



Fear and Loathing of Verification

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For nearly 35 years, since the inception of probe microphone measurements in the mid-70's, professionals have struggled with the implementation of REAL EAR Measurement (REM) as a "standard of care" when fitting hearing instruments.

From the basic questions of efficacy and application, or the business concerns of time and effort, to the marketing and counseling benefits, REAL EAR today still faces sizeable resistance in virtually all professional hearing care genres.

The goal of this article is to address the most common reasons why REM may be avoided, and offer some reasons and encouragement to step outside your comfort zone to incorporate this powerful and effective tool into your fitting protocol.

- I simply cannot justify the expense.
- I cannot devote the time to conduct the testing as part of my fitting protocol
- I don't need this technology to effectively fit hearing instruments due to my extensive experience.
- I am worried of what I may discover in the process and not be able to meet my patient's needs.
- I am not comfortable putting the probes in the patient's ears.
- I am not confident in my skills to apply REM findings to the fitting process.
- I have never been formally educated in the proper use of REM and do not know how to apply this technology to gain a better fit.

As a manufacturer and developer of advanced REM technologies, we hear an abundant amount of reasons for not using REM. Our experience with REM resistance, for purposes of this article, can be broken into the following justifications by professionals:

Let's begin with a simple definition of REAL EAR Measurement: REAL EAR Measurement represents a valid, repeatable and reliable method of assessing the SPL in the ear canal with or without a hearing instrument insitu, via a calibrated probe tube placed 3mm-5mm from the tympanic membrane.

The primary purpose of REM is to measure the performance of a hearing instrument while in the patient's ear to ensure that sounds are audible, comfortable and tolerable across the frequencies of the patient's reduced dynamic range.

In layman's terms, REM measures whether the hearing aid is providing ample amplification across as many frequencies as possible based on the patient's audiogram.

There are many "unpredictable" aspects of fitting a hearing instrument that cannot be ascertained using "averages" or formulas including: size of the patient's canal, depth of the hearing instrument insertion, flaccidity of the TM, type of hearing instrument fit, temperature within the ear canal, or position of the microphones and speakers.

Ironically, professionals take great care in precisely measuring hearing thresholds to understand the scope and depth of the hearing impaired ear. This measurement allows the professional to consider the best technologies and performance characteristics of the solutions that they ultimately recommend.

There is more and more clinical and research evidence (Hawkins and Mueller, 1992., Cunningham, 1998) that utilizing live, real-world signals (i.e. live speech or ISTS) may be a more effective stimulus than “manufactured” tones or signals. Thus, Live Speech Mapping, as a form of REM has gained popularity as the preferred signal to utilize, especially when programming the hearing instrument due to the fluctuating and random dynamics of live speech.

Let’s dissect the reasons for not using REM in every fitting:

“I simply cannot justify the expense.”

There are some simple calculations that should convince you of the value of REM as a fitting and verification tool. With today’s digital hearing aids, it is possible to manipulate the amplification characteristics of the hearing aid software to allow for soft sounds to become audible, conversational speech to be comfortable and loud sounds to be tolerable. Still, today, many hearing devices are returned within the first 30 days. Many of these returns are because of a sub-standard fitting at the very beginning of the adaptation process. By saving just one binaural sale of digital hearing aids, with normal profit margins, you have paid for your REM system. Today, some REM systems can be acquired for under \$3000.00 or about the price of 2 high end digital hearing devices.

“I cannot devote the time to conduct the testing as part of my fitting protocol”

There is an old saying that still rings true: Time is money. Certainly it is true today as well – perhaps more so. Ask yourself how many refits, re-programming’s, or re-testings it takes on average to close a sale. Consider the proposition that every time the patient left the office, you KNEW, because you measured, that the fitting was the most optimum fitting achievable. The power of showing the patient HOW the hearing device is operating as it compares to their reduced dynamic hearing range is powerful. A full binaural REM test should take just a few minutes at the front end of the fitting, versus the increased time you may spend during the acclimation period, or if the hearing instrument is being considered for return.

“I don’t need this technology to effectively fit hearing instruments due to my extensive experience.”

Every successful professional relies upon experience and advanced tools to reach their goals. Experience leads you to the protocols employed, but it is the tool that completes the process. Some professionals rely upon factory predictions to initially fit patients; some rely upon research-developed algorithms, and some rely upon patient input to program their devices. None of these methods is as precise as REM measurement, due to the variables previously described in this article. While experience may get you to the right “neighborhood”, it is only through precise measurement, that you can nail the right “address”. Having the ability to “see” what the patient is hearing ensures that the settings of the hearing device are appropriate for the hearing loss. Some advanced REM systems allow the active live speech map to run simultaneously with the manufacturer’s software in the “on top mode” of the hearing instrument’s programming software. This allows immediate feedback to the professional regarding the adjustments being implemented. This live analysis is critical to achieving the best fit possible.

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This fear is rooted in the lack of confidence of the professional or the lack of knowledge of the capabilities of the instrument that is being fitted. There is no acceptable excuse for this fear. Professionals need to know the capabilities of their products, how to achieve maximum performance, and have the confidence to adjust the programmable parameters to achieve their fitting goals. With today’s spectrum of advanced hearing instrument technologies, there is rarely a sensor neural impaired ear that cannot benefit from amplification if the device is programmed properly.

“I am not comfortable putting the probes in the patient’s ears.”

Surprisingly, many professionals have an aversion to placing the probe in the ear canal. Worried that it will be improperly placed, or that they will “bump” the TM of the patient, surprising the patient, can cause anxiety when preparing the patient for REM testing. Probe tubes are soft, and far less invasive than canal impressions. Many professionals don’t prepare the patient for the process. Counseling the patient on what you are doing, why, and that the “bump” could happen, but not to worry, is paramount in not only easing your nerves, but calming the patient as well. Practicing placement on a colleague until a comfort level is achieved is recommended.

“I am not confident in my skills to apply REM findings to the fitting process.”

Technology, protocols, and methodology are constantly changing. Successful professionals recognize that they must also continually be learning, reaching, and stretching their knowledge base to effectively compete in today's dynamic retail environment. Look for courses from equipment manufacturers or trained hearing professionals offering courses on REM and its application are available. Again, there is a direct and undeniable relation to verification measurement and the proper adjustment of hearing instrument software. Know thy product, is key to reaching the best solution for your patient.

“I have never been formally educated in the proper use of REM and do not know how to apply this technology to gain a better fit.”

Today there is overwhelming evidence that insitu probe microphone measurements are the only legitimate method for truly knowing what amplification characteristics the hearing aid is delivering to the newly aided ear.

Studies by Aarts NL, Caffee CS. (2005) The Accuracy and Clinical Usefulness of Manufacturer Predicted REAR Values in Adult Hearing Aid Fittings. *Hearing Review* 12(12):16-22.; Aazh H, Moore BCJ, Prasher D. (2012) The Accuracy of Matching Target Insertion Gains With Open-Fit Hearing Aids. *American Journal of Audiology* 21:175-180; Abrams HB, Chisolm TH, McManus M, McArdle R. (2012) Initial Fit Approach Versus Verified Prescription- Comparing Self-Perceived Hearing Aid Benefit. *Journal of the American Academy of Audiology* 23:768-778; and Beck DL, Duffy J. (2007) Visible Speech – A Patient-Centered Clinical Tool. *Hearing Review*, all show the inaccuracy of predictive measures.

Many instrumentation manufacturers have “educational discounts” or preferred educational programs to allow access to their latest technology. Invest in a good training program on REAL EAR or verification from either the manufacturer of choice, through the many courses offered on the internet or through your professional associations.

Summary

Powerful and effective verification tools can enhance your fitting accuracy, patient satisfaction, and your bottom line. Today there is a global movement to require verification to validate any hearing instrument fitting. Understandably, there are many reasons why you may not be utilizing these fitting tools, similar to the ones discussed in this article, but it is incumbent upon our professional delivery system to explore

new and effective methods of achieving the best fit possible. REAL EAR probe microphone measurement is precise, accurate and superlatively effective in offering your patients the best possible solution to their hearing impairment.

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Mr. Ross has spent the last thirty-five years in a variety of executive positions in sales, training and marketing of hearing care related products and services. He has authored a number of published articles for the hearing industry. He received his B.S. degree from Minnesota State University, and is a certified sales trainer from Wilson Learning Center, an international professional sales training organization.