

Guidelines on the fitting of hearing instruments for children

- Once the audiometric and acoustic variables relating to assessment have been measured, it is important for the audiologist to use a systematic, evidence-based approach that has been specifically developed for pediatric applications, to derive the hearing instrument prescription.
- For the fitting of amplification to infants, the Desired Sensation Level (DSL) (Scollie, Seewald, Sinclair-Moodie, Bagatto, Cornelisse, & Beaulac, 2005) is the prescription of choice for the following reasons:
 1. it provides values for the required amount of gain across frequency for a range of input levels,
 2. it provides values for the maximum output of the hearing instrument,
 3. it has the capability to account for the changes in external ear acoustics over time, and
 4. audibility is provided over a wide range of speech input levels across frequencies.
- Once the prescriptive targets have been calculated based on the child's assessment data the next step is the selection of a device that has the potential to match the prescribed performance.
- Verifying the match to prescribed electroacoustic performance is the next essential step in a scientific approach to pediatric hearing aid fitting.
- The performance of the hearing instrument should be measured in the real ear.
- In the case of active infants and young children who may not remain still and quiet for traditional real-ear measurements, valid predictions of real-ear hearing instrument performance can be carried out in a hearing instrument test box environment using the Real Ear to Coupler Difference (RECD).
- It is important when making these measurements that appropriate signals are chosen. For example for prescriptive targets that aim to make average conversational speech audible, a signal that has been calibrated to represent these characteristics must be used.
- The hearing instrument must then be adjusted to best match the targets to ensure optimum audibility of the speech signal.
- The maximum output of the hearing instrument must be verified to ensure that it does not exceed the uncomfortable levels and is not set too low and might thus cause distortion. This is done by using a high intensity signal of 90dB SPL with an appropriate signal such as swept noise.

- Frequent visits to the audiologist for repeat hearing aid adjustments are an important part of the infant's ongoing habilitation,,
- Questionnaires and caregiver feedback are invaluable in determining whether the hearing instruments are working effectively for the child.

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