



Auditory Processing Assessment via telehealth

ADDENDUM TO THE NZAS APD GUIDELINES
APRIL 2025

Introduction & Background

The NZAS Teleaudiology Position Statement (August 2017) states the following: The quality of services delivered via telepractice must be consistent with the quality of services delivered face-to-face. The Position Statement does not explicitly refer to any clinical test or medical condition. Meanwhile, the NZAS APD Guidelines (2019) do not specifically mention telehealth.

This document is intended to be added to the NZAS APD Guidelines as an addendum for an audiologist to reference when planning to undertake auditory processing assessment via telehealth. This document aims to mitigate risk of misdiagnosis due to uncontrolled differences between in-person and telehealth test administration, whilst balancing the need for equity of access to diagnostic services.

In-person assessment by an audiologist with links to the local community, for example with a child's school, is optimal; however, auditory processing assessments are not available in all regions of Aotearoa New Zealand. Appropriately delivered telehealth-based auditory processing assessments offer a possible solution to the inequity of access to auditory processing assessments across the country.

It is acknowledged that there are different auditory processing assessments and there is evolving evidence for optimised auditory processing tests and test batteries, hence this document cannot address all possible future need and innovations for APD assessment and treatment. Instead, this document specifies overarching clinical considerations and requirements for auditory processing testing where the audiologist is in a different location to the client and is managing the assessment remotely and in real-time (synchronously).

In accordance with the NZAS Teleaudiology Position Statement (August 2017), this addendum expects that the clinical services will be delivered by a Member of NZAS (MNZAS) who is personally conducting an audiology service remotely that is within their scope of practice. A person, acting as an assistant, may be present to support the person being assessed (the client), for example by correctly placing the transducers on the client's ears. In accordance with the NZAS Teleaudiology Position Statement, a Member of NZAS "simply observing a non-member providing a clinical service (or a provisional member or member providing a service outside their scope of practice) via telecommunications technology, is not an acceptable use of delegation". The MNZAS Audiologist providing the audiology service holds overall clinical responsibility for assessment, interpretation, clinical decision making and documentation. In accordance with the NZAS Tele-Supervision Requirements (May 2024), it is expected that, at a minimum, the responsible MNZAS Audiologist is able to:

- See, hear and speak to the client and support person at all times; and
- View clinical information and testing in real time.

Currently, to access New Zealand government funding for intervention(s) related to APD, the diagnosis of APD needs to be made by an appropriately qualified MNZAS Audiologist. Synchronous testing is the current model; however, should APD diagnostic tests be validated (with reliability, validity and normative values, in accordance with the rest of this APD Guidelines document) for asynchronous testing, such tests may be used as an assessment tool. As stated above, the interpretation of the results, clinical decision making and documentation is the responsibility of the MNZAS Audiologist.

This document applies to situations where the client is located at home, school, another clinic, or in another location such as a marae, and a MNZAS Audiologist is undertaking the assessment via telehealth in a synchronous manner.

Pre-assessment Conditions

An auditory processing assessment should be provided by an MNZAS Audiologist with appropriate training and expertise. Given the potentially additional complexity associated with telehealth delivery, NZAS expects that an audiologist will be competent performing in-person auditory processing assessments prior to embarking on telehealth assessments.

An audiologist must consider, and document, the following prior to organising an auditory processing assessment¹ via telehealth for an individual client:

- Pre-assessment discussions with the individual client and/or the client's support network (e.g., parents, caregivers, teachers, speech-language therapist, and/or psychologist) regarding clinical presentation, functional difficulties, academic and/or vocational difficulties, medical and health history, and the options for assessing, diagnosing and treating APD. See pages 29-30 of the [New Zealand Guidelines on Auditory Processing Disorder \(2019\)](#) for more information regarding the recommended preliminary information, case history, and direct observations required to ensure there is a shared understanding amongst all relevant parties (e.g. between whānau and a child's learning support services) of the need and purpose for an auditory processing assessment.
- Appropriateness of telehealth services for the individual and their whānau:
 - Careful consideration should be given to individuals with hearing loss before proceeding with an auditory processing assessment. Some auditory processing assessments can be undertaken by an individual with a hearing loss dependent on the application of published guidelines accounting for the hearing loss. The individual's clinical notes should clearly

¹ In accordance with the rest of the APD Guidelines (2019), the term 'assessment' is used to refer to the application of a diagnostic test.

explain how the assessment was adjusted to account for the hearing loss. (NZAS acknowledges that this area is being extensively researched and in the future this advice may need to be reviewed in light of published best-practice guidelines and client-centred care).

- Consideration should be given to the impact of travel and an unfamiliar environment on the client’s mental and emotional wellbeing and ability to participate in auditory processing testing.
- Consideration of the client’s behaviour and concentration for a telehealth assessment and whether this can be effectively managed, or if an in-person assessment would be more suitable.
- Availability of a support person, in case required to assist during a telehealth auditory processing assessment, especially for younger clients. Although the client may have the following abilities, it is recommended that the support person also has:
 - Adequate digital literacy for using the required technology and following the audiologist’s instructions.
 - Any required training prior to test administration.
 - Normal hearing sensitivity or corrected hearing sensitivity to assist with any listening checks prior to or during the assessment, should that be necessary.
 - Ability to assist with, but not limited to, proper headphone placement and the establishment of comfortable and balanced volume levels for both ears, should the test methods require that to be done by a support person.

In accordance with other NZAS professional practice standards (including but not limited to the Code of Ethics and Best Practice Guidelines), an auditory processing assessment should be provided in a client-centred manner. Different methods of service delivery, such as telehealth or in-person consultations, should be discussed with the client and their support person(s) in a safe setting. As part of this discussion, a client should be informed that an assessment via telehealth may be trialed, but if the reliability of the testing is compromised, then an in-person assessment will be required. This ensures that all involved are fully informed and able to provide informed consent without it affecting their access or quality of care.

Assessment Requirements

The following are minimum requirements for telehealth auditory processing assessments. Clinical services providing telehealth auditory processing assessments should have documentation that these minimum requirements are met prior to embarking on telehealth assessments and should not conduct assessments if these requirements cannot be met. It is the responsibility of the individual audiologist to ensure all

requirements are met for a telehealth auditory processing assessment without assuming prior knowledge by the client and/or their support person.

Setting:

- Both the client's and audiologist's assessment environments must be:
 - Accessible and safe for those involved
 - Well-lit
 - Free of auditory and visual distractions
 - Have low ambient noise levels, to not affect the validity and reliability of a test. If an increase in the ambient noise occurs that could affect the validity of the test, the test must be paused until appropriate test conditions are resumed.

Telehealth Support Personnel:

- A caregiver or support person should be available to assist if required during the auditory processing assessment – as outlined in the Pre-assessment Considerations above.
- This person may be asked to monitor the client's level of attention and task engagement, and let the audiologist know when a break is required.

Technology and Audiology Equipment:

- Both the computer for the client and the audiologist must allow for:
 - Stable internet connection with good-to-excellent internet speed and low latency, so the video and audio data can be transmitted clearly and without interruption.
 - Good quality video input and output that does not compromise the integrity of the video signal (e.g., so the client's mouth can be clearly visualised throughout the assessment) and allows for screen sharing.
 - Good quality audio input and output that does not compromise the integrity of the audio signal and the client's voice can be clearly heard.
 - Presentation of an acoustic stimulus through separate audio channels
 - Headphones that meet the specifications of those used to produce the norms for the telehealth auditory processing test being applied, including at least:
 - High-fidelity acoustic signal
 - Built-in microphone that can be positioned close to the person's mouth, to ensure clear voice transmission.
 - No noise cancelling features or the ability to disable noise cancelling features
 - The closure of all non-essential application programs or their notification functions to minimise auditory or visual distractions during the assessment.

- Privacy for the client and their support person(s)², in accordance with relevant regulations
- Privacy for all data management in accordance with relevant regulations

Listening Checks and Calibration:

- Equipment should be calibrated in accordance with the published research that yielded the test's norms for auditory processing assessment via telehealth.
- Prior to beginning the assessment, someone with documented normal hearing sensitivity or corrected hearing sensitivity needs to assist the audiologist with an equipment listening check (biological calibration); this may be the client's caregiver or support person.
- Calibration requirements and checks for tests included in the auditory processing assessment should be documented and included where needed in reporting.

Test Stimuli:

- Presentation of test stimuli must proceed with the use of:
 - Web-based or locally installed software, which includes a pre-test calibration to ensure the sound is optimal for the individual.
 - Recorded speech or non-speech materials of good quality so that the stimuli are clearly heard by the client. Live-voice testing is not to be used.
- Test stimuli should be presented in accordance with the test protocol used in the derivation of the test's norms. There are several methods that can be used to establish an appropriate presentation level for any auditory processing test – the approach depends on the specific test, how it was standardised and the normative data collected. In each case the stimulus level and reference threshold measurement technique should be recorded in the file notes.
 1. Objectively calibrated teleaudiology-specific equipment (computer-based audiometric equipment and appropriate headphones) should be available at the remote location, with test stimuli presented at the appropriate level, expressed in dB SPL or dB HL with which the test norms were established.
 2. For auditory processing assessments that have been standardised with normative data collected at a specific sensation level (dB SL), rather than dB SPL or dB HL, a standardised approach should be used to establish the behavioural threshold for the stimuli. The reference threshold may be established for the test stimuli themselves (a) or using speech

² Several platforms have been recognised by the US Department of Health and Human Services (HHS) to meet Protected Health Information (PHI) requirements.

stimuli to establish the speech detection threshold (SDT) or speech reception threshold (SRT) (b).

(a) The stimulus detection threshold is established for the test stimuli using a method of limits for non-speech stimuli.

(b) The speech reception threshold or speech detection threshold is established for speech stimuli, such as spondees or nonsense syllables.

The auditory processing test stimuli are then presented at a predetermined amount (e.g. 40 dB or 50 dB respectively) above the reference threshold level. This should be referred to as 40 or 50 dB SL (sensation level).

3. For auditory processing assessments that have been standardised with normative data for presentation at the client's "comfortable listening level", trial stimuli are presented sequentially and after each trial the client indicates whether the level should be increased, decreased or left constant, for the stimulus to be at the level that is most comfortable for the client. Alternatively, the client directly adjusts the volume to achieve a comfortable level at which all stimuli are clearly audible. The auditory processing test stimuli are then presented at this level.

Testing Protocol:

- The preliminary hearing assessment (see page 35 of NZAS APD Guidelines) needs to be completed using calibrated audiometric equipment and in accordance with NZAS Pure Tone Audiometry Best Practice Guidelines and NZAS Immittance Audiometry Best Practice Guidelines. The preliminary hearing assessment may be provided by the audiologist in-person in clinic, or remotely with the requisite audiology equipment and trained personnel at the client's end. In the latter situation, the requirements of the NZAS Teleaudiology Position Statement (August 2017) must be upheld.
- The preliminary hearing assessment needs to occur in the three months preceding the telehealth auditory processing assessment.
- Because ear health can vary over time, especially in children, an ear health check should be performed within 48 hours to identify any abnormal middle ear health that would warrant deferment of the auditory processing assessment.
- The auditory processing assessment is conducted in a synchronous manner, with the audiologist actively monitoring the assessment and ensuring that the delivery method does not compromise accuracy of the assessment (including, for example, client engagement and the upload and download speed of the client's internet connection).

- If during the assessment, or when collating the results, it is suspected that the reliability of all or some of the telehealth results was compromised, the client should be advised that further testing is required in-person.

References

Bexim, A. (2021). *Methods to optimise presentation level for tele-audiology assessment of suprathreshold speech-in-noise testing*. M Aud thesis, Macquarie University.

Geffner, D. & Ross-Swain, D. *Auditory Processing Disorders: Assessment, Management, and Treatment*. (4th Ed.). Plural Publishing Inc.

New Zealand Audiological Society. (August 2017). *Position Statement Teleaudiology*. Retrieved from <https://audiology.org.nz/assets/Uploads/Member-Resources-Documents/fb9cf20bfa/NZAS-Position-Statement-on-Teleaudiology-September-2017.pdf> types

New Zealand Audiological Society. (May 2024). *NZAS Tele-Supervision Requirements*. Retrieved from <https://audiology.org.nz/nzas-members-only/clinical-competencies/supervision/>

New Zealand Audiological Society. (Update November 2024). *Adult Pure Tone Audiometry Best Practice Guidelines*. Retrieved from <https://audiology.org.nz/nzas-members-only/best-practice-guidelines/>