Hearing Aid Fitting
Best Practices for the Busy Audiologist

By Harvey B. Abrams, Ph.D.

In an era of increasing competition, litigation and accountability the concept of “best practices” has gotten a great deal of attention throughout industry, government, education and health care. Best practices can be thought of as a technique or methodology that, through experience and research, has proven to reliably lead to a desired result (SearchSoftwareQuality.com). Rehabilitative audiologists are challenged every day to fit technologically evolving hearing instruments in the absence of clear, standardized procedures. This is not to say that audiologists do not have guidance in this area.
Several publications exist within the profession of audiology to help guide the clinician, using the best evidence, to optimum clinical outcomes. A few examples include the Joint Audiology Committee Statement on Hearing Aid Selection and Fitting (AAA, 2000), AAA’s Guidelines for the Audiologic Management of Adult Hearing Impairment (Valente, Abrams, Benson et al, 2006), AAA’s Pediatric Amplification Impairment (Valente, Abrams, Benson et al, 2006), AAA’s Guidelines for the Clinical Outcomes of Hearing Aid Selection and Fitting (Valente, Abrams, Benson et al, 2006), and the American Academy of Audiology’s Best Practice for Treatment Planning and Hearing Aid Selection (AAA, 2003).

Despite (or perhaps because of) the availability of these detailed guidelines, there still seems to be a lack of agreement in terms of what processes (evaluation, fitting and outcome tools) are most likely to reliably lead to positive outcomes in terms of hearing aid fittings. For the busy clinician, the issue is made more complex due to time limitations. The question becomes, then, what are the essential tools I need to take to ensure my intervention results in an optimal outcome for my patient?

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**Easy, Effective and Quick Suggested Best Practices**

**What happens:** The type and magnitude of hearing loss is diagnosed and the need for treatment including candidacy for amplification is determined.

**Best practice:** QuickSIN

**Description:** (From the Etymotic Research Web site, www.etymotic.com/pro/quicksin-meth.aspx): The QuickSIN is comprised of sentences recorded in four-talker babble. It represents a realistic simulation of a social gathering, in which the listener may “tune out” the target talker and “tune in” one or more of the background talkers. Each of the 12 QuickSIN lists has six sentences, one sentence at each signal-to-noise ratio (SNR) of 25, 20, 15, 10, 5, and 0 dB. These SNRs encompass the range of normal to severely impaired performance in noise. Each sentence has five key words that are scored as correct/incorrect.

**Time to administer:** A single QuickSIN list takes approximately one minute to administer and score.


**Where to get it:** Etymotic Research, Inc., 61 Martin Lane, Elk Grove Village, IL 60007

**Web site links:** www.etymotic.com/pro/quicksin.aspx

**Comments:** Despite the fact that one of the most common complaints among our patients is difficulty understanding speech in noisy environments, the use of monosyllabic speech identification testing in quiet tends to be the speech recognition test of choice. In addition to the QuickSIN, examples of other speech-in-noise tests include the Hearing-in-Noise Test (HINT; Nilsson, Soli & Sullivan, 1984), et the Bamford-Kowal-Bench Speech-in-Noise Test (BKB-SIN; Bench, Kowal, & Bamford, 1979).

**Best Practices for Treatment Planning and Hearing Aid Selection**

**What happens:** The results of the assessment are combined with the stated needs of the patient and/or family members to develop a list of prioritized treatment goals. A detailed plan of treatment is recommended (occasionally negotiated) and ultimately agreed upon for the purposes of achieving the stated goals. A goal can be thought of as what the patient will want to be able to do at the end of treatment that she cannot do now as a result of her hearing impairment. “Fitting the patient with bilateral open canal hearing aids with advanced signal processing features” is not a goal. The selection of the hearing instrument (to include style, technology, electroacoustic characteristics and features) is part of the treatment-planning process that may also include the prescription of hearing-assistive technology, a home-based auditory training program, post-fitting group audiologic rehabilitation classes, etc.

**Best practice:** Client Oriented Scale of Improvement (COSI)

**Description:** The COSI is an elegantly simple and effective method of identifying and prioritizing your patient’s treatment goals as well as selecting the appropriate hearing instrument. The patient, with the audiologist serving as a facilitator, identifies up to five specific situations that cause the greatest problems as a consequence of the hearing loss. At the completion of treatment, the patient determines the extent to which these situations have been resolved as a result of treatment. The goals, if properly stated, will drive the decisions concerning the hearing instrument style, technology level, and features and determine how successful the treatment plan was in resolving the patient’s primary communication difficulties.
**Time to administer:** Approximately three minutes to identify and prioritize up to five goals


**Where to get it:** www.nal.gov.au/nal_products%20front%20page.htm#COSI

Some clinicians have questioned the value of probe-microphone measures as part of their fitting protocol (Mueller, 2005). The verification process should ensure that the hearing instrument provides audibility for low input sounds, comfort for conversational speech and tolerance for high-input signals. Probe–microphone measures allow the audiologist to adjust the features of the hearing instrument to ensure that these three goals are being met.

**Time to administer:** Five to 15 minutes per hearing aid depending upon the number of measures made.

**References and Web site links:** Some clinicians have questioned the value of probe-microphone measures with advanced signal-processing hearing instruments or with slim-tube products. Here are a few articles that address this issue:


**Comments:** It has been estimated that an average of 93 different bits of new information are communicated within the 30-minute orientation period (Tirone and Standford, 1992) with a range of between 61 and 136 information bits. The ultimate success of the hearing aid fitting may very well depend upon how much information the patient is able to recall from the orientation process. Most experienced clinicians have developed a comprehensive-orientation process to include demonstrations, handouts and even videos. Having a second person in the room to listen and observe helps to ensure that much of the information will be remembered. It becomes equally important that both the patient and family members are instructed regarding what will likely happen in the first few days and weeks so that each enters the experience with shared and equal expectations.

**Time to administer:** No additional time (other than answering additional questions asked by the significant other)

**References:** Very little is written about the orientation process. A good review can be found in: Citron, D (2008). Counseling and orientation toward amplification. In M.Valente, H. Hosford-Dunn, R. Roeser (Eds.) Audiology Treatment. New York: Thieme.

**Comments:** Clinicians often conceive of counseling and orientation as being the same process. In fact, counseling is separate and distinct from orientation. In our hearing aid-fitting process, orientation involves the “nuts and bolts” of the use and care of the instrument. Counseling, on the other hand, involves advice and guidance and should take place throughout the entire evaluation, treatment and follow-up continuim.

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**Best Practices of Hearing Aid Orientation**

**What happens:** The hearing aid has been fit and verified. Now the patient is instructed in its use and care.

**Best practice:** Involve significant other(s).

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Best Practices of Validation

What happens: Validation is that part of the process where the clinician and patient judge whether or not the treatment goals have been achieved.

Best practice: COSI (again) and International Outcome Inventory – Hearing Aids (IOI-HA)

Description: The COSI was used in our treatment planning stage to identify and prioritize the goals. Now the patient and clinician return to the COSI to determine the extent to which those goals have been met; that is, how much better can she perform in those situations that caused her difficulty before treatment and how much residual difficulty she currently is experiencing. Using the COSI as an outcome assessment helps to identify opportunities to update and modify the treatment plan to address those situations that have not been resolved satisfactorily with the current plan (e.g. modify or change hearing instruments, prescribe assistive technology, provide auditory training, enroll patient in group rehabilitation program, etc). The IOI-HA takes an additional minute to administer and score.

Time to administer: The post-fitting COSI takes about one minute to administer and score. The IOI-HA takes an additional minute to administer and score.


Where to get it: www.ausp.memphis.edu/harl/ioiha.html
Web site link: www.ausp.memphis.edu/harl/index.html
Comment: The IOI-HA was originally designed as a research tool, but it is finding favor as an addendum to more conventional outcome measures such as the HHIE and APHAB. I find it useful to administer the IOI-HA on an annual basis to a large group of patients approximately six months after completion of treatment. Comparing the results from year to year allows me to evaluate long-term trends that may be influenced by changes in service delivery, hearing aid technology, or changes in personnel, for example.

Conclusions: This brief review is an attempt to provide the busy audiologist with assessment and evaluation options that are administered quickly and easily and, for the most part, are empirically based. The suggestions above do not, by any means, exhaust the possibilities of tools available to the clinician; nor does the use of these best practices guarantee success each and every time. In fact, the hearing aid-fitting process does not end with the validation stage. Careful follow-up to include formal audiologic rehabilitation has been shown to improve hearing aid outcome when compared to the use of hearing aids alone (e.g. Chisolm, Abrams and McArdle, 2004). However, the use of a speech-in-noise measure, a patient-directed treatment plan, probe-microphone measures, inclusion of a significant other, and a standardized outcome assessment represent best practices that will likely optimize treatment outcomes associated with hearing aid evaluation and fitting.

References