Why Does It Matter?
Real ear verification is integral to achieving accurate hearing instrument fittings and improving patient satisfaction

Learning Outcomes
• After this course, you will be able to:
  • Describe why Real Ear verification is important in hearing instrument fittings
  • Understand which systems support Real Ear Fit in the EXPRESS/Fitting System
  • Understand how to use Real Ear Fit and the steps required to a successful first fit
Listen Up
You wouldn’t want to wear someone else’s glasses...

In Agreement
• International Hearing Society (IHS)
• American Academy of Audiology (AAA)
• American Speech, Language Hearing Association (ASHA)
• All recommend real ear measurements for the verification of hearing instrument fittings

Houston… We Have a Problem
• 2009 Consumer Report on hearing instruments found that hearing care providers incorrectly fit about 2/3 of patients, due to lack of verification with REM
  • Under-fit: leaving important speech cues inaudible
  • Over-fit: delivering excessive amplification re: hearing loss
Why Don't We Use Real Ear?

- Number 1 reason Hearing Care Providers do not use real ear is the lengthy process or lack of time
  - Calibrating the probe tube, inserting the probe tube, inserting the probe tube with the hearing aid etc…
  - Going back and forth between the fitting software and the real ear software
Real Ear Fit from Sonic

• Real Ear Fit
  • An effective, efficient and easy-to-use verification tool embedded in the EXPRESSfit Fitting Software
  • An automatic match to an individual's unique targets reducing the need for time-consuming manual fine tuning

Real Ear Fit from Sonic

• Compatible REM systems
  • MedRx Avant Speech
  • MedRx Avant Speech +
  • MedRx Avant REM sp
  • Interacoustics Affinity
  • Interacoustics Callisto

Real Advantage
Efficiency

• Automatic adjustment of the response to match prescriptive targets within EXPRESS/fit Fitting Software, without switching to a separate REM software

Ease of Use

• Easy to understand prompts taking the guesswork out of complex verification protocols

Accuracy

• Each individual ear canal volume is measured to create a personalized and accurate fit to target
The Outer Ear

- Provides a natural boost of sound in the high frequencies, known as the resonant peak
- Influencing the resonant peak
  - Open ear canal resonance
  - External ear canal resonance of the pinna and concha
  - Head diffraction

Real Ear Un-aided Gain (REUG)

- REUG
  - Sound pressure level of an open ear at the level of the tympanic membrane
  - Each individual's exact REUG is unknown until measured
The Aided Ear

Audiogram

- Once the hearing loss is identified, hearing thresholds are only the starting point for calculating gain in the fitting software.

In-situ Gain

- The difference in SPL at the tympanic membrane versus free-field.
- In-situ gain targets influenced by electroacoustic parameters such as:
  - Vent Size
  - Hearing Instrument Style
  - Age
  - Fitting Rationale
Insertion Gain

• With In-The-Ear style hearing aids, the space taken up by the instrument impedes the open ear gain
• Fitting software overcomes this loss by applying the appropriate insertion gain (aided gain – unaided gain)
• Insertion gain targets can vary by fitting rationale for the same exact hearing loss

Fitting Rationales

• 3 fitting rationale insertion gain targets (50 dB flat loss)

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Real Ear Aided Gain (REAG)

• The first fit on a hearing instrument remains an approximation to prescriptive targets unless REM confirms the gain in the aided ear
• Over or under amplification may be occurring across the frequency range
• Manual fine tuning is commonly needed to match the response to the prescribed targets
Real Ear Convenience

Real Ear Fit
• One integrated system to simplify the steps of the verification procedure
  1. Measure REUG
  2. Measure REAG
  3. Automatic fine-tuning of the response to meet target

Real Ear Fit
• Solid grey line
  • Under-amplified real ear aided response
• Solid blue line
  • Adjusted real ear aided response after applying Real Ear Fit automatic adjustment
Using Real Ear Fit in EXPRESSfit

A few easy steps to accurate hearing instrument fittings

Set-up

• Connect and install your REM equipment and software on the same PC as EXPRESSfit
• The Real Ear Fit icon will appear in the EXPRESSfit toolbar

Calibrate the Speaker

• Before launching EXPRESSfit, calibrate the speaker used for measurements
• Once speaker calibration is complete, close the REM software (Real Ear Fit cannot open if REM software is open)
Start

- Open EXPRESSfit 2014 and detect instruments
- Ensure that the selected acoustic parameters are correct for the specific patient

Customize Preferences

- Customize Real Ear Fit preferences under the Tools menu

Customize Preferences

- Select Measurement Module, Graph View and Additional input levels
  - 65 dB input is required while 50 and 80 dB input levels are optional
  - The calculated corrections will be applied equally for all input levels
Open Real Ear Fit

- Launch Real Ear Fit under Tools, or on the EXPRESSfit Toolbar

Calibrate Probe Tube

- Hold the reference mic one meter from the speaker, select right or left
- When finished, select ‘Next’

Measure REUG

- Perform otoscopy, then seat patient one meter from the speaker
- Insert probe tube into open ear canal and start measurement
Measure REAG

- Carefully place hearing instrument into position
- 2 measurements result
  - Grey curve: first fit without REM
  - Solid blue/red curve: automatic adjustment to hit target

Real Ear Measurement Complete

- The fitting graph will now reflect the patient's real ear data
- Option to either apply or discard Real Ear Fit adjustments to the hearing instruments
- Select 'Finish' to apply your choice

Real Ear Measurement Complete

- If you apply the adjustments, you can still return to Predicted Fitting data under 'Edit' in the Toolbar
Real Simple

- Future changes to Audiogram, Fitting Rationale, or Experience Level will not require a new REAG measurement
- Changes to acoustics or Instruments will require a new REAG measurement

Real Ear Fit, in Action

- real ear fit video
Real Take Home Message

First Fit Protocol
- Run Feedback Manager
- Perform Real Ear Fit
- Adjust for Patient's Own Voice

Real Easy, Real Simple
- Improved accuracy of first fit
- No manual fine tuning involved
- Procedure takes 5 to 10 minutes
- Reduces follow up appointments
- Increases satisfaction at first fit
Final Comments

• Thank you so much for attending Real Simple, Real Ear Fitting Tool
• Any Questions?
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