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- All of the following people who reviewed the document, provided expert advice and input, answered questions, and/or clarified information, to ensure the reviewed standards describe evidence-based practice in 2012:

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Introduction

The Recommended Standards for Clinical Practice was first published within the Audiology Australia Professional Standards of Practice of Audiologists – March 1997. Since that time, many aspects of clinical practice in audiology have evolved, and continue to evolve, in accordance with ongoing technological developments, research evidence, and changes to the Australian and New Zealand health care landscape.

Technological developments have affected how audiologists fit hearing aids and other amplification devices, how data and clinical information is stored and reported, and how information is communicated to clients. Devices such as cochlear implants1 and bone-anchored hearing aids have become accessible to a broader range of clients.

Research findings have resulted in broader scope of practice in areas such as central auditory processing disorders (CAPD), tinnitus management strategies, occupational and recreational noise exposure, and rehabilitation decision-making. Research that demonstrated the benefits of early fitting for children supported the advent of universal neonatal hearing screening and advances in infant fitting procedures.

Greater integration of audiology in primary health care resulted in increased recognition and acceptance of the value of audiological service provision across a range of settings. For example, the scope of audiological practice has expanded in intraoperative neurophysiologic monitoring. Along with these changes, audiology has seen the emergence of teleotology and teleaudiology as a potentially viable alternate model of service to rural and remote clients.

Given the extent of changes impacting on clinical practice since publication of the Audiology Australia Professional Standards of Practice of Audiologists – March 1997, and the present Standards of the New Zealand Audiological Society, the New Zealand Audiological Society Professional Practice Standards – Part B Clinical Standards are written to ensure that they reflect current best practice while remaining flexible to meet individual client requirements, while retaining the essential attributes of clinical practice guidelines of being valid, reliable and clinically applicable.

This document remains intrinsically linked to the New Zealand Audiological Society Professional Practice Standards – Part A Practice Operations. Throughout this document there are links to relevant sections of the Professional Practice Standards – Part A Practice Operations to simplify cross-referencing as needed. The principles described in the Professional Practice Standards –Part A Practice Operations underpin any application of the Professional Practice Standards – Part B Clinical Practice.

What are the New Zealand Audiological Society’s Recommended Standards for Clinical Practice?

In response to the growth of practitioner numbers, scope of practice, technological and scientific developments and service demands, the New Zealand Audiological Society has adopted and adapted the Professional Practice Standards – Part B Clinical Practice.

These standards are a set of descriptors that outline specific aspects of current clinical practice in audiology. In redesigning the Professional Practice Standards – Part B Clinical Practice, consideration was given to the definition of clinical practice guidelines (CPGs) provided by the Institute of Medicine of the National Academies (IOM):

“Clinical practice guidelines are statements that include recommendations intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options. Optimally, CPGs may:

- guide clinician and patient decision making based on evidence regarding the care outcomes that particular practices are expected to produce;
- provide a basis for measuring, evaluating, and improving provider performance and quality of care;
- support appropriate resolution of malpractice claims by considering guideline recommendations as a standard of care;
- contribute to the development of clinical decision support systems and other decision aids;
- assist in educating patients, significant other/s, and the media regarding best healthcare practices; and
- aid policy makers in the allocation of healthcare resources.”

The IOM further states that “health care must be based on a combination of scientific evidence, knowledge gained from clinical experience, and patient value judgments and preferences”, and stresses the importance of using the CPG to develop scientifically valid clinical recommendations that are “relevant to the individual patient encounter”. Thus, CPGs should not be treated as prescriptive, but should be recognised as tools to develop and support clinical reasoning skills.

The New Zealand Audiological Society therefore, intends for the Professional Practice Standards – Part B Clinical Practice, to provide guidance for the principles and components of clinical practice in audiology.

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2 Institute of Medicine (2011) Clinical Practice Guidelines We Can Trust National Academies Press
http://books.nap.edu/openbook.php?record_id=13058&page=R1
The WHO International Classification of Functioning

The World Health Organisation’s (WHO) International Classification of Functioning, Disability and Health (ICF) provides a framework for conceptualising, classifying and measuring disability. The model describes the impairment to body functions and structures that lead to “activity limitations” – specific actions that the individual is unable to do - that cause “participation restrictions” - difficulties involving oneself or being included in life situations. The effects of impairment in body functions/structures, activity limitations and participation restrictions are to some extent mediated by contextual factors – personal factors, such as age, education, socioeconomic status and culture, and environmental factors, which may be physical, political, or social. A diagram of the WHO ICF is set out below.

While the impact of hearing impairment can be illustrated using the WHO ICF framework, the New Zealand Audiological Society Professional Practice Standards – Part B Clinical Practice also recognises that each individual’s experience of auditory disorder is different. Therefore, specific management strategies based on shared elements that can be accounted within the ICF framework are included. For example, neonates require different testing protocols from most other clients because of their age; people with vestibular disorders experience a different impairment at the body function level and manifest different activity limitations and participation restrictions from the majority of clients with hearing loss only.

For this reason, the New Zealand Audiological Society Professional Practice Standards – Part B Clinical Practice has defined Standards for specific client populations of public health and primary care audiology, diagnostic audiology and audiological re/habilitation. These standards take into account the needs and circumstances of particular client groups by highlighting aspects of practice that are unique or particularly pertinent to their care. Doing so should help enable optimal client treatment.

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Structure of Recommended Standards for Clinical Practice

Within the New Zealand Audiological Society Professional Practice Standards – Part B Clinical Practice, recommended standards are presented primarily in point form in order to keep individual concepts discrete and to ease the transmutation of the standards into clinical and workforce applications. The use of plain language where audiological terminology can be avoided is also deliberate, in keeping with the broad base of disparate interest groups who may access the document.

Each recommended standard has been set out under seven headings, defining the components of the standard:

**Purpose & Aim:**
- defines the reason/s for performance of the practice. This is the WHY of the standard.

**Expected Outcomes:**
- identifies WHAT will be achieved through performance of this practice.

**Clinical Indicators:**
- defines the WHO of the practice, by identifying the symptoms and/or client groups for whom the practice should be considered.

**Clinical Process:**
- the HOW of the standard. It outlines the method of reaching the Expected Outcome from the identified Purpose & Aim of the standard.
  - *Clinical Process is not intended to be prescriptive*; rather, clinical processes are listed to help tie the abstract of ideas to the concrete of performance, and to support the development of workforce documents based on the New Zealand Audiological Society Professional Practice Standards – Part B Clinical Practice. Clinical Process is the aspect of practice most likely to experience changes as new procedures, modifications of procedures and different interpretations of procedural results are identified and become incorporated in clinical practice. This means that the list of processes may evolve over time. Changes in procedures should not be arbitrary, but adhere to evidence-based principles as advocated in the New Zealand Audiological Society Professional Practice Standards – Part A Practice Operations (See Practice Operations Standard 4.1.1 Recognised Best Practice).

**Documentation:**
- supports CONSISTENCY of management. At the client interaction level, good documentation is an aid to memory for the managing clinician, a clarifying tool when the direction of client management is under discussion or in dispute, and can provide guidance to the direction and progress of management to date if handover of care is required. At other levels, it is a tool for quality assurance and risk management, and is a medico-legal requirement that may be used as evidence for both complaints related to audiological and/or healthcare negligence and for non-health related legal matters which may be impacted by the client’s auditory disorder.

**Settings, Safety and Equipment:**
- pertains to VALIDITY and RELIABILITY of results, as well as addressing *Safety as a Right of Health Care* as outlined on the Health Quality and Safety Commission website⁴ (see Practice Operations Section 3 Physical Environment and Resources). Audiology involves a number of equipment-based procedures, and the tools in use can affect quality of practice. This section identifies the environments, standards and maintenance procedures to be used to maximise the safe and effective use of those tools.

**Related References:**
- supports EVIDENCE-BASED PRACTICE by providing references to support the information included in the standard.

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RECOMMENDED STANDARDS FOR CLINICAL PRACTICE

Public Health and Primary Health Care Strategies

[Practice Operations Standard 1.1.7 Health Promotion and Consumer Support]

‘Public health is the science and art of preventing disease, prolonging life and promoting health through organized efforts of society’.\(^5\) Public health and primary health care strategies frequently overlap, and public health strategies for ear and hearing health are often enacted at the primary health care level. Primary health care has the benefits of easier access and greater holistic care for the general population, and can thus lead to earlier identification of existing or potential auditory disorders than traditional consultation models, which depend on the individual or his/her significant other recognising a problem before seeking treatment. The use of public health and primary health care strategies can also improve timeliness of management by ensuring that individuals are directed to care that best fits their needs, by assisting with prioritisation of the secondary care workload, and by reducing the time and cost associated with unnecessary assessments.

Workforce participants in ear and hearing health at the public health and primary health care levels are diverse, including general practitioners, community and child & family nurses, nurse practitioners, Indigenous health workers, trained screeners, audiometrists, community educators, education personnel, consumer groups and hearing impaired individuals.

Audiologists are professionals with knowledge and experience to advocate for ear and hearing health issues and requirements, and this is perhaps our most important public health role. The WHO (1995) defines advocacy as

“A combination of individual and social actions designed to gain political commitment, policy support, social acceptance and systems support for a particular health goal or programme.”

The WHO further states that

“Health professionals have a major responsibility to act as advocates for health at all levels in society.”\(^6\)

With half of all hearing impairment being preventable\(^7\), and the incidence of hearing impairment increasing\(^8\), advocacy for ear health and hearing-related issues by audiologists has the potential to significantly reduce the incidence and social impacts of hearing loss. Health professionals, however, need to be aware of the potential for real or perceived conflict of interest when advocating for health.\(^9\)

Audiologists are less commonly involved with direct client care at the primary health care level. However, there are significant roles to be played by audiologists in this sector. Audiological expertise can add significant value to (i) the education and skills development of primary health staff working in ear and hearing health, (ii) the development of ear and hearing health programs and systems, (iii) the assessment of the effectiveness in implementation of those systems, (iv) quality assurance of ear and hearing health programs, systems and activities, and (v) informing ear and hearing health promotion activities and strategies.

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1. Advocacy for Hearing Healthcare

**Purpose and Aim**
- To effect positive change through providing expert testimony and professional sanction for improvements in systems and environments which present hearing, ear health and hearing-related communication challenges.

**Expected Outcomes**
- Changes to social, vocational and recreational environment to reduce the risk of hearing impairment or ear health issues.
- Changes to social, recreational and vocational environments to improve hearing and communication access for hearing impaired/deaf people.
- Changes to systems to better support hearing impaired/deaf people and those with auditory disorders.

**Clinical Indicators**
- Identification of factors which cause or contribute to detriment in hearing, ear health or communication and for which audiological knowledge would support the case for improvement.
- Evidence exists that indicates that the course of action being advocated is likely to cause or contribute to improvements in ear and hearing health or communication and access for hearing impaired/deaf individuals.

**Clinical Processes**
- Advocacy may be for
  - An individual client
  - A group of clients
  - A population (e.g. the hearing impaired, deaf community, miners, infants)
- Advocacy may target
  - Individuals
  - Employers
  - Employees
  - Organisations
  - Government bodies
- Advocacy may cover topics such as
  - Prevention of auditory disorders
  - Identification of persons at risk for hearing disorders
  - Adherence to individual intervention plans
  - Environmental assessment and modification
  - Equipment and material needs and/or modifications
  - Program development, evaluation and management
  - Quality assessment and improvement
  - Education

**Documentation**

**Client or Service/Agency Record**

[Practice Operations Criterion 2.1.2 Health Record Compliance]
- Identifying information relating to client/client group being advocated
- Relevant background information relating to client/client group being advocated
- Purpose of advocacy
- Method of advocacy
  - Verbal
  - Written
  - Formal Presentation
  - Social Media (e.g. Facebook, YouTube)
- Party with primary responsibility for advocacy
- Other advocated
- Outcomes of advocacy
- Informed consent to use client information in advocacy (if applicable)

[Practice Operations Criterion 1.1.3 Informed Consent]
Copies of correspondence
Copies of contracts/receipts

**Correspondence**

*Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers*

- Identifying information in relation to client/client group
- Written to the level of knowledge and practicality required by the receiving party
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)

**Settings. Safety / Equipment Specifications**

*Practice Operations Section 3 Physical Environment and Resources*

- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions (*Practice Operations Criterion 2.4.2 Infection Prevention and Control*).

**NZAS Standards of Practice - Infection Control**

- Equipment used in accordance with manufacturer’s instructions.

**Related References**

- New Zealand Health and Safety  
- New Zealand Public Health and Disability Act 2000  
- New Zealand Health and Safety Act 1992  
- New Zealand Human Rights Act 1993  
- New Zealand Bill of Rights Act 1990  
Advocacy for Identified Issues with Specific Populations

1.1 Advocacy for Hearing Loss Prevention – Occupational & Recreational

**Purpose and Aim**
- To reduce the incidence and impact of hearing impairment caused or contributed to by workplace or recreational noise.
- To reduce the incidence and impact of auditory disorder cause or contributed to by workplace or recreational exposure to ototoxic agents.
- To reduce the incidence and impact of hearing impairment caused or contributed to by workplace or recreational exposure to pressure injury/barotrauma.

**Expected Outcomes**
- Reduced exposure to potentially damaging noise and/or chemicals toxic to the auditory system.
- Reduced exposure to pressure changes that may cause injury to the auditory system.
- Occupational Noise Management Programmes (ONMPs) are designed to reduce or prevent occupational noise-induced hearing loss and educate employees and management about health hazards associated with noise exposure within and outside the workplace. Exposure to loud sound outside the workplace also needs to be considered, as hearing can also be damaged by over-use of personal stereos and other types of recreational noise exposure.

**Clinical Indicators**
- Workplace at which personnel are exposed to potentially dangerous noise levels, pressure changes and/or ototoxic chemicals.
- Occupational Noise Management Programmes are indicated when noise levels in workplaces are approaching or reach nationally mandated noise exposure levels. Implementation of Occupational Noise Management Programmes may be mandated by national regulations.
- Individuals who pursue recreational and leisure activities that may expose them to potentially dangerous noise levels, pressure changes and/or ototoxic chemicals.
- Individuals at risk of developing hearing/auditory disorders because of:
  - Existing hearing and/or auditory disorders
  - Exposure to occupational noise
  - Exposure to recreational noise
  - Exposure to toxic agents
  - Exposure to noise and toxic agents in combination
  - Exposure to pressure changes that may cause injury

**Clinical Processes**
- Advocacy may be aimed at:
  - Individuals
  - Populations
  - Employers
  - Employees
  - Workplaces
  - Vocational Training Institutes
  - Recreational Groups
  - Government Bodies
- Topics of advocacy may include:
  - Reduction of exposure to potentially damaging noise
    - Reduction of noise
    - Reduction of time exposed
    - Use of hearing protection
    - Equipment changes to reduce noise
    - Environment changes to reduce noise
      - Legislation to sanction the reduction of noise exposure
  - Reduction of exposure to toxic agents
    - Reduction of toxic agents
    - Reduction of time exposed
    - Use of protective equipment against chemical toxins
- Change to less toxic chemicals
  - Environment changes to reduce chemical exposure
  - Legislation to sanction the reduction of chemical exposure
    - Reduction of exposure to potentially damaging pressure changes
    - Reduction of degree of pressure changes
    - Use of personal protective equipment against damaging pressure changes
    - Use of graded exposure protocols to facilitate adjustments to pressure changes

**Documentation**

**Client or Service/Agency Record**
*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Purpose of advocacy
- If advocacy pertains to a specific client
  - Identifying information relating to client
  - Relevant background information
  - Type of amplification strategies used
  - Communication modality used
  - Assessment results
  - Prognosis
  - Specific recommendations for management
- Method of advocacy
  - Verbal
  - Written
  - Formal Presentation
  - Social Media (e.g. Facebook, YouTube)
- Party with primary responsibility for advocacy
- Other advocates
- Outcomes of advocacy
- Informed consent to use client information in advocacy (if applicable) *(Practice Operations Criterion 1.1.3 Informed Consent)*
- Copies of correspondence
- Copies of contracts/receipts

**Correspondence**
*(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)*

- Identifying information in relation to client/client group
- Written to the level of knowledge and practicality required by the receiving party
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)

**Settings. Safety / Equipment Specifications**
*(Practice Operations Section 3 Physical Environment and Resources)*

- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions *(Practice Operations Criterion 2.4.2 Infection Prevention and Control)*. *NZAS Standards of Practice - Infection Control*
- Equipment is used in accordance with manufacturer’s instructions.

**Related References**

• New Zealand Health and Safety Act 1992
• Occupational Safety & Health Service (2003) Occupational Noise Exposure, Selection and Use of Hearing Protectors, Department of Labour, Te Tari Mahi, Wellington, NZ
• New Zealand Public Health and Disability Act 2000
1.2 Advocacy for Hearing Loss/Auditory Disorder Detection

**Purpose and Aim**
- To support the development and maintenance of cost-effective screening and surveillance systems for populations at significant risk of hearing impairment/auditory disorders.

**Expected Outcomes**
- Development of screening and surveillance programmes for at risk populations, in line with screening principles (*Appendix 1: Screening Principles*).
- Continuation of effective and efficient screening and surveillance systems.

**Clinical Indicators**
- Population defined as at risk for hearing/auditory disorders and likely to benefit from screening/screening and surveillance programme
- Hearing/auditory disorder being screened has an adverse impact on the majority of individuals experiencing it.
- Recognised intervention for the hearing/auditory disorder exists
- Resources are available for developing and sustaining an effective screening/screening and surveillance programme
- Resources are available to provide diagnostic and/or medical follow up for those who are referred from the screening programme
- Involvement in screening/screening and surveillance programme is agreed by all relevant parties

**Clinical Processes**
- Advocacy may focus on
  - Universal Hearing Screening Programme
  - Screening of infants at risk for hearing impairment
  - Medical Assessment of children diagnosed with hearing loss to determine if concomitant or associated disorders exist
  - Identification and management of central auditory processing deficits in school children
  - Ear health and hearing education to school-aged children, teenagers and adults at risk for recreational noise injury
  - Reducing risk of occupational noise injury
  - Reducing risk of hearing/auditory deficits from workplace or recreational toxin exposure
  - Vision screening for those identified with significant hearing impairment
  - Improved awareness among health and aged care staff and organisations of age-related hearing/auditory disorders

**Documentation**

**Client or Service/Agency Record**
*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Purpose of advocacy
- Information about the specific population being advocated for
- Specific recommendations for management
- Method of advocacy
  - Verbal
  - Written
  - Formal Presentation
  - Social Media (e.g. Facebook, YouTube)
- Party with primary responsibilities for advocacy
- Other advocates and plaintiffs
- Outcomes of advocacy
- Informed Consent to use client information in advocacy (if applicable) *(Practice Operations Criterion 1.1.3 Informed Consent)*
- Copies of correspondence
- Copies of contracts/receipts
Correspondence
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)

- Identifying information in relation to client/client group
- Written to the level of knowledge and practicality required by the receiving party
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)

Settings/Safety/Equipment Specifications
(Practice Operations Section 3 Physical Environment and Resources)

- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may facility-specific protocols and/or manufacturer’s instructions (Practice Operations Criterion 2.4.2 Infection Prevention and Control).

NZAS Standards of Practice - Infection Control
- Equipment is used in accordance with manufacturer’s instructions.

Related References
1.3 Advocacy for Access for Deaf and Hearing Impaired People

**Purpose and Aim**
- To promote access to environments and services that allow hearing impaired and Deaf people to live independently.
- To promote access to environments and services that allow hearing impaired and Deaf people to participate fully in society.

**Expected Outcomes**
- Improved hearing/communication access for hearing impaired/deaf people in everyday social, vocational and recreational environments.
- Improved access to support services that enhance ability for hearing impaired and deaf people to participate in everyday activities.
- Improved recognition of access issues and potential access issues for hearing impaired and deaf people.
- Increased awareness of the need to comply with the *New Zealand Human Rights Act 1993*
- Increased compliance with the *New Zealand Human Rights Act 1993*.
- Improved quality of life for hearing impaired/deaf people.

**Clinical Indicators**
- Impediments to service access are identified
- Environments are identified that
  - Do not meet the standards of the *New Zealand Human Rights Act 1993*
  - Could be improved in terms of access for hearing impaired/deaf people through an evidence-based course of action

**Clinical Processes**
- Clinical process is dependent on the environment/situation identified
- Environmental audit
- Problem-solving approach including organisational representatives, consumers, professionals and technical experts
- Advocacy may be specifically for
  - Environmental changes
    - Technological solutions
    - Physical modifications to environment
    - Positional and configuration changes of individuals and activities within the environments
    - Changes to organisational systems, processes and procedures
  - Service improvements, including access to
    - Devices
      - Eligibility for subsidised devices
      - Hearing aid bank
      - Repairs and replacements
      - Systems for device management for aged care clients, clients with disability, remote clients, and children
    - Re/habilitation
      - Speech reading
      - Communication training
  - Support personnel
    - Sign interpreters
    - Advisers on deaf children
    - Note-takers
    - Real-time caption writers
  - Consumer support, mentoring and advocacy groups
    - Deaf Aotearoa
    - Hearing Association
    - Deafness Forum
    - New Zealand Federation for Deaf Children
    - The National Foundation for the Deaf
• Local support and mentoring groups
  ▪ Public education
    ▪ In communication strategies for hearing impaired and deaf people
    ▪ To improve awareness and understanding of Deaf culture
  ▪ Accessible media and information
    ▪ Captioned and signed media
    ▪ Plain English documents, forms and brochures
    ▪ Pictorial versions of documents, forms and brochures

**Documentation**

**Client or Service/Agency Record**

*Practice Operations Criterion 2.1.2 Health Record Compliance*

- Purpose of advocacy
  - If advocacy pertains to a specific client
    - Identifying information relating to client
    - Pertinent background information
    - Type of amplification system/sensory aid
    - Communication modality used
    - Assessment results
    - Prognosis
    - Specific recommendations for management
- Method of advocacy
  - Verbal
  - Written
  - Formal presentation
  - Social media (e.g. Facebook, YouTube)
- Party with primary responsibility for advocacy
- Other advocates and plaintiffs
- Outcomes of advocacy
  - Informed Consent to use client information in advocacy (if applicable) *(Practice Operations Criterion 1.1.3 Informed Consent)*
  - Copies of correspondence
  - Copies of contracts/receipts

**Correspondence**

*Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers*

- Identifying information in relation to client/client groups
- Written to the level of knowledge and practicality required by the receiving party
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)

**Settings/Safety/Equipment Specifications**

*Practice Operations Section 3 Physical Environment and Resources*

- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions *(Practice Operations Criterion 2.4.2 Infection Prevention and Control)*.
  - NZAS Standards of Practice - Infection Control
- Equipment is used in accordance with manufacturer’s instructions.

**Related References**

- The *New Zealand Human Rights Act 1993* states the prohibited grounds for discrimination, which can be viewed at:
• New Zealand Public Health and Disability Act 2000
• Convention on the Rights of Persons with Disabilities
  http://www.un.org/disabilities/convention/conventionfull.shtml#top
• Deaf Aotearoa
  http://www.deaf.org.nz
• AS 1428.5-2010 Design for access and mobility - Communication for people who are deaf or hearing impaired
• AS/NZS 2107:2000 Acoustics - Recommended design sound levels and reverberation times for building interiors
2. Consultancy

**Purpose and Aim**

- To provide professional expertise to
  - Other professionals
  - Business
  - Industry
  - Law
  - The public
  - Private agencies
  - Government agencies
  - Non-government agencies
  - Community organisations
  - Educational facilities

**Expected Outcomes**

- Provision of audiological expertise and information as negotiated between consultant and consulting client.

**Clinical Indicators**

- Consultation services may be provided by arrangement or upon request, and address:
  - Prevention of auditory disorders
  - Identification of persons at risk for hearing disorders
  - Assessment, intervention plans, procedures and interpretation of results
  - Environmental assessment and modification
  - Equipment and material needs and/or modifications
  - Programme development, evaluation and management
  - Quality assessment and improvement
  - Education, training and professional development for individuals and groups working with people with hearing loss
  - Second opinion and/or independent evaluation
  - Expert testimony

**Clinical Processes**

- Consultancy may be required by
  - Individuals
  - Employers
  - Workplaces
  - Vocational groups/organisations
  - Recreational groups/organisations
  - Government agencies
  - Non-government agencies
  - Educational institutions
  - Research institutions
  - Hearing impairment support/mentoring groups
  - Community groups

- Consultancy may involve
  - Gathering information through observations, interviews, assessments or other direct services, and reviews of records and materials
  - Assessment of the type and extent of assistance required
  - Provision of information or recommendations
  - Provision of monitoring and follow-up services
  - Advice to Government agencies and non-government organisations
  - Preparation of education, training or professional development materials
  - Delivery of education, training or professional development to individuals or groups

**Documentation**

**Client or Service/Agency Record**

*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client, service or agency
• Copy of agreement
• Written plans or reports which document services rendered as indicated in the agreement made between the parties involved
• Findings from consultancy task
• Specific recommendations
• Copies of correspondence
• Informed consent to obtain or release information (Practice Operations Criterion 1.1.3 Informed Consent)
• Receipts/contracts

Correspondence
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)

• Identifying information in relation to client/client groups
• Written to the level of knowledge and practicality required by the receiving party
• Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)
• Outlines approach to consultancy task, findings and specific recommendations

Settings/Safety/Equipment Specifications

• Dependent on nature of consultancy task.
• Workplace-specific Workplace Health & Safety equipment and procedures are used.
• Precautions are taken to ensure prevention of bodily injury.
• Electrical equipment is regularly tagged and tested.
• Infection control guidelines in regard to equipment and interpersonal transmission are followed.

NZAS Standards of Practice - Infection Control

• Equipment is used in accordance with manufacturer’s instructions.

Related References

3. Clinical Supervision

[Practice Operations Criterion 4.2.3 Clinical Supervision]

**Purpose and Aim**

- To develop an ethical attitude/approach to audiology by the supervisee.
- To foster clinical skills development in the supervisee.
- To ensure clients obtain quality clinical service when attended by a supervisee.
- To ensure quality of audiological services are maintained as workforce is expanded.

**Expected Outcomes**

- Development of sound clinical reasoning skills.
- Competent performance of clinical procedures.
- Improved confidence of supervisee in the clinical setting.
- Application of professional standards to clinical workload and environment.
- Mitigation of risk for client and clinic.

**Clinical Indicators**

- Individuals requiring clinical supervision (supervisees) may include:
  - Audiology students
  - Audiology interns (Provisional members of the New Zealand Audiological Society)
  - Audiology interns (Provisional members of the New Zealand Audiological Society)
  - Audiometry students
  - Audiometrists in training (Provisional members of the New Zealand Audiological Society)
  - Audiologists acquiring new clinical skills
  - Allied health assistants
  - Hearing screeners in training
  - Audiology Assistants

**Clinical Processes**

- Clinical supervision of audiology interns shall follow the processes described in *New Zealand Audiology Certificate of Clinical Competence Booklet for Audiologists*
- Clinical supervision of audiology interns shall follow the processes described in *New Zealand Audiology Certificate of Clinical Competence Booklet for Audiometers*
- Clinical supervision should adhere to adult learning principles
  - Clarity of the purpose and relevance of learning
  - Respect for the supervisee and supervisor
  - Support for self-directed learning and internal motivations
  - Provision of opportunity for practical application of learning
  - Builds on existing skills and experiences
  - Promotion of life-long learning and reflective practice
- Avenues for resolution of disputes between supervisee and supervisor should be
  - Made explicit to both/all parties at the beginning of the supervision period
  - Accessible throughout the period of supervision
- Informed verbal client consent must be obtained
  - Prior to supervisee involvement in clinical care
  - Without the supervisee being present (to avoid undue pressure)
- Clinical supervision may include
  - Evaluation of learning needs
    - Analysis of supervisee preferences and motivations
    - Consideration to prior knowledge and skill
    - Evaluation of workplace requirements
  - Planning of development
  - Establishing a safe learning environment
    - Establish a functional rapport which allows clinician intervention in clinical activities without loss of face for supervisee
    - Create time to prepare, debrief and discuss clinical cases
    - Provide privacy for the discussion of performance concerns
  - Education
    - Explaining actions, behaviours and techniques
    - Providing direction
• Modelling best practice  
• Discussion  
• Problem-solving  
• Coaching  
• Mentoring  
• Assessing (or evaluating)  
  o Communication  
    • Delivering expectations of performance  
    • Constructive feedback  
    • Answering questions  
    • Negotiating learning opportunities and preferences  
  o Monitoring progress  
    • Observation of performance  
    • Case discussion  
    • Programme planning for clients  
    • Documentation  
      • Relating to client  
      • Supervision documentation

**Documentation**

**Clinical Health Record**
- *(Practice Operations Criterion 2.1.2 Health Record Compliance)*  
  • Both supervisee and supervising clinician are identified in and sign the record entry  
  • Clinical incidents or omissions due to supervisee inexperience are documented

**Correspondence**
- *(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)*  
  • Any correspondence written by the supervisee is reviewed and countersigned by the supervising clinician before sending

**Supervision Record**
- Supervisee learning needs  
- Supervisee strengths to build upon  
- Learning goals negotiated and agreed with supervisee  
- Activities undertaken to promote clinical skills development in supervisee  
- Evaluation of progress  
- Identified areas of need for further development  
- Summary of feedback given to supervisee  
- Note of supervisee reaction to feedback

**Settings/Safety/Equipment Specifications**
- Dependent on nature of clinical task.  
- Workplace-specific Workplace Health and Safety equipment and procedures are used.  
- Precautions are taken to ensure prevention of bodily injury.  
- Electrical equipment is regularly tagged and tested.  
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. [NZAS Standards of Practice - Infection Control](http://www.audiology.org.nz)  
- Equipment is used in accordance with manufacturer’s instructions.

**Related References**
- ‘Teaching OnThe Run’ Programme  
- New Zealand Audiology Society  
4. Hearing Loss Prevention

**Purpose and Aim**
- To reduce the incidence of hearing impairment through better recognition of risks to hearing.
- To reduce the incidence of hearing impairment through better risk management strategies for hearing.
- To reduce the negative psychosocial impacts of hearing loss through improved understanding of risk factors which may exacerbate pre-existing hearing impairment.

**Expected Outcomes**
- Reduced incidence of acquired hearing impairment.
- Reduction in negative psychosocial impacts of hearing impairment.
- Improved risk management systems for hearing.

**Clinical Indicators**
- Individuals at risk of hearing damage

**Clinical Processes**
- Prevention strategies may be aimed at
  - Individuals
  - Employers
  - Workplaces
  - Health workers
  - Education personnel
  - Vocational groups/organisations
  - Recreational groups/organisations
  - Populations
- Prevention strategies may involve multidisciplinary working
- Strategies for hearing loss prevention may include:
  - Advocacy for improvements to hearing risk management
  - Reduction of exposure to risk
  - Improvements to hearing protection systems
  - Education/Information Counselling on
    - How to recognise ear health and hearing risks
    - Hearing loss prevention strategies
    - Hearing protection strategies
    - Strategies for monitoring ear health and hearing
    - Pathways to management for individual hearing concerns
  - Acoustic environmental assessment and modification
  - Equipment and material needs and/or modifications
  - Hearing loss prevention programme development, evaluation and management
  - Identification of persons at risk for hearing disorders
  - Assessment, intervention plans, procedures and interpretation of results
  - Referral to professionals and resources for further expert support

**Documentation**

**Client or Service/Agency Record**
*(Practice Operations Criterion 2.1.2 Health Record Compliance)*
- Identifying information relating to client/client group
- Relevant background information relating to client/client group
- Information defining formal or informal agreements made with other parties in relation to hearing loss prevention activities
- Written plans or reports to document services rendered as indicated in the agreement made between the parties involved
- Outcomes from hearing loss prevention activities
- Specific recommendations for further management
- Copies of correspondence
- Informed Consent to obtain or release information (if applicable) *(Practice Operations Criterion 1.1.3 Informed Consent)*
- Receipts/contracts
Correspondence
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)

- Identifying information in relation to client/client groups
- Written to the level of knowledge and practicality required by the receiving party
- May include information about
  - Approach to hearing loss prevention activities
  - Outcomes
  - Specific recommendations for further management
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)

Setting/Safety/Equipment Specifications

- Workplace-specific Workplace Health and Safety equipment and procedures are used.
- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
- Infection control guidelines in regard to equipment and interpersonal transmission are followed.
  NZAS Standards of Practice - Infection Control
- Equipment is used in accordance with manufacturer’s instructions.

Related References


4.1 Hearing Loss Prevention – Occupational & Recreational

Purpose and Aim

- To reduce the incidence and impact of hearing impairment caused or contributed to by workplace and/or recreational noise
- To reduce the incidence and impact of auditory disorder caused or contributed to by workplace and/or recreational exposure to ototoxic agents
- To reduce the incidence and impact of auditory disorder caused or contributed to by workplace and/or recreational pressure injury/barotrauma

Expected Outcomes

- Increased awareness of potentially damaging noise levels
- Increased awareness of toxic agents which may cause auditory disorder
- Increased awareness of potential for pressure injury/barotrauma
- Increased action to minimise exposure to potentially damaging noise, pressure and ototoxic agents
- Improved quality of strategies used to reduce exposure to potentially damaging noise, pressure and toxic agents
- Reduced incidence of auditory disorders acquired through noise injury, pressure injury/barotrauma and/or exposure ototoxic agents

Clinical Indicators

- Individuals at risk of developing hearing/auditory disorders because of
  - Existing hearing and/or auditory disorders
  - Exposure to potentially damaging occupational noise
  - Exposure to potentially damaging recreational noise
  - Exposure to toxic agents through work or recreational pursuits
  - Exposure to noise and toxic agents in combination
  - Exposure to potentially damaging pressure changes
Clinical Processes

- Prevention strategies may be aimed at
  - Individuals
  - Employers
  - Workplaces
  - Vocational groups/organisations
  - Recreational groups/organisations
  - Populations
- Prevention strategies may involve multidisciplinary working
- Prevention strategies tailored for a specific workplace or recreational context must be
  - Usable
  - Affordable
  - Effective
- Advocacy for Hearing Loss Prevention may include:
  - Reduction of exposure to potentially damaging noise
    - Reduction of noise
    - Reduction of time exposed
    - Use of hearing protection
    - Equipment changes to reduce noise
    - Environment changes to reduce noise
  - Reduction of exposure to toxic agents
    - Elimination of toxic agents
    - Reduction of time exposed
    - Use of personal protective equipment against chemical toxins
    - Change to less toxic chemicals
    - Environment changes to reduce chemical exposure
  - Reduction of exposure to potentially damaging pressure
    - Reduction of degree of pressure changes
    - Increased physical distance from sources of pressure waves
    - Use of personal protective equipment against damaging pressure changes
    - Use of graded exposure protocols to facilitate adjustments to pressure changes
- Consultancy activities for hearing loss prevention
  - Education/Information Counselling about
    - Damaging noise levels
    - Potentially ototoxic substances
    - Barotrauma
    - Processes of noise injury
    - Effects of ototoxic substances
    - Occupational noise safety legislation
    - Individual susceptibility
    - Effective methods of auditory protection
    - Evaluating auditory protection
  - Acoustic environmental assessment and modification
  - Equipment and material needs and/or modifications
  - Hearing Loss Prevention program development, evaluation and management
  - Identification of persons at risk for hearing disorders
  - Assessment, intervention plans, procedures and interpretation of results
  - Referral to professionals and resources for further expert support

Documentation

Client or Service/Agency Record
(Practice Operations Standard 2.1.2 Health Record Compliance)

- Identifying information relating to client/client group
- Pertinent background information relating to client/client group
- Information defining formal or informal agreements made with other parties in relation to hearing loss prevention activities
• Written plans or reports to document services rendered as indicated in the agreement made between the parties involved
• Outcomes from hearing loss prevention activities
• Specific recommendations for further actions
• Copies of correspondence
• Informed Consent to obtain or release information (if applicable) *(Practice Operations Standard 1.1.3 Informed Consent)*
• Receipts/contracts

**Correspondence**
*(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)*

• Identifying information in relation to client/client groups
• Written to the level of knowledge and practicality required by the receiving party
• May include information about
  o Approach to hearing loss prevention activities
  o Outcomes
  o Specific recommendations for further actions
• Purpose of correspondence is clear (e.g., requesting action, requesting further information, feedback from referral, informational)

**Setting/Safety/Equipment Specifications**

• Workplace-specific Workplace Health and Safety equipment and procedures are used
• Precautions are taken to ensure prevention of bodily injury
• Electrical equipment is regularly tagged and tested
• Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions. *(Practice Operations Standard 2.4.2 Infection Prevention and Control)*

**Related References**

5. Hearing Loss Detection

**Purpose and Aim**
- To identify individuals who require further audiological assessment to verify hearing status.

**Expected Outcomes**
- Identification of individuals with signs of hearing impairment.
- Onward referral of individuals in need of further audiological assessment.

**Clinical Indicators**
- Individuals of all ages who are identified as being ‘at risk’ for hearing impairment.
- Resources are available to provide diagnostic and/or medical follow up for those who are referred from the screen, in keeping with screening principles ([Appendix 1: Screening Principles](#)).

**Clinical Processes**
- Informed consent obtained from client/caregiver for
  - Participation in screening
  - Release of medical results to relevant agencies
- Brief case history
  - Risk factors
  - Signs of an auditory disorder(s)
- Screening
  - Protocol dependent on
    - Age of client
    - Suspected auditory disorder
- Feedback, counselling and health promotion to client/Significant Other(s)
  - Results of test
  - Information
    - Limitations of screening information
    - Screening results are not definitive and hearing can change
    - What to do if hearing concerns arise
- Recommendations for further management
  - No further action
  - Rescreening/monitoring
  - Diagnostic audiological assessment
  - Referral for other examinations or services

**Documentation**

**Clinical Health Record**
(Practice Operations Criterion 2.1.2 Health Record Compliance)
- Identifying information in relation to the client
- Relevant client history
- Audiometric screening results conforming to [Appendix 2 Recommended Audiometric Symbols](#)
- Specific recommendations for further management
- Summary of post-assessment discussion with client
- Copies of correspondence
- Informed consent to release medical information ([Practice Operations Criterion 1.1.3 Informed Consent](#) and Practice Operations Criterion 2.2.1 Referrals)
- Receipts/contracts

**Correspondence**
(Practice Operations Standard 2.2 Co-ordination of Care with Other Heath Providers)
- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving professional
- Copy of test results
- Purpose of correspondence is clear (e.g. requesting action, feedback from referral, informational)
Settings
(Practice Operations Standard 3.1 Physical Environment and Facilities)

- Screening is conducted in a very quiet room with ambient noise levels below 45dBA using circumaural headphones, or insert earphones if not in a sound-treated environment.
  
- Provides confidentiality for client assessment and counselling
  


Safety
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)

- Testing environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Criterion 4.1.3 Clinical Risk Management).
- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
  
AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment

Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions (Practice Operations Criterion 2.4.2 Infection Prevention and Control)

NZAS Standards of Practice - Infection Control
Guidelines for Infection Prevention & Control - Summary & Audiological Perspective
Guidelines_for_Infection_Prevention_and_Control_-_Audiology_Australia_Abridged_Version

Equipment Specifications
(Practice Operations Standard 3.2 Equipment)

- Assessments are conducted with acoustic stimuli calibrated to ANSI standards.
  
AS ISO 389.1-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and supra-aural earphones

AS ISO 389.2-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and insert earphones

AS ISO 389.3-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold force levels for pure tones and bone vibrators

AS ISO 389.5-2003 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones in frequency range 8 kHz to 16 kHz

AS ISO 389.7-2003 Acoustics - Reference zero for the calibration of audiometric equipment - Reference threshold of hearing under free-field and diffuse-field listening conditions

AS IEC 60645-2-2002 Electroacoustics - Audiological equipment - Auditory test signals of short duration for audiometric and neuro-otological purposes

IEC 60645-5 Ed. 1.0 Electroacoustics - Audiometric equipment - Part 5: Instruments for the measurement of aural acoustic impedance/admittance

IEC 60645-6 Ed. 1.0 Electroacoustics - Audiometric equipment - Part 6: Instruments for the measurement of otoacoustic emissions
• Equipment is used in accordance with manufacturer’s instructions.
• Assessments are conducted using recognised test procedures.

**Related References**


### 5.1 Visual Reinforcement Audiometry (VRA) Screening

**Purpose and Aim**

• To identify young children likely to have auditory disorders that may interfere with communication development, psychosocial development, health and/or learning.

**Expected Outcomes**

• Identification of young children with hearing levels that are insufficient to ensure normal communication development.

**Clinical Indicators**

• Concern about hearing in a child with a developmental age of between 6 months and 3 years
• Known risk factors
• The need to eliminate hearing as a contributing factor to other developmental problems. Resources are available to provide diagnostic and/or medical follow up for those who are referred from the screening, in keeping with screening principles ([Appendix 1: Screening Principles](#))

**Clinical Processes**

• Case history
  o Establish rapport with child and caregiver
  o Presenting concern (hearing, speech/language development, attention, balance)
  o Overview of child’s development
  o Subjective impression of child’s auditory behaviour and communication
    o Known risk factors
• Otoscopy
• Tympanometry
• Visual Reinforcement Orientation Audiometry (VROA) to screening level
• Interpretation of results (pass/fail)
• Feedback, counselling and health promotion to family/caregiver
  o Results of test
  o Information
    • Auditory development
    • Limitations of screening information
    • Screening results are not definitive and hearing can change
    • Signs of hearing loss
    • What to do if hearing concerns arise

• Recommendations for further management
  o No further action
  o Rescreening/monitoring
  o Audiological diagnostic assessment
  o Referral for other examinations or services

Note: If the child fails the screening, the appointment may immediately transmute into a diagnostic evaluation

**Documentation**

**Client Health Record**
*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

• Identifying information in relation to the client
• Relevant client history
• Audiometric screening results conforming to New Zealand Audiological Society symbols or accepted convention
• Specific recommendations for further management
• Summary of post-assessment discussion with family/caregiver
• Copies of correspondence
• Informed consent to release medical information *(Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)*
• Receipts/contracts

**Correspondence**
*(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)*

• Identifying information in relation to client
• Written to the level of knowledge and practicality required by the receiving professional
• Copy of test results
• Purpose of correspondence is clear (e.g. requesting action, feedback from referral, informational)

**Settings**
*(Practice Operations Standard 3.1 Physical Environment and Facilities)*

• Screening is conducted in a very quiet room with ambient noise levels below 45dBA using circumaural headphones, or insert earphones if not in a sound-treated environment.
• Provides confidentiality for client assessment and counselling *(Practice Operations Criterion 1.1.2 Confidentiality and Privacy)*.


**Safety**
*(Practice Operations Criterion 2.4.1 Occupational Health and Safety)*

• Testing environment has been audited for occupational health and safety *(Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Criterion 4.1.3 Clinical Risk Management)*.
• Precautions are taken to ensure prevention of bodily injury.

• Electrical equipment is regularly tagged and tested.

AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment

• Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions (Practice Operations Criterion 2.4.2 Infection Prevention and Control).

NZAS Standards of Practice - Infection Control
Guidelines for Infection Prevention & Control - Summary & Audiological Perspective
Guidelines for Infection Prevention and Control - Audiology Australia Abridged Version

Equipment Specifications
(Practice Operations Standard 3.2 Equipment)

• Assessments are conducted with acoustic stimuli calibrated to ANSI standards.

AS ISO 389.1-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and supra-aural earphones

AS ISO 389.2-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and insert earphones

AS ISO 389.3-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold force levels for pure tones and bone vibrators

AS ISO 389.5-2003 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones in frequency range 8 kHz to 16 kHz

AS ISO 389.7-2003 Acoustics - Reference zero for the calibration of audiometric equipment - Reference threshold of hearing under free-field and diffuse-field listening conditions

AS IEC 60645.3-2002 Electroacoustics - Audiological equipment - Auditory test signals of short duration for audiometric and neuro-otological purposes

IEC 60645-5 Ed. 1.0 Electroacoustics - Audiometric equipment - Part 5: Instruments for the measurement of aural acoustic impedance/admittance

IEC 60645-6 Ed. 1.0 Electroacoustics - Audiometric equipment - Part 6: Instruments for the measurement of otoacoustic emissions

• Equipment is used in accordance with manufacturer’s instructions.

• Assessments are conducted using recognised test procedures.


Related References


5.2 Neonatal Screening

**Purpose and Aim**
- To identify infants likely to have significant congenital or perinatal auditory impairment.

**Expected Outcomes**
- Identification of infants likely to have congenital or perinatal auditory disorders that may interfere with their communication, health and well-being, development or learning.
- Onward referral of individuals showing signs of congenital or perinatal auditory disorders to ensure early identification and intervention to offset negative impacts of hearing impairment.

**Clinical Indicators**
- Screening of infants should be conducted by one month of age
- If the infant is medically unfit for earlier testing, screening can occur up to 3 months of age.
- Resources are available to provide diagnostic and/or medical follow up for those who are referred from the screening, in keeping with screening principles
  - ([Appendix 1: Screening Principles](#))

**Clinical Processes**
- Brief case history
  - Risk factors
- Screening
  - AABR
  - OAEs
- Interpretation of results
  - Pass = no further action
  - Refer = rescreen
- 2nd screening (if required)
  - Pass = no further action
  - Refer – refer for audiological diagnostic assessment
- Feedback, counselling and health promotion to family/caregiver
  - Results of test
  - Information
    - Limitation of screening information
    - Screening results are not definitive and hearing can change
    - Signs of hearing loss
    - What to do if hearing concerns arise
- Recommendations for further management
  - No further action
  - Rescreening/monitoring
  - Diagnostic audiological assessment
  - Referral for other examinations or services

**Documentation**

**Client Health Record**
- ([Practice Operations Criterion 2.1.2 Health Record Compliance](#))
  - Identifying information in relation to the client
  - Relevant client history
  - Pass/refer result
  - Recommendations for further management
  - Summary of information provided to family/caregiver
  - Comment on family/caregiver response to feedback

**Correspondence**
- ([Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers](#))
  - Referral

**Settings**
- ([Practice Operations Standard 3.1 Physical Environment and Facilities](#))
• Provides confidentiality for client assessment and counselling (Practice Operations Criterion 1.1.2 Confidentiality and Privacy).


Safety
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)

• Testing environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment) (Practice Operations Criterion 4.1.3 Clinical Risk Management)
• Precautions are taken to ensure prevention of bodily injury.
• Electrical equipment is regularly tagged and tested.
• AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment
• Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions
• (Practice Operations Criterion 2.4.2 Infection Prevention and Control).

Guidelines for Infection Prevention & Control - Summary & Audiology Perspective
Guidelines_for_Infection_Prevention_and_Control_-_Audiology_Australia_Abridged_Version
NZAS Standards of Practice - Infection Control

Equipment Specifications
(Practice Operations Standard 3.2 Equipment)

• Assessments are conducted with acoustic stimuli calibrated to ANSI standards.

AS ISO 389.1-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and supra-aural earphones

AS ISO 389.2-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and insert earphones

AS IEC 60645.3-2002 Electroacoustics - Audiological equipment - Auditory test signals of short duration for audiometric and neuro-otological purposes

IEC 60645-6 Ed. 1.0 Electroacoustics - Audiometric equipment - Part 6: Instruments for the measurement of otoacoustic emissions

• Equipment is used in accordance with manufacturer’s instructions.
• Assessments are conducted using recognised test procedures.

Related References


5.3 Occupational Hearing Screening & Surveillance

**Purpose and Aim**
- To identify individuals who are showing signs of auditory disorder which may be related to exposure to noise and/or toxic agents in the workplace.

**Expected Outcomes**
- Identification of individuals from work environments with potential noise, toxin or barotrauma risk, who exhibit signs of auditory disorder.
- Onward referral of individuals in need of further audiological assessment.
- Recognition of potential ear and hearing health hazards in the workplace.

**Clinical Indicators**
- Persons working in environments where they are likely to experience
  - Exposure to noise levels likely to cause noise injury
  - Exposure to ototoxic agents
  - Any combination of noise and toxic agents
  - Levels of pressure changes with the potential to cause pressure injury/barotraumas
- Resources are available to provide diagnostic and/or medical follow up for those who are referred from the screen, in keeping with screening principles ([Appendix 1: Screening Principles](#)).

**Clinical Processes**
- Brief case history
  - Exposure to potentially damaging noise/toxic agents
  - Exposure to significant pressure changes
  - Use of protective equipment
  - Concerns regarding hearing or balance
- Screening
  - Otoscopy
  - Pure tone audiometry
- Interpretation of results
- Feedback, counselling and health promotion to client/Significant Other(s)
  - Results of test
  - Information
    - Limitations of screening information
    - Screening results are not definitive and hearing can change
    - Benefits of using protective equipment and preventative strategies
    - Signs of hearing loss
    - What to do if hearing concerns arise
- Recommendations for further management
  - No further action
  - Rescreening
  - Diagnostic audiological assessment
  - Referral for other examinations or services

**Documentation**

**Clinical Health Record**
((Practice Operations Criterion 2.1.2 Health Record Compliance))
- Identifying information in relation to the client
- Relevant client history
- Audiometric screening results conforming to New Zealand Audiological Society Symbols or accepted convention
- Specific recommendations for further management
- Summary of post-assessment discussion with client
- Copies of correspondence
- Informed consent to release medical information (Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Standard 2.2.1 Referrals)
- Receipts/contracts
Correspondence
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)

- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving professional
- Copy of test results
- Purpose of correspondence is clear (e.g. requesting action, feedback from referral, informational)

Settings
(Practice Operations Standard 3.1 Physical Environment and Facilities)

- Screening is conducted in a very quiet room with ambient noise levels below 45dBA using circumaural headphones or insert earphones if not in a sound-treated environment
- Provides confidentiality for client assessment and counselling
  (Practice Operations Criterion 1.1.2 Confidentiality and Privacy).

Safety
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)

- Testing environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Criterion 4.1.3 Clinical Risk Management).
- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
  AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions.
  (Practice Operations Criterion 2.4.2 Infection Prevention and Control).
  Guidelines for Infection Prevention & Control - Summary & Audiological Perspective
  Guidelines_for_Infection_Prevention_and_Control_-_Audiology_Australia_Abridged_Version
  NZAS Standards of Practice - Infection Control

Equipment Specifications
(Practice Operations Standard 3.2 Equipment)

- Assessments are conducted with acoustic stimuli calibrated to ANSI standards.
  AS ISO 389.1-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and supra-aural earphones
  AS ISO 389.2-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and insert earphones
  AS ISO 389.3-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold force levels for pure tones and bone vibrators
  AS IEC 60645-3:2002 Electroacoustics - Audiological equipment - Auditory test signals of short duration for audiometric and neuro-otological purposes
  IEC 60645-5 Ed. 1.0 Electroacoustics - Audiometric equipment - Part 5: Instruments for the measurement of aural acoustic impedance/admittance
  IEC 60645-6 Ed. 1.0 Electroacoustics - Audiometric equipment - Part 6: Instruments for the measurement of otoacoustic emissions
• Equipment is used in accordance with manufacturer’s instructions.
• Assessments are conducted using recognised test procedures.


Related References
6. Teleaudiology

Teleaudiology is defined as the use of telecommunications technology such as the internet, computer networks, videoconferencing or telephone to provide access to audiological services for clients who are not in the same location as the clinician. New Zealand Audiological Society’s position is that telepractice is an appropriate model of service delivery for the audiology profession.

In 2010, the World Health Organization reported that in 2005, about 278 million people across the globe had moderate to profound hearing impairment, making it one of the most common disabilities in the world. About 80% of those with significant hearing impairment are in low- and middle-income countries, where access to hearing service is difficult due to cost, insufficient services for population needs and/or geographic remoteness from service centres. Teleaudiology and teleotology has the potential to shape future audiological practice by changing the way services are delivered to these populations.

Teleaudiology can be live (synchronous) or store-and-forward (asynchronous). Synchronous is performed in real time with the audiologist at the local end and the client at the remote end. Asynchronous requires a clinician, assistant or other health professional to facilitate telecommunication connectivity and record data and results from the client at the remote end, store the results and then forward them to the audiologist for analysis and interpretation.

The availability and reliability of suitable sites, equipment and telecommunications technology may affect quality of teleaudiology services. New Zealand Audiological Society Professional Practice Standards – Part B Clinical Practice does not separate standards for teleaudiology and face-to-face audiological service delivery models. Devising teleaudiology service delivery models that are evaluated for efficiency, effectiveness, risk mitigation and participant satisfaction is therefore paramount. In addition, consideration should be given to factors such as cross-border licensure, competency and the role of support personnel in remote locations when delivering teleaudiology services. Current research evidence suggests teleaudiology can achieve equivalent outcomes to face-to-face services across a range of activities. As the evidence-base grows and remote service delivery techniques come into regular use, teleaudiology is expected to attain equity in outcomes compared with traditional service methods. Therefore, the quality of services delivered via telepractice must be consistent with the quality of services delivered face-to-face.

**Purpose and Aim**

- To provide access to audiological services for populations who are unable to access face-to-face services due to geographical reasons.
- To provide access to audiological services for populations who are unable to access face-to-face services due to socioeconomic or physical disadvantages.
- To provide professional support to personnel who are involved in delivering less than familiar practices.
- To provide professional support to personnel who require a second opinion with difficult cases.

**Expected Outcomes**

- Increased and more timely access to audiological services for populations who are unable to access face-to-face services due to geographical reasons.
- Increased and more timely access to audiological services for populations who are unable to access face-to-face services due to socioeconomic or physical disadvantages.
- Increased professional support to personnel involved in delivering services.
- Competent performance of services and mitigation of risk for client and clinic.

**Clinical Indicators**

- Individuals of all ages unable to access face-to-face audiological assessment, referral and rehabilitation

**Clinical Processes**

- Teleaudiology may be used for
- Individuals living in rural and remote areas
- Individuals unable to access face-to-face services due to frailty, disability and circumstance
- Communities and individuals identified as at risk for hearing loss
• Individuals who seek screening for hearing loss via telecommunications technology
• Personnel who require support for provision of services
• Teleaudiology services may cover
  • Telescreen – hearing screening via the telephone
  • Electronic referrals - store-and-forward or real-time techniques
  • Computer-based client management systems/electronic client health records
  • Remote practitioner support – online learning, real time mentoring, telesupervision
• Remote standard audiological diagnostic assessment
• Remote hearing aid fitting and evaluation
• TeleMAPping for cochlear implants
• Remote advocacy services

Documentation

Client Health Record
(Practice Operations Criterion 2.1.2 Health Record Compliance)

• Adherence to cultural awareness and cultural safety protocols are required
• Identifying information relating to client
• Relevant case history with detailed pertinent background information
• Audiométric results conforming to Appendix 2 Recommended Audiometric Symbols
• Reasons for modification/truncation of testing procedures if applicable
• Detailed file notes addressing interpretation of test results, including type and severity of hearing impairment
• Specific recommendations for further management
• Information on recommended intervention/management
  o Amplification strategies
  o Communication modality/strategies used
  o Frequency of service
  o Estimated duration of programme
  o Specific hearing and/or communication goals
  o Ongoing communication needs
  o Type of service (e.g. individual, group, home programme)
  o Consensus on decision
  o Estimate of costs involved
• Client circumstances or disabilities that may affect ability to comply with recommendations for further testing/investigation or management options
• Summary of verbal and written information with client and/or Significant Other(s)
• Rationale for treatment and rehabilitation plan
• Copies of correspondense
• Professionals and services involved in multidisciplinary management
• Informed consent to release medical information (Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)
• Activities and procedures undertaken in fitting process (if applicable)
• Copy of device use/communication plans
• Strategies used to meet client needs and goals
• Results of evaluation of device fitting
• Specific recommendations for further management
• Receipts/contracts

Correspondence
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)

• May be required by:
  o Referring agent
  o Education staff
  o Intervention agency
  o Speech and Language Therapist
  o Client/family
  o Other medical or allied health
• Identifying information in relation to client
• Written to the level of knowledge and practicality required by the receiving professional
• Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)
• Any correspondence written by personnel under supervision is reviewed and countersigned by the supervising clinician before sending

Settings
(Practice Operations Standard 3.1 Physical Environment and Facilities)

• Ambient noise levels at both local and remote sites meet ANSI standards for hearing assessment (Practice Operations Criterion 3.1.2 Health Record Compliance).
• Provides confidentiality for client assessment and counselling (Practice Operations Criterion 1.1.2 Confidentiality and Privacy).
• Audiometric equipment meets ANSI standards for hearing assessment (Practice Operations Standards Criterion 3.2.1 Equipment Safety and Calibration).

Safety
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)

• Local and remote testing environments have been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Criterion 4.1.3 Clinical Risk Management).
• Precautions are taken to ensure prevention of bodily injury.
• Electrical equipment is regularly tagged and tested.
• Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions (Practice Operations Criterion 2.4.2 Infection Prevention and Control).
  Guidelines for Infection Prevention & Control - Summary & Audiological Perspective
  Guidelines for Infection Prevention and Control - Audiology Australia Abridged Version
  NZAS Standards of Practice - Infection Control

Equipment Specifications
(Practice Operations Standard 3.2 Equipment)

• Assessments are conducted with acoustic stimuli calibrated to ANSI standards.
• Equipment is used in accordance with manufacturer’s instructions
• Assessments are conducted using recognised test procedures.
  AS 60118.0-2007 Hearing aids - Measurement of electroacoustical characteristics
  AS 60118.7-2007 Hearing aids – Measurement of the performance characteristics of hearing aids for production, supply and delivery quality assurance purposes
  AS 60118.8-2007 Hearing aids - Methods of measurement of performance characteristics of hearing aids under simulated in situ working conditions
  AS 60118.9-2007 Hearing aids - Methods of measurement of characteristics of hearing aids with bone vibrator output
  AS ISO 12124-2003 Acoustics - Procedures for the measurement of real-ear acoustical characteristics of hearing aids
Related References

Advanced Scopes of Practice

7. Advanced Scope of Practice - Ear Canal Management

**Purpose and Aim**
- To clear the ear canal of obstructive wax.
- To clear the ear canal of discharge caused by otitis externa or otitis media.

**Expected Outcomes**
- Improved visibility of the deep canal and tympanic membrane for diagnostic otoscopic assessment.
- Improved reliability of screening, diagnostic and re/habilitative evaluation results.
- Increased cohesion and timeliness of management for clients in need of ear canal clearance to proceed with other diagnostic or re/habilitative processes.
- Improved ear canal health.

**Clinical Indicators**
- Individuals with wax build-up which obstructs the canal to the extent that it
  - Affects hearing thresholds
  - Interferes with diagnostic or re/habilitative audiological procedures
  - Causes an otherwise well-fitted hearing aid to feedback
- Individuals with discharge in the ear canal

**Clinical Processes**
- Case history
  - Pain and/or recent infection in or around ear
  - History of surgery on the ear
  - Experience of fullness or decreased hearing in the ear
- Otoscopy identifies
  - Wax completely occluding ear canal
  - Foreign body in canal
  - Discharge in canal
- Canal may be cleared by
  - Dry-mopping with tissue spears
  - Wax loops
  - Suction
  - Syringing
  - Method of clearance is dependent on training
- Feedback, counselling and health promotion to client/Significant Other(s)
  - Strategies for wax management
  - Use of tissue spears for discharge
  - Reasons for managing ear disease
  - Medication purpose and regimen
  - Signs and symptoms of ear disease
  - Language milestones
- Recommendations for further management
  - Nil
  - Eardrops to soften wax
  - Referral for medical management of
    - Immovable wax/foreign body
    - Post-surgical ears requiring canal management
    - Canal infection
    - Otitis Media conditions
    - Foreign body in canal
  - Continuation of audiological assessment and re/habilititation
**Documentation**

**Client Health Record**  
*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client
- Relevant case history with detailed pertinent background information
- Clinical events, including client state/reactions (before, during and after the procedures) and client comments
- Specific recommendations for further management
- Summary of post-treatment discussion with client
- Copies of correspondence
- Informed consent to release medical information  
  *Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals*
- Receipts/contracts

**Correspondence**  
*(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)*

- May be required by
  - Referring agent
  - Medical
  - Other audiology
- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving professional
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)

**Settings / Safety**

- Environment has been audited for occupational health and safety *(Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Criterion 4.1.3 Clinical Risk Management).*
- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.  
  *AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment*
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions.  
  *(Practice Operations Criterion 2.4.2 Infection Prevention and Control).*
  *Guidelines for Infection Prevention & Control - Summary & Audiological Perspective Guidelines for Infection Prevention and Control - Audiology Australia Abridged Version NZAS Standards of Practice - Infection Control*

**Related References**

8. Advanced Scope of Practice - Diagnosis of Otitis Media (OM) Conditions

**Purpose and Aim**
- To correctly identify the Otitis Media (OM) condition experienced by the client.
- To recognise features of the canal and eardrum which signify a need for urgent medical referral.
- To promote timeliness of management for ear health issues through improved collaboration with medical professionals.
- To support ear health education through client-specific information about Otitis Media.

**Expected Outcomes**
- Increased diagnosis of Otitis Media conditions.
- Improved monitoring of ear conditions through increased diagnostic involvement.
- Improved ear health literacy through client-specific ear health education.

**Clinical Indicators**
- Individuals with or at risk for middle ear health disorders

**Clinical Processes**
- Cash history
  - Pain and/or recent infection in or around the ear
  - History of surgery on the ear
  - Experience of fullness or decreased hearing in the ear
  - Perception of decreased hearing by family/education personnel/child care workers/workmates and other regular communication partners

- Otoscopy
  - May include
    - Static otoscopy
    - Pneumo-otoscopy
    - Video otoscopy
  - May identify
    - Normal appearance
    - Scarring of the eardrum
    - Retracted eardrum
    - Middle ear effusion
    - Acute OM without perforation
    - Acute OM with perforation
    - Chronic suppurative OM
    - Dry perforation
    - Other abnormality of the eardrum or ear canal

- Tympanometry and other test results may be used to support diagnosis

- Feedback, counselling and health promotion to client/Significant Other/s
  - Medication purpose and regimen
  - Use of tissue spears
  - Reasons for managing ear disease
  - Signs and symptoms of ear disease
  - Language milestones

- Recommendations for further management (according to local protocol)
  - Nil required
  - Medical treatment
    - Antibiotics
      - Topical
      - Systemic
    - Referral to ENT
    - Review

**Documentation**

**Client Health Record**
*(Practice Operations Criterion 2.1.2 Health Record Compliance)*
- Identifying information relating to the client
• Relevant case history with detailed pertinent background information
• Specific recommendations for further management
• Summary of Information discussed with client/Significant Other/s including
  o Explanation of recommendations
  o Impacts of Otitis Media on health and well-being
  o Management strategies and procedures discussed
• Copies of correspondence
• Informed consent to release medical information (Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)
• Receipts/contracts

Correspondence
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)

• May be required by
  o Referring agent
  o Education staff
  o Client/family
  o Other medical or allied health
• Identifying information in relation to client
• Written to the level of knowledge and practicality required by the receiving professional
• Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)

Settings / Safety

• Testing environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Criterion 4.1.3 Clinical Risk Management).
• Precautions are taken to ensure prevention of bodily injury.
• Electrical equipment is regularly tagged and tested. AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment
• Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions. (Practice Operations Criterion 2.4.2 Infection Prevention and Control).
  Guidelines for Infection Prevention & Control - Summary & Audiolological Perspective
  Guidelines_for_Infection_Prevention_and_Control_-_Audiology_Australia_Abridged_Version
  NZAS Standards of Practice - Infection Control

Related References

• The Recommendations for Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and Torres Strait Islander Populations. Updated 2011. Aboriginal and Torres Strait Islander Health, Department of Health and Ageing, Australian Government.
• Chronic Otitis Media and Hearing Loss Practice (COMHeLP): A Manual for Audiological Practice with Aboriginal and Torres Strait Islander Australians. March 2012. Audiology Australia.
• Menzies School of Health Research (2007). Images of Tympanic Membrane Darwin, NT
  www.healthinfonet.ecu.edu.au/key-resources/promotion-resources?lid=17286
• Menzies School of Health Research (2010). The Ear DVD Casuarina, NT
  http://www.healthinfonet.ecu.edu.au/key-resources/promotion-resources?lid=14985
• DxEAR-SL (Diagnostic Ear Assessment Resource - Self-Learning)
  http://pedsed.pitt.edu/34_viewFolder.asp?folderID=681354763
  http://pedsed.pitt.edu/34_viewPage.asp?pageID=1445510805
• WHO (2006) World Health Organization training resource on primary ear and hearing care
  www.healthinfonet.ecu.edu.au/key-resources/promotion-resources?lid=14988
Audiological Diagnostic Evaluation

Audiological Diagnostic Assessment is undertaken:
1. To determine whether or not a hearing or auditory-related impairment is present
2. To identify the likely impacts of that hearing or auditory-related impairment on the client (including prognosis/anticipation of need)
3. To plan a pathway for further management of the client’s auditory disorder.

The expectation that further management is desired is often assumed from the fact of client presentation. However, this is not always the case and should be clarified with the client in the process of the clinical interaction.

Because diagnostic audiology is driven by the dual imperatives of client-centred management and potential pathology, the nature of practice standards is to some extent focussed on the test battery. A practice will be selected based on client presentation and clinical hypothesis, and may then be transmuted or augmented to arrive at a result set that provides the required diagnosis by means that are within the client’s capability and tolerance.

**Standard assessments** are based primarily around hearing tests yielding behavioural results, as this approach is most likely to produce accurate thresholds and demonstrate integrated functioning of the components of the auditory system.

**Advanced assessments** may include behavioural, often modified test procedures, as well as objective tests. Advanced Assessments are required when:
   a) the client is unable or unwilling to comply with standard test protocols
   b) standard assessment results identify risk factors or inconsistencies which indicate a need for greater precision in determining capabilities and site/s of lesion to inform pathology investigations and re/habilitation

Advanced assessments, like standard assessments, may be centred on the auditory system’s ability to perceive incoming auditory signals, but they may include other specialised procedures that are not relevant to clients whose auditory disorder is purely related to hearing.

9. Standard Audiological Assessment - Adult

**Purpose and Aim**
- To measure the degree of hearing impairment.
- To establish site(s) of lesion within the peripheral auditory system.
- To establish the impact of hearing impairment on the client.
- To monitor the stability (degree) and impacts of an established hearing impairment.
- To determine whether an individual would benefit from further investigation or rehabilitation for hearing impairment.
- To monitor the health of peripheral auditory system components.
- To determine a pathway for auditory rehabilitation as required by the individual.

**Expected Outcomes**
- Identification of the presence or absence of hearing impairment.
- Quantification by degree of hearing impairment.
- Qualification by site(s) of lesion within the peripheral auditory system.
- Qualification and quantification of the experienced impacts of hearing loss on the client.
- Qualification and quantification of the potential impacts of hearing loss on the client.
- Determination of further management requirements.
- Provision of support to access further management.

**Clinical Indicators**
- Known risk factors
- Referral
  - Self
  - Family/Significant Other(s)
  - Other professional
  - Screening programme
**Clinical Processes**

- Detailed case history  
  - May include communication inventories
- Otoscopy  
  - Wax management by qualified professional where indicated
- Tympanometry
- Pure Tone Audiometry  
  - Air conduction  
  - Bone conduction  
    - Threshold testing  
    - Tuning fork tests (e.g. Rinne, Weber)  
  - Masking where required
- Speech Audiometry, which may involve  
  - Detection  
  - Recognition  
  - Identification  
  - Discrimination  
  - Masking if required
- Acoustic reflexes  
  - Multifrequency  
  - Broadband or shaped noise  
  - Reflex decay  
  - Ipsilateral and contralateral presentation
- Otoacoustic emissions
- Interpretation of tests performed and of test battery (usually done while testing in process)
- Feedback, counselling and health promotion to client/Significant Other(s)  
  - Expected impact of auditory disorder  
  - Management options (advantages and disadvantages)  
  - Provision of written information to support discussion
- Recommendations for further management  
  - No further action  
  - Reassessment/monitoring  
  - Referral  
    - Advanced assessment  
    - Audiological rehabilitation  
    - Medical  
    - Allied health  
      - Speech/language  
      - Counselling  
      - Education/workplace support  
      - Support and mentoring groups

**Documentation**

**Client Health Record**  
*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client
- Relevant case history with detailed pertinent background information
- Audiometric results conforming to New Zealand Audiological Society Symbols
- Reasons for modification/truncation of testing procedures if applicable
- Detailed file notes addressing interpretation of test results, including type and severity of hearing impairment
- Specific recommendations for further management
- Information on recommended intervention/management  
  - Frequency of service  
  - Estimated duration of programme  
  - Type of service (e.g. individual, group, home programme)  
  - Estimate of costs involved
- Client circumstances or disabilities that may affect ability to comply with recommendations for further testing/investigation or management options
• Summary of post-assessment discussion with client
• Copies of correspondence
• Informed consent to release medical information (Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)
• Receipts/contracts

Correspondence
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)

• May be required by
  o Referring agent
  o Education staff
  o Workplace rehabilitation officer
  o Veterans’ Affairs New Zealand
  o Compensation body
  o Speech/language pathologist
  o Client/family
  o Other medical or allied health
• Identifying information in relation to client
• Written to the level of knowledge and practicality required by the receiving professional
• Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)

Settings
(Practice Operations Standard 3.1 Physical Environment and Facilities)

• Ambient noise meets ANSI standards for hearing assessment (Practice Operations Standard Criterion 3.1.2 Health Record Compliance).
  ANSI S3.1-1999 (R2013) Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms
• Provides confidentiality for client assessment and counselling (Practice Operations Standards Criterion 1.1.2 Confidentiality and Privacy).

Safety
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)

• Testing environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Criterion 4.1.3 Clinical Risk Management).
• Precautions are taken to ensure prevention of bodily injury.
• Electrical equipment is regularly tagged and tested.
  AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment
• Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions.
  (Practice Operations Standard 2.4.2 Infection Prevention and Control)
  Guidelines_for_Infection_Prevention_and_Control_-_Audiology_Australia_Abridged_Version
  NZAS Standards of Practice - Infection Control

Equipment Specifications
(Practice Operations Standard 3.2 Equipment)

• Assessments are conducted with acoustic stimuli calibrated to ANSI standards.
AS ISO 389.1-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and supra-aural earphones

AS ISO 389.2-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and insert earphones

AS ISO 389.3-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold force levels for pure tones and bone vibrators

AS ISO 389.5-2003 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones in frequency range 8 kHz to 16 kHz

AS ISO 389.7-2003 Acoustics - Reference zero for the calibration of audiometric equipment - Reference threshold of hearing under free-field and diffuse-field listening conditions

AS IEC 60645.3-2002 Electroacoustics - Audiological equipment - Auditory test signals of short duration for audiometric and neuro-otological purposes

IEC 60645-5 Ed. 1.0 Electroacoustics - Audiometric equipment - Part 5: Instruments for the measurement of aural acoustic impedance/admittance

IEC 60645-6 Ed. 1.0 Electroacoustics - Audiometric equipment - Part 6: Instruments for the measurement of otoacoustic emissions

- Equipment is used in accordance with manufacturer's instructions.
- Assessments are conducted using recognised test procedures.


Related References
10. Standard Assessment - Paediatric

**Purpose and Aim**
- To determine whether a child would benefit from further investigation or re/habilitation for hearing impairment.
- To measure the degree and configuration of hearing impairment.
- To establish site(s) of lesion within the peripheral auditory system.
- To identify the impacts and potential impacts of hearing impairment on the client.
- To monitor the stability (degree) of an established hearing impairment.
- To monitor the impacts of an established hearing impairment.
- To monitor the health of peripheral auditory system components.
- To determine a pathway for auditory re/habilitation as required by the individual.

**Expected Outcomes**
- Identification of the presence or absence of hearing impairment.
- Quantification by degree of hearing impairment.
- Qualification by site(s) of lesion within the peripheral auditory system.
- Quantification of the experienced and anticipated impacts of hearing loss on the client.
- Determination of further management requirements.
- Provision of support to access further management.

**Clinical Indicators**
- Children who are able to provide consistent behavioural responses if the response task is tailored to developmental level
- Known risk factors
- Referral
  - Self
  - Family/Significant Other(s)
  - Medical
  - Other professional
  - Screening programme

**Clinical Processes**
- Detailed case history
  - Age of the child will determine
    - Questions in focus
    - Primary provider of information
  - May include information on
    - Presenting concerns
    - Expectations of appointment
    - Development
    - Speech/language
    - Social
    - Cognitive
    - Other development
    - Educational progress
    - Risk factors for hearing impairment
  - May include
    - High risk registers
    - Listening behaviour checklists
- Otoscopy
  - Wax management by qualified professional where indicated
- Tympanometry
  - Standard (226Hz)
  - High-frequency
- Audiometry
  - Behavioural Observation
  - Visual Reinforcement Audiometry
  - Play
    - Pure Tone
Air Conduction
Bone Conduction
  - Threshold testing
  - Tuning fork tests (e.g. Rinne, Weber)
  - Masking where required

Speech perception assessment, formal or informal, which may involve
  - Detection
  - Recognition
  - Identification
  - Discrimination
  - Masking if required
  - Responses may involve picture pointing, repetition or cooperative tasks

Acoustic reflexes
  - Broadband
  - Multifrequency
  - Reflex decay
  - Ipsilateral and contralateral presentation

Otoacoustic Emissions
  - Interpretation of tests performed and of test battery (usually done while testing in process)

Feedback, counselling and health promotion to family/caregiver
  - Expected impacts of auditory disorder
  - Management options (advantages and disadvantages)
  - Provision of written information to support discussion

Recommendations for further management
  - No further action
  - Reassessment/monitoring
  - Referral
    - Further assessment
    - Audiological re/habilitation
    - Medical
      - Ear Nose and Throat
      - Paediatrician
      - Ophthalmology
    - Allied health
      - SLT
      - Psychology
      - Counselling
    - Educational/early intervention
      - AODC
    - Support and mentoring groups

Documentation

Client Health Record
(Practice Operations Criterion 2.1.2 Health Record Compliance)

- Identifying information relating to client
- Relevant case history with detailed pertinent background information
- Audiometric results conforming to Appendix 2 Recommended Audiometric Symbols
- Reasons for modification/truncation of testing procedures if applicable
- Detailed file notes addressing interpretation of test results, including type and severity of hearing impairment
- Specific recommendations for further management
- Information on recommended intervention/management, in conjunction with adviser on deaf children
- Client circumstances or disabilities that may affect ability to comply with recommendations for further testing/investigation or management options
- Summary of post-assessment discussion with client/Significant Other(s)
- Copies of correspondence
• Informed consent to release medical information (Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)

**Correspondence**
*(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)*

- May be required by
  - Referring agent
  - Medical
    - Ear Nose and Throat
    - Paediatrician
    - Ophthalmology
    - Other
  - Allied health
    - SLT
    - Psychology
    - Other
  - Educational/early intervention
    - AODC
  - Family
  - Other as specified by parent/guardian

- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving professional
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)

**Settings**
*(Practice Operations Standard 3.1 Physical Environment and Facilities)*

- Ambient noise meets ANSI standards for hearing assessment (Practice Operations Criterion 3.1.2 Health Record Compliance).
- Provides confidentiality for client assessment and counselling (Practice Operations Criterion 1.1.2 Confidentiality and Privacy).


**Safety**
*(Practice Operations Criterion 2.4.1 Occupational Health and Safety)*

- Testing environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Standard 4.1.3 Clinical Risk Management).
- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions.
  *(Practice Operations Criterion 2.4.2 Infection Prevention and Control)*
  **Guidelines for Infection Prevention & Control - Summary & Audiological Perspective Guidelines for Infection Prevention and Control - Audiology Australia Abridged Version** [Link](NZAS Standards of Practice - Infection Control)

**Equipment Specifications**
*(Practice Operations Standard 3.2 Equipment)*

- Assessments are conducted with acoustic stimuli calibrated to ANSI standards.
AS ISO 389.1-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and supra-aural earphones
AS ISO 389.2-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and insert earphones
AS ISO 389.3-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold force levels for pure tones and bone vibrators
AS ISO 389.5-2003 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones in frequency range 8 kHz to 16 kHz
AS ISO 389.7-2003 Acoustics - Reference zero for the calibration of audiometric equipment - Reference threshold of hearing under free-field and diffuse-field listening conditions
AS IEC 60645.3-2002 Electroacoustics - Audiological equipment - Auditory test signals of short duration for audiometric and neuro-otological purposes
IEC 60645-5 Ed. 1.0 Electroacoustics - Audiometric equipment - Part 5: Instruments for the measurement of aural acoustic impedance/admittance
IEC 60645-6 Ed. 1.0 Electroacoustics - Audiometric equipment - Part 6: Instruments for the measurement of otoacoustic emissions
- Equipment is used in accordance with manufacturer’s instructions.
- Assessments are conducted using recognised test procedures.

Related References
11. Advanced Audiological Assessment

**Purpose and Aim**
- To obtain further information to resolve inconsistent or inconclusive test results.
- To attain or accurately estimate hearing thresholds for clients who are difficult to test.
- To determine whether an individual would benefit from further investigation or re/habilitation for hearing impairment.
- To determine communication skills for potential remediation or improvement.
- To determine a pathway for auditory re/habilitation as required by the individual.

**Expected Outcomes**
- Identification of the presence or absence of hearing impairment.
- Quantification by degree of hearing impairment.
- Qualification by site(s) of lesion within the auditory system.
- Qualification of the experienced and potential impacts of hearing loss on the client.
- Determination of further management requirements.
- Provision of support to access further management.

**Clinical Indicators**
- Individuals who require modifications to standard behavioural procedures, and/or objective procedures to determine hearing status, due to physical, psychological, cognitive or developmental factors
- Known risk factors
- Referral
  - Self
  - Family/Significant Other(s)
  - Medical
  - Other professional
  - Screening programme
- Inconclusive or inconsistent results on standard assessment

**Clinical Processes**
- Detailed case history
  - Establish rapport
  - Determine hearing needs/concern
  - Identifies signs and symptoms or risk factors that may guide clinical hypothesis and testing decisions
  - Cross-check for consistency and interpretation of test battery
  - Guide management decisions
  - May include listening behaviour checklist/diary
- Otoscopy
  - Wax management by qualified professional where indicated
- Tympanometry
  - Standard (226Hz)
  - High-frequency
- Audiometry may include
  - Behavioural Observation
  - Visual Reinforcement Audiometry
  - Play
  - Pure tone
  - Masking as required
  - Ascending, descending, random presentation techniques
  - Tailored/trained response paradigms
  - Personalised reinforcement systems
  - Tuning fork tests (e.g. Rinne, Weber)
- Stenger test and other tests for functional hearing loss (see section on functional hearing loss)

- Speech Perception assessment, formal or informal, which may involve
  - Detection
  - Recognition
  - Identification
  - Discrimination
  - Masking if required

- Acoustic reflexes
  - Multifrequency
  - Broadband or shaped noise
  - Reflex decay
  - Ipsi and contralateral presentation

- Otoacoustic Emissions

- Auditory Evoked Potentials (AEPs)
  - Auditory Brainstem Response (ABR)
  - Auditory Steady State Response (ASSR)
  - Electrocochleography (ECoG)
  - Auditory Middle Latency Response (AMLR)
  - Cortical Auditory Evoked Potentials (CAEPs)/Auditory Late Latency Response (ALLR)
  - May be measured using air conduction and/or bone conduction

- Interpretation of the test results individually and as the combined test battery (usually done while testing in process)

- Feedback, counselling and health promotion to client/Significant Other(s)
  - Expected impacts of auditory disorder
  - Management options (advantages and disadvantages)
  - Provision of written information to support discussion

- Recommendations for further management
  - No further action
  - Reassessment/monitoring
  - Referral
    - Further assessment
    - Audiological re/habilitation
    - Medical
      - Ear Nose and Throat
      - Paediatrician
      - Ophthalmology
    - Allied health
      - SLT
      - Psychology
    - Early intervention/educational support services
      - AODC
    - Support and mentoring groups

**Documentation**

**Client Health Record**

*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client
- Relevant case history with detailed pertinent background information
- Audiometric results conforming to *Appendix 2 Recommended Audiometric Symbols*
- Reasons for modification/truncation of testing procedures if applicable
• Detailed file notes addressing interpretation of test results, including type and severity of hearing impairment
• Specific recommendations for further management
• Information on recommended intervention/management, including estimates of
  o Frequency of service
  o Estimated duration of programme
  o Type of service (e.g. individual, group, home programme)
  o Estimate of costs involved
• Client circumstances or disabilities that may affect ability to comply with recommendations for further testing/investigation or management options
• Summary of post-assessment discussion with client/Significant Other(s)
• Copies of correspondence
• Informed consent to release medical information *(Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations 2.2.1 Referrals)*
• Receipts/contracts

**Correspondence**  
*(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)*

• May be required by
  o Referring agent
  o Education staff
    ▪ RTD
  o Early intervention
    ▪ AODC
  o Medical
    ▪ Ear, Nose and Throat
    ▪ Paediatrician
    ▪ Ophthalmology
  o Allied health  
    ▪ SLT
    ▪ Psychology
  o Other as specified by parent/guardian
  o Department of Veterans’ Affairs
  o Accident Compensation Corporation
  o Client/family

• Identifying information in relation to client
• Written to the level of knowledge and practicality required by the receiving professional
• Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)

**Settings**  
*(Practice Operations Standard 3.1 Physical Environment and Facilities)*

• Ambient noise meets ANSI standards for hearing assessment *(Practice Operations Criterion 3.1.2 Health Record Compliance).*  
  **ANSI S3.1-1999 (R2013) Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms**  
• Provides confidentiality for client assessment and counselling *(Practice Operations Criterion 1.1.2 Confidentiality and Privacy).*
• Privacy Legislation  

**Safety**
*(Practice Operations Criterion 2.4.1 Occupational Health and Safety)*

- Testing environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Criterion 4.1.3 Clinical Risk Management).
- Precautions are taken to ensure prevention of bodily injury.
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions. *(Practice Operations Criterion 2.4.2 Infection Prevention and Control).* Guidelines for the Prevention and Control of Infection in Healthcare https://www.audiology.asn.au/public/1/files/Resources/Guidelines%20for%20Infection%20Prevention%20%26%20Control%20-%20Summary%20%26%20Audiological%20Perspective%20Final.pdf

**Equipment Specifications**
*(Practice Operations Standard 3.2 Equipment)*

  


- Equipment is used in accordance with manufacturer’s instructions.
  
AS ISO 8253-2:2009 Acoustics - Audiometric test methods - Part 2: Sound field audiometry with pure-tone and narrow-band test signals\n
• Equipment is used in accordance with manufacturer's instructions.
• Assessments are conducted using recognised test procedures.


Related References

11.1 Assessment for Neonates

**Purpose and Aim**
- To determine whether an infant would benefit from further investigation or re/habilitation for hearing impairment.
- To attain or accurately estimate hearing thresholds for infants.
- To determine a pathway for auditory re/habilitation as required by the individual.

**Expected Outcomes**
- Identification of the presence or absence of hearing impairment.
- Quantification by degree and configuration of hearing impairment.
- Qualification by site(s) of lesion within the auditory system.
- Qualification of the anticipated impacts of hearing loss on the client.
- Determination of further management requirements.
- Provision of support to access further management and monitoring.

**Clinical Indicators**
- Infants who are unable to provide consistent behavioural responses to auditory stimuli due to developmental level
- Known risk factors
- Referral
  o Family/caregivers
  o Other professional
  o Screening programme

**Clinical Processes**
- Detailed case history
  o May include listening behaviour checklist/diary
- Otoscopy
  o Wax management by qualified professional where indicated
- Tympanometry
  o High-frequency
- Behavioural Observation
- Acoustic reflexes
  o Multifrequency
  o Broadband or shaped noise
  o Reflex decay
  o Ipsilateral and contralateral presentation
- Otoacoustic Emissions
  o Transient Evoked
  o Distortion Product
- Auditory Evoked Potentials (AEPs)
  o Auditory Brainstem Response (ABR)
  o Auditory Steady State Response (ASSR)
  o Auditory Middle Latency Response (AMLR)
  o Cortical Auditory Evoked Potentials (CAEPs)/Auditory Late Latency Response (ALLR)
  o May be measured using air conduction and/or bone conduction
- Interpretation of tests and test battery
- Feedback, counselling and health promotion to family/caregiver
  o Expected impacts of hearing loss
  o Management options (advantages and disadvantages)
  o Provision of written information to support discussion
- Recommendations for further management
  o No further action
  o Reassessment/monitoring
  o Referral
    ▪ Further assessment
- Audiological re/habilitation
- Educational/early intervention
  - AODC
- Medical
  - Ear Nose and Throat
  - Paediatrician
  - Ophthalmologist
- Allied health
  - SLT
  - Psychologist
- Support and mentoring groups

**Documentation**

**Client Health Record**

*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client
- Relevant case history with detailed pertinent background information
- Audiometric results conforming to *Appendix 2 Recommended Audiometric Symbols*
- Reasons for modification/truncation of testing procedures if applicable
- Detailed file notes addressing interpretation of test results, including type and severity of hearing impairment
- Specific recommendations for further management
- Information on recommended intervention/management
  - Frequency of service
  - Estimated duration of program
  - Type of service (e.g., individual, group, home program)
  - Estimate of costs involved
- Client circumstances or disabilities that may affect ability to comply with recommendations for further testing/investigation or management options
- Summary of post-assessment discussion with client/caregiver
- Copies of correspondence
- Signed or verbal authorities to release medical information *(Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)*
- Receipts/contracts

**Correspondence**

*(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)*

- May be required by
  - Family/caregiver
  - Referring agent
  - Re/habilitation audiologist
  - Paediatrician
  - General Practitioner/Ear Nose and Throat Specialist
  - Child psychologist
  - Other medical or allied health
- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving professional
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)

**Settings**

*(Practice Operations Standard 3.1 Physical Environment and Facilities)*

- Ambient noise meets ANSI standards for hearing assessment *(Practice Operations Criterion 3.1.2 Health Record Compliance)*
- Provides confidentiality for client assessment and counselling *(Practice Operations Criterion 1.1.2 Confidentiality and Privacy).*


Safety
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)

- Testing environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Criterion 4.1.3 Clinical Risk Management).
- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
  AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions (Practice Operations Criterion 2.4.2 Infection Prevention and Control)
  Guidelines for Infection Prevention & Control - Summary & Audiological Perspective
  Guidelines_for_Infection_Prevention_and_Control_-_Audiology_Australia_Abridged_Version
  NZAS Standards of Practice - Infection Control

Equipment Specifications
(Practice Operations Standard 3.2 Equipment)

- Assessments are conducted with acoustic stimuli calibrated to ANSI standards.
  AS ISO 389.1-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and supra-aural earphones
  AS ISO 389.2-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and insert earphones
  AS ISO 389.3-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold force levels for pure tones and bone vibrators
  AS ISO 389.5-2003 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones in frequency range 8 kHz to 16 kHz
  AS ISO 389.7-2003 Acoustics - Reference zero for the calibration of audiometric equipment - Reference threshold of hearing under free-field and diffuse-field listening conditions
  AS IEC 60645-3-2002 Electroacoustics - Audiological equipment - Auditory test signals of short duration for audiometric and neuro-otological purposes
  IEC 60645-5 Ed. 1.0 Electroacoustics - Audiometric equipment - Part 5: Instruments for the measurement of aural acoustic impedance/admittance
  IEC 60645-6 Ed. 1.0 Electroacoustics - Audiometric equipment - Part 6: Instruments for the measurement of otoacoustic emissions
  IEC 60645-7 Ed. 1.0 Electroacoustics - Audiometric equipment - Part 7: Instruments for the measurement of auditory brainstem responses
- Equipment is used in accordance with manufacturer’s instructions.
- Assessments are conducted using recognised test procedures.

Related References

professionals/universal-newborn-hearing-screening-programme/procedures-guidelines-and-repor-0


11.2 Pseudohypacusis/Functional Hearing Loss

**Purpose and Aim**
- To attain or accurately estimate hearing thresholds for clients who are suspected of exaggerating deficits on standard behavioural tests.
- To obtain further information to resolve inconsistent or inconclusive test results.
- To determine a pathway for auditory re/habilitation as required by the individual.

**Expected Outcomes**
- Identification of the presence or absence of hearing impairment.
- Quantification by degree of hearing impairment.
- Qualification by site(s) of lesion within the auditory system.
- Determination of further management requirements.
- Provision of support to access further management.

**Clinical Indicators**
- Individuals who require modifications to behavioural procedures, and/or objective procedures to determine hearing status due to psychological or attitudinal factors
- Known risk factors
- Referral
  - Self
  - Family/Significant Other(s)
  - Other professional
  - Screening programme
- Inconclusive or inconsistent results on standard assessment

**Clinical Processes**
- Detailed case history
  - Determine hearing needs/concern
  - Identifies signs and symptoms or risk factors that may guide clinical hypothesis and testing decisions
  - Opportunity to develop subjective impression of hearing function
  - Cross-check for consistency and interpretation of test battery
  - Guide management decisions
  - May include listening behaviour checklist/diary
- Otoscopy
  - Wax management by qualified professional where indicated
- Tympanometry
  - Standard (226Hz)
- Audiometry may include
  - Behavioural Observation
  - Pure tone
  - Masking
  - Ascending, descending, random presentation techniques
  - Personalised reinforcement systems
  - Rinne/Weber
  - Stenger test
- Speech Perception assessment, formal or informal, which may involve
  - Detection
  - Recognition
  - Identification
  - Discrimination
  - Masking if required
- Acoustic reflexes
  - Broadband
  - Multifrequency
  - Reflex decay
  - Ipsilateral and contralateral presentation
- Otoacoustic Emissions
- Auditory Evoked Potentials (AEPs)
- Auditory Brainstem Response (ABR)
- Auditory Steady State Response (ASSR)
- Electrocochleography (ECoG)
- Middle Latency Response (MLR)
- Cortical Auditory Evoked Potentials (CAEPs)/Long latency Response (ALLR)
- May be measured using air conduction and/or bone conduction

- Interpretation of tests and test battery (usually done in process of testing)
- Feedback, counselling and health promotion to client/Significant Other(s)
  - Expected impacts of auditory disorder
  - Management options (advantages and disadvantages)
  - Provision of written information to support discussion
- Recommendations for further management
  - No further action
  - Reassessment/monitoring
  - Referral
    - Audiological re/habilitation
    - Medical
    - Allied health
      - Counselling
      - Speech/language
    - Early intervention/educational support services
    - Workplace support
    - Support and mentoring groups

**Documentation**

**Client Health Record** *(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client
- Relevant case history with detailed pertinent background information
- Audiometric results conforming to New Zealand Audiological Society Symbols
- Reasons for modification/truncation of testing procedures if applicable
- Detailed file notes addressing interpretation of test results, including type and severity of hearing impairment
- Specific recommendations for further management
- Information on recommended intervention/management
  - Frequency of service
  - Estimated duration of programme
  - Type of service (e.g. individual, group, home programme)
  - Estimate of costs involved
- Client circumstances or disabilities that may affect ability to comply with recommendations for further testing/investigation or management options
- Summary of post-assessment discussion with client/Significant Other(s)
- Copies of correspondance
- Informed Consent to release medical information *(Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)*
- Receipts/contracts

**Correspondence** *(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)*

- May be required by
  - Referring agent
  - Education staff
  - Workplace rehabilitation officer
  - Veterans’ Affairs New Zealand
  - Compensation body
  - Speech/language pathologist
  - Paediatrician
  - Psychologist
  - Client/family
Other medical or allied health
• Identifying information in relation to client
• Written to the level of knowledge and practicality required by the receiving professional
• Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)

Settings
(Practice Operations Standard 3.1 Physical Environment and Facilities)

• Ambient noise meets ANSI standards for hearing assessment (Practice Operations Criterion 3.1.2 Health Record Compliance).
  ANSI S3.1-1999 (R2008) Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms
• Provides confidentiality for client assessment and counselling (Practice Operations Criterion 1.1.2 Confidentiality and Privacy).

Safety
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)

• Testing environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Criterion 4.1.3 Clinical Risk Management).
• Precautions are taken to ensure prevention of bodily injury.
• Electrical equipment is regularly tagged and tested.
  AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment
  Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer's instructions (Practice Operations Criterion 2.4.2 Infection Prevention and Control).
  Guidelines for Infection Prevention & Control - Summary & Audiological Perspective
  Guidelines_for_Infection_Prevention_and_Control_-_Audiology_Australia_Abridged_Version
  NZAS Standards of Practice - Infection Control

Equipment Specifications
(Practice Operations Standard 3.2 Equipment)

• Assessments are conducted with acoustic stimuli calibrated to ANSI standards.
  AS ISO 389.1-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and supra-aural earphones
  AS ISO 389.2-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and insert earphones
  AS ISO 389.3-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold force levels for pure tones and bone vibrators
  AS ISO 389.5-2003 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones in frequency range 8 kHz to 16 kHz
  AS ISO 389.7-2003 Acoustics - Reference zero for the calibration of audiometric equipment - Reference threshold of hearing under free-field and diffuse-field listening conditions
  AS IEC 60645.3-2002 Electroacoustics - Audiological equipment - Auditory test signals of short duration for audiometric and neuro-otological purposes
IEC 60645-5 Ed. 1.0 Electroacoustics - Audiometric equipment - Part 5: Instruments for the measurement of aural acoustic impedance/admittance http://infostore.saiglobal.com/store/

- Equipment is used in accordance with manufacturer’s instructions.
- Assessments are conducted using recognised test procedures.


Related References
11.3 Acoustic Shock, Tonic Tensor Tympani Syndrome (TTTS) & Hyperacusis

**Purpose and Aim**
- To determine whether an individual would benefit from further investigation or rehabilitation for acoustic shock and/or hyperacusis.
- To determine a pathway for auditory rehabilitation as required by the individual.

**Expected Outcomes**
- Identification of individuals with hyperacusis which limits their ability to function in their typical social, recreational or vocational environments.
- Determination of further management requirements.
- Provision of support to access further management.

**Clinical Indicators**
- Client reports acoustic shock event(s)
- Client reports hypersensitivity to sounds
- Referral
  - Self
  - Employer
  - Family/Significant Other(s)
  - Other professional
  - Screening programme

**Clinical Processes**
- Detailed case history
  - Determine hearing and/or tinnitus needs/concern
  - Determine history of acoustic shock/hyperacusis, including
    - Time of onset
    - Acoustic incident that triggered disorder
    - State of mind pre- and post- acoustic incident trigger
    - Symptoms consistent with Tonic Tensor Tympani Syndrome (TTTS)
      - Muffled hearing
      - ‘Fullness’ of ear
      - Pain in ear/temporomandibular joint/face
      - Balance problems
    - Sound sensitivities
      - Sounds that are difficult to tolerate
      - Symptom development/exacerbation from exposure to difficult-to-tolerate sound
      - Patterns of hyperacusis development/escalation
    - Methods used to alleviate hyperacusis
      - Identify impacts of hyperacusis on daily life
      - Screening for anxiety and depression
  - Otoscopy
    - Wax management by qualified professional where indicated

Wherever possible, testing should be conducted from softer to louder levels. The client should be fully briefed on each procedure prior to embarking on it, to allay anxiety about the potential for further acoustic shock, and tolerated loudness in assessment procedures will be determined by the client.

**Loudness Discomfort Levels (LDLs), acoustic reflexes and performance intensity function “rollover effect” levels are contra-indicated for clients with hyperacusis, acoustic shock or TTTS, as these tests can exacerbate symptoms.**

- Pure Tone Audiometry (ascending technique)
  - Air conduction
  - Bone conduction
  - Masking dependent on client tolerance
- Tympanometry
  - Standard (226Hz)
- Speech Perception Assessment, formal or informal, which may involve
Detection
Recognition
Identification
Discrimination
Masking dependent on client tolerance

- Feedback, counselling and health promotion to client/Significant Other(s)
  - Expected impacts of auditory disorder
  - Management options (advantages and disadvantages)
  - Provision of written information to support discussion

- Recommendations for further management
  - No further action
  - Reassessment/monitoring
  - Referral
    - Further assessment
    - Audiological rehabilitation
    - Medical
    - Allied health
      - Counselling
    - Education/workplace support
    - Support and mentoring groups

**Documentation**

**Client Health Record**
*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client
- Relevant case history with detailed pertinent background information
- Audiometric results conforming to New Zealand Audiological Society Symbols
- Reasons for modification/truncation of testing procedures if applicable
- Detailed file notes addressing interpretation of test results including rationale for diagnosis of acoustic shock and severity of acoustic shock/hyperacusis
- Specific recommendations for further management
- Information on recommended intervention/management
  - Frequency of service
  - Estimated duration of programme
  - Type of service (e.g. individual, group, home programme)
  - Estimate of costs involved
- Client circumstances or disabilities that may affect ability to comply with recommendations for further testing/investigation or management options
- Summary of post-assessment discussion with client/Significant Other(s)
- Copies of correspondence
- Informed consent to release medical information (Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)
- Receipts/contracts

**Correspondence**
*(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)*

- May be required by
  - Referring agent
  - Rehabilitation audiologist
  - Workplace rehabilitation officer
  - Veterans’ Affairs New Zealand
  - Compensation body
  - Education staff
  - Paediatrician
  - Psychologist
  - Family
  - Other medical or allied health
- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving professional
• Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)

Settings
(Practice Operations Standard 3.1 Physical Environment and Facilities)

• Ambient noise meets ANSI standards for hearing assessment (Practice Operations Criterion 3.1.2 Health Record Compliance).
  ANSI S3.1-1999 (R2013) Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms

• Provides confidentiality for client assessment and counselling (Practice Operations Criterion 1.1.2 Confidentiality and Privacy).

Safety
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)

• Testing environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Criterion 4.1.3 Clinical Risk Management).

• Precautions are taken to ensure prevention of bodily injury.

• Electrical equipment is regularly tagged and tested.
  AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment

• Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions (Practice Operations Standard 2.4.2 Infection Prevention and Control).
  Guidelines for Infection Prevention & Control - Summary & Audiological Perspective
  Guidelines_for_Infection_Prevention_and_Control_-_Audiology_Australia_Abridged_Version
  NZAS Standards of Practice - Infection Control

Equipment Specifications
(Practice Operations Standard 3.2 Equipment)

• Assessments are conducted with acoustic stimuli calibrated to ANSI standards.
  AS ISO 389.1-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and supra-aural earphones
  http://infostore.saiglobal.com/store/
  AS ISO 389.2-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and insert earphones
  AS ISO 389.3-2007 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold force levels for pure tones and bone vibrators
  AS ISO 389.5-2003 Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones in frequency range 8 kHz to 16 kHz
  AS ISO 389.7-2003 Acoustics - Reference zero for the calibration of audiometric equipment - Reference threshold of hearing under free-field and diffuse-field listening conditions
  AS IEC 60645.3-2002 Electroacoustics - Audiological equipment - Auditory test signals of short duration for audiometric and neuro-otological purposes
  IEC 60645-5 Ed. 1.0 Electroacoustics - Audiometric equipment - Part 5: Instruments for the measurement of aural acoustic impedance/admittance

• Equipment is used in accordance with manufacturer’s instructions.
Assessments are conducted using recognised test procedures.  


**Related References**

11.4 Balance Assessment

**Purpose and Aim**
- To determine whether an individual would benefit from further investigation or re/habilitation for balance problems related to the vestibular system.
- To determine a pathway for balance rehabilitation as required by the individual.

**Expected Outcomes**
- Determination of the integrity of the vestibular system.
- Qualification by site of lesion (peripheral or central) of balance problems.
- Identification of changes in vestibular function.
- Determination of further management requirements.
- Provision of support to access further management.

**Clinical Indicators**
- Client presents with
  - Nystagmus
  - Dizziness
  - Vertigo
  - Balance dysfunction
  - Gait abnormalities
- Client is undergoing vestibulotoxic treatments
- Client is undergoing candidacy assessment for cochlear implantation
- Referral
  - Self
  - Medical
  - Family/caregiver
  - Audiological assessment
  - Other allied health professional

**Clinical Processes**
- Detailed case history
  - Determine balance needs/concern
  - Determine history of balance problem, including
    - Time of onset
    - Trigger
    - Consistency
    - Exacerbating factors
    - Methods used to alleviate vertigo/balance problems
  - Identify impacts of balance problem on daily life
- Otoscopy
  - Wax management if required
- Electronystagmography/Videonystagmography
  - Ocularmotor tests
    - Gaze test
    - Saccade test
    - Ocular Pursuit test
    - Optokinetic test
  - Positional tests
    - Static positional tests
    - Dynamic positioning
      - Dix-Hallpike manoeuvre
      - Romberg test
      - Unterberger test
  - Semi-circular canal testing
  - Caloric tests (bithermal)
    - Fixation Suppression test
- Rotational Chair Sinusoidal Harmonic Acceleration (SHA)
- Head-shake nystagmus test
- Head Impulse test
• Posturography
  o Static postural observation
  o Computerised Dynamic Posturography
    ▪ Sensory organisation test
    ▪ Motor control test
    ▪ Postural Evoked Responses
• Otolith Function tests
  o Vestibular Evoked Myogenic Potentials:
    o oVEMP (ocular VEMP)
    o cVEMP (cervical VEMP)
  o Subjective Visual Horizontal (Bias test)
• Interpretation of tests and test battery
• Feedback, counselling and health promotion to client/Significant Other(s)
  o Expected impacts of auditory disorder
  o Management options (advantages and disadvantages)
  o Provision of written information to support discussion
• Recommendations for further management
  o No further action
  o Reassessment/monitoring
  o Referral
    ▪ Medical
    ▪ Vestibular re/habilitation
    ▪ Allied health
    ▪ Counselling
    ▪ Support and mentoring groups

Documentation
Client Health Record
(Practice Operations Criterion 2.1.2 Health Record Compliance)
• Identifying information relating to client
• Relevant case history with detailed pertinent background information
• Contraindications to caloric assessment
• Tests performed
• Details of test parameters, equipment used, electrode types and calibration values
• Clinical events, including client state/reactions (before, during and after the procedures) and client comments
• Vestibular assessment results
• Detailed file notes addressing interpretation of test results
• Specific recommendations for further management
• Information on recommended intervention/management
  o Frequency of service
  o Estimated duration of programme
  o Type of service (e.g. individual, group, home programme)
  o Estimate of costs involved
• Summary of post-assessment discussion with client/caregiver
• Copies of correspondence
• Informed Consent to release medical information (Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)
• Receipts/contracts

Correspondence
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)
• May be required by
  o Referring agent
  o Rehabilitation audiologist
  o Workplace rehabilitation officer
  o Veterans’ Affairs New Zealand
  o Compensation body
Identifying information in relation to client
Written to the level of knowledge and practicality required by the receiving professional
Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)

Settings
(Practice Operations Standard 3.1 Physical Environment and Facilities)
- Ambient noise meets ANSI standards for hearing assessment
  (Practice Operations Criterion 3.1.2 Health Record Compliance).
  ANSI S3.1-1999 (R2013) Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms
- Provides confidentiality for client assessment and counselling
  (Practice Operations Criterion 1.1.2 Confidentiality and Privacy).

Safety
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)
- Testing environment has been audited for occupational health and safety
  (Practice Operations Criterion 3.1.1 Workplace Environment
  (Practice Operations Criterion 4.1.3 Clinical Risk Management).
- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
  AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions.
  (Practice Operations Criterion 2.4.2 Infection Prevention and Control)
  Guidelines for Infection Prevention & Control - Summary & Audiological Perspective
  Guidelines_for_Infection_Prevention_and_Control_-_Audiology_Australia_Abridged_Version
  NZAS Standards of Practice - Infection Control

Equipment Specifications
(Practice Operations Standard 3.2 Equipment)
- Equipment is used in accordance with manufacturer’s instructions.
- Assessments are conducted using recognised test procedures.
  ANSI S3.45-2009 Procedures For Testing Basic Vestibular Function

Related References

• International Journal of Audiology volume 47 Number 9 (2008). *Advances in Paediatric Audiological and Vestibular Disorders*
11.5 (Central) Auditory Processing Assessment

Purpose and Aim
- To determine whether an individual would benefit from further investigation or re/habilitation for a (Central) Auditory Processing Disorder ((C)APD).
- To quantify auditory processing abilities on the basis of perceptual or electrophysiological responses to test stimuli.
- To establish the type of auditory processing difficulty.
- To determine a pathway for auditory re/habilitation as required by the individual.

Expected Outcomes
- Identification of the presence or absence of a (C)APD.
- Quantification by type and degree of (C)APD.
- Qualification by site(s) of lesion within the peripheral auditory system.
- Qualification by non-auditory disorders.
- Qualification and quantification of the impacts of (C)APD on the client.
- Determination of further management requirements.
- Provision of support to access further management.

Clinical Indicators
- (C)APD evaluation is indicated for individuals who demonstrate one or more of the following:
  - Symptoms and/or complaints of hearing difficulty with documented normal peripheral auditory function
  - Central nervous system disorder potentially affecting the central auditory system
  - Learning problems possibly related to auditory difficulties
- Clients/patients are assessed on the basis of
  - Referral (medical/educational)*
  - Case history
  - Prior audiological assessment
  - Medical status

*Referrals should be screened to ensure that there are no known factors which would invalidate (C)APD test results prior to commencing assessment (e.g. language function, cognitive function, age, peripheral hearing status).

Clinical Processes
- Detailed case history
  - Identify impacts of problem on daily life
  - Identify client factors that may impact on validity of assessment results (e.g. testing in second language, age, attention disorder, speech/language deficits)
  - Identifies signs and symptoms that may guide clinical hypothesis and testing decisions (e.g. specific neurological deficits, genetic traits, middle ear history)
- Otoscopy
  - Wax management by qualified professional where indicated

Behavioural tests
- Pure Tone Audiometry
  - Air conduction
  - Bone conduction
  - Masking where required
- Speech audiometry, which may involve
  - Detection
  - Recognition
  - Identification
  - Discrimination
  - Masking if required
  - Choice and interpretation of speech assessment tasks must take into account the client's proficiency in the test language and cultural factors/world knowledge
- Auditory discrimination tests
- Auditory temporal processing and patterning tests
- Dichotic tests
• Spatial listening/binaural interaction tasks
• Monaural low-redundancy tests
• Speech-in-noise tests
• Auditory memory tests

**Electroacoustic tests**
- Tymanometry
- Acoustic reflexometry
  - Frequency specific reflex elicitation
  - Reflex decay
- Otoacoustic emissions
  - Presence/absence
  - Suppression

**Electrophysiological tests**
- Auditory Brainstem Response (ABR)
- Auditory Steady State Response (ASSR)
- Auditory Middle Latency Response (AMLR)
- Cortical Auditory Evoked Potentials (CAEPS)/Auditory Late latency Response (ALLR)
- Auditory P300
- Interpretation of tests and test battery
  - (C)APD test performance is very sensitive to client internal factors such as age, language ability, attention and motivation. These factors must therefore be monitored and taken into consideration in the interpretation of test results
  - Ensure adequate time has been allocated for analysis of results. Advise the parent/carer if it will not be possible to provide the results during the appointment
- Feedback, counselling and health promotion to client/Significant Other(s)
  - Expected impacts of hearing loss
  - Management options (advantages and disadvantages)
  - Details of re/habilitation recommended including
    - Reasons for recommendation
    - Type (individual, group, home programme)
    - Length of time and/or number of services required
    - Costs involved with re/habilitation
  - Provision of written information to support discussion
- Recommendations for further management
  - No further action
  - Reassessment/monitoring
  - Referral
    - Further assessment
    - Audiological rehabilitation
    - Medical
    - Allied Health
      - Speech/language
      - Psychology
    - Educational/workplace support
    - Support and mentoring groups

**Documentation**

**Client Health Record**
(*Practice Operations Criterion 2.1.2 Health Record Compliance*)
- Identifying information relating to client
- Relevant case history with detailed pertinent background information
- Results conforming to *New Zealand Audiological Society Symbols* and/or other accepted documentation methods
- Reasons for modification/truncation of testing procedures if applicable
- Detailed file notes addressing interpretation of test results, including type and severity of auditory processing deficit
- Prognosis for remediation
• Specific recommendations for further management
• Summary of post-assessment discussion with client/Significant Other(s)
• Information on recommended intervention/management
  o Frequency of service
  o Estimated duration of programme
  o Type of service (e.g. individual, group, home programme)
  o Estimate of costs involved
• Copies of correspondence
• Informed consent to release medical information (Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)
• Receipts/contracts

Correspondence
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)

• May be required by
  o Family
  o Referring agent
  o Rehabilitation audiologist
  o Education staff
  o Paediatrician
  o Speech/language pathologist
  o Child psychologist
  o Workplace rehabilitation officer
  o Veterans’ Affairs New Zealand
  o Compensation body
  o Other medical or allied health

• Identifying information in relation to client
• Written to the level of knowledge and practicality required by the receiving professional
• Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)

Settings
(Practice Operations Standard 3.1 Physical Environment and Facilities)

• Ambient noise meets ANSI standards for hearing assessment (Practice Operations Standard Criterion 3.1.2 Health Record Compliance).

Safety
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)

• Testing environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment) (Practice Operations Criterion 4.1.3 Clinical Risk Management).
• Precautions are taken to ensure prevention of bodily injury.
• Electrical equipment is regularly tagged and tested.
• Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions (Practice Operations Criterion 2.4.2 Infection Prevention and Control)
  Guidelines for Infection Prevention & Control - Summary & Audiological Perspective
  Guidelines_for_Infection_Prevention_and_Control_-_Audiology_Australia_Abridged_Version
Equipment Specifications
(Practice Operations Standard 3.2 Equipment)

- Assessments are conducted with acoustic stimuli calibrated to ANSI standards.

- Equipment is used in accordance with manufacturer's instructions.
- Assessments are conducted using recognised test procedures.

Related References
11.6 Intraoperative Neurophysiologic Monitoring

**Purpose and Aim**
- To evaluate and document changes in the functional status of neural tissue or structures during operative procedures that carry risk for neurologic compromise to the central or peripheral nervous system (includes cranial/skull base, spinal and head and neck procedures).

**Expected Outcomes**
- Optimisation of post-operative functioning by reducing risk of injury to neural tissues/structures through
  - Confirmation of the location of surgically identified neural structures at risk for injury during surgery.
  - Early identification of surgery-related neural dysfunction.
  - Prompt instigation of corrective actions to reverse surgery-related neural dysfunction.
- Determination of postoperative function of monitored structures immediately post-surgery.
- Determination of further management requirements.
- Provision of support to access further management (multidisciplinary team approach).

**Clinical Indicators**
- Risk of neurological complication due to surgery involving any portion of the central and/or peripheral nervous systems
- Monitoring of specific neurological function is required to
  - Guide the surgical process
  - Preserve function
  - Minimize and/or reverse damage
  - Reduce possible irreversible adverse neuro-functional consequences
- Referral for intraoperative monitoring will usually be received from the surgeon or the surgical specialties that may require intraoperative neuro-monitoring

**Clinical Processes**

**Preoperative**
- Review of medical records
  - Presenting problem/complaint
  - Audiological case history (if already taken)
  - Baseline evoked response tests
- Case history
  - Usually covered within medical case history
  - Supplementary information from patient and others as required
- Multidisciplinary liaison
  - Surgeon
    - Determine extent of required monitoring
    - Medical clearance for specific preoperative/intraoperative assessments if required
  - Anaesthesiologist
    - Use of anaesthetic agents and drugs for generalized paralysis
    - Potential effects of drugs on audiological results
- Counselling
  - Explanation to patient regarding the role of the monitoring team during the operative procedure
- Preoperative neuro-diagnostic assessment
- Patient preparation
  - Application of recording electrodes
  - Application of stimulators or stimulus transducers if required

**Intraoperative**
- Pertinent neurophysiologic responses are
  - Recorded before and/or after the induction of anaesthesia to establish an intraoperative baseline
  - Recorded recurrently during the surgical procedure
• Interpreted continuously
• Communicated concisely/effectively/constantly to the surgical and anaesthesia team

• Neurophysiological techniques used may include
  o Electrocochleography (ECoG)
  o Auditory Brainstem Evoked Responses/Brainstem Auditory Evoked Potential (ABR/BAEP)
  o Auditory Middle Latency Response (AMLR)
  o Auditory Late Latency Response (ALLR)/Cortical Auditory Evoked Potentials (CAEPs)
  o Visual Evoked Potentials
  o Somatosensory Evoked Potentials (SSEP)
  o Electroencephalography (EEG)
  o Direct, near field recording techniques
  o Electromyography (EMG)
  o Triggered Electromyography (Triggered EMG)
  o Surface and/or subdural needle electrode arrays
  o Spontaneous and sensory provoked activity
  o Direct electrical stimulation
  o Transcranial Motor Evoked Potential (Tc-MEP)

• Neurophysiological assessment to confirm the integrity of neuronal structure prior to closure, this may include
  o EMG
  o Triggered EMG
  o SSEP
  o Tc-MEP

Postoperative
• Neurophysiological assessment to confirm postoperative functional status
• Removal of stimulating and recording devices (surgical and monitoring team)
• Recommendations for further management
  o Further management is usually the responsibility of attending medical officer but Audiology may assist with referral processes
  o Medical review
  o Reassessment/monitoring
  o Referral
    ■ Further assessment
    ■ Audiological re/habilitation
    ■ Medical
    ■ Allied health
      ■ Speech/language rehabilitation services
      ■ Physiotherapy
      ■ Counselling
    ■ Support and mentoring groups

Documentation
Client Health Record
(Practice Operations Criterion 2.1.2 Health Record Compliance)

• Identifying information relating to client
• Relevant case history with detailed pertinent background information
• Medical information regarding
  o Diagnosis
  o Surgical procedure to be performed
• Preoperative neurophysiologic and/or audiological findings.
• Type of monitoring assessment and test parameters used
• Monitoring equipment used
• Chronological record of intraoperative events
• Patient-related oral communication between the monitoring team and the surgical team (e.g. surgeon, anaesthesiologist, nurse anaesthetist)
• Other relevant communications relating to the monitoring
• Pertinent physiologic parameters (e.g. body temperature) and the administration of pertinent anaesthetic agents may be periodically recorded.
• Changes in the client's/patient's neurophysiologic state measurable via the monitoring
• Specific recommendations for further management

**Correspondence**
*Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers*

• Responsibility may fall primarily to the medical officer, or may be shared
• May be required by
  o Surgeon (intraoperative monitoring report)
  o Family
  o Referring agent
  o Rehabilitation audiologist
  o Education staff
  o Paediatrician
  o Speech/language pathologist
  o Psychologist/social worker
  o Workplace rehabilitation officer
  o Veterans’ Affairs New Zealand
  o Compensation body
  o Other medical or allied health
• Identifying information in relation to client
• Written to the level of knowledge and practicality required by the receiving professional
• Purpose of correspondence is clear (e.g., requesting action, requesting further information, feedback from referral, informational)

**Settings**
*Practice Operations Standard 3.1 Physical Environment and Facilities*

• Assessments are conducted in an environment that is satisfactory free of electrical interference so as not to affect the measurement of responses
  *AS/NZS 3200.1.2:2005* Medical electrical equipment - General requirements for safety - Collateral standard: Electromagnetic compatibility - Requirements and tests
• Provides confidentiality for counselling
  *(Practice Operations Standards Criterion 1.1.2 Confidentiality and Privacy).*

**Safety**
*Practice Operations Criterion 2.4.1 Occupational Health and Safety*

• Testing environment has been audited for occupational health and safety
  *(Practice OperationsCriterion 3.1.1 Workplace Environment)*
  *(Practice Operations Criterion 4.1.3 Clinical Risk Management).*
• Invasive recording or stimulating devices (electrodes) conform to sterile conditions within the operating room
  *(Practice Operations Standard 2.4.2 Infection Prevention and Control).*
• Precautions are taken to ensure prevention of bodily injury.
• Electrical equipment is regularly tagged and tested.
  *AS/NZS 3760:2010* In-service safety inspection and testing of electrical equipment
• All monitoring equipment is grounded adequately for equipment and patient.
• The professional performing the procedures knows facility-specific medical emergency protocol.
• Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions
  *(Practice Operations Standard 2.4.2 Infection Prevention and Control).*
  [Guidelines for Infection Prevention & Control - Summary & Audiological Perspective](Guidelines_for_Infection_Prevention_and_Control_-_Audiology_Australia_Abridged_Version)
  [NZAS Standards of Practice - Infection Control](NZAS_Standsards_of_Practice_-_Infection_Control)
Equipment Specifications
(Practice Operations Standard 3.2 Equipment)

- Assessments are conducted with acoustic stimuli calibrated to ANSI standards.

- Equipment is used in accordance with manufacturer’s instructions.
- Assessments are conducted using recognised test procedures.

Related References
11.7 Tinnitus Assessment

**Purpose and Aim**
- To determine whether an individual would benefit from further investigation or re/habilitation for tinnitus.
- To determine a pathway for tinnitus habituation as required by the individual.

**Expected Outcomes**
- Identification of those individuals whose tinnitus interferes with emotional-wellbeing and quality of life.
- Determination of further management requirements.
- Provision of support to access further management.

**Clinical Indicators**
- Referral
  - Self
  - Family/Significant Other(s)
  - Other professional
  - Screening program

- Not usually indicated unless client recognises tinnitus as a significant problem

**Clinical Processes**
- Detailed Case History – the use of the Tinnitus Sample Case History Questionnaire (TSCHQ) may be useful
  - Determine hearing and/or tinnitus needs/concern
  - Determine history of tinnitus, including
    - Onset
    - Description
    - Location
    - Possible cause (noise, medication, stress, injury etc...)
    - Severity
    - State of mind at the time of onset
    - Factors that exacerbate tinnitus
    - Methods used to alleviate tinnitus
  - Identify impact of tinnitus on daily life
  - Identify emotional impact of tinnitus
    - Screening for anxiety and depression with Depression Anxiety and Stress Scale (DASS) or some other validated anxiety measure (Beck Depression Inventory)
  - Identify presence of hyperacusic symptoms
  - The use of several recognised and validated questionnaires are useful such as: Tinnitus Reaction Questionnaire (Wilson, et al., 1991), Tinnitus Handicap Questionnaire (Kuk et al., 1990), Tinnitus Functional Index (Meikle, et al., 2012)

*If the tinnitus is objective, pulsating, unilateral or associated with a temporomandibular joint complaint a referral to an Otolaryngologist is recommended/necessary.*

- Otoscopy
  - Wax management by a qualified practitioner if required

*Test sequencing is important to avoid confounding later tests by exacerbating tinnitus with earlier procedures.*

- Pure Tone Audiometry (warble or pulsed tones may need to be used)
  - Air conduction including ultra-high frequency testing up to 16 or 20 kHz (excluding masking)
  - Bone conduction (excluding masking)
  - UCL/LDL
- Tinnitus matching
  - Pitch (Pure-tone or NBN)
  - Loudness
- Minimum masking level
• Total/partial residual inhibition
• Masking of audiogram if required
• Speech audiometry, which may involve
  o Detection
  o Recognition
  o Identification
  o Discrimination
  o Masking if required (judgment required on likelihood of tinnitus exacerbation)
• Tympanometry
• Acoustic reflexes (only if no loudness intolerance indicated)
• Otoacoustic Emissions if available
  o Transient Evoked
  o Distortion Product

Acoustic Reflex assessment and Loudness Discomfort Levels may be contraindicated if there is a suspicion of loudness tolerance problems, and/or if the client shows significant levels of distress/anxiety. If performed, an ascending technique should be used, and the state of the client, physically and emotionally, should be carefully monitored.

• Interpretation of tests and test battery
• Feedback, counselling and health promotion to client/Significant Other(s)
  o Expected impacts of auditory disorder and/or Tinnitus
  o Management options (advantages and disadvantages)
  o Provision of written information to support discussion
  o Provide treatment plan if suitable for further management and treatment
• Recommendations for further management
  o No further action
  o Reassessment/monitoring
  o Referral
    ▪ Further assessment
    ▪ Audiological rehabilitation
    ▪ Medical
    ▪ Allied health
      • Counselling
  o Support and mentoring groups

Documentation
Client Health Record
(Practice Operations Criterion 2.1.2 Health Record Compliance)

• Identifying information relating to client
• Relevant case history with detailed pertinent background information, including details of any sound therapy used
• Audiometric results conforming to New Zealand Audiology Society Symbols
• Reasons for modification/truncation of testing procedures if applicable
• Detailed file notes addressing interpretation of test results, including severity of tinnitus reaction
• Specific recommendations for further management
• Information on recommended intervention/management
  o Frequency of service
  o Estimated duration of program
  o Type of service (e.g. individual, group, home program)
  o Estimate of costs involved
• Client circumstances or disabilities that may affect ability to comply with recommendations for further testing/investigation or management options
• Summary of post-assessment discussion with client/Significant Other(s)
• Copies of correspondence
• Informed consent to release medical information (Practice Operations Criterion 1.1.3 Informed Consent, and Practice Operations Criterion 2.2.1 Referrals)
• Receipts/contracts
Correspondence
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)

• May be required by
  o Referring agent
  o Re/habilitation audiologist
  o Department of Veterans’ Affairs
  o Compensation body
  o Education staff
  o Paediatrician
  o Psychologist
  o Family
  o Other medical or allied health

• Identifying information in relation to client
• Written to the level of knowledge and practicality required by the receiving professional
• Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)

Settings
(Practice Operations Standard 3.1 Physical Environment and Facilities)

• Ambient noise meets ANSI standards for hearing assessment
  (Practice Operations Standard Criterion 3.1.2 Compliance of Facilities)
  **ANSI S3.1-1999 (R2013)** Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms
• The audiometric test technique and calibration of equipment and rooms comply with ISO and IEC technical and procedural standards.
• Assessments are conducted with calibrated acoustic stimuli refer IEC and ISO Standards and manufacturers’ specifications.
• Provides confidentiality for client assessment and counselling

Safety
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)

• Testing environment has been audited for occupational health and safety
  (Practice Operations Criterion 3.1.1 Workplace Environment)
  (Practice Operations Criterion 4.1.3 Clinical Risk Management).
• Precautions are taken to ensure prevention of bodily injury.
• Electrical equipment is regularly tagged and tested.
  **AS/NZS 3760:2010** In-service safety inspection and testing of electrical equipment
• Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions.
  (Practice Operations Standard 2.4.2 Infection Prevention and Control).
  [NZAS Standards of Practice - Infection Control](http://www.nzas.org.nz/standards/practice/infection-control)

Equipment Specifications
(Practice Operations Standard 3.2 Equipment)

• Assessments are conducted with acoustic stimuli calibrated to NZAS standards.
  **AS ISO 389.1-2007** Acoustics - Reference zero for the calibration of audiometric equipment - Reference equivalent threshold sound pressure levels for pure tones and supra-aural earphones

- Equipment is used in accordance with manufacturer’s instructions.
- Assessments are conducted using recognised test procedures.

Related References
Audiological Rehabilitation

The aim of audiological re/habilitation is to effect an improvement in the client’s quality of life through optimising hearing function and communication in his or her life context. Unlike diagnostic audiology, which has the dual drivers of client-centred management and the imperative of pathology to shape test batteries and clinical processes, audiological re/habilitation is shaped solely by the requirements of the client – his or her needs, abilities, social and physical contexts, and preferences. A diverse range of personal factors and auditory contexts may drive the need for audiological re/habilitation for individual clients. For this reason, it is unlikely that focus on a single re/habilitation practice will achieve optimal outcomes, and multiple practices will often need to be considered, modified and brought together in a tailored approach to meet client requirements.

For the purposes of developing workforce tools, the following could be defined as “standard” re/habilitation practices

- Assessment of needs
- Counselling
- Amplification strategies – hearing aids
- Amplification strategies – ALDs
- Professional liaison
- Outcomes measures and evaluation

These practices are required by the vast majority of hearing impaired clients to minimise the activity limitations and participation restrictions imposed by hearing deficits and enable them to maintain a high level of function within their personal physical and social contexts using auditory-verbal communication as their primary communication mode.

“Advanced” re/habilitation practices are generally considered as methods to improve outcomes for those clients whose hearing deficit contributes significantly to a risk of being unable to develop and/or maintain auditory-verbal communication sufficient to participate effectively in most mainstream environments (home/family, workplace, social/recreational). These include

- Communication training
- Multidisciplinary management
- Amplification strategies – implantable devices
- Amplification strategies – sensory devices

These practices may involve collaboration with other professionals, including psychologists, counsellors, speech/language pathologists, education personnel and medical professionals, but the role of the audiologist in enacting these practices is specific and unique.

Notwithstanding the need to tailor re/habilitation to the individual client need, clients within specific populations often have similar needs due to the nature of their personal and environmental circumstances or because of the nature of their auditory disorder and its effects. Therefore “re/habilitation practices for specific populations” are listed to provide extra guidance in developing re/habilitation for individuals within these groups. These re/habilitation practices would generally be considered “advanced” as they include other “advanced” re/habilitation practices, and in some instances, other specialised procedures that are not relevant to clients whose auditory disorder is purely related to hearing.
12. Assessment of Needs
(Practice Operations Standards 1.1.6 Collaborative Goal Setting)

**Purpose and Aim**
- To identify the personal factors that prompt audiological re/habilitation.
- To define, with the client and Significant Other(s), priorities for re/habilitation.
- To determine re/habilitation strategies to meet the hearing and communication needs of the client.

**Expected Outcomes**
- Identified personal factors that prompted audiological re/habilitation.
- Description of the communication needs of the individual with hearing impairment.
- Description of the communication skills of the individual with hearing impairment.
- Determination of priorities for re/habilitation.
- Determination of modification to management based on individual client and Significant Other(s) needs.

**Clinical Indicators**
- Individuals of all ages with hearing impairment or identified auditory and/or communication need

**Clinical Processes**
Assessment of needs may be part of an interdisciplinary process.

Assessment of needs is a continuous process.

Assessment of needs is a collaborative process.

- Detailed case history
  - Client and/or Significant Other(s) identified hearing and/or communication goals
  - Typical client environments (including language and culture)
  - Client attitude and motivation for re/habilitation
  - Client personal and practical support
  - Frequent communication partners of client
  - Client and Significant Other(s) expectations of re/habilitation
  - Limitations on client participation in re/habilitation
- Review of audiological assessment
- Review of current amplification strategies used
- Assessment of awareness of environmental sounds
  - Detection
  - Recognition
- Communication assessment (formal and/or informal)
  - Communication ability
    - Clinical environment
    - Everyday environments
  - Oral, signed, or written modalities
  - Perception of speech and non-speech stimuli in multiple modalities
  - Listening/auditory skills
  - Speech reading
  - Communication strategies used by client
  - Communication skills of the client’s frequent communication partners
- May include listening behaviour checklists/communication self-report measures/administered questionnaires
- Interpretation of result
- Discussion with client and/or Significant Other(s), counselling and health promotion
- Recommendations for further management
  - No further action
  - Periodic review/monitoring
  - Continue with current audiological re/habilitation
  - Supplement current audiological re/habilitation
  - Change direction of current re/habilitation
Referral
- Further assessment
- Audiological re/habilitation
- Medical
- Allied health
- Educational/workplace support
- Support and mentoring groups

Documentation
Client Health Record
(Practice Operations Criterion 2.1.2 Health Record Compliance)
- Identifying information relating to client
- Pertinent background information
  - Type of amplification strategies used
  - Communication modality/strategies used
  - Assessment results
  - Specific hearing and/or communication goals
  - Ongoing communication needs
  - Other factors relevant to re/habilitation
- Results of evaluation of current amplification strategies
- Results of checklists/self-report measures/ questionnaires
- Specific recommendations for further management
- Summary of discussion with client and/or Significant Other(s)
- Information provided regarding agreed auditory re/habilitation program
  - Frequency of service
  - Estimated duration of program
  - Type of service (e.g. individual, group, home program)
  - The proposed strategies used
  - Estimate of costs involved

Correspondence
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)
- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving professional
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)
- May include
  - Identified goals and/or needs of client
  - Strategies identified for re/habilitation
  - Effectiveness of re/habilitation strategies
  - Continuing concerns
  - Action requested of recipient
  - Written information/documentation to support recipient in acting on request

Settings
(Practice Operations Standard 3.1 Physical Environment and Facilities)
- Ambient noise meets ANSI standards for hearing assessment
  (Practice Operations Criterion 3.1.2 Health Record Compliance).
  ANSI S3.1-1999 (R2013) Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms
- Provides confidentiality for client assessment and counselling
  (Practice Operations Standards Criterion 1.1.2 Confidentiality and Privacy).
Safety

(Practice Operations Standard 2.4.1 Occupational Health and Safety)

- Testing environment has been audited for occupational health and safety
  (Practice Operations Criterion 3.1.1 Workplace Environment)
  (Practice Operations Criterion 4.1.3 Clinical Risk Management).
- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
  AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment
- Infection control guidelines in regard to equipment and interpersonal transmission are followed.
  These may be facility-specific protocols and/or manufacturer’s instructions
  (Practice Operations Criterion 2.4.2 Infection Prevention and Control)
  Guidelines for Infection Prevention & Control - Summary & Audiological Perspective
  Guidelines for Infection Prevention and Control - Audiology Australia Abridged Version
  NZAS Standards of Practice - Infection Control

Equipment Specifications

(Practice Operations Standard 3.2 Equipment)

- Assessments are conducted with acoustic stimuli calibrated to ANSI standards.
- Equipment is used in accordance with manufacturer’s instructions.
- Assessments are conducted using recognised test procedures.
  AS 60118.0-2007 Hearing aids - Measurement of electroacoustical characteristics
  AS 60118.7-2007 Hearing aids - Measurement of the performance characteristics of hearing aids for production, supply and delivery quality assurance purposes
  AS 60118.8-2007 Hearing aids - Methods of measurement of performance characteristics of hearing aids under simulated in situ working conditions
  AS 60118.9-2007 Hearing aids - Methods of measurement of characteristics of hearing aids with bone vibrator output
  AS ISO 12124-2003 Acoustics - Procedures for the measurement of real-ear acoustical characteristics of hearing aids

Related References

13. Counselling

Purpose and Aim

- To improve the quality of life for individuals with auditory disorders and/or communication needs through enhancement of physical and psychosocial wellbeing.
- To improve the client’s knowledge of his/her auditory disorders and/or communication needs.
- To provide coping strategies to help enable the client’s adjustment to his/her auditory disorder and/or communication needs.
- To facilitate the client’s ability to self-manage his/her auditory disorder and/or communication needs on a day-to-day basis.

Expected Outcomes

- Improved quality of life and well-being of individuals with auditory disorders and/or communication needs.
- Improved client knowledge of his/her auditory disorder and/or communication need.
- Improved client coping/personal adjustment to the effects of auditory disorder and/or communication difficulties associated with auditory disorder.
- Improved client ability to self-manage his/her auditory disorder and/or communication needs.

Clinical Indicators

- Integral to any and all audiological services
- Counselling may involve
  - Individuals with concerns about hearing or auditory function
  - Individuals with auditory difficulties and/or communication needs
  - Family members/Significant Other(s) of individuals with auditory disorders and/or communication needs

Clinical Processes

- Assessment of needs helps to determine
  - Perceptions and reactions to hearing/auditory disorder
  - Psychosocial impacts of hearing/auditory disorder
  - Coping strategies already in use by individual with auditory disorder
  - Strategies to address individual counselling goals and rehabilitation decisions
    - Motivation
    - Self-efficacy
    - Knowledge of hearing/auditory disorders
    - Coping strategies
    - Engagement with treatment/management
    - Focus of counselling:
      - Psychosocial impacts of hearing/auditory disorders
      - Assessment procedures and results
      - Treatment/management options for
        - Auditory disorder
        - Communication needs
    - Grief and loss
    - Hearing conservation
  - Client counselling needs beyond the expertise of the current clinician
- Counselling
  - Tailored to individual client needs
  - May be conducted
    - Individually
    - In groups
  - Multimodal
    - Oral
    - Sign
    - Written
    - Pictorial
    - Demonstrative
  - Approaches may include, but are not limited to
    - Cognitive
- Affective
- Behavioural
- Eclectic
  - Techniques may be taken from, but are not limited to
    - Person-Centred Therapy
      - Clinician-client relationship/equality
      - Active listening
      - Empathy
      - Unconditional positive regard
    - Behaviour Therapy
      - Conditioning
      - Reinforcement
      - Relaxation training
      - Systematic desensitisation
      - Observational learning/modelling
      - Assertion training
      - Goal-setting
      - Self-management strategies
      - Skills training
    - Cognitive Behavioural Therapy
      - Homework
      - Problem Solving
      - Risk-taking
      - Role playing
      - Explanation
      - Teaching
      - Rehearsal
    - Behaviour Change
      - Attitude and behaviour style
      - Motivation
      - Self-efficacy
      - Pros and Cons of action
- Evaluation of rehabilitation/counselling effectiveness
  - Client adjustment to auditory disorder/communication need
  - Client management of auditory disorder/communication need
  - Client satisfaction with rehabilitation
- Recommendations for further management
  - No further action
  - Periodic reassessment/monitoring
  - Continue with current audiological rehabilitation
  - Supplement current audiological rehabilitation
  - Change direction of current rehabilitation
  - Referral
    - Further assessment
    - Audiological rehabilitation
    - Medical
    - Allied health
      - psychology
      - social worker
    - Educational/workplace support
    - Support and mentoring groups

**Documentation**

**Client Health Record**
*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client
- Pertinent background information
  - Type of amplification strategies used
- Communication modality/strategies used
- Assessment results
- Prognosis for auditory disorder

- Client needs
- Agreed rehabilitation goals
- Counselling methods and strategies used to address client needs and goals
- Participants in counselling session(s)
- Evaluation of rehabilitation
- Specific recommendations for further management
- Summary of discussion with client and/or Significant Other(s)
- Information on recommended rehabilitation
- Copies of correspondence
- Informed consent to release medical information (Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)
- Receipts/contracts

**Correspondence**
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)

- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving professional
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)
- May include
  - Presenting needs of client
  - Strategies identified for rehabilitation
  - Effectiveness of rehabilitation strategies
  - Continuing concerns
  - Action requested of recipient
  - Written information/documentation to support recipient in acting on request

**Settings**
(Practice Operations Standard 3.1 Physical Environment and Facilities)

- Provides confidentiality for client assessment and counselling (Practice Operations Criterion 1.1.2 Confidentiality and Privacy).

**Safety**
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)

- Testing environment has been audited for occupational health and safety (Practice Operations Standard Criterion 3.1.1 Workplace Environment) (Practice Operations Standard 4.1.3 Clinical Risk Management).
- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested. AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment

**Equipment Specifications**
(Practice Operations Standard 3.2 Equipment)

- Equipment is used in accordance with manufacturer’s instructions.
**Related References**

14. Amplification Strategies - Hearing Aids

**Purpose and Aim**
- To improve functional hearing and communication through use of hearing aid(s) fitted to optimally compensate the individual’s hearing impairment.

**Expected Outcomes**
- Demonstrated improvement in client hearing and communication function with use of the hearing aid(s).
- Demonstrated improvement in client self-management/client and Significant Other(s) management of the hearing impairment and its effects through use of the hearing aid(s).

**Clinical Indicators**
- Individuals of all ages with a hearing loss

**Clinical Processes**
- Assessment of need
  - Determines likelihood of benefit from using hearing aid(s) in regular environments
  - Determines attitude and motivation to use hearing aid(s)
  - Identifies client limitations which may impact on hearing aid(s)
    - Management
    - Usage
    - Benefit
  - Individuals suspected of having active medical pathologies of the auditory system are referred for medical evaluation prior to hearing aid assessment and fitting
- Counselling
  - Establish realistic expectations of re/habilitation
  - Establish realistic expectations of hearing aid(s)
  - Provide information on course of re/habilitation
  - Define relevance of re/habilitation strategies to client goals
  - Provide information on strategies to habituate/acclimatise to changed sound quality and volume with hearing aid(s)
  - Explain communication strategies for general use
  - Explain communication strategies to be employed with hearing aid(s) for specific contexts
- Selection of hearing aid(s) based on
  - Client agreement
  - Client communication needs and goals
  - Audiological and/or electrophysiological test outcomes
  - Prognosis
    - Hearing
    - Medical conditions that may impact on hearing aid(s) effectiveness
  - Electroacoustic characteristics of hearing aid(s), chosen using
    - A recognised and validated prescriptive approach
    - Knowledge of features of hearing aid(s) that could be beneficial in client-identified problem situations (e.g. directional microphones, noise reduction algorithms, multiple program access, feedback control)
    - Knowledge regarding acoustic modifications and ear mould technology
  - Provision of information sufficient for client to make informed choice
  - Style and preference of hearing aid(s)
  - Client need for control of hearing aid(s)
  - Ability of client/Significant Other(s) to handle the hearing aid(s) (e.g. switches, insertion, battery)
  - Probability of need for compatibility with other devices (e.g. telecoil for induction-looped phone, RM system)
  - Other client preferences (e.g. colour, cost)
- Hearing aid fitting may include
  - Earmould impression and modification
  - Tubing modification
  - Real ear verification and/or coupler measurements
  - Electroacoustic adjustment of hearing aid(s)
  - Demonstration of physical management techniques
- Practice of physical management techniques by client
- Modification of physical characteristics of hearing aid(s)
- Modification of electroacoustic settings of hearing aid(s)
- Developing a hearing aid use and communication plan

**Evaluation of hearing aid fitting may involve**
- Feedback from client and/or Significant Other(s)
  - Benefit
  - Limitations
  - Satisfaction
  - Physical management
- Observation/informal assessment of client’s auditory-verbal interaction
- Assessment of physical fit
  - Comfort
  - Security
  - Cosmetic acceptability
  - Microphone port orientation
  - Ease of insertion
  - Acoustic feedback
- Assessment of client/Significant Other(s) management of hearing aid(s)
  - Insertion
  - Change of batteries
  - Manipulation of switches
  - Knowledge of multiple programs
- Establishment of use of hearing aid(s)
  - Amount
  - Contexts
  - Settings
- Functional assessments
- Review of client goals
- Validation of hearing aid fitting (e.g. comparative speech assessments such as aided versus unaided)
- Live Speech Mapping
- Aided Threshold assessment
- Aided Cortical Auditory Evoked Potentials

**Maintenance of hearing aid may include**
- Adjustment of physical fit
- Identification of faults in electroacoustic characteristics
- Identification and remediation of faults in physical condition of hearing aid(s)
- Identification and remediation of issues with client/Significant Other(s) management of aid
- Repair or modification of hearing aid(s)
  - By clinician
  - By technical support services

**Feedback to client/Significant Other(s), counselling and health promotion**

**Recommendations for further management**
- No further action
- Periodic reassessment/monitoring
- Continue with current audiological re/habilitation
- Supplement current audiological re/habilitation
- Change direction of current re/habilitation
- Referral
  - Further assessment
  - Audiological re/habilitation
  - Medical
  - Allied health
    - Speech/language
    - Psychology/social worker
  - Educational/workplace support
  - Support and mentoring groups
**Documentation**

**Client Health Record**  
*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client  
  - Pertinent background information  
  - Type of amplification strategies used  
  - Communication modality/strategies used  
  - Results of auditory function assessments  
  - Prognosis  
- Results from assessment of needs  
- Recommendations from assessment of needs  
- Agreed plan of action for hearing aid re/habilitation  
- Information provided concerning hearing aid re/habilitation strategy  
  - Frequency of service  
  - Estimated duration of program  
  - Type of service (e.g. individual, group, home program)  
  - Estimate of costs involved  
- Decisions regarding the hearing aid(s)  
  - Rationale for choice of hearing aid(s)  
  - Parties involved  
  - Primary decision-maker  
  - Consensus on decision  
  - Departures from audiological advice  
- Activities and procedures undertaken in fitting process  
- Evaluation of target achievement for fitting activities  
- Justification for deliberate departures from target for fitting activities  
- Summary of verbal and written information provided to client/Significant Other(s)  
- Copy of hearing aid use/communication plans  
- Results of evaluation of hearing aid(s) fitting  
- Specific Recommendations for further management  
- Copies of correspondence *(Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)*  
- Receipts/contracts  

**Correspondence**  
*(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)*

- Identifying information in relation to client  
- Written to the level of knowledge and practicality required by the receiving professional  
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)  
- May include  
  - Presenting needs of client  
  - Hearing aid(s) fitted  
  - Needs met by amplification strategies  
  - Needs met by other strategies  
  - Continuing concerns  
  - Action requested of recipient  
  - Written information/documentation to support recipient in acting on request  

**Settings**  
*(Practice Operations Standard 3.1 Physical Environments and Facilities)*

- Ambient noise meets ANSI standards for hearing assessment *(Practice Operations Criterion 3.1.2 Health Record Compliance)*.  
  **ANSI S3.1-1999 (R2013) Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms**  
- Provides confidentiality for client assessment and counselling *(Practice Operations Criterion 1.1.2 Confidentiality and Privacy).*


Safety
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)

- Testing environment has been audited for occupational health and safety
  (Practice Operations Criterion 3.1.1 Workplace Environment)
  (Practice Operations Criterion 4.1.3 Clinical Risk Management)
- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
  AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions
  NZAS Standards of Practice - Infection Control
  Guidelines for Infection Prevention & Control - Summary & Audiological Perspective

Equipment Specifications
(Practice Operations Standard 3.2 Equipment)

- Assessments are conducted with acoustic stimuli calibrated to ANSI standards.
  AS ISO 389.7-2003 Acoustics - Reference zero for the calibration of audiometric equipment - Reference threshold of hearing under free-field and diffuse-field listening conditions
  AS IEC 60645.3-2002 Electroacoustics - Audiological equipment - Auditory test signals of short duration for audiometric and neuro-otological purposes
- Equipment is used in accordance with manufacturer’s instructions.
- Assessments are conducted using recognised test procedures.
  AS ISO 12124-2003 Acoustics - Procedures for the measurement of real-ear acoustical characteristics of hearing aids
  ANSI C63.19-2011 Methods Of Measurement Of Compatibility Between Wireless Communications Devices And Hearing Aids
  AS 60118.8-2007 Hearing aids - Methods of measurement of performance characteristics of hearing aids under simulated in situ working conditions
  AS 60118.9-2007 Hearing aids - Methods of measurement of characteristics of hearing aids with bone vibrator output
- Devices fitted meet defined standards for hearing aids.
  AS 60118.0-2007 Hearing aids - Measurement of electroacoustical characteristics
  ÂS 60118.1-2007 Hearing aids - Hearing aids with induction pick-up coil input
  ÂS 60118.2-2007 Hearing aids - Hearing aids with automatic gain control circuits
  ÂS 60118.4-2007 Hearing aids - Magnetic field strength in audio-frequency induction loops for hearing aid purposes
  AS 60118.6-2007 Hearing aids - Characteristics of electrical input circuits for hearing aids
  AS 60118.7-2007 Hearing aids - Measurement of the performance characteristics of hearing aids for production, supply and delivery quality assurance purposes
AS 60118.12-2007 Hearing aids - Dimensions of electrical connector systems  
AS 1088.3-1987 Hearing aids - Hearing aid equipment not entirely worn on the listener  
AS 1088.5-1987 Hearing aids - Nipples for insert earphones  

Related References

15. Amplification Strategies - Assistive Listening Devices (ALDs)

**Purpose and Aim**
- To improve functional hearing and communication through use of devices designed to support hearing in specific situations and environments.
- To improve functional hearing and communication for individuals who are unable to manage a personal hearing aid.

**Expected Outcomes**
- Demonstrated improvement in client hearing and communication function with the assistive listening device (ALD).
- Demonstrated improvement in client self-management/client and Significant Other(s) management of the hearing impairment and its effects through use of the ALD.

**Clinical Indicators**
- Individuals of all ages with hearing impairment

**Clinical Processes**
- ALDs may include
  - Personal RM systems
  - Personal communicators
  - TV devices
  - Telephone devices and applications
  - Induction loops
  - Soundfield systems
  - PC-based communications
- Assessment of needs identifies
  - Situations in which client experiences hearing challenges
  - Client attitude and motivation to use an ALD to improve functional hearing in challenging auditory environments
  - Current use of hearing aids or other devices for hearing support
  - Potential compatibility issues between ALDs and other devices in use in, or encroaching on, the challenging auditory environment
  - Limitations intrinsic to the client or to the auditory environment that are likely to impact on ALD usage, management or benefit
  - Parties other than the client who will be involved with or impacted by use of the ALD
    - Spouse/Significant Other(s)/family
    - Education staff
    - Classmates and other hearing impaired students
    - Workplace personnel
    - Aged care staff
    - Fellow aged care residents
- Counselling
  - Establish realistic expectations of re/habilitation
  - Establish realistic expectations of ALD
  - Define relevance of re/habilitation strategies to client goals
    - Explain logistics of using ALD
    - Explain communication strategies to be employed with device
    - Define safe usage of ALD
    - Explain costs involved with procurement, installation and usage of device
- Device fitting may include
  - Electroacoustic adjustment of ALD/ALD and other device combination
  - Recommendations for ALD/ALD and other device settings for optimal safe use
  - Demonstration of physical management techniques
  - Practice of physical management techniques by client
  - Modification of physical characteristics of device
  - Modification of electroacoustic settings of aid
  - Developing a device use and communication plan
- Evaluation of device fitting may involve
  - Both clinical evaluation and evaluation in the client’s real world environment
  - Feedback from client and/or Significant Other(s)
- Benefit
- Limitations
- Satisfaction
  - Formal or informal assessment of individual’s comparative hearing function with and without ALD
  - Assessment of physical fit (personal devices)
    - Comfort
    - Security
    - Cosmetic acceptability
    - Microphone position
    - Acoustic feedback
  - Assessment of positioning (e.g. for infra-red, flashing light, vibrating devices)
  - Assessment of client/Significant Other(s) management of device
  - Establishment of ALD use
    - Amount
    - Contexts
    - Settings
  - Communication inventories, and/or other recognised questionnaires or surveys used for measuring outcomes
- Maintenance of ALD may include
  - Identification of faults in electroacoustic characteristics of device
  - Identification of faults in physical condition of device
  - Identification of issues with client/Significant Other(s) management of device
  - Repair or modification of aid
    - By clinician
    - By technical support services
- Feedback to client/Significant Other(s), counselling and health promotion
- Recommendations for further management
  - No further action
  - Periodic reassessment/monitoring
  - Continue with current audiological re/habilitation
  - Supplement current audiological re/habilitation
  - Change direction of current re/habilitation
  - Referral
    - Further assessment
    - Audiological re/habilitation
    - Medical
    - Allied health
      - Speech/language
      - Psychology/social worker
    - Educational/workplace support
    - Support and mentoring groups

**Documentation**

**Client Health Record**
*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client
- Pertinent background information
  - Type of amplification strategies used
  - Communication modality/strategies used
  - Results of auditory function assessments
  - Prognosis
  - Results from assessment of needs
  - Specific recommendations from assessment of needs
- Agreed plan of action for re/habilitation
- Information provided concerning auditory re/habilitation program
  - Frequency of service
  - Estimated duration of program
  - Type of service (e.g. individual, group, home program)
• Estimate of costs involved
  • Decisions regarding the ALD(s)
    o Rationale for choice of ALD
    o Parties involved
    o Primary decision-maker
    o Consensus on decision
    o Departures from audiological advice
  • Activities and procedures undertaken in fitting process
  • Summary of verbal and written information provided to client/Significant Other(s)
  • Copy of device use/communication plans
  • Results of evaluation of device fitting
  • Specific recommendations for further management
  • Copies of correspondence
  • Informed consent to release medical information (Practice Operations Criterion 1.1.3 Informed Consent, and Practice Operations Criterion 2.2.1 Referrals)
  • Receipts/contracts

Correspondence
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)
  • Identifying information in relation to client
  • Written to the level of knowledge and practicality required by the receiving professional
  • Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)
  • May include
    o Presenting needs of client
    o ALD fitted
    o Needs met by ALD amplification strategies
    o Needs met by other strategies
    o Continuing concerns
    o Action requested of recipient
    o Written information/documentation to support recipient in acting on request

Settings
(Practice Operations Standard 3.1 Physical Environment and Facilities)
  • Ambient noise meets ANSI standards for hearing assessment (Practice Operations Criterion 3.1.2 Health Record Compliance).
  • Provides confidentiality for client assessment and counselling (Practice Operations Criterion 1.1.2 Confidentiality and Privacy).

Safety
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)
  • Testing environment has been audited for occupational health and Safety (Practice Operations Criterion 3.1.1 Workplace Environment) (Practice Operations Criterion 4.1.3 Clinical Risk Management).
  • Precautions are taken to ensure prevention of bodily injury.
  • Electrical equipment is regularly tagged and tested.
  • Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions (Practice Operations Criterion 2.4.2 Infection Prevention and Control).
    NZAS Standards of Practice - Infection Control
**Equipment Specifications**  
*(Practice Operations Standard 3.2 Equipment)*

- Assessments are conducted with acoustic stimuli calibrated to ANSI standards.
- Equipment is used in accordance with manufacturer’s instructions.
- Assessments are conducted using recognised test procedures.

**AS 60118.2-2007** Hearing aids - Hearing aids with automatic gain control circuits  

**AS 60118.4-2007** Hearing aids - Magnetic field strength in audio-frequency induction loops for hearing aid purposes  

**AS 60118.12-2007** Hearing aids - Dimensions of electrical connector systems  


**AS/NZS 1088.9:1995 Amendment 1:1996** Hearing aids - Immunity requirements and methods of measurement for hearing aids exposed to radiofrequency fields in the frequency range 300 MHz to 3 GHz  

**ANSI C63.19-2011** Methods Of Measurement Of Compatibility Between Wireless Communications Devices And Hearing Aids  

**AS 1603.11-2010** Automatic fire detection and alarm systems - Visual warning devices  

**AS 1428.5-2010** Design for access and mobility - Communication for people who are deaf or hearing impaired  

**Related References**

- **American Academy of Audiology Clinical Practice Guidelines, Remote Microphone Hearing Assistance Technologies for Children and Youth from Birth to 21 Years, 22 April 2008**  

- **Supplement A. Fitting and Verification Procedures for Ear-level FM**  
http://www.audiology.org/resources/documentlibrary/Documents/HATSup042208.pdf

- **Supplement B: Classroom Audio Distribution Systems—Selection and Verification. July 2011**  

16. Amplification Strategies - Sensory Devices

**Purpose and Aim**
- To improve functional hearing and communication using a device which inputs to an alternate sense to compensate the hearing impairment.
- To improve environmental awareness using a device which inputs to an alternate sense to compensate the hearing impairment.

**Expected Outcomes**
- Improvement in client communication when using the sensory device.
- Improvement in client environmental awareness when using the sensory device.
- Improvement in client self-management/client and Significant Other(s) management of the hearing impairment and its effects through use of the device.

**Clinical Indicators**
- Individuals of all ages with hearing impairment for whom
  - Hearing function with conventional amplification has been maximised without achieving functional communication
  - Hearing function with conventional amplification has been maximised without achieving useable awareness of the auditory environment
  - Implantation is contraindicated or otherwise discounted as an option

**Clinical Processes**
- Assessment of needs identifies
  - Situations in which client experiences hearing challenges
  - Client attitude and motivation to use a sensory device
  - Current use of hearing aids or other devices for hearing support
  - Potential compatibility issues between sensory device and other devices in use in, or encroaching on, the challenging auditory environment
  - Limitations intrinsic to the client or to the auditory environment that are likely to impact on sensory device usage, management or benefit
  - Parties other than the client who will be involved with or impacted by use of the sensory device
    - Family/Significant Other(s)
    - Education staff
    - Classmates and other hearing impaired students
    - Workplace personnel
    - Aged care staff
    - Fellow aged care residents
  - Counselling
    - Establish realistic expectations of re/habilitation
    - Establish realistic expectations of sensory device(s)
    - Provide information on course of re/habilitation
    - Define relevance of re/habilitation strategies to client goals
    - Provide information on strategies and training required to learn to use alternate sensory input from device in conjunction with residual hearing
    - Explain communication strategies for general use
    - Explain communication strategies to be employed with device for specific contexts
- Sensory device selection based on
  - Client agreement
  - Client communication needs and goals
  - Audiological and/or electrophysiological test outcomes
  - Prognosis
    - Hearing
    - Medical conditions that may affect management
    - Acuity and function of individual’s other sensory systems
  - Provision of information sufficient for client to make informed choice
    - Style and preference of individual device
    - Individual’s need for control of device
- Ability of individual/Significant Other(s) to handle the hearing device (e.g. switches, insertion, battery)
- Probability of need for compatibility with other devices
- Other individual preferences (e.g. colour, cost)

- **Device Fitting** may include
  - Assessment of device comfort and wearability
  - Assessment of individual’s sensitivity to alternate sensory stimuli through device
  - Electroacoustic adjustment of device
  - Demonstration of physical management techniques
  - Practice of physical management techniques by individual
  - Modification of physical characteristics of device
  - Modification of electroacoustic settings of device
  - Developing a communication plan for device use

- **Communication Training**

- **Evaluation of Device Fitting** may involve
  - Feedback from client and/or Significant Other(s)
    - Benefit
    - Limitations
    - Satisfaction
  - Observation/informal assessment of client’s communicative interaction
  - Assessment of physical fit
    - Comfort
    - Security
    - Cosmetic acceptability
    - Microphone port orientation
  - Assessment of client/Significant Other(s) management of device
  - Establishment of use of sensory device
    - Amount
    - Contexts
    - Settings
  - Communication inventories, and/or other recognised questionnaires or surveys for measuring outcomes
  - Validation of fitting (e.g. comparative speech assessments such as aided versus unaided)

- **Maintenance of Sensory Device** may include
  - Adjustment of physical fit/positioning
  - Identification of faults in electroacoustic characteristics
  - Identification of faults in physical condition of aid
  - Identification of issues with client/Significant Other(s) management of aid
  - Repair or modification of aid
    - By clinician
    - By technical support services

- **Counselling/feedback to individual/Significant Other(s)**

- **Recommendations for further management**
  - No further action
  - Periodic reassessment/monitoring
  - Continue with current audiological re/habilitation
  - Supplement current audiological re/habilitation
  - Change direction of current re/habilitation
  - Referral
    - Further assessment
    - Medical
    - Allied health
    - Educational/workplace support
    - Support and mentoring groups
Documentation
Client Health Record
(Practice Operations Criterion 2.1.2 Health Record Compliance)

- Identifying information relating to client
- Pertinent background information
  - Type of amplification strategies used
  - Communication modality/strategies used
  - Results of auditory function assessments
  - Prognosis
  - Results from assessment of needs
  - Specific recommendations from assessment of needs
- Agreed plan of action for re/habilitation
- Information provided concerning auditory re/habilitation program
  - Frequency of service
  - Estimated duration of program
  - Type of service (e.g. individual, group, home program)
  - Estimate of costs involved
- Decisions regarding sensory device
  - Rationale for choice of device
  - Parties involved
  - Primary decision-maker
  - Consensus on decision
  - Departures from audiological advice
- Activities and procedures undertaken in fitting process
- Summary of verbal and written information provided to client/Significant Other(s)
- Copy of device use/communication plans
- Communication training and strategies used to meet client needs and goals
- Results of evaluation of device fitting
- Specific recommendations for further management
- Copies of correspondence
- Informed Consent to release medical information (Practice Operations Criterion 1.1.3 Informed Consent, and Practice Operations Criterion 2.2.1 Referrals)
- Receipts/contracts

Correspondence
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)

- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving professional
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)
- May include
  - Presenting needs of client
  - Sensory device fitted
  - Needs met by device strategy
  - Needs met by other strategies
  - Continuing concerns
  - Action requested of recipient
  - Written information/documentation to support recipient in acting on request

Settings
(Practice Operations Standard 3.1 Physical Environment and Facilities)

- Ambient noise meets ANSI standards for hearing assessment
  (Practice Operations Criterion 3.1.2 Health Record Compliance).
- Provides confidentiality for client assessment and counselling
  (Practice Operations Criterion 1.1.2 Confidentiality and Privacy).


**Safety**
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)

- Testing environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment, and Practice Operations Criterion 4.1.3 Clinical Risk Management).
- Precautions are taken to ensure prevention of bodily injury.
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions (Practice Operations Criterion 2.4.2 Infection Prevention and Control). [NZAS Standards of Practice - Infection Control](http://infostore.saiglobal.com/store/Details.aspx?ProductID=1396046)

**Equipment Specifications**
(Practice Operations Standard 3.2 Equipment)

- Assessments are conducted with acoustic stimuli calibrated to ANSI standards.
- Equipment is used in accordance with manufacturer’s instructions.
- [AS 1428.5-2010](http://infostore.saiglobal.com/store/Details.aspx?ProductID=1396046) Design for access and mobility - Communication for people who are deaf or hearing impaired

**Related References**

17. Amplification Strategies - Implantable Devices

**Purpose and Aim**
- To improve functional hearing and communication through use of an implantable device fitted to optimally compensate the individual’s hearing impairment.

**Expected Outcomes**
- Improvement in client hearing and communication function with the implanted device.
- Improvement in client self-management/client and Significant Other(s) management of the hearing impairment and its effects through use of the implanted device.

**Clinical Indicators**
- Individuals of all ages with hearing impairment for whom
  - Surgical coupling with the auditory system is credibly expected to be significantly more effective in improving hearing function than conventional amplification
  - Medical and audiological contra-indications to implantation do not exist

**Clinical Processes**
- Assessment of need occurs within a multidisciplinary setting
  - **Audiologist**
    - Client/Significant Other(s) identified hearing needs
    - Recent advanced audiological diagnostic assessment results
    - Prognosis for hearing
    - Review of current amplification strategies
    - Optimisation of current amplification strategies
    - Communication assessment
    - Professional liaison (education staff, school counsellor, aged care/community care staff, workplace rehabilitation officers) to verify the individual’s functional hearing ability in everyday environments
  - **Medical/ENT team**
    - Contraindications to surgery
    - Radiological assessment
    - Assessment of integrity of surgical sites
  - **Social worker/psychologist**
    - Assessment of social support dynamics
    - Assessment of cognitive function
    - Counselling
      - Ensuring and maintaining realistic expectations of device and re/habilitation
      - Ascertaining understanding, motivation and commitment to full implantation and re/habilitation program
  - **Speech/language pathologist**
    - Speech and language assessment (if required)

- **Post-surgical activities include**
  - Fitting of external components of implantable device
  - Adjustment of electrophysiological (mapping)/electroacoustic settings of device
  - Demonstration of physical management techniques
  - Practice of physical management techniques by client
  - Modification of physical characteristics of device
  - Developing a device use and communication plan
  - Developing a device maintenance plan
  - Teaching of troubleshooting methods to identify device faults
  - Provision of information about support services

- **Evaluation of device fitting may involve**
  - Feedback from client and/or Significant Other(s)
    - Benefit
    - Limitations
    - Satisfaction
  - Observation/informal assessment of client’s auditory-verbal interaction
Assessment of physical fit
- Comfort
- Security
- Cosmetic acceptability
- Microphone port orientation
- Ease of management
- Acoustic feedback

Assessment of client/Significant Other(s) management of device

Establishment of use of device
- Amount
- Contexts
- Settings

Communication inventories, and/or other recognised questionnaires or surveys for measuring outcomes measures
- Validation of fitting (e.g. comparative speech perception assessments such as aided vs unaided)
- Live Speech Mapping
- Aided Threshold assessment

Maintenance of implantable device may include
- Monitoring of device optimal functioning
- Adjustment of physical fit
- Identification of faults in physical condition of device
- Identification of issues with client/Significant Other(s) management of device
- Repair or modification of device by technical support services

Feedback to client/Significant Other(s), counselling and health promotion

Recommendations for further management
- No further action
- Periodic reassessment/monitoring
- Continue with current audiological re/habilitation
- Supplement current audiological re/habilitation
- Change direction of current re/habilitation
- Referral
  - Further assessment
  - Medical
  - Allied health
  - Educational/workplace support
  - Support and mentoring groups

**Documentation**

**Client Health Record**
*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client
- Pertinent background information
  - Type of amplification strategies used
  - Communication modality/strategies used
  - Results of auditory function assessments
  - Prognosis
  - Results from assessment of needs
  - Specific recommendations from assessment of needs
- Results of implantable device candidacy assessments
- Agreed plan of action for re/habilitation
- Information provided concerning auditory re/habilitation program
  - Frequency of service
  - Estimated duration of program
  - Type of service (e.g. individual, group, home program)
  - Estimate of costs involved
- Decisions regarding the implantable device
  - Rationale for choice of implantable device
  - Rationale for choice of ear for implantation
Parties involved in decision
- Primary decision-maker
- Consensus on decision
- Departures from audiological advice

Activities and procedures undertaken in mapping process
- Evaluation of target achievement for mapping activities
- Justification for deliberate departures from defaults or fitting activities
- Summary of verbal and written information provided to client/Significant Other(s)
- Copy of device use/communication plans
- Results of evaluation of device fitting
- Specific recommendations for further management
- Copies of correspondence
- Informed consent to release medical information (*Practice Operations Criterion 1.1.3 Informed Consent, and Practice Operations Criterion 2.2.1 Referrals*)
- Receipts/contracts

**Correspondence**
(*Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers*)

- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving professional
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)
- May include
  - Presenting needs of client
  - Implantable device fitted
  - Needs met by sound processing strategy
  - Needs met by other strategies
  - Continuing concerns
  - Action requested of recipient
  - Written information/documentation to support recipient acting on request

**Settings**
(*Practice Operations Standard 3.1 Physical Environments and Facilities*)

- Ambient noise meets ANSI standards for hearing assessment (*Practice Operations Criterion 3.1.2 Health Record Compliance*).

**Safety**
(*Practice Operations Criterion 2.4.1 Occupational Health and Safety*)

- Testing environment has been audited for occupational health and safety (*Practice Operations Criterion 3.1.1 Workplace Environment, and Practice Operations Criterion 4.1.3 Clinical Risk Management*).
- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions (*Practice Operations Criterion 2.4.2 Infection Prevention and Control*)
  - NZAS Standards of Practice - Infection Control
Equipment Specifications
(Practice Operations Standard 3.2 Equipment)

- Assessments are conducted with acoustic stimuli calibrated to ANSI standards.
- Equipment is used in accordance with manufacturer’s instructions.
- Assessments are conducted using recognised test procedures.
- Devices fitted meet defined standards for implantable devices
  AS ISO 14708.1-2003 Implants for surgery - Active implantable medical devices - General requirements for safety, marking and for information to be provided by the manufacturer
  ISO/DIS 14708-7 Implants for surgery - Active implantable medical devices - Part 7: Particular requirements for cochlear implant systems
  http://www.iso.org/iso/catalogue_detail.htm?csnumber=57580

Related References
18. Professional Liaison

*Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers*

**Purpose and Aim**
- To provide comprehensive ear and hearing care to the client.
- To foster holistic health care through the client’s professional healthcare network.
- To respond to the need of a referring professional for client-related hearing/auditory information to assist in management.

**Expected Outcomes**
- Recognition of a request by another professional for information or action.
- Provision of information that can support holistic management of client health and well-being.
- Action on client health and support needs that fall beyond the expertise/scope of practice of the treating clinician.

**Clinical Indicators**
- Individuals of all ages with hearing impairment for whom
  - Report and/or advice has been sought by other professionals
  - Audiological information and/or results may have an impact on the care, management, treatment and/or well-being of individuals
  - Identified medical risk factors exist
    - Sudden hearing loss
    - Asymmetrical hearing loss
    - Middle ear dysfunction
    - Unilateral tinnitus
    - Vertigo
    - Family history of progressive hearing loss
    - Unexplained speech discrimination difficulties
    - Exposure to ototoxic agents
    - Pain, discomfort or tenderness of the ear
    - Facial numbness, weakness or asymmetrical facial movements
    - Fluctuating hearing loss
  - Identified psychosocial risk factors exist
    - Developmental
    - Educational
    - Emotional
    - Disabilities in addition to hearing loss

**Clinical Processes**
- Liaison is used to
  - Develop networks among professionals
  - Educate other professionals to support ear and hearing outcomes for improved client well-being
  - Learn from other professionals to support ear and hearing outcomes for improved client well-being
  - Ensure auditory-related, communication or coping concerns that fall outside the scope of practice of the clinician are assessed by a professional with the required skill set
- Confidentiality and informed consent requirements are complied with in full
- Communication may involve
  - Face to face verbal reporting
  - Written reporting
  - Telecommunications (e.g. phone, fax, video/teleconference, email)
- Professionals involved may include
  - GPs, paediatricians, ENTs or other medical personnel
  - Geneticists
  - Speech/language pathologists, social workers, psychologists and other allied health personnel
  - Childcare workers, teachers, school counsellors and other early learning and education personnel
Occupational Health & Safety officers, workplace rehabilitation workers, rehabilitation counsellors

**Documentation**

**Client Health Record**
*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client
- Reasons for liaison
- Professionals identified for liaison
- Informed consent to release medical *(Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)*
- Copies of correspondence
- Receipts/contracts

**Correspondence**
*(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)*

- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving professional
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)
- May include
  - Presenting needs of client
  - Audiometric results conforming to New Zealand Audiological Society Symbols
  - Strategies identified for re/habilitation
  - Effectiveness of re/habilitation strategies
  - Continuing concerns
  - Action requested of recipient
  - Written information/documentation to support recipient acting on request

**Settings**
*(Practice Operations Standard 3.1 Physical Environments and Facilities)*

- Provides confidentiality for client assessment and counselling *(Practice Operations Criterion 1.1.2 Confidentiality and Privacy)*.

**Safety**
*(Practice Operations Criterion 2.4.1 Occupational Health and Safety)*

- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions *(Practice Operations Criterion 2.4.2 Infection Prevention and Control)*.

**Equipment**
*(Practice Operations Standard 3.2 Equipment)*

- Equipment is used in accordance with manufacturer’s instructions.

**Related References**


19. Multidisciplinary Management

**Purpose and Aim**
- To meet a specific client need/s or goal/s through active collaboration with other professionals.

**Expected Outcomes**
- Effective and holistic management of individual need(s) and goal(s).
- Reduced psychosocial effects of treatment on client and/or Significant Other(s) due to clear management priorities and realistic expectations.
- Maximised attainment of primary goals within the bounds of the individual’s capacity.

**Clinical Indicators**
- Individuals of all ages with multiple or complex needs which include auditory disorders
- May include
  - Children
  - People with multiple disabilities
  - Clients requiring surgical re/habilitation for auditory disorders
  - Clients with (central) auditory processing disorders
  - People with mental health issues

**Clinical Processes**
- Multidisciplinary management is used to
  - Streamline and simplify management for individuals with complex or multiple needs through
    - Holistic management of the client
    - Improved communication between professionals
    - Shared prioritisation of client needs and management activities
    - Improved co-ordination of care across services
- Confidentiality and informed consent requirements are complied with in full
- Communication may involve
  - Face to face verbal reporting
  - Written reporting
  - Telecommunications (e.g. phone, fax, email, video/teleconference)
- Professionals involved may include
  - Medical (GPs, paediatricians, ENTs)
  - Geneticists
  - Allied Health (e.g. speech/language pathologists, social workers, psychologists, physiotherapists, other audiologists)
  - Education (classroom teachers, special needs teachers, teacher aides, early intervention)
  - Childcare workers
  - Aged care workers
  - Occupational Health & Safety officers, workplace rehabilitation workers
  - Interpreters
- Family/Significant Other(s) remain integral and central to the clinical processes

**Documentation**

**Client Health Record**

*(Practice Operations Criterion 2.1.2 Health Record Compliance)*
- Identifying information relating to client
- Reasons for multidisciplinary management
- Professionals and services involved in multidisciplinary management
- Specific re/habilitation goals agreed with client/Significant Other(s)
- Agreed prioritisation of goals
- Record of interactions with other parties involved in management, including
  - When and how communication occurred
  - Who was present/involved in the communication
  - Summary of discussion
  - Decisions and actions arising from communication
• Responsibilities and timeframes for actions arising from communication
  • Informed Consent to release medical information (Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)
  • Copies of correspondence
  • Receipts/contracts

**Correspondence**
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)
• Identifying information in relation to client
• Written to the level of knowledge and practicality required by the receiving professional
• Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)
• May include
  o Presenting needs of client
  o Audiometric results conforming to New Zealand Audiological Society Symbols
  o Strategies identified for re/habilitation
  o Effectiveness of re/habilitation strategies
  o Continuing concerns
  o Action requested of recipient
  o Written information/documentation to support recipient acting on request

**Settings**
(Practice Operations Standard 3.1 Physical Environment and Facilities)
• Provides confidentiality for client assessment and counselling (Practice Operations Criterion 1.1.2 Confidentiality and Privacy).

**Safety**
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)
• Precautions are taken to ensure prevention of bodily injury.
• Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions (Practice Operations Criterion 2.4.2 Infection Prevention and Control) NZAS Standards of Practice - Infection Control

**Equipment**
• Equipment is used in accordance with manufacturer’s instructions.

**Related References**
20. Outcomes, Measures & Evaluation  
(Practice Operations Criterion 4.1.2 Outcome Measures)

**Purpose and Aim**
- To determine the amount of change in auditory and communication function after re/habilitation activities.
- To monitor progress during an individual's re/habilitation program.
- To determine the effectiveness of specific re/habilitation tasks and strategies for an individual.
- To identify short and long term adherence to clients' chosen form of re/habilitation.
- To validate goals and expectations.
- To guide changes in re/habilitation strategies and activities if required.
- To identify the need for further re/habilitation.
- To identify the need for further assessment or referral.

**Expected Outcomes**
- Amount of change in auditory and communication function after re/habilitation activities is determined.
- The progress of individual re/habilitation programs are monitored.
- Effectiveness of specific re/habilitation tasks and strategies is determined.
- Specific and realistic goals for re/habilitation are evaluated.
- Realistic expectations of re/habilitation are attained.

**Clinical Indicators**
- Integral to all audiological services
- Individuals of all ages with hearing/auditory disorders

**Clinical Processes**
- Outcomes measures should be
  - Relevant
  - Reliable
  - Valid
  - Sensitive
  - Accurate
  - Comparable to existing population data
  - Timely
- Outcomes measures/evaluation may involve
  - Standardised and/or non-standardised methodologies
    - Observation
    - Discussion
    - Questionnaires
      - Client rated
      - Peer/Significant Other(s) rated
    - Pre and post–intervention assessments
    - Formal assessments of function
      - Aided vs unaided speech assessments
      - Listening in noise tests
      - Signal audibility assessment
        - Real ear measures
        - Aided thresholds
      - Balance Tests
  - Measures pertaining to
    - Goal achievement
    - Client satisfaction
    - Client/family engagement with intervention
    - Improvement in function
    - Use of identified re/habilitation strategies
  - Choice of evaluation materials and methods dependent on
    - Age of individual
    - Developmental level
    - Education and literacy level
- Physical limitations
- Client goals
- Type of hearing/auditory disorder
- Degree of hearing disorder

- Responses which may be
  - Oral
  - Written
  - Gestural
  - Sign
  - Interpreted by another

- Responses obtained via
  - Face to face
  - Telecommunications (e.g. phone, SMS, fax, video/teleconference, email, via NRS)
  - Questionnaires and self-assessment tools

- Multiple parties including
  - Individual with the hearing/auditory disorder
  - Parents/Significant Other(s)
  - Partners/family
  - Workplace rehabilitation officers
  - Aged care personnel
  - Medical personnel
  - Allied health personnel
  - Education/childcare/early intervention staff

- Evaluation may be performed
  - Before rehabilitation commences (baseline)
  - During rehabilitation (progress)
  - At completion of rehabilitation (short term outcomes)
  - Some months after completion of / (long term outcomes/maintenance)

- Recommendations for further management
  - No further action
  - Periodic reassessment/monitoring
  - Continue with planned rehabilitation
  - Change direction of rehabilitation
  - Supplement current rehabilitation
    - Refer for further management by other professional services

**Documentation**

**Client Health Record**

*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client
- Pertinent background information
  - Type of amplification strategies used
  - Communication modality/strategies used
  - Assessment results
  - Prognosis
  - Specific recommendations for management
- Conditions under which evaluation occurred which could impact results including
  - Client’s mental and physical state
  - Behaviours of other parties present
  - Environmental conditions
  - Clinician state
- Results of evaluation
- Results of checklists/self-report measures/questionnaires
- Interpretation of evaluation
- Specific recommendations arising from evaluation
- Summary of feedback of results/counselling to client/Significant Other(s) and/or other parties
- Informed consent to release medical information *(Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)*
- Copies of correspondence
• Receipts/contracts

**Correspondence**

*Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers*

- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving professional
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)
- May include
  - Presenting needs of client
  - Audiometric results conforming to New Zealand Audiology Society symbols
  - Strategies identified for rehabilitation
  - Effectiveness of rehabilitation strategies
  - Continuing concerns
  - Action requested of recipient
  - Written information/documentation to support recipient in acting on request

**Settings**

*Practice Operations Standard 3.1 Physical Environments and Facilities*

- Ambient noise meets ANSI standards for hearing assessment (*Practice Operations Criterion 3.1.2 Health Record Compliance*).
- Provides confidentiality for client assessment and counselling (*Practice Operations Criterion 1.1.2 Confidentiality and Privacy*).

**Safety**

*Practice Operations Criterion 2.4.1 Occupational Health and Safety*

- Testing environment has been audited for occupational health and safety (*Practice Operations Criterion 3.1.1 Workplace Environments, and Practice Operations Criterion 4.1.3 Clinical Risk Management*).
- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer's instructions (*Practice Operations Criterion 2.4.2 Infection Prevention and Control*).

**Equipment Specifications**

*Practice Operations Standard 3.2 Equipment*

- Assessments are conducted with acoustic stimuli calibrated to ANSI standards.
- Equipment is used in accordance with manufacturer’s instructions.
- Assessments are conducted using recognised test procedures.
AS ISO 12124-2003 Acoustics - Procedures for the measurement of real-ear acoustical characteristics of hearing aids
ANSI C63.19-2011 Methods Of Measurement Of Compatibility Between Wireless Communications Devices And Hearing Aids

Related References

21. Communication Training

Purpose and Aim
- To optimise the communication abilities of an individual with a significant auditory impairment through use of tactics based on residual hearing and/or other sensory modalities.

Expected Outcomes
- Improved communication for hearing impaired/deaf individuals and their communication partners.

Clinical Indicators
- Individuals of all ages with hearing impairment
- Communication partners of hearing impaired/Deaf people

Clinical Processes
- Assessment of needs
  - Short and long term communication goals
  - Ascertain communicative partners who would be involved in re/habilitation programme
  - Baseline for comparative evaluation pre and post communication training
  - Ensure that amplification strategies in use are optimal and optimally fitted
- Communication training may be an interdisciplinary process, involving
  - Client
  - Audiologist
  - Family/Significant Other(s)
  - Education personnel
  - Speech/language pathologist
  - Aged care personnel
  - Others
- Counselling
  - Ensure impacts of hearing impairment on communication are understood by family/Significant Other(s)
  - Ensure limitations of amplification strategies are understood by both the individual and their communication partners
  - Establish realistic expectations of communication training program
  - Roles in communication training program are understood by all involved parties
  - Assess commitment and motivation of parties to be involved in communication training program
- Communication training may focus on:
  - Comprehension of language in oral, signed, or written modalities
  - Speech and voice production
  - Auditory training
  - Speechreading
  - Multimodal (e.g. auditory and visual, visual and tactile) training communication strategies
  - Conversation analysis and repair strategies
  - Education
  - Counselling
  - Communication partner/s training and counselling
- Evaluation
  - Goals are reviewed periodically to ensure continued relevance
  - Performance in both clinical and everyday environments is considered
  - May be performed at intervals during the re/habilitation programme to monitor progress
  - Formal and informal assessment of client communication
  - Assessment of generalisation of communication behaviours/strategies into everyday interactions
  - Feedback from client and/or Significant Other(s)
  - Benefit
  - Limitations
  - Satisfaction
- Recommendations for further management
  - No further action
Periodic reassessment/monitoring
- Continue with current audiological re/habilitation
- Supplement current audiological re/habilitation
- Change direction of current re/habilitation
- Referral
  - Further assessment
  - Audiological re/habilitation
  - Medical
  - Allied health
  - Speech/language
  - Psychology/social work
  - Physiotherapy/occupational therapy
  - Educational/workplace support
  - Support and mentoring groups

**Documentation**

**Client Health Record**

*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client
- Pertinent background information
  - Type of amplification system/sensory aid used
  - Communication modality/strategies used
  - Assessment results
  - Prognosis
- Client needs and agreed goals
- Information on recommended re/habilitation
  - Frequency of service
  - Estimated duration of program
  - Type of service (e.g. individual, group, home program)
  - Estimate of costs involved
- Communication training and strategies used to meet client needs and goals
- Participants in re/habilitation session/s
- Evaluation of re/habilitation
- Specific recommendations for further management
- Summary of discussion with client and/or Significant Other(s)
- Copies of correspondence
- Informed consent to release medical information *(Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)*
- Receipts/contracts

**Correspondence**

*(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)*

- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving professional
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational, etc…)
- May include
  - Presenting needs of client
  - Strategies identified for re/habilitation
  - Effectiveness of re/habilitation strategies
  - Continuing concerns
  - Action requested of recipient
  - Written information/documentation to support recipient in acting on request
**Settings**
(Practice Operations Standard 3.1 Physical Environment and Facilities)

- Ambient noise meets ANSI standards for hearing assessment (Practice Operations Criterion 3.1.2 Health Record Compliance).
- Provides confidentiality for client assessment and counselling (Practice Operations Criterion 1.1.2 Confidentiality and Privacy).

**Safety**
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)

- Testing environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Criterion 4.1.3 Clinical Risk Management).
- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions (Practice Operations Criterion 2.4.2 Infection Prevention and Control)
  Guidelines for Infection Prevention & Control - Summary & Audiological Perspective
  NZAS Standards of Practice - Infection Control

**Equipment Specifications**
(Practice Operations Standard 3.2 Equipment)

- Equipment is used in accordance with manufacturer’s instructions

**Related References**

Rehabilitation Practices for Specific Populations

22. Paediatric Re/habilitation

Purpose and Aim
- To enhance the quality of life for children with hearing impairments through optimisation of functional hearing.
- To minimise the negative psychosocial impacts of the hearing impairment on the child.
- To enhance well-being and quality of life for families/caregivers of children with hearing impairment.

Expected Outcome
- Optimisation of the hearing impaired child’s functional hearing.
- Minimisation of hearing loss impacts on psychosocial function including:
  - Cognition
  - Social function
  - Emotion
  - Communication
  - Education
  - Employment
- Promotion of family adjustment to child hearing impairment.

Clinical Indicators
- Children with hearing impairment and their families/caregivers

Clinical Processes
- Assessment of needs
  - Continuous process as child grows and needs change
  - Child and/or family reaction to diagnosis of hearing impairment
  - Child and/or family knowledge of and attitude to hearing impairment/deafness
  - Readiness of family to proceed with re/habilitation
  - Child and/or family re/habilitation priorities
  - For infants and young children
    - Needs may be anticipated from audiological data before they are recognised by family
    - Initial need may be for counselling for family
      - Grief and loss
      - Education to enable family to make informed choices for child
  - For younger children will be primarily focussed on parents/caregiver
  - For older children focus moves to include the child, and then primarily involve child
  - Will involve both informational and personal adjustment counselling
  - Continuous process covering
    - Likely effects of child’s hearing impairment on
      - Communication
      - Cognition
      - Social development
      - Emotional well-being
      - Education
      - Employment opportunities
    - Options for re/habilitation
    - Expected outcomes from re/habilitation options
    - Training in chosen re/habilitation strategies
    - Grief and loss
    - Support services
      - For the child
      - For the parents and other family
- Amplification strategies
  - May include
    - Hearing aids (Error! Reference source not found.)
• ALDs (Error! Reference source not found.)
• Implantable device (Error! Reference source not found.)
• Sensory device (Error! Reference source not found.)

• Communication Training may be undertaken by
  o Audiologist
  o Education personnel
  o Speech/language pathologist

• Professional liaison and multidisciplinary management subjects may include
  o Determination of cause of hearing impairment
  o Medical aspects of hearing impairment management
  o Client communication mode and requirements
  o Personal support needs of client and/or family
  o Establishing optimal device usage, particularly where there are issues associated with device use or acceptance
  o Equipment requirements for optimal hearing function in social, educational recreational or vocational settings
  o Environment modifications to support hearing function in social, educational, recreational or vocational settings

• Outcomes measures
  o Chosen with respect to developmental, cognitive and communication levels of child
  o Guide recommendations for further management

• Recommendations for further management
  o Periodic reassessment/monitoring
  o Continue with current audiological reh/abilitation
  o Supplement current audiological re/habilitation
  o Change direction of current re/habilitation
  o Referral
    • Further assessment
    • Medical
    • Allied health
      • Speech/language
      • Psychology
      • Social work/counselling
    • Early intervention
    • Educational support
    • Support and mentoring groups

**Documentation**

**Clinical Record**

*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

• Identifying information relating to client
• Pertinent background information
  o Type of amplification strategies used
  o Communication modality/strategies used
  o Results of auditory function assessments
  o Prognosis
  o Results from assessment of needs
  o Specific recommendations from assessment of needs
• Professionals and services involved in multidisciplinary management
• Record of interactions with other parties involved in management, including
  o When and how communication occurred
  o Who was present/involved in the communication
  o Summary of discussion
  o Decisions and actions arising from communication
  o Responsibilities and timeframes for actions arising from communication
• Agreed plan of action for re/habilitation
• Information provided concerning auditory re/habilitation program
  o Frequency of service
  o Estimated duration of program
- Type of service (e.g. individual, group, home program)
- Estimate of costs involved
- Decisions regarding amplification strategies
  - Rationale for choice of devices
  - Parties involved
  - Primary decision-maker
  - Consensus on decision
  - Departures from audiological advice
- Activities and procedures undertaken in fitting process
- Results of evaluation of device fitting
- Justification for deliberate departures from target for fitting activities
- Summary of verbal and written information provided to client/caregiver
- Copy of device use/communication plans
- Specific recommendations for further management
- Copies of correspondence
- Informed consent to release medical information (Practice Operations Criterion 1.1.3 Informed Consent, and Practice Operations Criterion 2.2.1 Referrals)
- Receipts/contracts

**Correspondence**
*(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)*

- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving professional
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)
- May include
  - Presenting needs of client
  - Device(s) fitted
  - Needs met by amplification strategies
  - Needs met by other strategies
  - Continuing concerns
  - Action requested of recipient
  - Written information/documentation to support recipient in acting on request
- Parent/Caregiver provided copies of all reports

**Settings**
*(Practice Operations Standard 3.1 Physical Environment and Facilities)*

- Ambient noise meets ANSI standards for hearing assessment (Practice Operations Criterion 3.1.2 Health Record Compliance).
- Provides confidentiality for client assessment and counselling (Practice Operations Criterion 1.1.2 Confidentiality and Privacy).

**Safety**
*(Practice Operations Criterion 2.4.1 Occupational Health and Safety)*

- Testing environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Criterion 4.1.3 Clinical Risk Management).
- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions (Practice Operations Criterion 2.4.2 Infection Prevention and Control).

Guidelines for Infection Prevention & Control - Summary & Audiological Perspective
Guidelines for Infection Prevention and Control - Audiology Australia Abridged Version
NZAS Standards of Practice - Infection Control

Equipment Specifications
(Practice Operations Standard 3.2 Equipment)

- Assessments are conducted with acoustic stimuli calibrated to ANSI standards.
- Equipment is used in accordance with manufacturer’s instructions.
- Assessments are conducted using recognised test procedures.

Related References
23. Acoustic Shock, TTTS and Hyperacusis Rehabilitation

**Purpose and Aim**
- To improve an individual’s quality of life by reducing the negative impacts of acoustic shock.
- To increase an individual’s tolerance for naturally occurring loud, sudden or unexpected sounds.

**Expected Outcomes**
- Reduction of negative physical and psychological reactions to acoustic shock.
- Desensitisation to naturally occurring, non-damaging sounds which are perceived as intolerable.

**Clinical Indicators**
- Individuals of all ages who
  - Have suffered acoustic shock and/or
  - Demonstrate reduced tolerance to everyday sounds

**Clinical Processes**
- Assessment of needs
  - Impacts of acoustic shock/hyperacusis on everyday function including
    - Physical effects consistent with Tonic Tensor Tympani Syndrome (TTTS)
      - Muffled hearing
      - ‘Fullness’ of ear
      - Pain in ear/temporomandibular joint/face
      - Balance problems
    - Activity limitations attributed to hyperacusis/acoustic shock
  - Sleep
  - Stress levels
  - Time of onset
  - Trigger for onset
  - Presence of tinnitus
  - Meaning attributed to intolerable sounds/tinnitus
  - Coping strategies used
  - Client motivation/commitment to re/habilitation
  - Client goals for re/habilitation
  - Use of checklists/self-report measures/questionnaires
  - Medical referral to identify and treat any suspected medical pathology
- Counselling
  - Establish realistic expectations of re/habilitation
  - Demystification
    - Peripheral and central auditory pathways
    - Tonic Tensor Tympani Syndrome (TTTS)
    - Central mediation of tensor tympani reflex threshold
    - Central contribution to tinnitus reaction
    - Hyperacusis development
    - Conditioned responses
  - Reducing negative reactions to loud sound
    - Sound enrichment to reduce intolerable sound perception and contrast effect of sudden sound
    - Stress management techniques
    - Anger, anxiety, depression and/or post-traumatic stress disorder management
    - Coping techniques
    - May involve
      - Cognitive-behavioural techniques
        - Identify, challenge and reframe irrational/destructive thoughts
        - Auditory hypervigilance distraction strategies
        - Risk-taking
      - Behavioural techniques
        - Reinforcement
        - Relaxation training
- Systematic desensitisation
- Assertion training

- Device fitting
  - Hyperacusis desensitisation takes priority over management of a hearing loss/tinnitus
  - Client needs and preferences
  - Choice of device
    - Sound generator/MP3 player for sound enrichment
    - Hearing aid
      - If hyperacusis is mild
      - May be set as an electronic sound filter in some cases
  - Client readiness for rehabilitation
  - Client ability to manage device

- Evaluation
  - Ability to function in both clinical and natural environments is considered
  - May be performed at intervals during the rehabilitation program to monitor progress
  - Tracking a reduction in TTS/TTS symptoms.
  - Informal assessment of client management of hyperacusis/tinnitus
  - Generalisation of management strategies into everyday interactions
  - Assessment of client management of device
  - Assessment of client usage of device
  - Feedback from client and/or Significant Other(s)
    - Benefit
    - Limitations
    - Satisfaction

- Recommendations for further management
  - Nil required
  - Periodic reassessment/monitoring
  - Continue with current audiological rehabilitation
  - Change direction of current rehabilitation
  - Refer for other services
    - Medical
    - Psychology
    - Social worker
    - Support and mentoring groups

**Documentation**

**Client Health Record**

*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client
- Pertinent background information
  - History of hyperacusis/acoustic shock
  - Communication modality/strategies used
  - Results of auditory function assessments
  - Prognosis
  - Results from assessment of needs
  - Specific recommendations from assessment of needs
- Agreed plan of action for rehabilitation
- Information provided concerning rehabilitation program
  - Frequency of service
  - Estimated duration of program
  - Type of service (e.g. individual, group, home program)
  - Estimate of costs involved
- Summary of topics covered in counselling including
  - Client understanding of concepts
  - Client acceptance of concepts
- Copy of specific tasks and strategies given to client to try in home or other non-clinical environments
- Summary of client’s feedback on tasks performed in everyday environments
- Decisions regarding device choice
Rationale for choice of device(s)
Parties involved
Primary decision-maker
Consensus on decision
Departures from audiological advice

• Explanation of parameters and settings chosen for fitting
• Summary of verbal and written information about device provided to client/Significant Other(s)
• Copy of device use plans
• Results of checklists/self-report measures/questionnaires
• Specific recommendations for further management
• Copies of correspondence
• Informed consent to release medical (Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)
• Receipts/contracts

Correspondence
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)

• Identifying information in relation to client
• Written to the level of knowledge and practicality required by the receiving party
• Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)
• May include
  o Presenting needs of client
  o Device fitted
  o Needs met by device usage
  o Needs met by other strategies
  o Continuing concerns
  o Action requested of recipient
  o Written information/documentation to support recipient in acting on request

Setting
(Practice Operations Standard 3.1 Physical Environment and Facilities)

• Ambient noise meets ANSI standards for hearing assessment (Practice Operations Criterion 3.1.2 Health Record Compliance).
  ANSI S3.1-1999 (R2013) Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms [_link]
• Provides confidentiality for client assessment and counselling (Practice Operations Criterion 1.1.2 Confidentiality and Privacy).

Safety
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)

• Environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Criterion 4.1.3 Clinical Risk Management).
• Precautions are taken to ensure prevention of bodily injury.
• Electrical equipment is regularly tagged and tested.
  AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment [link]
• Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions (Practice Operations Criterion 2.4.2 Infection Prevention and Control)
  Guidelines for Infection Prevention & Control - Summary & Audiological Perspective [link]
  NZAS Standards of Practice - Infection Control
**Equipment Specifications**  
*(Practice Operations Standard 3.2 Equipment)*

- Fittings and evaluations are conducted with acoustic stimuli calibrated to ANSI standards.
- Equipment is used in accordance with manufacturer’s instructions.
- Evaluations are conducted using recognised test procedures.

**Related References**

24. (Central) Auditory Processing Disorder Re/habilitation

**Purpose and Aim**
- To promote development of auditory processing abilities in individuals demonstrating symptoms of (Central) Auditory Processing Disorder ((C)APD).
- To equip individuals who have a (C)APD with environmental modifications and compensation strategies to optimise their auditory function.
- To provide individuals who have a (C)APD with direct intervention/auditory training.
- To minimise the negative psychosocial impacts of (C)APD on the individual.

**Expected Outcomes**
- Improved auditory processing function for the individual.
- Improved ability of the individual to self-manage (C)APD.
- Minimisation of (C)APD impacts on psychosocial function including
  - Cognition
  - Social function
  - Emotion
  - Communication
  - Education
  - Employment

**Clinical Indicators**
- Individuals of all ages with an identified (C)APD

**Clinical Processes**
- Assessment of needs
  - Specific areas of deficit as identified on (C)APD assessment results
  - Impacts of (C)APD on activities of daily living
  - Identify re/habilitation goals
- Counselling
  - Establish realistic expectations of re/habilitation
  - Education about individual’s specific processing strengths and weaknesses and how these relate to difficulties experienced
  - Relate treatment strategies to client goals
  - Person-centred therapy techniques
  - Problem solving
  - Relaxation
- Professional liaison/ multidisciplinary management
  - Audiologist
    - Identifies strategies to meet re/habilitation goals
    - Environmental modifications
    - Some compensatory strategies
    - Direct interventions
    - Monitoring progress and outcomes measures
  - Speech-language pathologist
    - Compensatory strategies
    - Intervention for associated language problems
  - Education
    - Classroom and teaching strategies for supporting auditory processing
    - Some environmental modifications
    - Some compensatory strategies
    - May provide support for compensatory strategies and direct interventions
  - Psychology/social work
    - Client/family support
    - Compensatory strategies
    - Address associated psychological and cognitive concerns (e.g., attention, memory) and/or psychosocial concerns
  - Support and mentoring groups
- Environmental modifications
  - Improving the listening environment to improve signal-to-noise ratios
Amplification systems for support in specific situations
Classroom acoustics
Preferential seating

Visual cues

Compensatory strategies
- Improving the individual’s ability to compensate for his or her (C)APD through
  - Active listening (e.g. attribution training, whole body listening techniques)
  - Metacognitive strategies (e.g. self-regulation and cognitive problem solving)
  - Meta-linguistic strategies (e.g. discourse cohesion devices, schema)

Direct interventions
- Improving the individual’s (central) auditory processing abilities through auditory training (e.g. frequency, intensity, temporal, spatial listening tasks). May be monotic, diotic and/or dichotic and may involve speech and/or non speech stimuli

Recommendations for further management
- No further action
- Periodic reassessment/monitoring
- Continue with current audiological re/habilitation
- Supplement current audiological re/habilitation
- Change direction of current re/habilitation
- Referral
  - Further assessment
  - Medical
  - Allied health
  - Educational/workplace support
  - Support and mentoring groups

**Documentation**

**Client Health Record**

*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client
- Pertinent background information
  - Case history
  - Communication modality/strategies used
  - Results of previous assessments
  - Prognosis
  - Results of current audiological assessment
- Client needs and agreed goals
- Professionals and services involved in multidisciplinary management
- Record of interactions with other parties involved in management, including
  - When and how communication occurred
  - Who was present/involved in the communication
  - Summary of discussion
  - Decisions and actions arising from communication
  - Responsibilities and timeframes for actions arising from communication
- Information provided concerning auditory re/habilitation program
  - Summary of environmental modifications, compensatory strategies and direct interventions used to meet client needs and goals
  - Frequency of service
  - Estimated duration of program
  - Type of service (e.g. individual, group, home program)
- Estimate of costs involved
- Participants in re/habilitation session(s)
  - Evaluation of re/habilitation
- Decisions regarding ALD(s)
  - Rationale for choice of ALD
  - Parties involved
  - Primary decision-maker
  - Consensus on decision
  - Departures from audiological advice
Activities and procedures undertaken in device fitting process
Results of evaluation of device fitting
Summary of verbal and written information provided to client/Significant Other(s)
Specific recommendations for further management
Summary of discussion with client and/or Significant Other(s)
Copies of correspondence
Informed consent to release medical information (Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)
Receipts/contracts

Correspondence
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)

- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving professional
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)
- May include
  - Presenting needs of client
  - Strategies identified for re/habilitation
  - Effectiveness of rehabilitation strategies
  - Continuing concerns
  - Action requested of recipient
  - Written information/documentation to support recipient in acting on request

Settings
(Practice Operations Standard 3.1 Physical Environment and Facilities)

- Ambient noise meets ANSI standards for hearing (Practice Operations Standard Criterion 3.1.2 Health Record Compliance).
  ANSI S3.1-1999 (R2013) Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms [Link]
- Provides confidentiality for client assessment and counselling (Practice Operations Criterion 1.1.2 Confidentiality and Privacy).

Safety
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)

- Testing environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Criterion 4.1.3 Clinical Risk Management)
- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
  AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment [Link]
- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions (Practice Operations Criterion 2.4.2 Infection Prevention and Control)
  Guidelines for the Prevention and Control of Infection in Healthcare [Link]

Equipment Specifications
(Practice Operations Standard 3.2 Equipment)

- Equipment is used in accordance with manufacturer’s instructions


**Related References**


25. Tinnitus Management

**Purpose and Aim**
- To improve an individual’s quality of life by reducing the negative impacts of tinnitus perception.

**Expected Outcomes**
- Minimisation of the client’s perception of tinnitus.
- Reduction of negative physical and psychological reactions to tinnitus.

**Clinical Indicators**
- Individuals of all ages with tinnitus which
  - Is of concern to the individual
  - Cannot be resolved through medical intervention

**Clinical Processes**
- Assessment of needs
  - Impact of tinnitus on everyday function including
    - Activity limitations and participation restrictions attributed to tinnitus
    - Sleep
    - Stress levels
  - Meaning attributed to tinnitus
  - Coping strategies used
  - Client motivation/commitment to rehabilitation
  - Client goals for rehabilitation
  - Use of checklist/self-report measures/questionnaires
- Counselling (should be considered a primary approach and as an adjunct to other management strategies)
  - Establish realistic expectations of rehabilitation
  - Demystification
    - Peripheral and central auditory pathways
    - Central contribution to tinnitus reaction
  - Reducing reaction to tinnitus
    - Reducing tinnitus perception by use of enhanced auditory environment
    - Use of hearing protection in environments likely to cause noise injury or exacerbate tinnitus
    - Stress/anger/anxiety/depression management techniques
    - Coping techniques
    - May involve
      - Cognitive-behavioural techniques
        - Identify, challenges and reframe irrational/destructive thoughts
        - Tinnitus distraction strategies
        - Risk taking
      - Behavioural techniques
        - Reinforcement
        - Relaxation training
        - Systematic desensitisation
        - Assertion training
        - Goal setting
- Habituation and Tinnitus Retraining Therapy (TRT)
- Device Fitting
  - Individual’s adjustment to tinnitus and hearing loss
  - Client’s needs and preferences
  - Choice of device
    - Hearing aid
    - Masking device
    - Combination instrument
    - Sound generator/MP3 player for sound enrichment
    - ALD
  - Client readiness for rehabilitation
Client ability to manage device
New Zealand Audiological Society guidelines for provision of hearing aids should be followed for the fitting of tinnitus instruments with the following qualification: in fitting hearing aids for tinnitus management the primary goal is amplification of environmental sound.

Instruments used for tinnitus management are similar for masking and TRT approaches however, for TRT sound is not used to cover the tinnitus as this negates the process of habituation. For TRT sound is used to reduce the contrast between activity in the auditory system due to ambient noise and tinnitus related activity. Sound stimulation should be at a level that is comfortable, audible, and does not mask the tinnitus. The ideal setting is when tinnitus and noise mix, but are both audible.

• Evaluation
  o Goals are reviewed periodically to ensure continued relevance
  o Performance in both clinical and natural environments is considered
  o May be performed at intervals during the re/habilitation programme to monitor progress
  o Formal and informal assessment of client management of tinnitus
  o Generalisation of management strategies into everyday interactions
  o Assessment of client management of device
  o Assessment of client usage of device
  o Feedback from client and/or Significant Other(s)
    ▪ Benefit
    ▪ Limitations
    ▪ Satisfaction

• Recommendations for further management
  o No further action
  o Periodic reassessment/monitoring
  o Continue with current audiological re/habilitation
  o Supplement current audiological re/habilitation
  o Change direction of current re/habilitation
  o Referral
    ▪ Medical
    ▪ Allied health
      ▪ Psychology
      ▪ Social Work
    ▪ Educational/workplace support
    ▪ Support and mentoring groups

Documentation
Clinical Record
(Practice Operations Criterion 2.1.2 Health Record Compliance)

• Identifying information relating to client
• Pertinent background information
  o Type of amplification strategies used
  o Communication modality/strategies used
  o Results of auditory function assessments
  o Prognosis
  o Results from assessment of needs
  o Results of checklists/self-report measures/questionnaires
  o Specific recommendations from assessment of needs and/or referrals
• Agreed plan of action for re/habilitation
• Information provided concerning re/habilitation program
  o Frequency of service
  o Estimated duration of program
  o Type of service (e.g. individual, group, home program)
  o Estimate of costs involved
• Decisions regarding device choice
  o Rationale for choice of device/s
o Parties involved
o Primary decision-maker
o Consensus on decision
o Departures from audiological advice

- Activities and procedures undertaken in fitting process
- Evaluation of target achievement for fitting activities
- Justification for deliberate departures from target for fitting activities
- Summary of verbal and written information provided to client/Significant Other(s)
- Results of evaluation of device fitting
- Specific recommendations for further management
- Copies of correspondence
- Informed consent to release medical information (Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)
- Receipts/contracts

**Correspondence**
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)

- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving party
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)
  - May include
    - Presenting needs of client
    - Device fitted
    - Needs met by device usage
    - Needs met by other strategies
    - Continuing concerns
    - Action requested of recipient
    - Written information/documentation to support recipient in acting on request

**Related References**

- Noble, W *Evidence About the Effectiveness of Treatments Related to Tinnitus*. In Wong, L.L. & Hickson, L (Eds.) (2012). *Evidence-Based Practice in Audiology: Evaluating Interventions for Children and Adults with Hearing Impairment*. San Diego: Plural
26. Advanced Scope of Practice - Vestibular Rehabilitation

**Purpose and Aim**
- To improve quality of life for clients through reducing the physical and psychosocial impacts of balance disorder.

**Expected Outcomes**
- Improved physical compensation for balance disorder.

**Clinical Indicators**
- Individuals experiencing balance disorder which is
  - Related to vestibular dysfunction
  - Not alleviated to capacity by medical management

**Clinical Processes**
- Assessment of needs
  - Involves multidisciplinary working (medical and allied health)
  - Impacts of balance disorder on everyday function including
    - Physical effects
    - Activity limitations
    - Stress levels
  - Triggers for onset
  - Coping strategies used including
    - Medical treatment
    - Environmental adaptations
  - Client motivation/commitment to re/habilitation
  - Client goals for rehabilitation
- Counselling
  - Establish realistic expectations of re/habilitation
  - Explain recommended vestibular re/habilitation
    - Reasons for recommendation
    - Requirements of re/habilitation
    - Requirements for caregiver/family support in program
    - Potential side effects
  - Frequency of service
  - Estimated duration of program
  - Costs involved
  - May involve
    - Cognitive-behavioural techniques
      - Homework
      - Risk-taking
    - Behavioural techniques
      - Reinforcement
      - Relaxation training
      - Systematic desensitisation
      - Assertion training
      - Goal-setting
- Multidisciplinary management may involve
  - Medical
  - Allied health
    - Audiologists
    - Physiotherapists
    - Occupational therapists
    - Counselling
  - Workplace rehabilitation officers
- Vestibular re/habilitation
  - Dependent client experience of vestibular disorder including
Type of vestibular disorder
  • Unilateral vs bilateral
  • Central vs peripheral

Degree of residual function
Strengths of client compensation strategies

Re/habilitation strategies may include
  • Adaptation strategies (e.g. gaze stabilisation)
  • Habituation (desensitisation) strategies
  • Substitution (postural stabilisation) strategies

Re/habilitation activities may involve
  • Visual tracking exercises
  • Visual fixation exercises
  • Positioning exercises
  • Balance retraining

Outcomes Measures
  o May be a multidisciplinary process
    o Feedback from client and/or significant others
      ▪ Benefit
      ▪ Limitations
      ▪ Satisfaction
  o Formal or informal behavioural assessments
    o Recommendations for further management
      ▪ No further action
      ▪ Periodic reassessment/monitoring
      ▪ Continue with current audiological re/habilitation
      ▪ Supplement current audiological re/habilitation
      ▪ Change direction of current re/habilitation
      ▪ Referral
        ▪ Further assessment
        ▪ Medical
        ▪ Allied health
          ▪ Psychology/social work
        ▪ Educational/workplace support
        ▪ Support and mentoring groups

**Documentation**

**Client Health Record**
*(Practice Operations Criterion 2.1.2 Health Record Compliance)*

- Identifying information relating to client
- Pertinent background information
  - History of balance disorder
  - Results of balance function assessments
  - Prognosis
  - Results from assessment of needs
  - Specific recommendations from assessment of needs
- Professionals and services involved in multidisciplinary management
- Record of interactions with other parties involved in management, including
  - When and how communication occurred
  - Who was present/involved in the communication
  - Summary of discussion
  - Decisions and actions arising from communication
  - Responsibilities and timeframes for actions arising from communication
- Agreed plan of action for re/habilitation
- Information provided concerning re/habilitation program
  - Frequency of service
  - Estimated duration of program
  - Type of service (e.g. individual, group, home program)
  - Estimate of costs involved
- Summary of topics covered in counselling
- Activities and procedures undertaken in re/habilitiation
- Summary of verbal and written information about re/habilitiation provided to client/Significant Other(s)
- Copy of specific tasks and strategies given to client to try in home or other non-clinical environments
- Summary of client’s feedback on tasks performed in everyday environments
- Results of post-re/habilitiation evaluation
- Specific recommendations for further management
- Copies of correspondence
- Informed consent to release medical (Practice Operations Criterion 1.1.3 Informed Consent and Practice Operations Criterion 2.2.1 Referrals)
- Receipts/contracts

Correspondence
(Practice Operations Standard 2.2 Co-ordination of Care with Other Health Providers)
- Identifying information in relation to client
- Written to the level of knowledge and practicality required by the receiving party
- Purpose of correspondence is clear (e.g. requesting action, requesting further information, feedback from referral, informational)
- May include
  - Presenting needs of client
  - Balance re/habilitiation activities undertaken
  - Continuing concerns
  - Action requested of recipient
  - Written information/documentation to support recipient in acting on request

Setting
(Practice Operations Standard 3.1 Physical Environments and Facilities)
- Provides confidentiality for client assessment and counselling (Practice Operations Criterion 1.1.2 Confidentiality and Privacy).
  
  

Safety
(Practice Operations Criterion 2.4.1 Occupational Health and Safety)
- Environment has been audited for occupational health and safety (Practice Operations Criterion 3.1.1 Workplace Environment and Practice Operations Criterion 4.1.3 Clinical Risk Management).
- Precautions are taken to ensure prevention of bodily injury.
- Electrical equipment is regularly tagged and tested.
  
  AS/NZS 3760:2010 In-service safety inspection and testing of electrical equipment
  

- Infection control guidelines in regard to equipment and interpersonal transmission are followed. These may be facility-specific protocols and/or manufacturer’s instructions (Practice Operations Criterion 2.4.2 Infection Prevention and Control)
  
  Guidelines for Infection Prevention & Control - Summary & Audiological Perspective
  
  Guidelines_for_Infection_Prevention_and_Control_-_Audiology_Australia_Abridged_Version
  
  NZAS Standards of Practice - Infection Control

Equipment Specifications
(Practice Operations Standard 3.2 Equipment)
- Equipment is used in accordance with manufacturer’s instructions.
- Evaluations are conducted using recognised test procedures.

Related References


Appendix 1: Screening Principles

These principles were accepted by the World Health Organization in 1968\textsuperscript{10} and augmented by the Ad Hoc Group on Screening Research (1992)\textsuperscript{11}.

1. The condition should be an important health problem.
2. There should be an accepted treatment for patients with the recognised disease.
3. Facilities for diagnosis and treatment should be available.
4. There should be a recognisable latent or early symptomatic stage.
5. There should be a suitable test or examination.
6. The test should be acceptable to the population.
7. The natural history of the condition, including development from latent to declared disease, should be adequately understood.
8. There should be an agreed policy on whom to treat as patients.
9. The cost of case finding (including diagnosis and treatment of patients diagnosed) should be economically balanced in relation to possible expenditure on medical care as a whole.
10. Case finding should be a continuing process and not a ‘once and for all’ project.
11. The incidental harm done by screening and by the information (correct or otherwise) that it gives, should be small in relation to the total benefits from the screening-assessment-treatment system.
12. There should be agreed guidelines on whom to divulge the provisional and final results to, and on when and how this is best done. There should be transitional counselling support where necessary.
13. All screening arrangements should be periodically reviewed in the light of changes in demography, culture, health services, technologies, and the epidemiology of the target conditions.
14. Since ‘cases’ are not homogeneous, the balance of costs, benefits, and risks from screening, assessments, and treatments has to be worked out a stratified (demographic or case types) basis.

\textsuperscript{10} Wilson, JMG & Jungner, G \textit{Principles and Practice of Screening for Disease} World Health Organization, Geneva 1968 \url{http://whqlibdoc.who.int/php/WHO_PHP_34.pdf}
### Appendix 2: Recommended Audiometric Symbols

The following audiometric symbols were endorsed by the New Zealand Audiological Society in 1992/1993. Members of the New Zealand Audiological Society are encouraged to use the recommended symbol set. Audiogram forms shall show the symbols in a legend below the audiogram.

<table>
<thead>
<tr>
<th>Modality</th>
<th>Unmasked</th>
<th>Masked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right Air Conduction Threshold</td>
<td><img src="image1" alt="Symbol" /></td>
<td><img src="image2" alt="Symbol" /></td>
</tr>
<tr>
<td>Left Air Conduction Threshold</td>
<td><img src="image3" alt="Symbol" /></td>
<td><img src="image4" alt="Symbol" /></td>
</tr>
<tr>
<td>Right Bone Conduction Threshold</td>
<td><img src="image5" alt="Symbol" /></td>
<td><img src="image6" alt="Symbol" /></td>
</tr>
<tr>
<td>Left Bone Conduction Threshold</td>
<td><img src="image7" alt="Symbol" /></td>
<td><img src="image8" alt="Symbol" /></td>
</tr>
<tr>
<td>Right Air Conduction No Response</td>
<td><img src="image9" alt="Symbol" /></td>
<td><img src="image10" alt="Symbol" /></td>
</tr>
<tr>
<td>Left Air Conduction No Response</td>
<td><img src="image11" alt="Symbol" /></td>
<td><img src="image12" alt="Symbol" /></td>
</tr>
<tr>
<td>Right Bone Conduction Response</td>
<td><img src="image13" alt="Symbol" /></td>
<td><img src="image14" alt="Symbol" /></td>
</tr>
<tr>
<td>Left Bone Conduction Response</td>
<td><img src="image15" alt="Symbol" /></td>
<td><img src="image16" alt="Symbol" /></td>
</tr>
</tbody>
</table>
Abbreviations & Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AABR</td>
<td>Automated Auditory Brainstem Response</td>
</tr>
<tr>
<td>ABR</td>
<td>Auditory Brainstem Response</td>
</tr>
<tr>
<td>AEPs</td>
<td>Auditory Evoked Potentials</td>
</tr>
<tr>
<td>ALD</td>
<td>Assistive Listening Device</td>
</tr>
<tr>
<td>ALLR</td>
<td>Auditory Late Latency Response</td>
</tr>
<tr>
<td>AMLR</td>
<td>Auditory Middle Latency Response</td>
</tr>
<tr>
<td>ANSI</td>
<td>American National Standards Institute</td>
</tr>
<tr>
<td>ANZJA</td>
<td>Australia and New Zealand Journal of Audiology</td>
</tr>
<tr>
<td>AODC</td>
<td>Advisor on Deaf Children</td>
</tr>
<tr>
<td>AudAus</td>
<td>Audiological Society of Australia (Audiology Australia)</td>
</tr>
<tr>
<td>AS/NZS</td>
<td>Australian Standard/New Zealand Standard</td>
</tr>
<tr>
<td>ASSR</td>
<td>Auditory Steady State Response</td>
</tr>
<tr>
<td>BO</td>
<td>Behavioural Observation</td>
</tr>
<tr>
<td>CAEPS</td>
<td>Cortical Auditory Evoked Potentials</td>
</tr>
<tr>
<td>APD</td>
<td>Auditory Processing Disorder</td>
</tr>
<tr>
<td>COMHeLP</td>
<td>Chronic Otitis Media and Hearing Loss Practice: A Manual for Audiological Practice with Aboriginal and Torres Strait Islander Australians (March 2012)</td>
</tr>
<tr>
<td>cVEMP</td>
<td>Cervical Vestibular Evoked Myogenic Potentials</td>
</tr>
<tr>
<td>DDA</td>
<td>Disability Discrimination Act</td>
</tr>
<tr>
<td>ECoG</td>
<td>Electrocochleography</td>
</tr>
<tr>
<td>EEG</td>
<td>Electroencephalography</td>
</tr>
<tr>
<td>EMG</td>
<td>Electromyography</td>
</tr>
<tr>
<td>ENG</td>
<td>Electronystagmography</td>
</tr>
<tr>
<td>ENT</td>
<td>Ear Nose and Throat Specialist</td>
</tr>
<tr>
<td>IEC</td>
<td>International Electrotechnical Commission</td>
</tr>
<tr>
<td>ISO</td>
<td>International Organization for Standardization</td>
</tr>
<tr>
<td>NHMRC</td>
<td>National Health and Medical Research Council</td>
</tr>
<tr>
<td>OAEs</td>
<td>Otoacoustic Emissions</td>
</tr>
<tr>
<td>OAIC</td>
<td>Office of the Australian Information Commissioner</td>
</tr>
<tr>
<td>OM</td>
<td>Otitis Media</td>
</tr>
<tr>
<td>oVEMP</td>
<td>Occular Vestibular Evoked Myogenic Potentials</td>
</tr>
<tr>
<td>SAS</td>
<td>Soundfield Amplification System</td>
</tr>
<tr>
<td>SHA</td>
<td>Sinusoidal Harmonic Acceleration</td>
</tr>
<tr>
<td>SHHH</td>
<td>Self Help for Hard of Hearing People (Australia) Inc.</td>
</tr>
<tr>
<td>SLT</td>
<td>Speech Language Therapist</td>
</tr>
<tr>
<td>SSEP</td>
<td>Somatosensory Evoked Potentials</td>
</tr>
<tr>
<td>To-MEP</td>
<td>Tran cranial Motor Evoked Potential</td>
</tr>
<tr>
<td>TMJ</td>
<td>Temporomandibular Joint</td>
</tr>
<tr>
<td>VNG</td>
<td>Videonystagmography</td>
</tr>
<tr>
<td>VRA</td>
<td>Visual Reinforcement Audiometry</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organisation</td>
</tr>
</tbody>
</table>
## Terms, Tests and Techniques

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acoustic Shock</strong></td>
<td>Acoustic shock is an involuntary response to a sound perceived as traumatic (acoustic incident), which causes a specific and consistent pattern of neurophysiological and psychological symptoms. Westcott, M. Acoustic Shock Injury. Acta Otol Supplement, 556, 2006: 54-58</td>
</tr>
<tr>
<td><strong>Advocacy for Health</strong></td>
<td>A combination of individual and social actions designed to gain political commitment, policy support, social acceptance and systems support for a particular health goal or program. WHO. (1998). <em>Health Promotion Glossary</em>. Retrieved May 2012, from <a href="http://www.who.int/healthpromotion/about/HPR%20Glossary%201998.pdf">http://www.who.int/healthpromotion/about/HPR%20Glossary%201998.pdf</a></td>
</tr>
<tr>
<td><strong>Aided Threshold Assessment</strong></td>
<td>A behavioural test used to determine hearing sensitivity of the individual when using an amplification strategy.</td>
</tr>
</tbody>
</table>
| **Assessment of Needs**     | Client centred discussion and collection of data intended to  
  + Establish rapport  
  + Determine audiologic needs/concern  
  + Identify impacts of audiological concern on daily life  
  + Identify management strategies in use  
  + Define client goals  
  + Guide management decisions  
  + Determine client understanding of audiological concern on which to build with client education and health promotion  
  Assessment of needs generally has an emphasis on gathering information that will assist with rehabilitation of auditory disorder(s). |
| **Assistive Listening Devices** | 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. Audiology Australia. (2012, March). Chronic Otitis Media and Hearing Loss Practice: A Manual for Audiological Practice with Aboriginal & Torres Strait Islander Australians [https://www.audiology.asn.au/public/1/files/Publications/COMHELP_final.pdf](https://www.audiology.asn.au/public/1/files/Publications/COMHELP_final.pdf) |
### Audiological Rehabilitation

Audiological rehabilitation 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
- Personal adjustment counselling


### Auditory Brainstem Response (ABR)

An electro-physiological test of the auditory brainstem neural pathway evoked in response to auditory stimuli that can be correlated to hearing levels.


### Auditory Late Latency Response (ALLR)

Auditory evoked responses that occur >50 milliseconds after stimulus onset, and includes the P1-N1-P2 complex and the P300 (also called P3 or P3b). These responses are closely linked to perceptual processes such as auditory discrimination. This test can be useful both in diagnosis of hearing impairment and in evaluating amplification device fitting for infants and other difficult to test individuals.


### Auditory Memory Tests

Assessments to evaluate the individual’s ability to store and recall auditory stimuli. Auditory memory can be affected by multiple variables (e.g. number of components, length of components, familiarity with stimuli/semantic loading, order effects, priming) and different tests evaluate different aspects of function.

### Auditory Middle Latency Response (MLR)

Auditory evoked responses that occur in the latency epoch 15-70 milliseconds post stimulus onset. These responses relate to subcortical processes but are affected by factors such as age, sleep state and co-occurring disorders.

| Auditory P300 (also called P3 or P3b) | An Auditory Evoked Potential elicited in an “oddball paradigm” in which the individual is required to attend to and discriminate stimulus differences. Processes of attention, auditory discrimination and memory affect the response.  
| --- | --- |
| Auditory Steady State Response (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).  
| Auditory Training | The use of systematic, structured activities to optimise the awareness, recognition and use of acoustic cues to improve functional speech perception. Auditory training may be used in conjunction with amplification strategies and is often incorporated into wider-scale communication training programs. |
| Behavioural Therapy | An approach to psychotherapy that aims to teach the individual techniques or skills to alter their behaviour. Behavioural therapy does not have a strong focus on changing thoughts and perceptions directly, working on the premise that by changing the behaviour the individual will independently rationalise or change dysfunctional thinking and emotional responses.  
| Caloric tests | Part of the electronystagmography battery of vestibular tests. Caloric assessment uses temperature changes in the external auditory canal to trigger nystagmus. It can be used to assess each labyrinth separately, whereas head movement testing always stimulates both.  
| Client-Centred/ Person-Centred Therapy | A psychotherapeutic approach that focuses on creating a non-judgmental environment in which the client can explore his/her own thoughts, emotions and behaviour and self-directed adaptive change. A client-centred clinician displays the three key qualities of  
• Genuineness: An ability to share feelings honestly.  
• Unconditional Positive Regard: Acceptance of the client for who they are without judgement or imposed expectations.  
• Empathetic Understanding: The clinician needs to be able to reflect the client's thoughts and feelings, to allow the client to gain clearer understanding of his or her own thoughts, perceptions and emotions.  
| Clinical Supervision | A formal process of professional support and learning which enables the individual practitioners to develop knowledge and competence, assume responsibility for their own practice and enhance consumer protection and safety of care in complex clinical situations.  

| --- | --- |
| Cognitive Therapy | A psychotherapy that aims to change the way the person thinks about the issue that's causing concern. The person learns to identify and challenge negative thoughts, and replace them with more realistic and positive thoughts.  

| Cognitive-Behavioural Therapy (CBT) | A form of psychotherapy that helps a person to change unhelpful or unhealthy thinking habits, feelings and behaviours through combining techniques from behavioural psychotherapy and cognitive psychotherapy. CBT combines the techniques of these two therapies.  

| Communication Training | Structured, systematic intervention to develop optimal communication performance for the individual with auditory disorder through integration of acoustic, linguistic and environmental cues, cognition, and metalinguistic and metacognitive strategies. |
| Computerised Dynamic Posturography (CDP) | A commonly used method of performing posturography tests (see Posturography). This testing is performed using electronic footplates that can detect minute adaptive changes in the client’s weight distribution. It can reveal effective or ineffective compensations to vestibular disorders as well as non-vestibular issues that can create the sensation of disequilibrium.  

| Confidentiality | Confidentiality is designed to protect information by controlling what happens to it. Confidentiality does not only apply to personal information. When you give a client an assurance of confidentiality you are saying that your agency will control how and when that information will be used.  

<p>| Consultancy | A business or agency offering expert or professional advice in a field: <em>opened a financial consultancy.</em> |</p>
<table>
<thead>
<tr>
<th><strong>Cortical Auditory Evoked Potentials (CAEPs)</strong></th>
<th>See Auditory Late Latency Response.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Counselling</strong></td>
<td>A professional activity that uses an interpersonal relationship to enable people to develop self-understanding and make positive changes in their lives. The focus of counselling is usually on helping the client to resolve specific problems and make life adjustments to enhance wellbeing.</td>
</tr>
<tr>
<td><strong>Demystification</strong></td>
<td>The process of removing negative associations of tinnitus through providing information on the mechanisms of tinnitus to the individual experiencing it.</td>
</tr>
<tr>
<td><strong>Dichotic Speech Tests</strong></td>
<td>Assessments that involve the presentation of different speech materials to the two ears in a simultaneous or overlapping manner. These assessments are sensitive to lesions of the auditory cortex and interhemispheric fibres, with lesser sensitivity to auditory brainstem lesions.</td>
</tr>
<tr>
<td><strong>Diotic</strong></td>
<td>Simultaneous presentation of the same sound to each ear.</td>
</tr>
<tr>
<td><strong>Dix-Hallpike manoeuvre</strong></td>
<td>A vestibular test used to identify the presence of Benign Paroxysmal Positional Vertigo (BPPV) and to determine the semicircular canal involved.</td>
</tr>
<tr>
<td><strong>Ear impression</strong></td>
<td>A cast or scan taken of the individual’s outer ear from which to shape the in-the-ear components of an amplification or hearing protection device in order to ensure a secure and comfortable fit.</td>
</tr>
<tr>
<td><strong>Electroacoustics</strong></td>
<td>A science that deals with the transformation of acoustic energy into electric energy or vice versa.</td>
</tr>
<tr>
<td><strong>Electrocochleography (ECoG)</strong></td>
<td>A method of measuring the synchronous electrical activity produced by the cochlea and auditory nerve. ECoG is widely used in diagnosis of Meniere's Disease and Auditory Neuropathy, in cochlear implantation candidacy assessments, and in intraoperative neuromonitoring.</td>
</tr>
<tr>
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</tr>
<tr>
<td>Electromyography</td>
<td>The recording of electrical activity generated in muscle for diagnostic purposes; both surface and needle recording electrodes can be used, although characteristically the latter is employed, so that the procedure is also called needle electrode examination. Medical Dictionary: (2005-2012). (Web MD, LLC) Retrieved June 13, 2012, from WebMD: <a href="http://dictionary.webmd.com/terms/electromyography">http://dictionary.webmd.com/terms/electromyography</a></td>
</tr>
</tbody>
</table>
| Electronystagmography (ENG) | A method of obtaining information about eye movements in relation to head motions, from which to infer information about the function of vestibular organs and vestibulo-ocular pathways. Eye movements are recorded using electrodes. The test battery includes
- Spontaneous nystagmus (unprovoked eye movements)
- Ocular-motor assessments
- Positional nystagmus
- Hallpike manoeuvres to provide evidence for Benign Paroxysmal Positional Vertigo (BPPV)
- Caloric assessments
<p>| Enabling              | In health promotion, enabling means taking action in partnership with individuals or groups to empower them, through the mobilization of human and material resources, to promote and protect their health. World Health Organisation. (1998). Health Promotion Glossary. Retrieved May 2012, from <a href="http://www.who.int/healthpromotion/about/HPR%20Glossary%201998.pdf">http://www.who.int/healthpromotion/about/HPR%20Glossary%201998.pdf</a> |
| Environment           | Factors that make up the physical, social and attitudinal environment in which people live and conduct their lives. Adapted from Australian Institute of Health and Welfare. (2003). ICF Australian User Guide Version 1.0 Disability series. Canberra: AIHW. |
| Evoked Potentials     | Measurement of the electrical activity in certain areas of the brain and spinal cord. Electrical activity is produced by stimulation of specific sensory nerve pathways. Evoked potentials test and record how quickly and completely the nerve signals reach the brain. |</p>
<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure of Fixation-Suppression test</td>
<td>A vestibular test commonly performed in conjunction with caloric tests. The individual is requested to fix their gaze on a specific point or object in order to determine if visual focus attenuates nystagmus instigated from the vestibular system. Failure of suppression when visually fixating is a sign of potential central lesion. Barin, K. (April 9, 2007) The Fixation Suppression Test in ENG Evaluation Retrieved January 2013, from AudiologyOnline <a href="http://www.audiologyonline.com/articles/fixation-suppression-test-in-eng-949">http://www.audiologyonline.com/articles/fixation-suppression-test-in-eng-949</a></td>
</tr>
<tr>
<td>FM System</td>
<td>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. Audiology Australia. (2012, March). Chronic Otitis Media and Hearing Loss Practice: A Manual for Audiological Practice with Aboriginal &amp; Torres Strait Islander Australians. <a href="https://www.audiology.asn.au/public/1/files/Publications/COMHELP_final.pdf">https://www.audiology.asn.au/public/1/files/Publications/COMHELP_final.pdf</a></td>
</tr>
<tr>
<td>Health Promotion</td>
<td>Health promotion is the process of enabling people to increase control over, and to improve their health. The Ottawa Charter identifies three basic strategies for health promotion. These are advocacy for health to create the essential conditions for health indicated above; enabling all people to achieve their full health potential; and mediating between the different interests in society in the pursuit of health. World Health Organisation. (1998). <em>Health Promotion Glossary</em>. Retrieved May 2012, from <a href="http://www.who.int/healthpromotion/about/HPR%20Glossary%201998.pdf">http://www.who.int/healthpromotion/about/HPR%20Glossary%201998.pdf</a></td>
</tr>
<tr>
<td>Hearing Aid</td>
<td>An electronic device that provides an amplified or electro-acoustically modified sound signal and is adjusted to suit an individual’s hearing loss.</td>
</tr>
<tr>
<td><strong>Air conduction hearing aid</strong></td>
<td>typically fits in or behind a person’s ear and delivers a modified sound signal via transmission in the air down the ear canal.</td>
</tr>
<tr>
<td><strong>Bone conduction hearing aid</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Hearing hat</strong></td>
<td>a bone conduction hearing aid modified to sit within a baseball style cap, usually for cosmetic reasons.</td>
</tr>
<tr>
<td><strong>BTE = Behind-the-Ear hearing aid:</strong></td>
<td>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).</td>
</tr>
<tr>
<td><strong>ITE = In-the-Ear hearing aid</strong></td>
<td>the electronics of the aid sit in a moulded case which fits in the wearer’s external ear canal.</td>
</tr>
</tbody>
</table>


| **Hearing Protectors** | A device, or pair of devices, worn by a person or inserted in the ears of a person to protect the person's hearing. |


| **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. |


| **Holistic** | A concept that concern for health requires a perception of the individual as an integrated system rather than one or more separate parts including physical, mental, spiritual, and emotional. |


| **Hyperacusis** | The experience of inordinate loudness of sound that most people tolerate well, associated with a component of distress. May be characterised by an oversensitivity to certain frequency ranges of sound. |


| **Hyperventilation Nystagmus Test** | A bedside/office test for unilateral vestibular dysfunction. Hyperventilation nystagmus refers to a specific series of eye movements elicited by hyperventilation if unilateral vestibular dysfunction is present. Presence of hyperventilation nystagmus suggests auditory nerve site of
lesion.


<table>
<thead>
<tr>
<th>Implantable Devices</th>
<th>Technology for people with specific types and degrees of hearing loss that involves components of the device being surgically implanted.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cochlear implant:</strong></td>
<td>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 sensorineural hearing loss in both ears and limited benefit from a hearing aid.</td>
</tr>
<tr>
<td><strong>Bone conduction implantable device:</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Middle ear implant:</strong></td>
<td>A surgically implanted medical device which aims to enhance sound conduction to the middle ear, by direct stimulation of the ossicular chain or middle ear.</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Informed consent</th>
<th>The voluntary agreement by a patient to a proposed health care management approach given after proper and adequate information is conveyed to the patient about the proposed management, including potential risks and benefits and alternative management options.</th>
</tr>
</thead>
</table>


<table>
<thead>
<tr>
<th>Live Speech Mapping</th>
<th>The verification and/or adjustment of an individual’s hearing aid or speech processor setting using speech sounds, presented live-voice or by using recorded material, as the input stimulus for measurement.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Loudness Discomfort Levels</strong></td>
<td>A test of loudness tolerance used to determine whether recruitment is a significant feature of the client’s hearing disorder.</td>
</tr>
<tr>
<td><strong>Minimum Masking Level</strong></td>
<td>The lowest level at which a noise completely covers tinnitus.</td>
</tr>
<tr>
<td><strong>Monaural Low-Redundancy Speech Tests</strong></td>
<td>Auditory processing assessments in which the client is asked to discriminate degraded speech signals presented to the ears individually. This testing evaluates auditory closure ability and is moderately sensitive to cortical lesions.</td>
</tr>
<tr>
<td><strong>Monotic</strong></td>
<td>Presentation of sound/stimuli to one ear only.</td>
</tr>
<tr>
<td><strong>Multidisciplinary</strong></td>
<td>Professionals with diverse skills and experience working as an</td>
</tr>
</tbody>
</table>
### Management

An integrated unit to meet the needs of a common group of clients. Multidisciplinary management is characterised by:

- Share understanding and prioritisation of client goals
- Strong formal and informal communication systems
- Co-ordination
- Recognition of the roles and skills of team members
- Collaborative problem solving skills
- Shared responsibility and leadership dependent on client need
- A mechanism for monitoring and evaluating client progress toward goals


### Ocular Pursuit Test

An ocularmotor test for vestibular function. Pursuit eye movements allow the individual to track a moving object with smooth movements of the eye and the head still. Sensitive to the presence of lesion but limited in terms of site localisation.


### Ocularmotor Tests

Part of the vestibular test battery assessing brainstem and cerebellar pathways. Ocularmotor tests include the ocular pursuit (also called smooth pursuit tracking), saccade test, gaze fixation and optokinetic test.


### Optokinetic Test

An ocularmotor test of vestibular function. Optokinetic nystagmus (OKN) supplements pursuit and saccadic eye movements to stabilize retinal images during constant-velocity head motion. OKN abnormalities are seen in deep parietal-lobe lesions. OKN testing can also be used to identify subtle ocular motor abnormalities.


### Otoacoustic Emissions (OAEs)

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 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.


### Otolith Function Tests

Vestibular assessments evaluating functions of the saccule and the utricle. The most commonly used otolith tests are vestibular-evoked
<table>
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<tr>
<th>Term</th>
<th>Description</th>
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<tbody>
<tr>
<td>myogenic potential (VEMP)</td>
<td>and the subjective visual-vertical (SVV) tests. VEMP reflects saccular function, and the SVV has been used as a test of utricular function.</td>
</tr>
</tbody>
</table>
| 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, such as tympanometry or ear impressions. This is sometimes referred as ‘simple otoscopy’.

| Ototoxic                                 | Describes a group of drugs and chemicals that have the potential to damage the hearing or balance functions of the ear.                                                                                                                                   |
| 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.                                                                                      |

| 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.                                |

| Positional tests                          | Part of the electronystagmography battery of tests for vestibular assessment. Positional tests involve slow changes of position of the individual's head to elicit nystagmus. Results can help to determine peripheral vs central site of lesion.                              |

| Posturography                             | A general term that covers all the techniques used to quantify postural control in an upright stance, in either static or dynamic conditions.                                                                                                                      |

| Primary Health Care                       | Essential health care made accessible at a cost a country and community can afford, with methods that are practical, scientifically                                                                      |
| Privacy | Protection of a client’s personal information. Personal information is any individually identifying information about a client but could also include the details of the agency officers involved. It could be information that you collect, use, store or pass on to a third party.

Privacy is often understood as a ‘right’, and clients reasonably expect that their rights will be upheld by government agencies. Audiologists have a professional obligation to protect personal information from loss, unauthorised access, use, disclosure or any other misuse when handled.

| Professional Liaison | Communication with other professionals in order to
- Provide information about a client's health status
- Request information that would assist diagnostic or rehabilitative processes
- Request assessment or rehabilitation on behalf of the client (referral)

Professional liaison usually results in serial, sequential or parallel management of different aspects of client need by multiple professionals. |
| Psychosocial | A term referring to the mind's ability to, consciously or unconsciously, adjust and relate the body to its social environment.

| Public Health | The science and art of promoting health, preventing disease, and prolonging life through the organised efforts of society.

| 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.

<p>| Real Ear Measures (REM) | Measurements of sound performance in the ear canal, either in the open ear or with an amplification device in situ. These measures are used to guide adjustment of amplification parameters to optimise sound quality |</p>
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<thead>
<tr>
<th>Term</th>
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</tr>
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<tbody>
<tr>
<td>Residual Inhibition</td>
<td>An effect in which the individual’s perception of tinnitus is partially or completely suppressed for a period of time following the removal of a masking stimulus.</td>
<td>Tyler, R. (2000). <em>Tinnitus Handbook</em>. San Diego: Singular</td>
</tr>
<tr>
<td>Romberg Test</td>
<td>A vestibular assessment. An individual uses proprioception, vestibular function and vision to achieve and monitor equilibrium, but maintaining balance can be achieved through use of only two of the three systems. In the Romberg test, the client stands with feet together and eyes closed. A loss of balance is interpreted as a sign of potential vestibular lesion.</td>
<td>Retrieved January 2013 from <a href="http://en.wikipedia.org/wiki/Romberg%E2%80%99s_test">http://en.wikipedia.org/wiki/Romberg’s_test</a></td>
</tr>
<tr>
<td>Saccade test</td>
<td>Evaluates rapid movements of the eye that maintain the stimuli on the point of best visual acuity, the fovea. Information gleaned from this testing can provide information to differentiate brainstem and posterior cerebellar vermis involvement. The test can also be adapted to provide information on frontal or parietal lobe involvement.</td>
<td>Shepard, Neil T. <em>Evaluation of the Patient with Dizziness and Balance Disorders</em>. In Katz, J., Medwetsky, L., Burkard, R. &amp; Hood, L. (2009). <em>Handbook of Clinical Audiology 6th ed</em>. Philadelphia: Lippincott, Williams &amp; Wilkins</td>
</tr>
<tr>
<td>Sensory Devices</td>
<td>Technology that provides alternate sensation to supplement or replace audition in support of communication and environmental awareness.</td>
<td></td>
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<tr>
<td>Sound generators (Tinnitus Maskers)</td>
<td>A range of devices based on simple white noise machines that are used to add natural or artificial sound into a tinnitus sufferer’s environment in order to suppress or mask the perception of tinnitus.</td>
<td>Wikipedia (2012, February 10) <em>Tinnitus Maskers</em>. Retrieved May 2012, from <a href="http://en.wikipedia.org/wiki/Tinnitus_masker">http://en.wikipedia.org/wiki/Tinnitus_masker</a></td>
</tr>
<tr>
<td>Soundfield System</td>
<td>A group amplification system that 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.</td>
<td></td>
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</tbody>
</table>
| **Spatial Listening /Binaural interaction Tasks** | Tests that assess the ability of the Central Auditory Nervous System to take disparate information presented to the two ears and unify this information into a single perceptual event. Believed to be sensitive to brainstem pathology.  

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

| **Speech-in-Noise Tests** | A wide-ranging group of tests in which the individual is required to discriminate speech/language stimuli from competing signals or background noise. Diagnostically, these tests can be used to reveal difficulties with auditory processing, or they can be used functionally to predict performance in noisy settings with or without amplification strategies. |
| **Speechreading (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.  

| **Spontaneous Nystagmus** | Specific eye movements that occur without provocation. Spontaneous nystagmus may indicate peripheral vestibular pathology if present in the absence of abnormal findings on ocularmotor evaluation, but can also be a sign of migraine or anxiety disorders.  

| **Subjective Visual Vertical (SVV)** | An otolith assessment that uses a psychophysical measure of the angle between perceptual vertical and true (gravitational) vertical to clinically test utricular function.  

<table>
<thead>
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<tr>
<td>Teleaudiology</td>
<td>The use of telecommunications technology to provide access to audiological services for clients who are not in the same location as the clinician.</td>
<td><a href="http://www.asha.org/Publications/leader/2009/090210/f090210b.htm">http://www.asha.org/Publications/leader/2009/090210/f090210b.htm</a></td>
</tr>
<tr>
<td>TeleMAPping</td>
<td>Delivery of cochlear implant mapping services using telepractice.</td>
<td></td>
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<tr>
<td>Teleotology</td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>Telepractice</td>
<td>The provision of a service to a client from one location to another using telecommunications such as the internet, computer networks, videoconferencing or telephone.</td>
<td></td>
</tr>
<tr>
<td>Tinnitus</td>
<td>The perception of ringing, buzzing, or other sounds without an external cause. Patients may experience tinnitus in one or both ears or centrally.</td>
<td>Retrieved June 2012, from The Free Dictionary <a href="http://medical-dictionary.thefreedictionary.com/tinnitus">http://medical-dictionary.thefreedictionary.com/tinnitus</a></td>
</tr>
<tr>
<td>Torsion swing test</td>
<td>A vestibular test utilising rotation of the client to trigger nystagmus from which to infer the function of the horizontal canals.</td>
<td></td>
</tr>
<tr>
<td>Tympanometry</td>
<td>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.</td>
<td></td>
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<tr>
<td>Unterberger Test</td>
<td>A vestibular test. The client is asked to walk on the spot with eyes closed. If the patient rotates to one side they may have</td>
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</table>
a labyrinthine lesion on that side. This test should not be used to
diagnose lesions without the support of other tests.

Retrieved January 2013 from

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<thead>
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<tr>
<td>Vestibular Evoked Myogenic Potentials (VEMP)</td>
<td>Included in the vestibular test battery. A measurement of reflexive muscle activity in response to auditory stimulation of the otoliths. VEMP can be measured from the sternocleidomastoid muscle (cervical or cVEMP) or from the extra-ocular muscles (oVEMP).</td>
</tr>
<tr>
<td>Videonystagmography (VNG)</td>
<td>A computerized system that applied the principle of recording eye movements by using infrared sensors in special spectacles or masks. VNG performs the same function as ENG but has the added benefits of allowing qualitative description of torsional eye movement and a lower noise trace.</td>
</tr>
<tr>
<td>Video-otoscopy</td>
<td>Observing the eardrum via a small camera placed in the ear canal that transmits the image on a screen. Video pneumatic otoscopy is also possible.</td>
</tr>
<tr>
<td>Visual Evoked Potentials</td>
<td>Measures of electrical activity in the central nervous system that is elicited by visual stimuli.</td>
</tr>
<tr>
<td>Visual Reinforcement Orientation Audiometry (VROA)</td>
<td>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</td>
</tr>
<tr>
<td></td>
<td>• In the soundfield, yielding binaural hearing information</td>
</tr>
<tr>
<td></td>
<td>• Using headphones, yielding ear-specific information</td>
</tr>
<tr>
<td></td>
<td>• Via bone conduction, yielding 'better cochlea' hearing information</td>
</tr>
</tbody>
</table>