doctor/surgeon specialising in conditions of the ears, nose and throat, also known as otolaryngologist.

Germ theory: The understanding that infectious diseases are caused by microscopic organisms (viruses, bacteria), collectively called 'germs', which can be transmitted from person to person or from the environment to a person.

Health Literacy: Health literacy implies the achievement of a level of knowledge, personal skills and confidence to take action to improve personal and community health by changing personal lifestyles and living conditions. Thus, health literacy means more than being able to read pamphlets and make appointments. By improving people's access to health information, and their capacity to use it effectively, health literacy is critical to empowerment. Health literacy is itself dependent upon more general levels of literacy. Poor literacy can affect people's health directly by limiting their personal, social and cultural development, as well as hindering the development of health literacy. (World Health Organization, 1998)

Nurse Audiometrist: A Registered Nurse who has undertaken a TAFE Certificate in Audiometry and who is trained to performed a range of audiometric procedures.

Primary Clinical Care Manual (PCCM): The treatment manual of the Queensland Health Department. Guides diagnosis and treatment of a range of health conditions, including otitis media, in remote primary care settings.

Primary Health Care Workers: Health practitioners who provide initial diagnosis and treatment for health conditions and first aid. Includes Aboriginal Health Workers, nurses and medical practitioners.

World Health Organization - International Classification of Function (WHO-ICF):

Body functions: physiological or psychological functions of the body systems.

Body structures: anatomical parts of the body such as organs, limbs and their parts.

Hence

Impairments: problems in body function or structure such as a significant disorder or loss.

Activity: the doing of a task or action by a person.

Hence

Activity limitations: the difficulties a person may have in performing activities as a result of an impairment (previously referred to as 'disabilities').

Participation: involvement in a life situation

Hence

Participation restrictions: problems a person may experience in life situations as a result of activity limitations (previously referred to as 'handicap').

General Ear and Hearing Health Terms

Attic Perforation: This is a perforation in the upper (superior) part of the eardrum. A perforation in this location may be associated with a deep retraction pocket or cholesteatoma.

Basic Otological Conditions: Otology is the branch of medicine which studies the anatomy, physiology, diseases, diagnosis and treatment of the ear including the hearing and vestibular (balance) sensory systems. Basic otological conditions are those which affect the outer and/or middle ear and include conditions such as otitis externa, otitis media, active ear discharge, wax blockage and foreign bodies in the ear canal.

Cholesteatoma: An abnormal and destructive skin growth within the middle ear. May grow and cause additional infection and erode middle ear structures and surrounding bone. May be congenital, a consequence of chronic middle ear infections with perforations or as a result of a retracted eardrum associated with chronic Eustachian tube dysfunction.

Clinical Guidelines: Published recommendations for diagnosing and treating otitis media (see CARPA , OATSIH, PCCM)

Incidence: The number of new cases of a particular condition which occur in a given time.

Mastoiditis: Infection of the mastoid air cells within the mastoid bone (behind the middle ear).

OATSIH Guidelines (2001): Guidelines for the diagnosis and treatment of otitis media in A&TSI Australians, published in 2001 and revised in 2010 (new edition in press).

Otitis Externa (OE): Inflammation of the outer ear and/or ear canal. Also known as 'swimmer's ear'.

Otitis Media (OM): Refers to all forms of inflammation and infection of the middle ear. Active inflammation or infection is nearly always associated with a middle ear effusion (fluid in the middle ear space).

Perforation: A small hole in a thin material. In the context of this document, we refer to perforated eardrums (or tympanic membranes). Eardrum perforation may be caused by infection (otitis media), physical trauma (a blow to the ear or injury from an object inserted in the ear), acoustic trauma (exposure to a sudden loud noise) or barotrauma (due to differences in air pressure between inside and outside the eardrum).

Prevalence - The number of people in a given population at a given time who have a particular condition.

Preventive Activities: Activities designed to prevent disease developing, spreading or becoming chronic (primary prevention), or to prevent adverse consequences from the disease (secondary or tertiary prevention). See WHO ICF definitions.

Pusy Ear/Runny Ear: Terms used in some locations to describe an ear actively discharging with pus. See also CSOM and Suppuration.

Remote Area Health Corps (RAHC): Agency responsible for recruiting health staff to remote health clinics in the Northern Territory for short-term assignments.
www.rahc.com.au

Retraction Pocket: A retraction pocket is when part of the tympanic membrane becomes weakened and is sucked inwards by a negative pressure within the middle ear.

Screening for Hearing Loss: Any measurement aimed at identifying individuals who could potentially benefit from an intervention for hearing loss. This may include the use of risk factors, symptoms, signs, electro-acoustic tests or behavioural tests for the detection of existing or future hearing loss.

Suppuration: Pus or mucous ear discharge

Tinnitus: Tinnitus is the perception of sound in the ear(s) or head, when there is no external sound present. Tinnitus may often be described as ringing, hissing, buzzing, clicking, roaring or thumping, and may be perceived as a single sound or a combination of sounds. Tinnitus is not a disease but a symptom associated with a wide variety of conditions such as hearing loss, excessive wax, loud noise, some medications and the ageing process.

Tissue Spear: Primary health procedure using tissue (or toilet) paper to mop up active pus and discharge from ear canal and middle ear (if perforated). Important to use best practice in order to effectively remove blockage of discharge to assist hearing levels and to allow any prescribed ear drops to penetrate deep into ear canal and middle ear.

Tympanic Membrane: Eardrum, thin membrane that separates the external ear from the middle ear and receives sound vibrations from outer air and transmits them to middle ear bones.

Universal Neonatal Hearing Screening: The use of objective audiometric tests to identify new born babies who might have significant congenital hearing loss.

Otitis Media Terms

Otitis Media (OM): Refers to all forms of inflammation and infection of the middle ear. Active inflammation or infection is nearly always associated with a middle ear effusion (fluid in the middle ear space).

Acute Otitis Media (AOM): General term for both acute otitis media without perforation and acute otitis media with perforation. It is defined as the presence of fluid behind the eardrum plus at least one of the following: bulging eardrum, red eardrum, recent discharge of pus, fever, ear pain or irritability. A bulging eardrum, recent discharge of pus, and ear pain are the most reliable indicators of AOM.

- **Acute Otitis Media without Perforation (AOMwoP):** The presence of fluid behind the eardrum plus at least one of the following: bulging eardrum, red eardrum, fever, ear pain or irritability. A bulging eardrum and /or ear pain are the most reliable indicators of AOMwoP.
- **Acute Otitis Media with Perforation (AOMwiP):** Discharge of pus through a perforation (hole) in the eardrum within the last 6 weeks. The perforation is usually very small (a pinhole) when the eardrum first ruptures. The perforation can heal and re-perforate after the initial onset of AOMwiP.

Chronic Suppurative Otitis Media (CSOM): Persistent discharge of pus through a persistent perforation (hole) in the eardrum for at least 6 weeks.

'Closed' ear disease: OM behind an intact eardrum, i.e. AOM without perforation, OME.

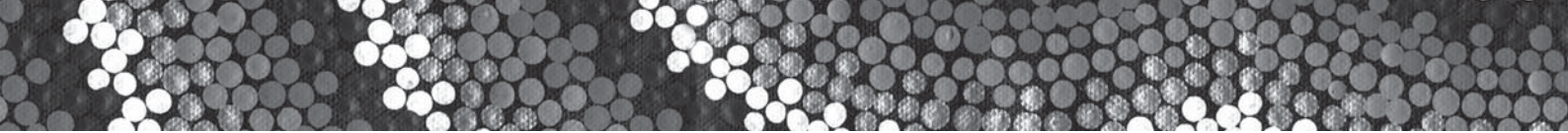
Dry Perforation: Presence of a perforation (hole) in the eardrum without any signs of discharge or fluid behind the eardrum. Some people also refer to this as inactive CSOM.

Eustachian Tube Dysfunction (ETD): Blockage or inadequate opening of the Eustachian Tube, resulting in reduced ventilation of the middle ear and poor drainage of the middle ear cleft. Eardrum retraction on otoscopy and a negative pressure peak on tympanometry are indicators of ETD.

'Open' ear disease: OM in the presence of a perforated eardrum: AOM with perforation, CSOM, dry perforation.

Otitis Media with Effusion (OME): Presence of fluid behind the eardrum without any acute symptoms. Other terms have also been used to describe OME (including 'glue ear', 'serous otitis media', and 'secretory otitis media'). OME may be episodic or persistent. A type B tympanogram or reduced mobility of the eardrum on pneumatic otoscopy are the most reliable indicators of OME.

Persistent (Chronic) Otitis Media with Effusion: Presence of fluid in the middle ear for more than 3 months without any symptoms or signs of inflammation.



Population at High-risk of CSOM: Populations with a prevalence rate of chronic suppurative otitis media of greater than 4% are described as high-risk for CSOM. This will apply to most rural and remote Aboriginal communities where persistent disease and chronic perforation of the eardrum are common. The World Health Organization has recommended that rates higher than 4% are unacceptable and represent a massive public health problem.

Population at High-risk of Persistent (Chronic) OME: Children living with recognised OM risk factors are considered to be a high risk population for persistent OME. The most important risk factors are strong family history for OM, attending child care, frequent exposure to other children, and being Indigenous.

Recurrent Acute Otitis Media (rAOM): The occurrence of 3 or more episodes of acute otitis media (AOM) in a 6 month period, or occurrence of 4 or more episodes in the last 12 months.

Screening for Otitis Media: Any measurement aimed at identifying individuals who could potentially benefit from an intervention for otitis media. This may include the use of symptoms, signs, laboratory tests, or risk scores for the detection of existing or future middle ear disease.

Surveillance for Otitis Media: The systematic and ongoing collection, analysis, and interpretation of measures of middle ear disease in order to identify and correct deviations from normal. Otitis Media Surveillance in this document refers to tympanometry and otoscopic ear examination.

ENT Surgical Procedures

Adenoidectomy: A surgical operation to remove the adenoid tissue in the back of the nose (near the tonsils).

Grommet: A small tube surgically placed across the eardrum to re-establish ventilation of the middle ear. It is also called a ventilation tube, a PE tube (pressure equalisation tube), or a tympanostomy tube.

Mastoidectomy: A surgical operation to remove infected mastoid air cells from the mastoid bone (behind the middle ear).

Myringoplasty: A surgical operation to repair a damaged eardrum.

Myringotomy: A surgical incision in the eardrum to suction out middle ear fluid.

Tonsillectomy: A surgical operation to remove the tonsillar tissue at the back of the throat

Tympanoplasty: A surgical operation to correct damage to the middle ear and restore the integrity of the eardrum and bones of the middle ear.

Audiometric and Audiological Assessment Procedures

Acoustic Reflectometry: A tool that performs an analysis of sound reflected by the eardrum to predict the presence of middle ear effusion. Sound is presented to the ear canal and a sensitive microphone measures the level of reflected sound. The more sound is reflected, the greater the likelihood of fluid in the middle ear.

Acoustic Reflex Thresholds: Elicitation of the middle ear (stapedial) reflex for evaluating middle ear function or brainstem auditory pathways. It can be helpful in estimating hearing loss.

Audiometry (Hearing Assessment): The testing of a person's ability to hear various acoustic stimuli.

Auditory Brainstem Response (ABR): An electro-physiological test of the auditory brainstem neural pathway evoked in response to auditory (click) stimuli which can be correlated to hearing levels.

Auditory Steady-State Responses (ASSR): An auditory evoked potential, elicited with modulated tones and which measures the response of the auditory nerve to sound. Results can be correlated with behavioural hearing levels. Sometimes also referred as Steady State Evoked Potentials (SSEP).

Hearing Screening Level: Presentation level to identify need for diagnostic hearing assessment. This is affected by the acoustic environment and the age of the person being tested and does not necessarily represent normal hearing. Typically screening levels are 20dBHL or 25dBHL. This document recommends 25dBHL pass/fail at 1000Hz and 4000Hz.

Otoacoustic Emissions (OAEs): OAEs are the sounds created in the inner ear (cochlea), in response to an incoming sound. Measurement of OAEs provides information about the function of the outer hair cells in the cochlea. The presence of OAEs is consistent with normal hearing or at worst a very mild hearing loss, except in cases of Auditory Neuropathy Spectrum Disorder. OAEs may not be measurable in cases of conductive hearing loss, even when cochlear function is normal.

Otoscopy: Examination of the ear with a light and magnification to identify features of the eardrum, features associated with outer or middle ear disease and/or to identify conditions which could interfere with the conduct of audiological tests or procedures, e.g. tympanometry, ear impressions. This is sometimes referred as 'simple otoscopy'.

Pure-tone Audiometry: The assessment of hearing sensitivity for pure-tone stimuli in each ear. This is done using headphones (air conduction) or via bone conductor (bone conduction) and results recorded on an audiogram. Play audiometry is possible for younger children from around three years of age using frequency specific sound stimuli and in which the child is conditioned for a stimulus-response play activity.

Pneumatic Otoscopy: The combination of simple otoscopy with the observation of eardrum movement when air is blown into the ear canal. Pneumatic otoscopy determines the mobility of the eardrum. Reduced mobility of an intact eardrum is an indicator of the presence of middle ear fluid.

Speech Audiometry: The assessment of speech detection, discrimination or identification using spoken or recorded materials such as speech sounds, syllables, words or sentences.

Tele-otoscopy: Acquiring an image of the ear canal and eardrum using a video-otoscope so that an individual at another location can identify/diagnose an ear condition.

Tympanometry: An electro-acoustic measurement of the stiffness, mass and resistance of the middle ear (more simply described as mobility of the eardrum). This test can be used to describe normal or abnormal middle ear function.

Video-otoscopy: Observing the eardrum via a small camera placed in the ear canal which transmits the image on a screen. Video pneumatic otoscopy is also possible.

Visual Reinforcement Audiometry: A technique that enables assessment of hearing sensitivity in young children from around six months to three years of age. This testing can be performed:

- in the soundfield, yielding binaural hearing information.
- under headphones, yielding ear-specific information. or
- via bone conduction, yielding 'better cochlea' hearing information.

Audiological Diagnoses and Terms

Auditory Neuropathy Spectrum Disorder (ANSD): ANSD is a neural hearing loss. It is diagnosed using specific objective hearing tests (commonly ABR and/or OAE), which show that while the outer ear, middle ear and at least some aspects of inner ear (cochlea) are working well, sound is not being transmitted effectively from the cochlea to the brain. Individuals who have ANSD may have any degree of hearing loss. Outcomes are highly variable and are not related to the degree of hearing loss in the same way as is possible for those who have a conductive or sensory hearing loss.

Auditory Processing Disorder (APD): "The inability or impaired ability to attend to, discriminate, recognize, or comprehend information presented auditorily even though the person has normal intelligence and hearing sensitivity" (Keith, 1986)

Conductive Hearing Loss (CHL): Hearing loss that results from dysfunction of the outer or middle ear that interferes with the efficient transfer of sound to the inner ear. It is characterised by a loss in sound intensity.

Fluctuating Hearing Loss: Hearing loss that varies significantly over time resulting in inconsistent auditory input. Conductive hearing loss is often associated with variations in the otitis media condition.

Grades of Hearing Impairment

Grade of Impairment	Corresponding Audiometric Value from Australian Hearing
0- No Hearing Loss	20dB or better (better ear)
1- Mild Hearing Loss	21-45dB (better ear)
2- Moderate Hearing Loss	46-65dB (better ear)
3- Severe Hearing Loss	66-90dB (better ear)
4- Profound Hearing Loss	91dB or greater (better ear)

Hearing Impairment Classification: A categorisation that describes the degree of impairment associated with hearing loss in the better ear. Hearing impairment classification applies a graded scale of mild, moderate, severe and profound. This is based on degree of deviation from normal thresholds in the 'better ear' as recorded through audiometry. It is typically calculated as a 3 frequency average (3FA) of the threshold of hearing at 500Hz, 1000Hz and 2000Hz.

Note: For Aboriginal and Torres Strait Islander children with English as a second language, with multiple languages and/or whose hearing loss is fluctuating in nature, there may be associated factors that contribute to the degree of impairment experienced. For example, the impairment may be exacerbated by:

- ear disease severity.
- social environment.
- language environment.
- learning environment.

Hearing Loss: Any hearing threshold response outside the normal range that is detected by audiometry. Hearing loss may affect one or more test frequencies in one ear (unilateral) or both ears (bilateral).

Sensorineural Hearing Loss (SNHL): Hearing loss that results from dysfunction in the inner ear (cochlea) where sound vibrations are converted into neural signals (sensory HL) or dysfunction of the auditory nerve pathway (neural HL).

Audiological Rehabilitation Terms

Amplification: The use of a personal or group hearing aid or other device to make sounds louder so that they are audible to a person with a hearing loss.

Assistive Listening Device (ALD): Device used by hearing impaired people to assist listening in specific situations such as TV, telephone or public place or may have capacity to be used in variety of situations. May be used with or without a hearing aid.

Audiological Rehabilitation: Audiological (re)habilitation programs aim to minimise the adverse impact of a hearing loss. Rehabilitation programs may include some or many of the following:

- Information counselling.
- Communication strategies and hearing tactics.
- Personal hearing devices.
- Group amplification e.g. soundfield amplification system.
- Auditory/communication training.
- Environmental modifications.

FM System: Wireless system transmitting a sound signal (typically a person's voice) by FM (frequency modulation) radio transmission over a distance. Often used for people (particularly students in school) with hearing impairment to listen to a voice more clearly over a distance, in background noise and in poorer acoustic conditions. May be used with or without hearing aids.

Hearing Aid - An electronic device which provides an amplified or electro-acoustically modified sound signal and is adjusted to suit an individual's hearing loss.

- **Air conduction hearing aid** - typically fits in or behind a person's ear and delivers a modified sound signal via transmission in the air down the ear canal.
- **Bone conduction hearing aid** - transmits sound directly to the cochlea (inner ear) by vibrating through the skull. Often an option for people unable to wear air conduction hearing aids.
- **Hearing hat** - a bone conduction hearing aid modified to sit within a baseball style cap, usually for cosmetic reasons.
- **BTE = Behind-the-Ear Hearing Aid:** the electronics of the aid sit in a case on top of the ear pinna (external part of the ear). Amplified sound is delivered into the ear canal through a sound-tube and earplug (mould).
- **ITE = In-the-Ear Hearing Aid:** the electronics of the aid sit in a moulded case which fits in the wearer's external ear canal.

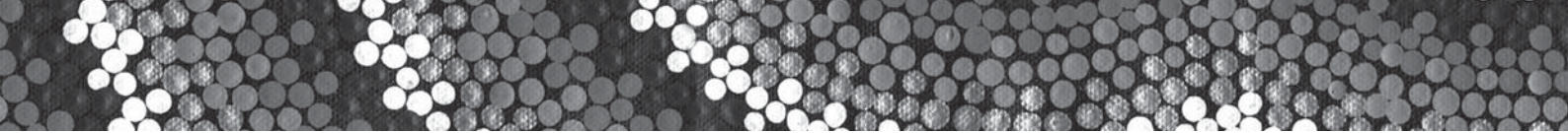
Implantable Technology: Innovative technology for people with specific types and degrees of hearing loss and which involve components being surgically implanted.

- **Cochlear implant:** An electronic medical device which is surgically implanted and replaces the function of the cochlea to stimulate the auditory nerve in a patient who has a severe-profound SNHL in both ears and limited benefit from a hearing aid.
- **Bone conduction implantable device:** Receiver is implanted into skull and delivers sound directly to inner ear via bone conduction. For example, BAHA = Bone-Anchored Hearing Aid - a BC hearing aid which is fixed to a surgically-implanted titanium screw in the mastoid bone.

Soundfield System: A group amplification system which consists of a small microphone that transmits a person's voice to a speaker or speakers set up around a room.

Soundfield systems may be used in situations such as a classroom to improve listening of a teacher's voice above background noise or across the classroom. They are particularly useful for students with mild-moderate fluctuating hearing loss.

Speech-reading (also known as lip-reading): Communication strategy for people with hearing impairment to assist understanding of speech. Speech reading uses combined aspects of information from a speaker's lip, tongue and jaw movements, visual facial expressions, gestures and non-verbal communication cues.



General Terms

Aboriginal and Torres Strait Islander (A&TSI) person: A person of Aboriginal or Torres Strait Islander descent who identifies as an Aboriginal or Torres Strait Islander and is accepted as such by the Aboriginal or Torres Strait Islander community in which he (she) lives.

Auslan: Sign language used by the Australian Deaf community.



APPENDIX B

EAR AND HEARING HEALTH RESOURCES

General

- **The Australian Indigenous HealthInfoNet**

The Australian Indigenous HealthInfoNet is an innovative Internet resource that aims to inform practice and policy in Indigenous health by making research and other knowledge readily accessible.

It provides published, unpublished and specially developed material about Aboriginal and Torres Strait Islander health freely accessible to people involved in the area of Indigenous health with the aim of enhancing their knowledge and skills and improving their practice and/or policy work.

www.healthinfonet.ecu.edu.au

- **Audiology Australia**

Audiology Australia (ASA) is the peak professional body for audiologists in Australia. It has a range of resources for members and the public which include:

- ASA Code of Ethics
- ASA Professional Practice Standards
- Scientific journal - International Journal of Audiology
- Information brochures

www.audiology.asn.au/

- **Australian Hearing**

Australian Hearing is funded to provide hearing services to Aboriginal and Torres Strait Islander children and eligible adults (See Appendix E - Access to Hearing Services and Funding). It produces a range of information fact-sheets and brochures on specific topics for Aboriginal and Torres Strait Islander communities including otitis media and soundfield systems in the classroom. Also provides general information brochures on topics such as hearing loss, hearing aids and noise exposure.

www.hearing.com.au/fact-sheets

- **Ear Science Institute Australia**

Ear Science Institute Australia is an independent, not-for-profit organisation dedicated to the research and treatment of ear and hearing disorders. The Institute is affiliated with the University of Western Australia and teaching hospitals in Western Australia.

Research into new technology and clinically applicable outcomes for ear and hearing disorders is the principal focus of Ear Science Institute Australia. Four major areas of research are:

- Tissue Engineering
- Telehealth
- Clinical Research
- Epidemiology

www.earscience.org.au/researchanddevelopment.html

- **CIRCA Report**

The Department of Health and Ageing (DoHA) commissioned the Cultural and Indigenous Research Centre Australia (CIRCA) to undertake a developmental research project in Indigenous communities to gain a greater understanding of ear health issues. This research will inform the development of a national ear health education campaign targeting Indigenous people, under the Improving Eye and Ear Health Services for Indigenous Australians for Better Education and Employment Outcomes measure.

CIRCA (2010) Indigenous Ear Health. Developmental Research To Inform Indigenous Social Marketing Campaigns.

www.health.gov.au/internet/main/publishing.nsf/Content/health-oatsih-pubs-eyehealth

- **NACCHO**

The National Aboriginal Community Controlled Health Organisation (NACCHO) is the national peak Aboriginal health body representing Aboriginal Community Controlled Health Services throughout Australia.

Refer to NACCHO website for more information on NACCHO and development of the Aboriginal health workforce, NACCHO Ear Health Curriculum and NACCHO ear and hearing programs.

www.naccho.org.au/activities/workforce.html

www.naccho.org.au/resources/HearingHealth.html

- **Western Australia Aboriginal Child Health Survey (WAACHS)**

The WAACHS is one of the largest and most comprehensive studies of Aboriginal child health and development ever undertaken in Australia. Its main aim is to improve community and scientific understanding of what Aboriginal children and young people need to develop in healthy ways.

www.ichr.uwa.edu.au/waachs

Cross-cultural Training and Communication

- **Centre for Cultural Competence Australia**

www.ccca.com.au

- **Sharing the True Stories: Improving Communication in Indigenous Health Care**

www.cdu.edu.au/centres/stts/home.html

- **Byalawa - A learning and teaching resource for working with Indigenous patients and clients**

www.byalawa.com

- **Remote Area Health Corps**

www.rahc.com.au/professionals/training

- **Institute for Aboriginal Development - Aboriginal Cultural Awareness Program**

www.iad.edu.au/acap.htm

- **Combined Universities Centre for Remote Health**

Cultural orientation for health professionals working with Aboriginal people

www.cucr.h.uwa.edu.au

- **Why Warriors**

www.whywarriors.com.au/online_training/index.php

Diagnostic Otoscopy Resources

Training and guidance materials to assist with diagnostic evaluation of otoscopy images:

- **The Australian Indigenous Health InfoNet hosts links in its health promotion resources section:**
 - **Images of Tympanic Membrane (2007)**

Menzies School of Health Research, Darwin, NT

The video images are of the tympanic membrane during the various diagnoses of otitis media as well as a normal tympanic membrane. These can be used to assist in correct diagnosis of otitis media.

www.healthinonet.ecu.edu.au/key-resources/promotion-resources?lid=17286
 - **The Ear DVD (2010)**

Menzies School of Health Research, Casuarina, NT

DVD designed to assist health staff who conduct ear examinations on young children to diagnose and manage the many forms of otitis media (OM). Sample images of different types of OM are presented in the video with diagnoses and recommended treatments.

<http://www.healthinonet.ecu.edu.au/key-resources/promotion-resources?lid=14985>
 - **DxEAR-SL (Diagnostic Ear Assessment Resource - Self Learning)**

Ploof D, Kaleida PH, Children's Hospital of Pittsburgh of UPMC, Pittsburgh (2006)

Designed as a educational exercise to improve abilities to:

 - assess tympanic membrane (TM) findings (colour, mobility, position/contour, translucency and other conditions)
 - diagnosis TMs for acute otitis media, otitis media with effusion or no effusion
 - practice assessing TMs and get immediate feedback.
 - **DxEAR-SA (Diagnostic Ear Assessment Resource-Self Assessment)**

Ploof D, Kaleida PH, Children's Hospital of Pittsburgh of UPMC, Pittsburgh (2006)Take the DxEAR-SA to measure your skill at visually diagnosing otitis media by assessing of 25 videos of tympanic membranes as acute otitis media, otitis media with effusion, or no effusion. www.healthinonet.ecu.edu.au/key-resources/promotion-resources?lid=19346
 - **World Health Organization training resource on primary ear and hearing care (2006)**

The WHO training resource on primary ear and hearing care comprises four training manuals (basic level, intermediate level trainer's manual, intermediate level student's workbook, advanced level). The resources equip primary level health workers and communities with simple, effective methods to reduce the burden of ear and hearing disorders. The manuals include some very clear otoscopy images.

www.healthinonet.ecu.edu.au/key-resources/promotion-resources?lid=14988

Primary Health Management

Training and guidance materials to assist with awareness and understanding of primary ear and hearing health management in remote and Indigenous communities, including preventive programs.

- **OATSIH Otitis Media Treatment Guidelines**

OATSIH commissioned the development of a set of resources for primary health care providers outlining the latest evidence on the treatment of middle ear infection in this high-risk population. This resource has been reviewed and updated in 2010.

The set of resources include:

- Recommendations for Clinical Care Guidelines on the Management of Otitis Media.
- Systematic Review of Existing Evidence and Primary Care Guidelines on the Management of Otitis Media
- Plain Language Summaries

The Recommendations for Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and Torres Strait Islander Populations (reviewed 2010), Aboriginal and Torres Strait Islander Health, Department of Health and Ageing, Australian Government

www.health.gov.au/internet/main/publishing.nsf/Content/health-oatsih-pubs-index.htm

www.agpn.com.au/programs/indigenous-health/otitis-media/clinical-care-guidelines

- **CARPA Standard Treatment Manual**

The Central Australian Rural Practitioners Association Inc (CARPA) is involved in primary health care and the education, training and support of health practitioners at all levels.

Its Standard Treatment Manual (STM) provides a resource for most appropriate clinical practice and standardised practice in NT, including ear disease.

The latest 5th edition (2010) is widely available in remote NT community health clinics as well as available for sale on-line from CARPA.

www.carpa.org.au/drupal/node/16

An earlier 4th edition (2003) is available for information on-line through the Australian Indigenous Health InfoNet

www.healthinfonet.ecu.edu.au/key-resources/promotion-resources?lid=4313

- **Queensland Health Primary Clinical Care Manual (PCCM), 6th Edition 2009**

Queensland Health produces the Primary Clinical Care Manual (PCCM). It provides clear and concise clinical care guidelines, health management protocols and evidence-based interventions. It is especially for endorsed registered nurses and authorised Indigenous health workers to administer and supply medications.

www.health.qld.gov.au/pccm/pccm_pdf.asp

- **Remote Allied Health Corp (RAHC)**

The Remote Area Health Corps (RAHC) has developed a suite of on-line clinical training modules designed especially for health professionals working in remote Indigenous communities in the Northern Territory (NT).

The RAHC Introduction to Remote Health Practice Program (on-line) is a training resource providing high-quality orientation and learning materials for RAHC health professionals preparing to work in remote health clinics and services. This includes an ear health module. Clinicians must register to access the training resource which is at no cost.

<http://rahc.com.au/training/>

- **NSW Aboriginal Ear Health Program Guidelines, October 2011**

Ministry of Health NSW

The primary aim of these guidelines is to encourage Local Health Districts in NSW to move away from screening-only approaches, which have been found to be ineffective at reducing OM prevalence rates, and to instead focus on prevention using a broad public health approach.

Effective primary prevention strategies outlined include improving nutrition and the home environment, increasing breastfeeding and reducing passive smoking.

www.health.nsw.gov.au/policies/gl/2011/GL2011_013.html

- **Care for Kids' Ears - Strong Hearing, Strong Start**

Department of Health and Ageing, Australian Government

The Care for Kids' Ears campaign is part of the Australian Government's commitment to improving eye and ear health services for Indigenous Australians for better education and employment outcomes. It has been designed to increase awareness of ear disease and hearing loss in Aboriginal and Torres Strait Islander communities. It aims to contribute to a reduction in ear disease by increasing awareness of:

- the role that modifiable behaviours have in preventing the development of ear disease.
- the signs and symptoms of ear disease, especially of those that are non-visual.
- the link between ear disease and associated hearing loss.
- the significant long-term consequences that ear disease and hearing loss can have on language and cognition.
- effective surveillance, prevention and treatment pathways.

Resources are available for relevant target audiences, including teachers, parents and carers, early childhood and community groups, and professionals. www.careforkidsears.health.gov.au

- **Aboriginal Ear Health Manual**

Coates H, Vijayasekaran S, Mackendrick A, Leidwinger L. et al. (2008)

This manual provides information on the anatomy and function of the ear and preventive measures for ear problems. It details causes, types and effects of hearing loss together with common ear conditions. Diagrams and images are used to describe how to examine ears and algorithms for treatment strategies are provided.

<http://healthbulletin.org.au/articles/aboriginal-ear-health-manual>

- **The Ear DVD (2010)**

Menzies School of Health Research (MSHR)

Menzies School of Health Research released the updated Ear DVD resource package in 2011. The DVD was designed to assist health practitioners who conduct ear examinations on young children to diagnose and manage the many forms of otitis media (OM). The 2nd edition Ear DVD comes with a participant workbook, trainer's workbook and the DVD.

To purchase a hardcopy, contact earinfonet@menzies.edu.au or via the EarInfoNet.

www.healthinfonet.ecu.edu.au/key-resources/promotion-resources?lid=14985

- **The Breathe Blow Cough Wash Chew (BBCWC) Resource Package**

Durri Aboriginal Corporation Medical Service, Fatnowna S, Kempsey, NSW

The booklet and poster are visual teaching tools designed to educate students in the breathe, blow, cough, wash and chew strategies of blowing their noses to clear their ears. The target group is three to eight years.

www.healthinfonet.ecu.edu.au/key-resources/promotion-resources?lid=16498

- **Tissue Spears: Do It Right (2008)**

Edwards KN, Community Paediatrician Centre for Disease Control Northern Territory, Darwin

Presentation shows health personnel how to clean pus out of the ear using tissue spears.

Resource should ideally be used by health professionals with clients and families to help understand some of the more complex ideas portrayed.

www.healthinonet.ecu.edu.au/key-resources/promotion-resources?lid=16457

- **Too Much Loud Noise Stories**

Howard D, Wunungmurra A, Fasoli L. Aboriginal and Islander Health Worker Journal, Vol. 35, No. 2, Mar/Apr 2011: 26-27.

Posters and stories developed as part of a Hearing Loss Prevention project funded by the Commonwealth Department of Health and Ageing.

www.aihwj.com.au/index.html or contact Damien Howard at damien@phoenixconsulting.com.au

Ear Examination Equipment

- **Welch Allyn**
www.welchallyn.com.au
- **Vorotek**
www.vorotek.com.au

Hearing Services and Rehabilitation

- **See Appendix E - Access to Hearing Services and Funding**
- **Hear This - Supporting Aboriginal Learners and Employees Who Have Impaired Hearing**

Northern Territory Human Services Training Advisory Council (HSTAC).

Website resource funded from the Northern Territory Government through the Australians Working Together Grants Program 2008 and collaborative project between Damien Howard and HSTAC.

Resources and information for employers, educators, trainers and families. (See website for permission to use text, video or images.)

www.hstac.com.au/HearThis/index.html

Community Information

- NT:**
 - **Remote Area Health Corps (RAHC)**
www.rahc.com.au/explore-the-nt
 - **Building Asset Management Services (BAMS) - also links into Bush Telegraph**
www.bams.nt.gov.au/index.cfm?fuseaction=inventory&hreflink=nt
- QLD**
 - **Queensland Government Aboriginal and Torres Strait Islander Services**
www.atsip.qld.gov.au
- SA**
 - **The Anangu Lands Paper Tracker**
www.papertracker.com.au
- WA**
 - **WA Department of Indigenous Affairs**
www.dia.wa.gov.au/en/About-DIA/Regions

APPENDIX C

OVERVIEW OF SAFETY AND QUALITY IN HEALTH CARE

Understand important aspects of safety and quality in health care and apply the principles to audiological practice, specifically with Aboriginal and Torres Strait Islander Australians.

The Australian Charter of Healthcare Rights

- The Commission on Safety and Quality in Health Care recommends use of the Australian Charter of Healthcare Rights in all health service organisations in Australia. The Australian Health Ministers adopted the Australian Charter of Healthcare Rights in 2008.
- The Charter is applicable to all health settings anywhere in Australia, including hospitals, general practices, specialist rooms, Aboriginal community health services, community health centres, private allied health providers, office-based practices, aged-care residential facilities, educational settings and homes.

Strategy and Recommendations

Uphold the Australian Charter of Healthcare Rights

- Everyone who is seeking or receiving care in the Australian health system has certain rights regarding the nature of that care. These are described in the Australian Charter of Healthcare Rights:
 - Access - a right to health care
 - Safety - a right to safe and high quality care
 - Respect - right to be shown respect, dignity and consideration
 - Communication - a right to be informed about services, treatment, options and costs in a clear and open way
 - Participation - right to be included in decisions and choices about care
 - Privacy - a right to privacy and confidentiality of provided information
 - Comment - a right to comment on care and having concerns addressed
- More information is available on the website of the Australian Commission on Safety and Quality in Health Care www.safetyandquality.gov.au

ASA Professional Practice Standards

The ASA Professional Practice Standards (2011 Draft) consists of two parts:

- Part A Recommended Standards for Practice Operations
- Part B Recommended Standards for Clinical Practice

Refer to Audiology Australia for more information.
www.audiology.asn.au

Strategy and Recommendations

Uphold ASA Standards for Practice Operations

Section 1 - Client-centred Care

- Audiologists respect the rights and dignity of clients.
- Audiologists establish respectful partnerships with clients to promote a sense of mutual responsibility for achieving optimal health outcomes.

Section 2 - Co-ordination of Safety and Quality in Care

- Clients are correctly identified prior to undertaking any clinical activity.
- The workplace's client health records comply with legal and professional requirements.
- The workplace engages with other health providers as required to ensure optimal client care.
- The workplace provides timely access to appropriate services.
- The workplace ensures appropriate infection prevention and control and hygiene.

Section 3 - Physical Environment

- The practice provides a safe and professional environment.
- The workplace provides safe and appropriate equipment.

Section 4 - Quality in Audiological Practice

- Audiologists provide audiological services that are safe and consistent with recognised best practice.
- Audiologists demonstrate commitment to ethical and professional conduct.
- Audiologists undertake regular and relevant continuing professional development.
- The practice provides appropriate levels of supervision and support for clinical staff.
- The practice demonstrates continuous improvement in client care.



Section 5 - Governance and Business Management

- The practice has strong governance, robust business management and secure business systems.
- The workplace values its audiologists and staff and demonstrates effective human resource management.
- The workplace manages clients' health information in accordance with legal requirements and professional obligations.
- The workplace demonstrates effective risk management.
- The workplace actively works to improve its management.

References

ASA Professional Practice Standards - Incorporating Accreditation of Audiology Practices (2011 Draft)
www.audiology.asn.au

ASA Code of Ethics
www.audiology.asn.au

Australian Commission on Safety and Quality in Health Care
www.safetyandquality.gov.au

Office of the Australian Information Commissioner
www.oaic.gov.au



APPENDIX D

INFECTION PREVENTION AND CONTROL

There is a range of workplaces and locations in which audiologists may deliver services to Indigenous Australians. This includes Aboriginal and community health services, office-based practices, hospitals, aged care residential facilities, educational settings and homes.

Audiologists may provide services to people:

- known or suspected to have infectious agents that are spread:
 - by direct or indirect contact with the patient or the patient's environment.
 - by respiratory droplets.
 - by airborne route.
- infected with a multi-resistant organism - methicillin-resistant *Staphylococcus aureus* (MRSA), multi-resistant Gram negative (MRGN), vancomycin-resistant enterococci (VRE).

Infection prevention and control aims to create safe healthcare environments through the implementation of practices that minimise the risk of transmission of infectious agents.

Audiology Australia has adopted guidelines based on recommendations from NHMRC Infection Prevention and Control Guidelines. Refer to '**Summary and Audiological Perspective: Australian Guidelines for the Prevention and Control of Infection In Healthcare**'.

Guidelines_for_Infection_Prevention_and_Control_-_Summary_and_Audiological_Perspective.doc

Standard Precautions

It is essential that these standard precautions are applied at all times:

- hand hygiene before and after every episode of patient contact (alcohol-based hand rubs containing at least 70% v/v ethanol to be used routinely; if hands are visibly soiled, use soap and water).
- cough etiquette (cover nose/mouth; tissues to contain respiratory secretions; if no tissues, cough or sneeze into inner elbow; hand hygiene after contact with respiratory secretions and contaminated materials).
- use of personal protective equipment (PPE) (use of PPE is based on assessment of the risk associated with a specific patient care activity).
- safe use and disposal of sharps.
- routine environmental cleaning (frequently touched surfaces cleaned frequently and disinfected if determined by risk; equipment and instruments cleaned according to guidelines and manufacturers' instructions; instruments or equipment to be re-used require processing - cleaning, disinfection and/or sterilisation, depending on where instrument used; instruments cleaned as soon as practicable after use, preferably at the point of use).

Standard precautions should be used in the handling of:

- blood (including dried blood)
- all other body fluids, secretions and excretions (excluding sweat), regardless of whether they contain visible blood
- non-intact skin
- mucous membranes.

Audiological Practice Points

Personal protective equipment

Goggles and mask

Goggles and masks should be available as required for risk management.

Analyse and manage the risk. For example:

- vestibular and balance assessments which may result in vomiting.
- ear mopping or tissue spears in presence of active discharge - consider risk of splashes that may occur with more viscous discharge and unexpected flick or splash from sudden head or hand movement.
- working with clients who generate respiratory droplets through coughing, sneezing or talking, or working closely with clients while endotracheal suctioning in progress or clients with known predisposition for spitting.

PPE is also important in an occupational health and safety context (for example, use of goggles when modifying or drilling earmoulds).

Wearing of gloves

Avoid the risk. Do not complete activities in the presence of ears with active discharge, blood or non-intact skin. Consider if the procedure is necessary (for example, tympanometry, otoacoustic emissions, audiometry, ear impressions or real ear measurements).

Analyse and manage the risk. Note it may be difficult to detect the presence of blood or discharge in wax so consider individual risk based on history. In addition, consider modification of procedures as advised in other recommendations eg single use items for disposal.

Gloves must be used according to risk management:

- in the presence of active ear discharge, blood, ear trauma or non-intact skin if performing activities such as otoscopy, tissue spears or mopping of discharge, and wax management.
- performing vestibular or balance assessment and risk of exposure to vomiting or spillage.
- performing BBC (breathe-blow-cough) activities and risk of contact with sputum or mucus from coughing or handling tissues.

Patient contact in intensive care units or critical care nurseries may require additional precautions as noted in transmission-based recommendations.

Footwear

Footwear suitable for the duties being undertaken must be worn. Footwear should minimise the risk of sharps injury (and for safety in remote communities, be practical and sturdy).

Routine environmental cleaning

Shared clinical equipment

Shared clinical equipment may include: otoscopes, tympanometers, headphones and headsets, patient response buttons, items used for paediatric assessment and distraction, tools used in management of cerumen or foreign bodies (e.g. wax rings, cotton wool carriers), tools used in making ear impressions (e.g. penlights or earlights, ear syringes), tools used in hearing aid repairs, hearing aid couplers.

Detergent-impregnated wipes may be used to clean single pieces of equipment and small surface areas.

If discharge or otitis externa present in one ear, do not use same specula or tip/s in the other ear.

Blu-tac used in coupler measurements with hearing aids should be replaced regularly.

Toys placed in mouth by babies and toddlers should be removed afterwards, cleaned and disinfected. (Note - these should be washable, non-porous and easily cleaned and disinfected.) Refer cleaning and processing of instruments.

Surface barriers are recommended at visiting locations that may be shared with other professionals e.g. protective sheets or pads on desktops upon which clinical tools could be placed.

Surface barriers are also recommended for receiving, handling and maintaining hearing aids and devices e.g. single use paper bag or tissues at reception desks to receive devices, protective paper sheets or pads to rest devices on while performing maintenance.

Management of blood and body substance spills

A spill kit should be on hand to manage spills.

Clinics attended by babies, young children and frail elderly clients may be more likely to experience spills of vomit, urine and faeces.

Vestibular and balance assessment may cause clients to vomit.

Processing of instruments and equipment

Most audiological items and instruments would be considered as non-critical items (i.e. contact with intact skin but not mucous membranes). Thorough cleaning with detergent solution is sufficient for non-critical items after individual use. Low-intermediate level disinfection may be appropriate in specific circumstances.

It may be difficult to detect the presence of blood or discharge in wax, so reusable clinical items placed in ear canal should be cleaned and disinfected - e.g. reusable specula for otoscopy and reusable tips for otoacoustic emissions and impedance audiometry.

Semi-critical items have contact with non-intact skin or mucous membranes and should be single use or sterilised after each use. If this is not possible, high-level disinfection is required. For example:

- Otoscope specula used with non-intact skin (ear trauma or ulcerated ears) or ear discharge
- Items from play audiometry, distraction activities or waiting room placed in mouth should be removed afterwards, cleaned and disinfected. (Note for risk management - these items should be washable, non-porous and easily cleaned and disinfected).

In consideration of infection control and manufacturer's guidelines, purchase disposable, single use items if likely to be used in semi-critical sites i.e. contact with non-intact skin or ear discharge:

- Disposable otoscope specula
- Disposable tips for insert earphones
- Disposable tubing for real ear measurements

Detergent-impregnated wipes may be used to clean single pieces of equipment and small surface areas.

Client devices (e.g. earmoulds and hearing aids) should be appropriately cleaned and processed where possible before any maintenance using shared tools.



Transmission-based Precautions

The aim of transmission-based precautions is to reduce further transmission opportunities that may arise due to the specific route of transmission of a particular pathogen. Transmission-based precautions are applied in addition to standard precautions. Transmission of infectious agents can occur in a number of ways.

- Indirect or direct contact transmission
- Droplet transmission
- Airborne transmission

Audiologists should be aware of additional precautions that may be needed in such circumstances. Exceptions to this should be justified by risk assessment.

Contact precautions

When working with patients who require contact precautions:

- perform hand hygiene.
- put on gloves and gown upon entry to the patient care area.
- ensure that clothing and skin do not contact potentially contaminated environmental surfaces.
- remove gown and gloves and perform hand hygiene before leaving the patient care area.

Use patient-dedicated equipment or single-use non-critical patient care equipment or otherwise clean the equipment and allow it to dry before use on another patient.

Droplet precautions

Implement droplet precautions for patients known or suspected to be infected with agents transmitted by respiratory droplets (i.e. large-particle droplets $>5\mu$ in size) that are generated by a patient when coughing, sneezing, talking or during suctioning.

When entering the patient care environment, put on a surgical mask to prevent droplet transmission.

Patients who require droplet precautions may be in a single-patient room when available.

Airborne precautions

Implement airborne precautions for patients known or suspected to be infected with infectious agents transmitted person-to-person by the airborne route (i.e. airborne droplet nuclei or particles $<5\mu$ in size).

Wear a correctly fitted P2 (N95) respirator when entering the patient care area when an airborne transmissible infectious agent is known or suspected, to prevent airborne transmission.

Patients on airborne precautions should be placed in negative pressure rooms or in a room from which the air does not circulate to other areas.

Examples of infectious agents and routes of transmission

Contact transmission	MROs, <i>C. difficile</i> , intestinal tract pathogens (e.g. norovirus), respiratory syncytial virus (RSV), highly contagious skin infections
Droplet transmission	Influenza, RSV, norovirus, pertussis (whooping cough), meningococcus
Airborne transmission	Pulmonary TB, chickenpox, measles, SARS.

Management of Resistant Organisms

Effective hand hygiene is the most important measure to prevent and control the spread of multi-resistant organisms (MROs). MROs are resistant to multiple classes of antimicrobial agents. Antibiotic resistance increases the morbidity and mortality associated with infections, and contributes to increased costs of care.

The application of transmission-based precautions is particularly important in containing MROs such as methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE) and multiresistant Gram-negative bacteria (MRGN). Refer to Summary and Audiological Perspective : Australian Guidelines for the Prevention and Control of Infection In Healthcare for more detailed recommendations.

Staff Health and Safety

Audiologists have a responsibility to:

- always follow infection control policies.
- seek appropriate medical care for infectious conditions. Where a risk of transmitting an infection exists, consider a review of work options, rostering or provision of equipment or information to enable continued safe care.
- be aware of their requirements for immunisation against infectious diseases and maintain personal immunisation records.

Recommended vaccinations for all healthcare workers

- Hepatitis B
- Influenza
- Booster dose of adult formulation diphtheria-tetanus-pertussis vaccine
- MMR (if non-immune)
- Varicella (if seronegative)
- Hepatitis A immunisation is recommended for healthcare workers in paediatric wards, ICUs and emergency departments that provide for substantial populations of Aboriginal and Torres Strait Islander children, and health workers in rural and remote Indigenous communities

Source: Australian Immunisation Handbook
www.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook_home



Healthcare Workers With Specific Circumstances

Pregnant healthcare workers

Pregnant healthcare workers should be given the opportunity to avoid patients with specific infections. Those without immunity to rubella, varicella, cytomegalovirus or parvovirus, or who have not had cytomegalovirus infection, should be redeployed if they are at risk of contracting these diseases.

Immunocompromised healthcare workers

Healthcare workers with immune deficiencies are more at risk of acquiring infections so should consider duties to minimise exposure.

Healthcare workers with skin conditions

Damaged skin or weeping skin conditions (e.g. eczema, psoriasis, dermatitis), may be readily colonised by micro-organisms and risk transmission. Any damaged skin must be appropriately covered before carrying out procedures. Consider appropriate, individual PPE such as specific types of gloves, hand hygiene product and moisturising lotion.

References

Summary and Audiological Perspective: Australian Guidelines for the Prevention and Control of Infection In Healthcare, Audiology Australia

Guidelines_for_Infection_Prevention_and_Control_-_Summary_and_Audiological_Perspective.doc

Australian Immunisation Handbook, Department of Health and Ageing, Australian Government
www.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook_home



APPENDIX E

ACCESS TO HEARING SERVICES AND FUNDING

Community Controlled Health Services

Enquire with local Aboriginal or Torres Strait Islander health service about ear and hearing services provided.

Some services may employ a dedicated audiologist. Many more facilitate visiting services from other agencies and government hearing services.

The National Aboriginal Community Controlled Health Organisation (NACCHO) is the national peak Aboriginal health body representing Aboriginal Community Controlled Health Services throughout Australia.

Refer to NACCHO website for more information on NACCHO and affiliated health services in each State and Territory
www.naccho.org.au

State/Territory - General Ear and Hearing Services

Refer to local State/Territory health services:

ACT	ACT Government Health Information www.health.act.gov.au
NSW	NSW Department of Health www.health.nsw.gov.au
NT	NT Department of Health and Families www.health.nt.gov.au
QLD	Queensland Health www.health.qld.gov.au/consumers.asp
SA	SA Health www.sahealth.sa.gov.au
TAS	Tasmania Department of Health and Human Services www.dhhs.tas.gov.au
VIC	Better Health Channel www.betterhealth.vic.gov.au
WA	WA Department of Health www.health.wa.gov.au

State/Territory - Other Specific Ear and Hearing Programs for Aboriginal and Torres Strait Islander People

NSW

NSW Aboriginal Ear Health Program Guidelines (October 2011, Ministry of Health NSW).
Guidelines for Local Health Districts in NSW to implement recommended strategies to:

- Reduce the number of young Aboriginal children adversely affected by otitis media.
- Improve the level of awareness about otitis media amongst the Aboriginal community, health and education professionals.
- Improve the effectiveness of services which lessen the impacts of otitis media on health and learning outcomes.

www.health.nsw.gov.au/policies/gl/2011/GL2011_013.html

NT

NT Department Of Health Audiology Services:

- NT Hearing
- Hearing Health Program

They provide:

- A multi-disciplinarian and integrated model of care which includes an ENT, audiologist, ENT nurse, ear health worker, community hearing worker.
- Visits scheduled across Aboriginal communities to identify children who need:
 - audiological assessment and review.
 - ENT consultation (sometimes via teleotology), surgery and follow-up.
 - ENT nursing care coordination or support.
 - basic otological treatment through primary health services.

www.health.nt.gov.au/Hearing/index.aspx

QLD

Deadly Ears - a multidisciplinary, state-wide Aboriginal and Torres Strait Islander ear health program that works with rural and remote communities.

It coordinates the effort to manage and reduce the high rates of ear disease in Aboriginal and Torres Strait Islander communities. Deadly Ears is an invitation-only service based on a community consultation and engagement model.

www.health.qld.gov.au/deadly_ears

SA

Flinders University (FU), in collaboration with the SA Department for Education and Child Development (DECD), organises visits to primary schools across the Adelaide metropolitan area. Audiology students with supervision by a FU audiologist (funded by DECD) perform assessments on Indigenous students.

In collaboration with the Anangu Education Service (AES) of DECD, FU audiologists have organised annual clinical field trips (with student volunteers) to the Anangu Pitjantjatjara Yankunytjatjara (APY) Lands of SA to assess ear health and hearing of all school-age children (2003-2008). The FU clinical field trips continued in 2009-2011 as part of a Commonwealth Department of Health & Ageing funded research project.

Efforts are underway, with the assistance of the State government, to develop a primary health care focus on ear health and hearing for the APY Lands and clinical pathways for the specialist surgical treatment of older children.

WA

Earbus Mobile Children's Ear Clinics - a collaborative project partly funded by the Office of Aboriginal Health, Variety WA and Chevron Australia. Telethon Speech and Hearing operates the mobile hearing screening and treatment service, Earbus Mobile Children's Ear Clinics. Medical follow-up is arranged as needed after screening.

The Earbuses travel to select primary schools, kindergartens and child care centres with high numbers of Indigenous children in the Perth metropolitan and some regional areas (South West and Pilbara regions) with further expansion planned (Kimberley and Goldfields regions).

www.tsh.org.au/EarBus.php

The Child and Adolescent Health Service WA (Aboriginal Health team) offers hearing screenings at some schools in the Perth metropolitan area.

Commonwealth Hearing Services Program

Services available to eligible clients include hearing assessment and provision of subsidised personal amplification devices where appropriate

Eligible pensioner and Department of Veterans' Affairs clients may apply for a hearing services voucher from the Office of Hearing Services and then choose an accredited local provider.

In addition, Australian Hearing is funded by the Office of Hearing Services for the delivery of services under the Community Service Obligations to meet the hearing needs of children, young adults and Aboriginal and Torres Strait Islander people in local communities.

Eligibility requirements for access to the Commonwealth Hearing Services Program include:

- Children and young adults up to the age of 26 years (Note: this extended from 21 to 26 years of age effective 1 January, 2012).
- Holders of a pensioner concession or Veterans' Affairs entitlement card.
- Indigenous people aged over 50 years.
- Indigenous people who participate or have participated in a Community Development Employment Program (CDEP) (Note - beyond 2012, confirm if still a current criterion).
- People referred by disability employment services funded by the Australian Government.

Inmates at juvenile detention centres and many Aboriginal and Torres Strait Islander adults in correctional centres retain eligibility for services through the Commonwealth Hearing Services program. Eligible detainees include, but are not limited to:

- those who meet the age criteria for an Australian Hearing 'Child' or 'Young Adult' client
- Aboriginal or Torres Strait Islander adults aged over 50.

The request for services must be initiated by the inmate. Contact Australian Hearing for information.

For more information contact:

- the Commonwealth Office of Hearing Services www.health.gov.au/hear#areas
- Australian Hearing www.hearing.com.au/indigenous

Hearing Aid Bank

A Hearing Aid Bank is a service in some locations for people who may be otherwise ineligible for subsidised hearing aids through the Commonwealth Office of Hearing Services and who may find it difficult to afford hearing aids. Eligibility and associated costs will vary according to each local program.

For more information contact the Office of Hearing Services or State branches of Audiology Australia.
www.health.gov.au/internet/main/publishing.nsf/Content/health-hear-client11.htm
www.audiology.asn.au

Private Audiology Services

Hearing services and hearing devices are available through private audiological services if an individual is not eligible for Commonwealth Hearing Services. Rebates may apply for some health funds.

For a listing of all audiology services across Australia, refer to the consumer information/directory of services on Audiology Australia website.
www.audiology.asn.au

Funding for Audiological Services

Funding for service provision by audiologists to Aboriginal and Torres Strait Islander peoples may occur in a few different ways according to service funding and program eligibility:

Medicare items on the Medicare Benefits Schedule (MBS):

Audiological item numbers 11300 to 11339:

- Must be rendered by or "on behalf of" a medical practitioner or performed by, or on behalf of, a specialist in the practice of the specialty where the patient is referred by a medical practitioner.
- Payable to the medical practitioner or specialist only.

Audiology item number 10952:

- Medicare's Chronic Disease Management (CDM) program (items 10950 to 10970) encourages the establishment of multidisciplinary team care arrangements to provide shared care for patients with a chronic medical condition and complex care needs.
- The CDM items provide referral pathways for services for patients with chronic disease by eligible allied health professionals with Medicare rebates for up to a total of five individual sessions per calendar year (including any services to which other MBS allied health items 10950 to 10970 apply).
- For patients who have a chronic condition and complex care needs, GP must have claimed GP Management Plan and Team Care Arrangement in past 2 years.
- Only the GP can determine whether the patient's chronic condition would benefit from allied health services and the need for such services must be identified in the patient's care plan.
- The allied health services must be directly related to management of the patient's chronic condition/s.
- The five allied health services can be made up of one type of service (e.g. five audiology services) or a combination of different types of services (e.g. one audiology, three podiatry services, one dietetic service).
- Audiologist - must be registered with Medicare Australia as an Allied Healthcare Provider - Audiologist.
- Payable to the registered audiologist.

Audiology item number 81310

- A person who is of Aboriginal or Torres Strait Islander descent may be referred by their GP for allied health services when the GP has undertaken a health assessment and identified a need for follow-up allied health services (Items 81300 to 81360).
- These items are similar to the existing allied health items (items 10950 to 10970) available to patients who have a chronic or terminal medical condition and complex care needs and have a GP Management Plan and Team Care Arrangements prepared by their GP. However items 81300 to 81360 provide an alternative referral pathway for Aboriginal or Torres Strait Islander people to access allied health services.
- Medicare benefits are available for up to five allied health services per eligible patient, per calendar year. Services must be of at least 20 minutes duration and the allied health professional must personally attend the patient.
- The five allied health services can be made up of one type of service (e.g. five physiotherapy services) or a combination of different types of services (e.g. one audiology, two podiatry and two physiotherapy services).
- The annual limit of five allied health services per patient under items 81300 to 81360 is in addition to allied health services for patients with a chronic medical condition and complex care needs (items 10950 to 10970).
- Audiologist - must be registered with Medicare Australia as an Allied Healthcare Provider - Audiologist.
- Payable to the registered audiologist.

For additional information:

Medicare Benefits Scheme (MBS)

www.health.gov.au/internet/mbsonline/publishing.nsf/Content/Medicare-Benefits-Schedule-MBS-1

Information on chronic disease management items and when to consider referrals to other allied health professionals.
Allied Health Professions Australia - Chronic Disease Management for General Practitioners, General Practice Nurses and Allied Health Professionals
www.cdm.ahpa.com.au

MBS - Allied health items (Medicare items 81300 to 81360) available for follow-up services for people of Aboriginal and Torres Strait Island descent who have had a health assessment conducted by their GP (includes a fact sheet).
www.health.gov.au/internet/main/publishing.nsf/Content/allied_health_ATSI_descent

MBS - Medicare rebates for certain allied health services are available for patients with chronic conditions and complex care needs on referral from their GP
www.health.gov.au/internet/main/publishing.nsf/Content/Chronic+Disease+Allied+Health+Individual+Services

APPENDIX F

CHECKLIST - COMMUNITY TRIPS AND VISITS

Refer to relevant and current guidelines, policies or protocols from employer or agency. For example:

- Aboriginal Cultural Awareness
- Cultural Safety
- Remote Travel
- Local Information Manuals

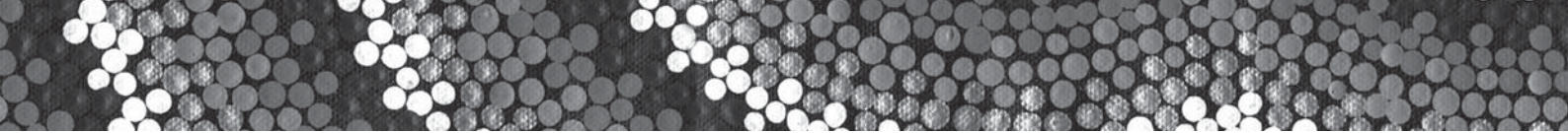
Prior to Commencing Any Service or Remote Travel

Activity	Yes	No	Comments
Attend orientation and induction from employer or agency.			
Complete cultural awareness training.			
Obtain maps of locality or regions.			
Update and make use of current contact details within communities: e.g. clinic, schools, key liaison people, accommodation.			
Familiarise and understand use of communication devices and systems provided: e.g. satellite phone, mobile phone, laptop, wireless modem, client databases, file management.			
Complete four wheel drive and basic vehicle maintenance training.			
Complete first aid training.			
Complete training in record management system of health centre or service.			
Ensure personal immunisations and vaccinations are up to date. (Refer Appendix D - Infection Prevention and Control Guidelines).			
Satisfy necessary State/Territory requirements expected for visiting health professionals e.g. 'Working with children' checks.			

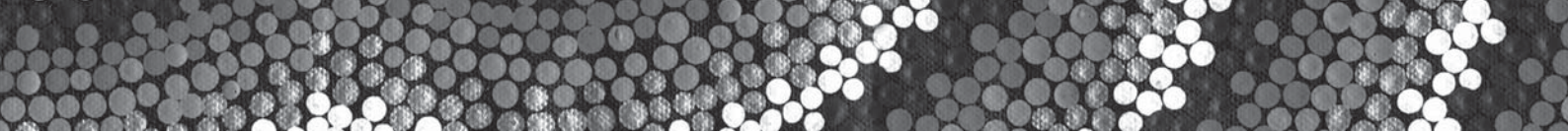
Organising a Regional or Remote Trip

Activity	Yes	No	Comments
Travel			
Obtain any required land permits.			
Plan long driving trips so travel is during daylight. Allow for regular breaks at least at two hourly intervals. Refer to local guidelines and requirements regarding driving extended distances alone. Be aware of risks driving on unsealed roads and/or at dusk/dawn.			
Refer to weather websites for extreme weather conditions e.g. www.bom.gov.au In tropical areas, understand cyclone emergency procedures. Monitor road condition reports. For example, NT - http://www.ntlis.nt.gov.au/roadreport/ QLD - www.racq.com.au/travel/Maps_and_Directions/road_conditions SA - www.transport.sa.gov.au/quicklinks/roadworks.asp WA - www.mainroads.wa.gov.au Contact the services in the community to confirm current road conditions.			
Liaise with other staff if travelling together			
Book flights and vehicles if required. Allow for weight allowance on small aircraft and excess luggage on commercial flights.			
Book accommodation and confirm expected payment method			
Establish a notification procedure with your employer to communicate all regional and remote arrivals and departures. For example: ring employer on departure and arrival for all legs of trip.			
If driving remotely, check for spare tyre/s, additional fuel, maps, satellite phone, first aid kit.			

Activity	Yes	No	Comments
Arranging Visit			
Co-ordinate visit with other staff/agency wherever possible			
Email, fax, phone the clinic/school to confirm suitable dates and client lists			
Call a day prior to commencement of trip to confirm			
Enquire and read any regulations and conditions for individual communities			
Arrange any required access to keys (e.g. clinic, sound booth)			
Accommodation:			
Check if linen, towels, pillows required			
Check for kitchen and laundry facilities			
Enquire if shared or separate accommodation and facilities			
Check security of accommodation with booking personnel			
Check any expected timing in order to gain access to accommodation			
Enquire opening hours for remote community store			



Activity	Yes	No	Comments
Equipment:			
Pack light portable equipment (based on weight allowance on flights)			
Check for current calibration			
Pack appropriate equipment and resources as required or likely to need: <ul style="list-style-type: none"> - Standard otoscope with charger and specula (consider standard batteries in case of power failure) - Digital video-otoscope with specula - Tympanometer with tips - Audiometer - Play audiometry material - Real ear measurement equipment - Power board (with safety switch) or extension cord - Infection control materials, tissues, isowipes, hand sanitiser, alcohol swabs, barrier sheets - Sound-level meter - Speech test materials - Client lists, client files, audiogram pads, report forms, consent forms and other necessary paper work for administration - Health promotion material - Hearing aids, devices, earmoulds for individual clients - Basic repair kits and spare parts for hearing devices - Ear impression kits, scissors, otoblocks, cotton, cotton wool - Hearing aid batteries - Spare batteries for equipment - Laptop, phone/s, access cards 			
Check each piece of equipment is in working condition prior to travel.			
Consider availability of spare equipment where possible in case of malfunction.			



Activity	Yes	No	Comments
Personal:			
Clothing: - Ensure smart casual appropriate clothing - Consider weather conditions - Ensure enough clothes for duration of trip - Enclosed footwear			
Staff identification			
Insect repellent, sun block, sun hat, sun glasses, earplugs, spare toilet paper as required			
Sufficient food for all meals during the trip			
Sufficient water (ensure additional water is available at destination)			
Basic first aid kit			
Consider need for spare fork, matches and tinned food with pull rings (remote locations may have missing kitchen utensils)			
Take cash or credit card as required (e.g. fuel, excess luggage fees, contingencies)			
Torch or headlamp			

APPENDIX G

NORMAL HEARING AND BABY DEVELOPMENT - USEFUL QUESTIONS

This information helps explain to families the typical behaviour of babies when hearing is normal. It may help carers understand what to look for as babies grow older and health workers to identify any concerns regarding hearing and response to sound. If families are concerned, a referral to an audiologist should be arranged.

AGE	RESPONSE BEHAVIOUR	QUESTIONS TO ASK PARENTS
Birth to 4 months	Wakes to loud sounds in quiet Startles to sudden, loud sounds	What does your baby do when there's a sudden, loud noise? (e.g. wakes, cries, jumps)
3 to 4 months	Begins to make a partial eye turn or head turn towards a moderately loud sound	What does your baby do when someone talks or makes a sound from behind? (e.g. stops still, looks or turns head) What does your baby do if there's a loud sound when you are feeding? (e.g. stops sucking, turns head, stills, startles)
4 to 7 months	Turns head directly towards the side of the direction of a moderately loud sound May be soothed or distracted by a carer's voice Babbles and enjoys making sounds with voice	Can your baby sit alone, without support, at 7 months? What does your baby do to find a sound? (e.g. looks, turns) What sounds does your baby make? How does your baby like to play? (e.g. noisy toys, banging things, singing, music) How do you soothe your baby when it is upset? (e.g. talking, singing)
7 to 9 months	Locates sounds which are out of sight Uses voice in response to sound	How does your baby respond to voices and sounds out of sight? (e.g. babbles, laughs, cries, calls out)
9 to 24 months	Localises source of sounds more directly Responds to quiet sounds Responds selectively to sounds signalling familiar events, e.g. water running, car engine, dog barking	What does your baby do when it hears food being prepared or kids coming home? (e.g. crawls or walks towards the sound, makes sounds, calls out, starts to cry) What does your baby do when you talk? (e.g. copies sounds and words) What does your baby do when you call from another room? (e.g. calls back, stops crying, comes to you)

APPENDIX H

DEGREE OF HEARING LOSS, 'WHAT DOES THAT MEAN IN SIMPLE LANGUAGE?'

When a hearing loss is diagnosed, it is described by:

- type (conductive, sensorineural or mixed)
- degree (mild, moderate, severe or profound. Sometimes a combination of degrees may apply)
- if affecting one ear (unilateral) or both ears (bilateral).

Below in simple language are typical behaviours and observations of people with different degrees of hearing loss. It helps understand why people may behave a certain way and also what families may expect of children as they grow older. For many, these effects of the hearing loss can be minimised with the help of a professional audiologist along with good support from family, friends and the community such as school and other services.

An audiologist may:

- provide information to better understand the hearing loss.
- help understand and how to use good communication strategies.
- recommend further medical or specialised ENT help if appropriate.
- fit appropriate listening devices where indicated.
- provide a re/habilitation program.

Note: For Aboriginal and Torres Strait Islander children with English as a second language, with multiple languages and/or whose hearing loss is fluctuating in nature, there may be associated factors that contribute to the impact on the degree of impairment experienced. For example, the impairment may be exacerbated by:

- ear disease severity.
- social environment.
- language environment.
- learning environment.

Mild Hearing Loss (21 - 45dB)

- No problem having a talk with one other person in a quiet place when looking at them and not more than a couple of steps away (1-1.5m).
- No problems listening on telephone.
- May find some voices a bit tricky to understand. For example, soft talkers, people with speech problems, little children.
- Harder to understand talking when there is other noise or when the room echoes.
- Problems hearing talking from more than a couple of steps away (e.g. from other end of the room) - hears the voice, but may not understand the words.
- Turns the TV up a bit loud or sits very close to it.
- Hard to follow talking in a group of people.
- Can't pay attention to talking for as long as people with normal hearing, especially in a group or in a noisy place.
- Asks people to repeat what they said when not in quiet or speaking face to face.
- Others may say 'she doesn't pay attention', 'he only hears when he wants to', or 'he's off with the fairies half the time'.
- The hearing problem might only be there for a short time or it might never go away. It might be caused by damage or disease in the outer, middle or inner ear, or by a mix of these.
- For children:
 - It may or may not interfere with learning to talk and playing with others.
 - It might cause some difficulties in the classroom unless using strategies such as:
 - sit in a place where can hear and see the teacher easily.
 - have a friend sit with them and to tell what was said if they miss anything.
 - use of a soundfield system in room.

Moderate Hearing Loss (46 - 65dB)

- May hear people talk in a normal voice if they are only a couple of steps away, but it will sound soft and unclear.
- Will not hear softer speech sounds, even if listening in quiet conditions and close up.
- Needs to watch people's faces/mouths to help fill in the sounds they can't hear.
- Finds some voices easier to hear than others.
- Gets tired fairly soon because finds listening hard.
- May not have many problems on the phone, but some problems with soft talkers or quick talkers.
- Easier to understand people they know on the phone.
- Avoids groups and other difficult listening places because it's too hard to hear.
- Struggles to hear in lecture theatres, auditoriums, open air venues, churches, etc. This happens when too far away from the talker, if there is too much echo and if other noises are louder than the talking.
- TV will be loud and may still need to sit up close to it. May use a speaker or ear piece to bring the sound closer or use captioned (subtitled) TV.
- Often uses what they see, or what they expect to happen, to understand and follow what's going on. For example, if a person with a moderate hearing loss sees everyone else stand up at church, the person may recognise this as a sign that everyone is going to sing, even if didn't hear them say so.
- May feel shame about often having to ask people to say things again.
- May not understand even after people say it again or explain it a different way.
- Prefers to talk about something else instead and changes the subject quickly.
- The hearing problem might only be there for a short time or it might never go away. It might be caused by damage or disease in the outer, middle or inner ear, or by a mix of these.
- Usually do very well with hearing aids and/or other listening devices.
- For children:
 - Hard to learn to talk and listen, and to learn to play with other people without hearing aids.
 - Often do better if you show them what to do at the same time as you tell them.
 - Will need hearing aids recommended.
 - May also need an FM system or a soundfield system to help hear over noises, echoes and distances in the classroom.

Severe Hearing Loss (66-90dB)

- Understands some talking if it's very loud and/or up very close but doesn't understand normal talking, even if close up, unless using hearing aids/cochlear implants.
- Relies on watching the face and lips to understand talking.
- Uses what they see and know about a situation to help clue themselves into what's going on.
- Can still hear loud sounds (like the sound of machinery, a shotgun, a car backfiring), but these will sound soft even when close up.
- Avoids going to places or doing activities where they expect it will be hard to hear.
- Can't follow talking with more than one person at a time.
- May feel shame about having to ask people a lot to say things again.
- Gets tired from listening hard (even with well-fitted hearing aids), so often 'falls out' of conversations after only a few minutes.
- Finds it hard to hear on most phones although may be able to have a short conversation with someone they know well.
- May need a phone that can have the volume turned up loud, or a phone with text (SMS, TTY).
- TV will be blaring and still won't be clear.
- Often has a completely different idea what a TV program is about because they are trying to put it together and miss important bits of the story.
- May talk very loudly or very softly because can't tell the loudness of their own voice.
- Will be sensorineural or mixed type of hearing loss, but damage to the middle or outer ear alone is not enough to cause this level of loss. The sensorineural part of the loss will always be there - it cannot be treated.

- For children:
 - Will not learn to talk normally without hearing aids or cochlear implants and support from carers/family, teachers and other professionals such as speech pathologists and teachers of the Deaf.
 - May develop a very nasal quality to own voice if not fitted with hearing devices from an early stage and if not used all the time when awake.
 - Will rely on what they see, watching the mouth, face, gestures and body language to work out what somebody is trying to tell them.
 - May use gesture and/or sign language to communicate, instead of verbal communication or speaking.
 - Will not cope in a normal classroom without a lot of extra support. Support may include hearing aids/cochlear implants and FM systems, a classroom interpreter, teacher's aide, work-and-rest programming, real time captioning, and 1-on-1 lessons.

Profound Hearing Loss (>91dB)

- Damage to the middle or outer ear alone is not enough to cause this level of hearing loss. May be sensorineural alone or mixed. The sensorineural part of the loss will always be there - it cannot be treated.
- Needs hearing aids and/or cochlear implants to hear people talking. Only hears very loud sounds up close (if anything at all) without hearing aids/cochlear implants.
- Rely on what they see as much if not more than what they hear, even with well-fitted hearing aids.
- Even with hearing aids/cochlear implants, will not understand what's said unless in a quiet place, close up to the speaker and able to watch the person's lips, face and gestures.
- Often have unclear speech and a nasal quality to their voice if not fitted with hearing devices at an early stage or not used consistently.
- May talk very loud or very soft because can't tell the loudness of their own voice.
- May use sign language because talking and listening is too hard.
- Needs:
 - captions (subtitles) on TV.
 - alarms that light up or vibrate.
 - telecommunications that use written text (email, SMS, TTY) or sign language (videophone, skype) because they don't understand the sound of talking on its own in all situations.
- May find sounds uncomfortable or distorted through hearing aids.
- For children:
 - Will not learn to talk without hearing aids and/or cochlear implants and lots of support from carers, family, teachers and other professionals such as speech pathologists and teachers of the Deaf.
 - May have to learn sign language.
 - May get angry and upset when they don't understand what's going on, or can't make people understand them.
 - Even with hearing aids, cochlear implants and an FM, will still need full time support at school. Support includes things such as classroom interpreter, teacher's aide, 1:1 lessons, real time captioning.
 - May go to a school with a class especially for Deaf students.



APPENDIX I

REPORT WRITING - SUGGESTIONS

General Advice

- Use local reporting guidelines and protocols regarding diagnosis, referrals and recommendations, and in appropriate context of any wider scope of practice.
- Use consistent definitions and terminology according to accepted professional standards as well as local usage.
- Before completing a report, be satisfied that all relevant case history and previous clinical management has been accessed and information gathered in order to assist clinical decision making for recommendations and follow-up. For Aboriginal and Torres Strait Islander people, this information may not be from a single location.
- Consider interaction of health information and reports with primary data sources as well as from manual and electronic health records.
- Don't assume a written report in itself is sufficient to be effective. Communication barriers are a significant impediment in Aboriginal health outcomes. Establish with the local health centre and educational services the most appropriate way to communicate audiological, health, educational and related recommendations and follow-up.

Reports to Medical Practitioners, GPs and ENTs

- Use a structured layout so the relevant information can be easily found.
- Provide critical identifiers (e.g. patient name, DOB) and customised information, including expected treatment, specific health-related information and socially important information (e.g. co-morbidities, family histories, drug/alcohol intake levels etc).
- Use a unique patient identifier as agreed between healthcare providers, especially if e-communications is not appropriate or not available.
- Where possible include other relevant information. For example, new research or evidence-based treatment relevant to the patient's condition.
- Include the planned process - 'The recommended plan from here is' or 'Further action:'.
- Ask for the patient to be referred back if a particular symptom occurs (i.e. what red flags should GPs look for).
- Include your own findings rather than repeat information the GP sent in the first place (e.g. In addition to the history you have provided, I have also noted the following).

Source:

Allied Health Professions Australia - Chronic Disease Management for General Practitioners, General Practice Nurses and Allied Health Professionals
www.cdm.ahpa.com.au



For All Audiences

- Indicate how you came to see the patient, i.e. referred from school-screening, seen at parents' request, under the OHS scheme.
- Explain the findings in plain language rather than 'audiologist-speak', e.g. 'there was no wax or pus in the ear canals and the eardrums were healthy-looking and moved normally' (rather than referring to tympanometry and tympanogram types).
- Give clear implications for the person's expected communication function. The plain language guide is helpful for this.

Refer Appendix H - Degree of Hearing Loss, 'What Does That Mean In Simple Language?'

APPENDIX J

EXPECTING THE UNEXPECTED

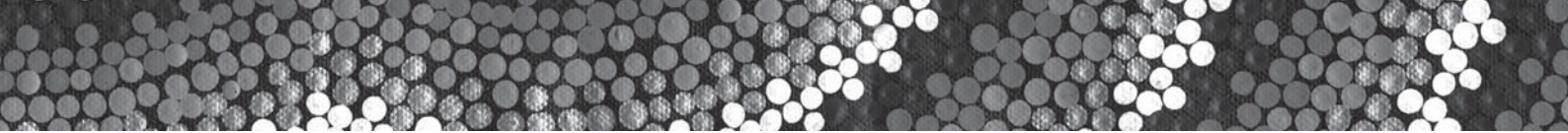
It is important to be flexible and adaptable when working in remote communities. A planned visit may at times not turn out as expected or unforeseen events have an impact.

Examples of events which could disrupt service plans include:

- extreme weather conditions
- power blackouts
- equipment failure
- unexpected change in travel arrangements
- key local liaison personnel, contacts and support staff not available or limited access on the day
- community cultural business or meetings
- school excursions
- miscommunication on date/timing of visit
- unavailable or double-booked rooms

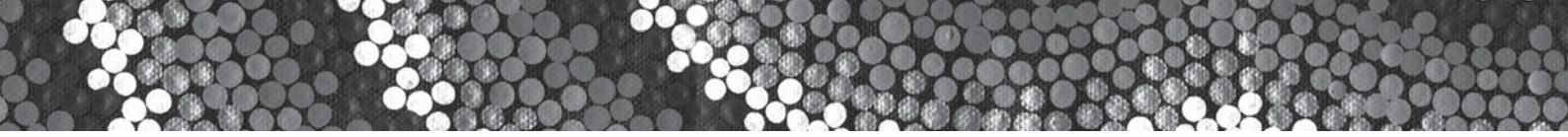
What to do when a visit to a community is 'quiet':

- Ascertain why:
 - Was your visit adequately promoted?
 - Was the promotion well targeted?
 - Did the appointment information reach the clients on your list?
 - Has there been confusion or concern expressed regarding the health centre or your visit that might discourage attendance?
 - Did your visit clash with another event in community?
e.g. Sorry business, a football match, important meeting.
- Introduce yourself to new primary health staff. Make the opportunity to educate and reinforce the importance of ear health surveillance.
- Spend time with and mentor other primary health centre staff to:
 - find out a bit about community events and priorities of the moment.
 - be aware of opportunities to provide ear health promotion.
 - be aware of factors that might affect future trips.
 - identify strengths and pitfalls in your own or local ear and hearing health program.
- Consolidate ear health screening skills of primary health staff if indicated.
- Audit the ear health and hearing documentation in the primary health records. Is it complete, cohesive, easy to reference? Are there ways it can be done better?
- Provide, adapt or develop simple resources to meet an identified ear health promotion need in the community.
- Visit the school/childcare centres:
 - Introduce yourself to new staff, especially the principal and special needs teachers or co-ordinators.
 - Make the opportunity to educate and reinforce the importance of ear health and good hearing for developmental and educational outcomes.
 - Explain or review understanding of local pathways for ear health and hearing checks for children of concern.
 - Discuss and review simple ear health messages and actions such as nose-blowing and hand-washing.
 - Discuss and check condition, set-up and use of soundfield systems and the acoustic environments in which they are used. Ensure staff understand the theory and the practical management of the systems.

- 
- Assess noise levels in commonly used hearing screening environments, and check that they are the optimal place for screening to occur.
 - Visit aged care facility:
 - Are staff capable and confident with use and management of hearing devices? (May need to be in liaison with hearing device provider).
 - Do they understand and support the communication needs of residents?
 - Are they aware and able to use effective communication strategies and hearing tactics?
 - Visit afterschool care, recreation centres, breakfast clubs, community store, council, community services. Look for opportunities to learn more about what community members understand about ear and hearing health and how they consider hearing to be important.

Build on knowledge and promote good ear health and good hearing. Establish liaison and new local contacts.

- Consider quality assurance and improvement of own documentation and practice in the community.
- Explore possibilities for research projects with data obtained in community and write a research proposal.
- Write an article for Audiology Australia's newsletter or member's website to share your experiences.



NOTES:

A series of horizontal dotted lines for taking notes.





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PO Box 504, Brentford Square, VIC 3131
Suite 7, 476 Canterbury Road, Forest Hill, VIC 3131
Phone: 61 3 9416 4606 Fax: 61 3 9416 4607
Email: info@audiology.asn.au