NEEDS ASSESSMENT OF HEARING ASSISTIVE AND RELATED TECHNOLOGIES

1ST INTERNATIONAL CONFERENCE ON ADULTS WITH COMPLEX HEARING NEEDS
PHOENIX, AZ, USA DECEMBER 5-8, 2015

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THINKING ABOUT NEEDS

- If you have hearing loss, what’s your biggest frustration?
- If you experience hearing loss for the first time, what’s your biggest fear?
- What do we take for granted?
- It’s not just a noisy world
- Sometimes it’s too quiet (bedtime), sometimes things sound “crappy,” and sometimes it has nothing to do with sound
- Great stuff out there, but we’ve got to think BEYOND hearing aids and implantable devices…

“Walk a mile in my shoes” – Elvis Presley
“I think hearing aids are wonderful. I hate to think what my life would be like without them. But sometimes, and in some situations, either you're not wearing them (like when you're in bed, coming out of the shower, etc.) or they need to be supplemented by another type of assistive device. That's where hearing assistance technologies come in. Keep in mind that the devices I'm talking about are not hearing aids and they are not used instead of hearing aids.”

– Mark Ross, Ph.D. (Dr. Ross on Hearing Loss, RERC, n.d.)
- Week 1 – No hearing technology whatsoever
- Week 2 – Hearing aids only
- Week 3 – Bimodal
- Week 4 – Bilateral Cochlear Implants
“I’m having trouble finding a cell phone that works for me.”
“Does my hearing aid have a telecoil?”
“I can’t use the phone like I used to.”
“I wait until movies come out on TV or video.”
“I wish my smartphone could ______.”
“My patient is not interested in a cochlear implant, yet is struggling more than ever before. Can you help?”
“Do you know anything about setting up a loop system for living room?”
“An international student with cochlear ossification needs a variety of technologies for college. What do you recommend?”
“I want to send someone to you who was just diagnosed with bilateral acoustic tumors.”
“I have a patient with a RIC and needs to use a stethoscope”
POORER HEALTH

- Reduced psychosocial functioning leading to:
  - Increased feelings of isolation, depression, loneliness, fear, frustration, and disappointment (Crandall et al., 1998; Bess et al., 1989)
  - Poorer physical health (Lichenstein et al., 1998; Mulrow et al., 1990)
- Hearing loss can be mistaken for dementia, or co-exist

BETTER HEALTH

- Noted improvements seen with hearing aids and cochlear implants on health and well-being (Cohen et al., 2004; Mo et al., 2005; Lin et al., 2012)
- Wearing hearing aids may delay the onset and effects of dementia (Lin et al., 2013)
AGE-RELATED HEARING LOSS

MULTI-FACTORSIAL
Aging and Speech Understanding Difficulties

Brain Volume Changes
- Lin et al (2014)

Vascular and Metabolic Changes

Neural Changes

Cognitive Changes

Poorer Temporal Processing

Noise Interference on Speech Cues
- Rajan & Cainer (2008); Schneider et al (2007)
Generally speaking...

- Faster, noisier, busier, distracted world
- More ways to connect, for better or for worse
- Changing and merging technologies
Four Universal Hearing Needs

ASSESSING NEED

- Restaurants
- Movies
- Shows
- Travel

Four Universal Listening Needs

- Home
  - Family
  - Television
  - Telephone
  - Media
  - Alarms

- Leisure
  - Restaurants
  - Movies
  - Shows
  - Travel

- Employment / Training
  - Telephone
  - Meetings
  - Classrooms / Training Rooms
  - Technical Standards / Essential Functions
  - Alarms and Warnings

- Social
  - Names
  - Telephone
  - Noise
  - Familiar and New People and Voices
FOOD FOR THOUGHT

Clinician versus Patient

Knowledge of Technology

Aware

Unaware

Usage / Access

Available

Unavailable

Need

Important

Unimportant
ASSESSING NEED

WHO (1997)

Fitzpatrick et al. (2010), 49(1), 44-53, IJA
Fornier et al. (2012), 36(2), 150-167, CSLPA
TECHNOLOGIES I’VE USED TO DATE

- Hearing aids (analog, digital analog, frequency compression, digital)
- FM system (auditory trainer)
- Cochlear implant (body worn, BTE)
- Telecoils
- Sony Entertainment Access Glasses
- Vibrating alarm clocks
- Timers set to lamp
- TTY (Teletypewriter)
- VCO (Voice Carryover)
- Infrared systems
- Induction loop systems

- Closed caption decoder
- Subtitles/open captions
- Smartphone vibrating and flashing alarms
- Internet
- Soundfield systems
- E-mail
- Messaging
- Texting
- Speech-to-text translation
- Videoconferencing
- CART/TypeWell/C-Print
How to Do a Needs Assessment

Select a Tool and/or Approach that Fits your Style, Resources, and Constraints

Four Universal Listening Needs
- Face-to-Face
- Media
- Phone
- Alerting

ACOUSTIC

NON-ACOUSTIC
Four Universal Listening Needs
- Face-to-Face
- Media
- Phone
- Alerting

ACOUSTIC
- Streamer to Television
- Amplified Phone w/ Tone Controls
- Emergency Alert Systems

NON-ACOUSTIC
- Vibrating Alarm Clock
- Flashing Alerts
- Closed Captions/Subtitles
- Captioned Phone
- Emergency Alert Systems
Four Universal Listening Needs
- Face-to-Face
  - Media
  - Phone
  - Alerting

ACOUSTIC

• Assistive Listening Devices / Remote Microphone Technology
• Video Communication
• Smartphone M4/T4
• Audible Notification

NON-ACOUSTIC

• Text Messaging
  • E-mail
  • Vibrating Notification
Four Universal Listening Needs
- Face-to-Face
- Media
- Phone
- Alerting

ACOUSTIC
- Assistive Listening Device / Remote Microphone Technology
- Amplified Stethoscope

NON-ACOUSTIC
- Text Messaging
- Chat Messaging
- Speech-to-Text Systems
- Captioning Systems
- Videophones
- Emergency Alert Systems
Four Universal Listening Needs
- Face-to-Face
  - Media
  - Phone
  - Alerting

ACOUSTIC

- Assistive Listening Device / Remote Microphone Technology

NON-ACOUSTIC

- Messaging and E-mail Notifications
- Captioning Systems
- DURATEQ System
- Alerting Systems
Patients will have to be motivated to use the technology; counsel if necessary

Patients may require/desire support of their family members, friends, and/or coworkers to use the technology

Clinicians can motivate by showing their support and helping to locate resources
Assuming you have the knowledge, why do a needs assessment for hearing assistive and related technology if you don’t know what’s available?

Your Task(s):

- Expand your current needs assessment strategies to go beyond hearing aids and implantable devices
- Get familiar with assistive technology companies and their products
- What technologies and resources are already in your area?
- What’s government supported vs. what’s out of pocket vs. what’s free?
- Partner with, or form, advocacy or support groups / organizations
- Build up the hearing assistive and related technology side of your practice up (showcase and demonstrate products; consider simulations)

Ida Institute Toolbox (http://idainstitute.com/toolbox/)

Professional and Consumer Courses (http://www.hearingloss.org/content/course-offerings)

“Knowing is not enough; we must apply. Willing is not enough; we must do.”

(Johann Wolfgang van Goethe)
The HOKEY POKEY Clinic

A place to turn yourself around

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