

**AMPHL Conference 2005**

**Washington, D.C.**

**HARD-OF-HEARING  
AUDIOLOGY PANEL**

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**Lisa Devlin, M.S.**

**Sandra Mintz, M.S.**



# **AUDIOLOGY AS A PROFESSION**

**Samuel Atcherson**

# AUDIOLOGY AS A PROFESSION

- Audiology is a relatively new healthcare profession
  - Interest began during WWII (1940-1950)
- Study of the science of hearing
- Study of normal and disordered hearing
- Study of rehabilitation procedures
- Balance assessment and cerumen (wax) removal also in scope of practice

# SPECIALTY AREAS

- Pediatrics
- Medical
- Rehabilitative/ Product Dispensing
- Industrial
- Educational
- Academia
- Clinical/ Administration

# **SAMPLE SKILLS**

- General Diagnostics
- Electrophysiological Measurements
- Noise-Level Measurements
- Auditory Processing Disorders
- (Re)habilitation
- Hearing Aids/ ALDs
- Cochlear Implants/ Other implants
- Tinnitus Management
- Balance Assessment
- Cerumen Removal

# SAMPLE SKILLS



Diagnostics



Tinnitus Management



Electrophysiology



Noise Conservation



Cochlear Implants/ Other Implants



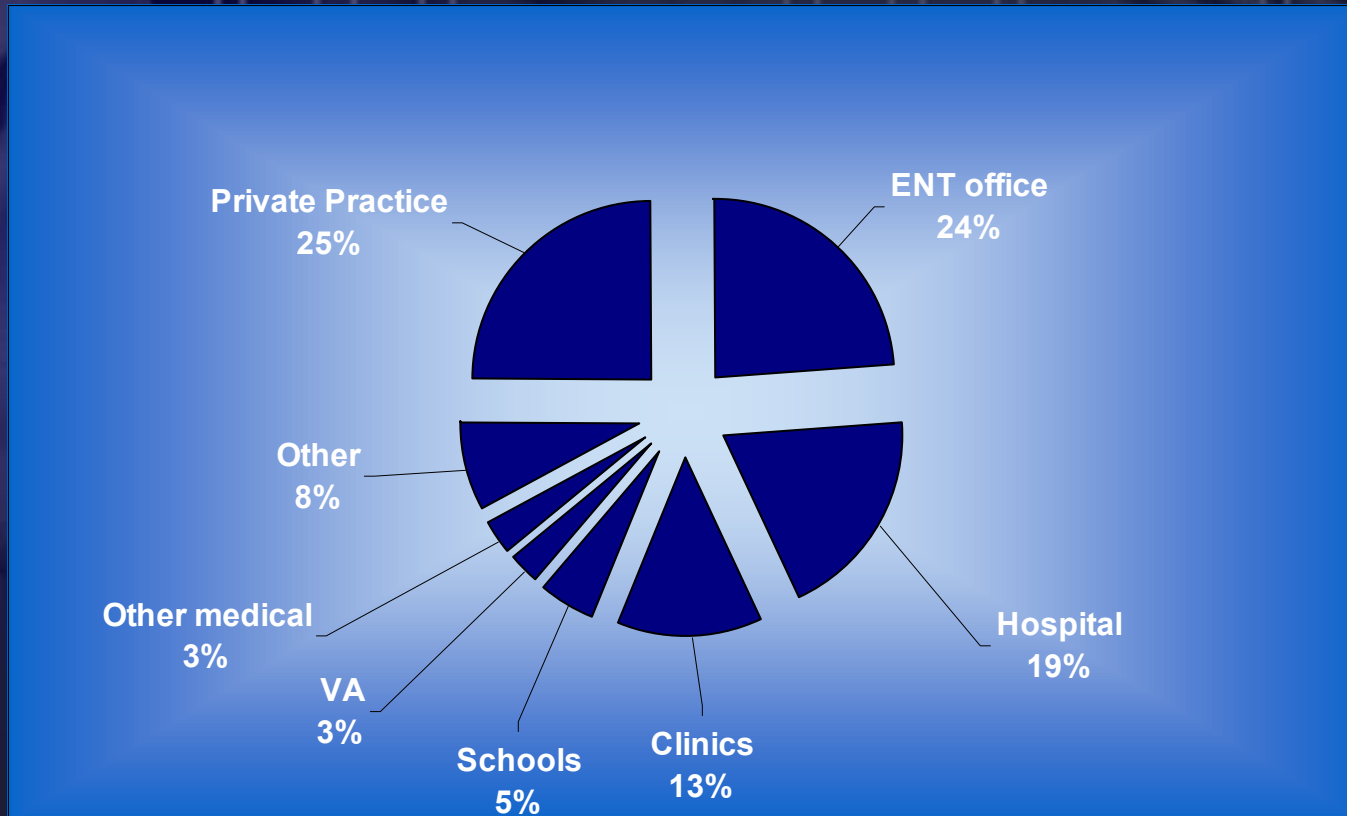
(Re)habilitation

Hearing Aids/ ALDs

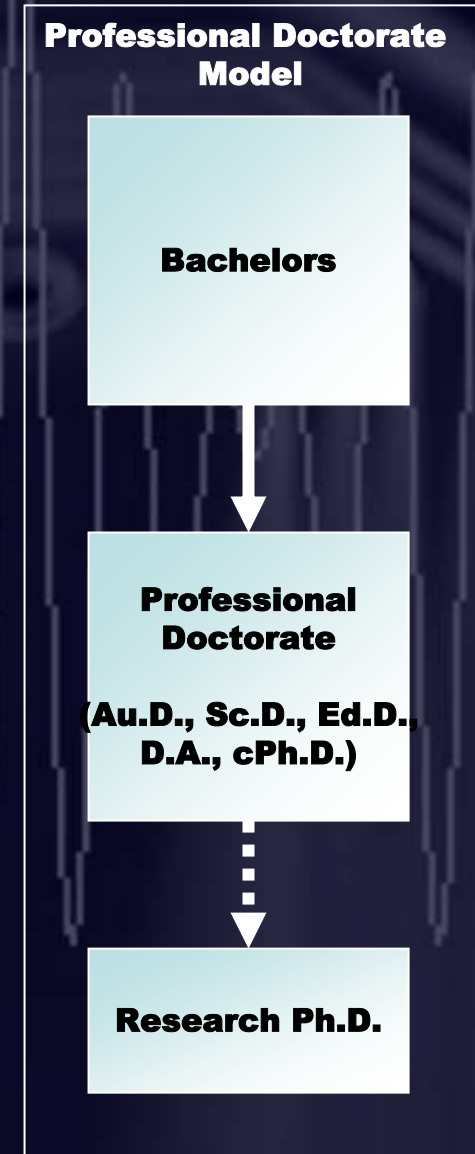
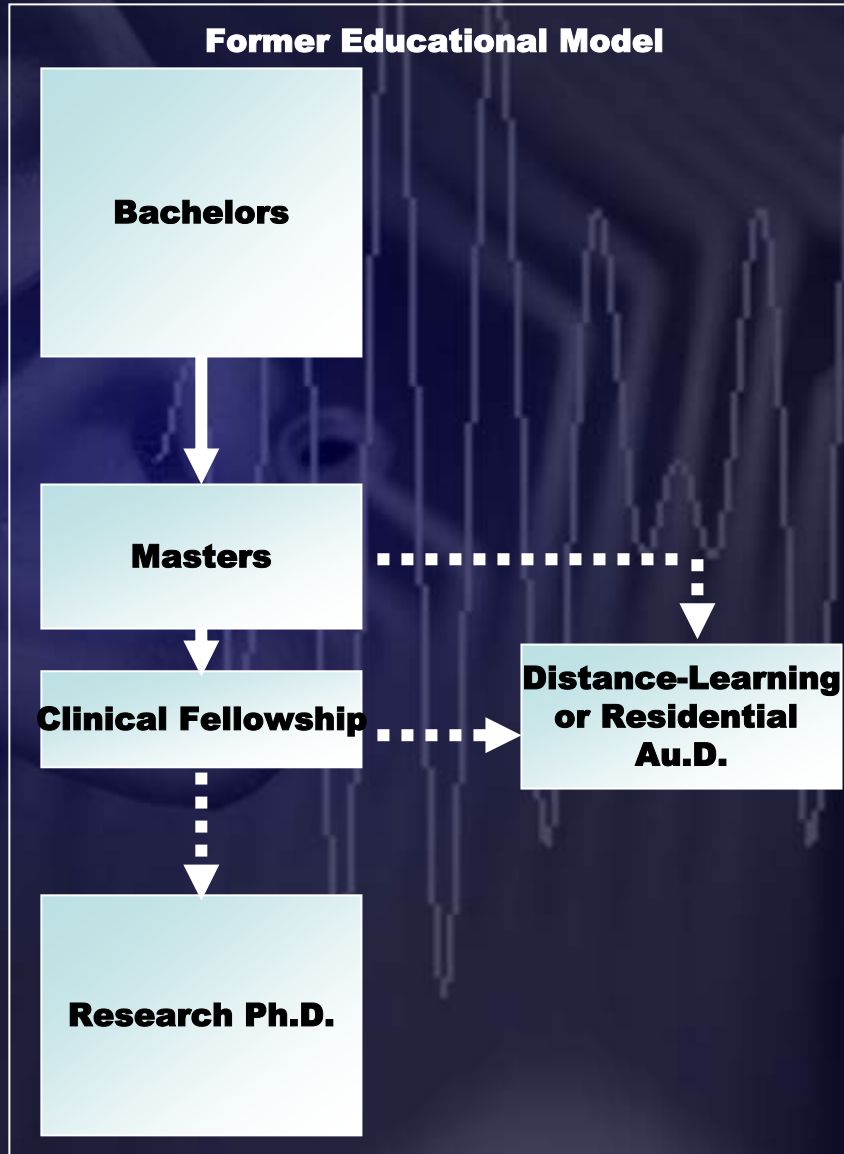


Balance Assessment

# DISTRIBUTION OF EMPLOYMENT



# AUDIOLOGY EDUCATIONAL MODEL IS CHANGING



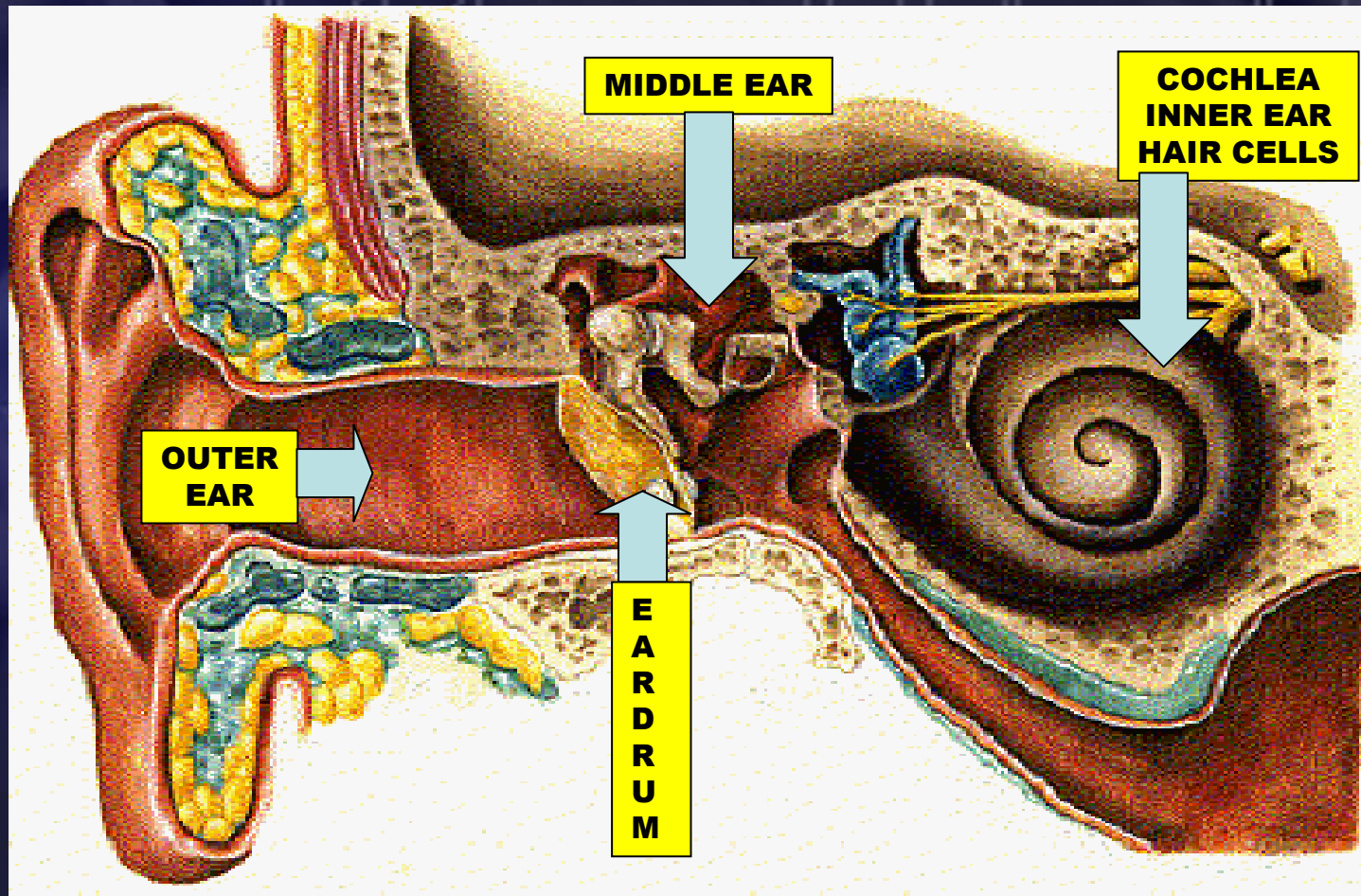


# **ANATOMY OF THE AUDITORY SYSTEM**

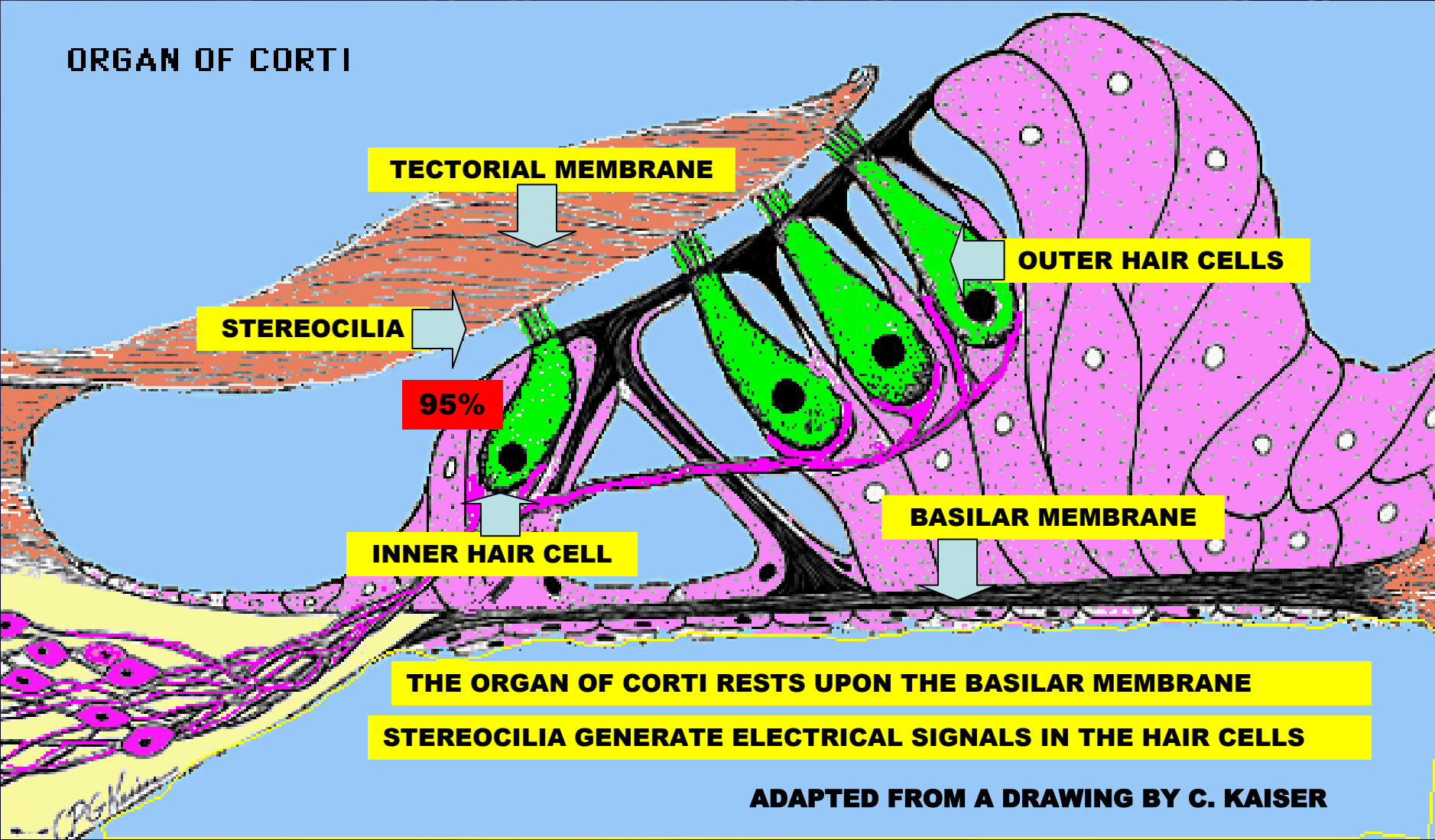
## **AUDIOGRAM**

**Beverly Goldstein**

# ANATOMY OF THE AUDITORY SYSTEM

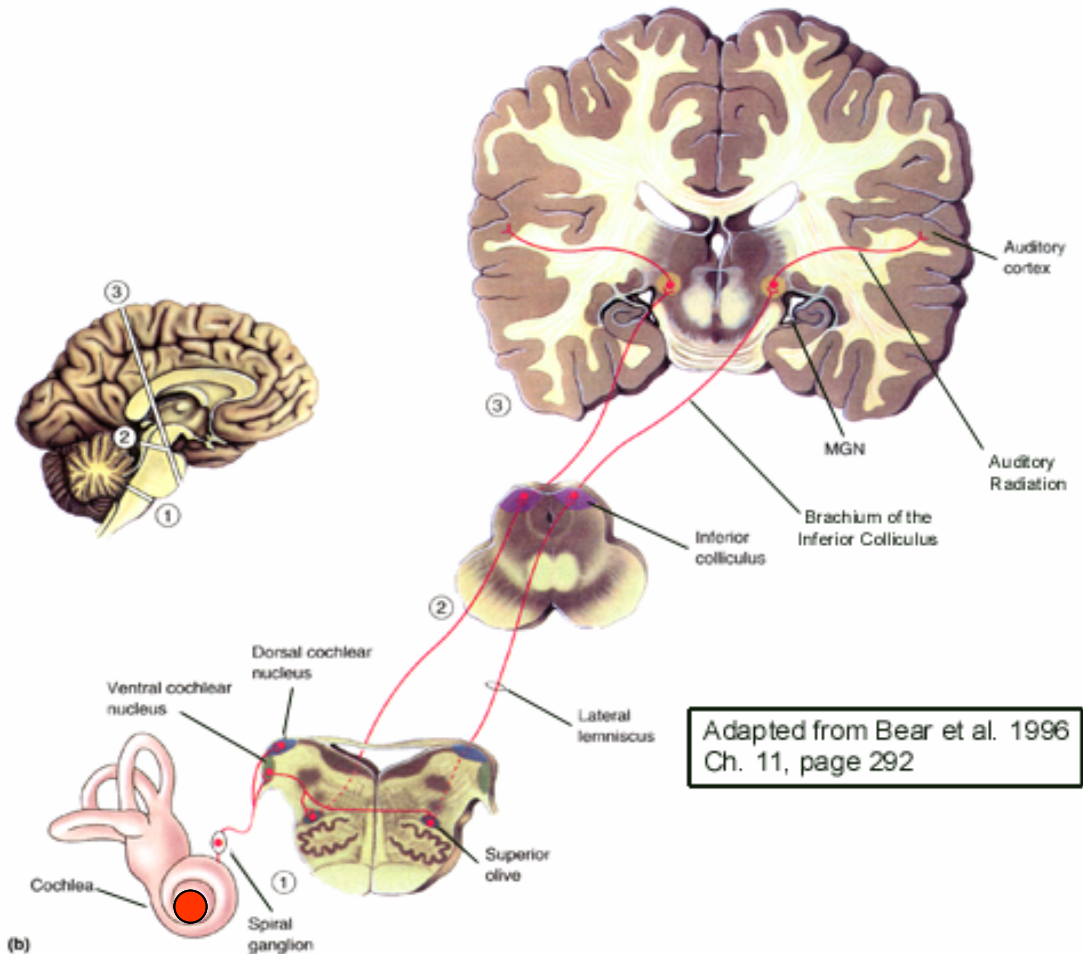
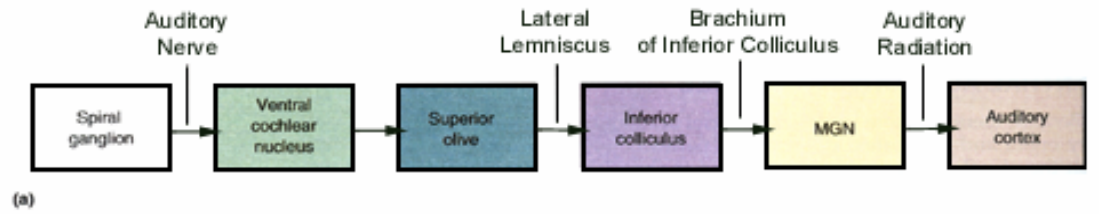


# OUTER AND INNER HAIR CELLS OF THE ORGAN OF CORTI



# AUDITORY PATHWAYS

All sounds travel from the electrical signals inner ear to the brain



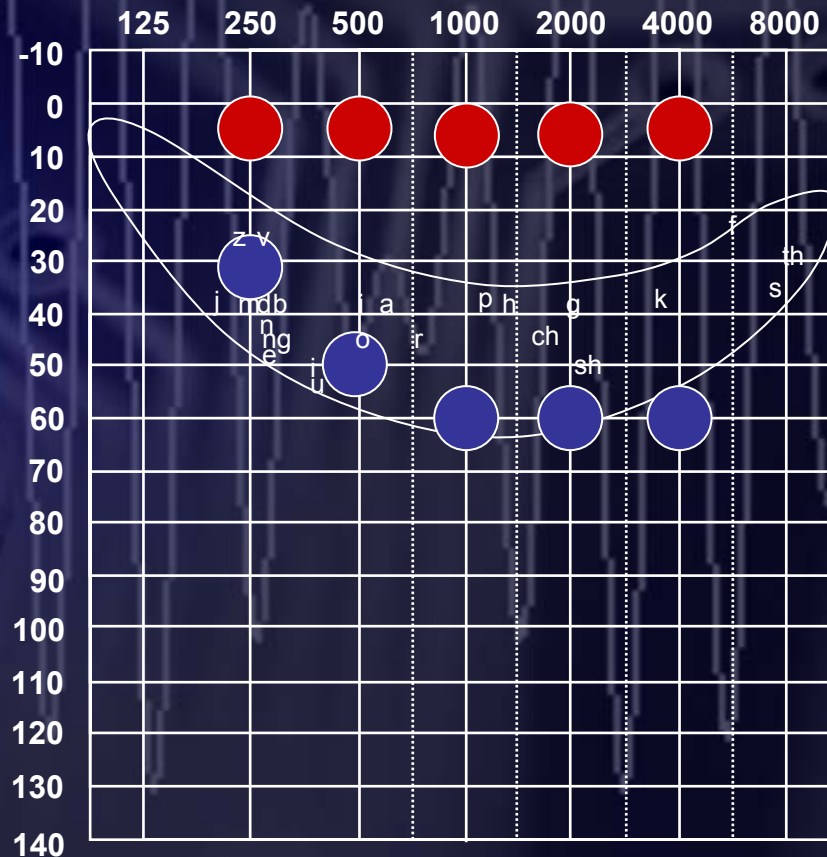
Adapted from Bear et al. 1996  
Ch. 11, page 292

Figure 11.17

**Auditory pathways.** There are numerous paths by which neural signals can travel from the spiral ganglion to auditory cortex. A primary pathway is shown (a) schematically and (b) through brain stem cross sections.

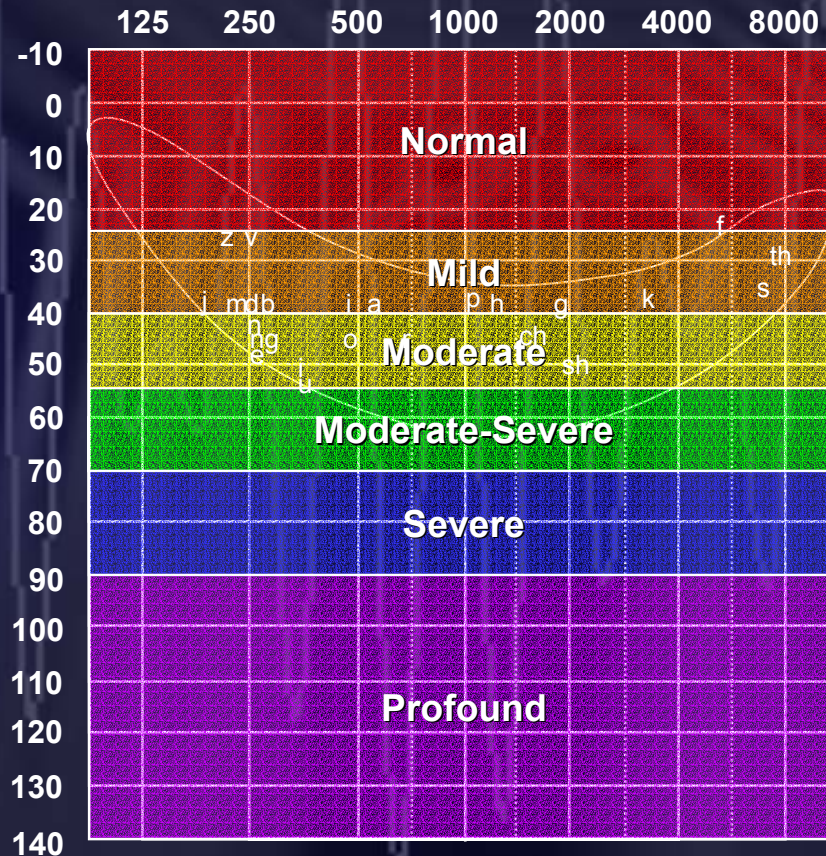
# SPEECH BANANA

## AREA OF CONSONANT AND VOWEL RECOGNITION



# AUDIOGRAM

-  **RIGHT EAR**
-  **LEFT EAR**
-  **NO RESPONSE**
-  **COCHLEAR IMPLANT**



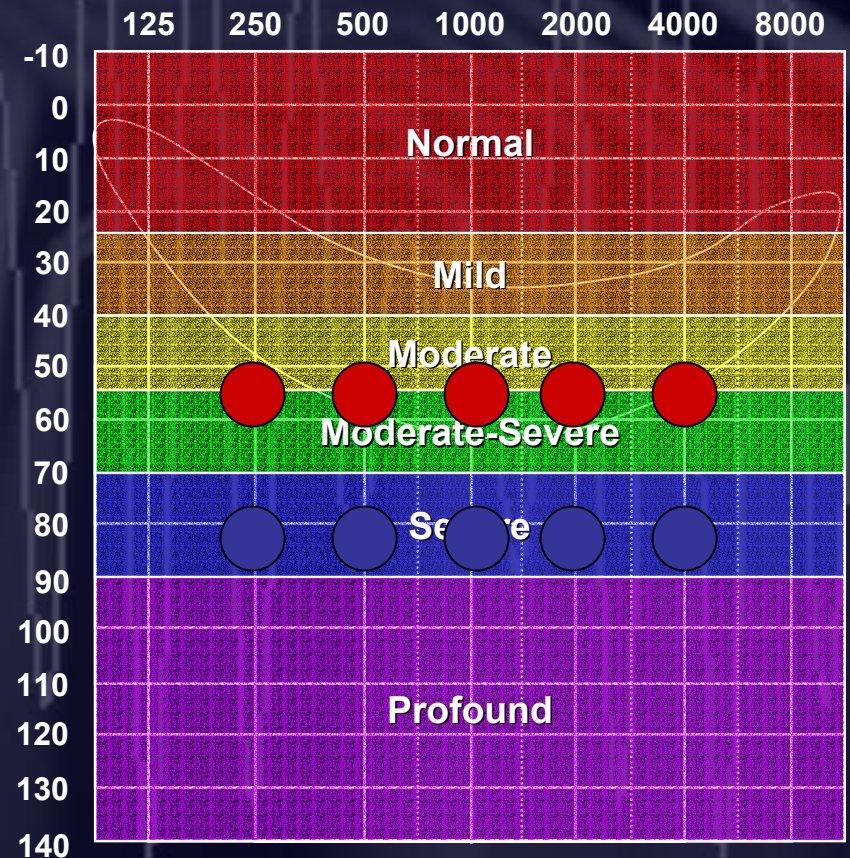
# AUDIOGRAM

Hearing loss at 55 dB or better generally results in Word Recognition **SUFFICIENT** enough to carry on aided conversations with little to no problem, even in noise.

**MOSTLY OUTER HAIR CELL LOSS**

Hearing loss at 85 dB or worse generally results in Word Recognition **INSUFFICIENT** enough to carry on aided conversations with little to no problem, even in quiet.

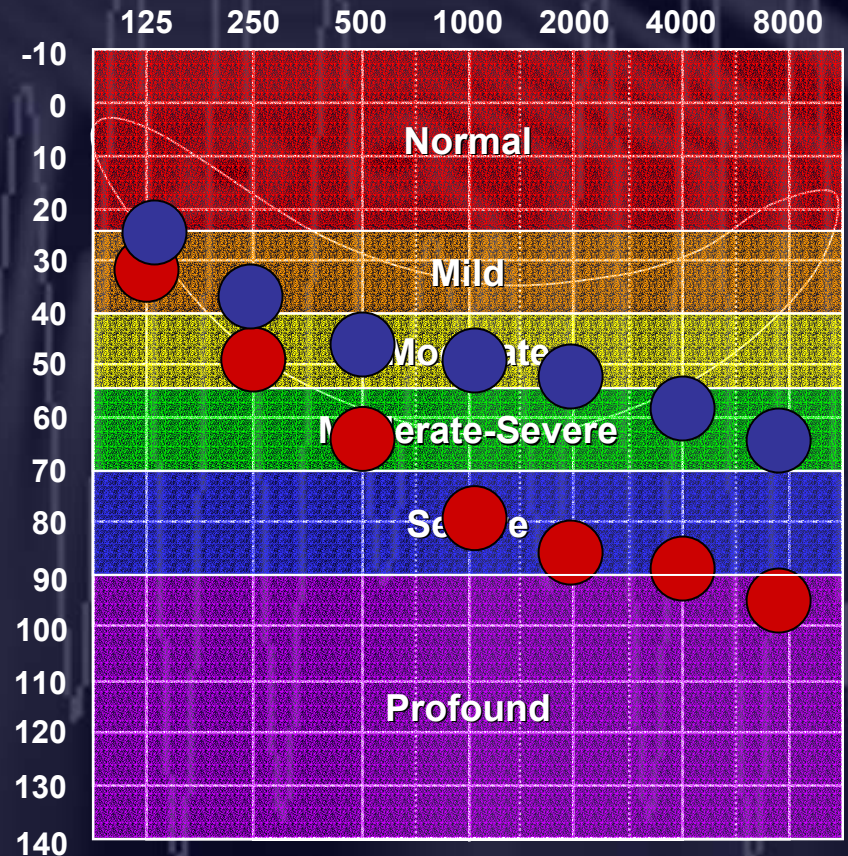
**OUTER & INNER HAIR CELL LOSS**



# AUDIOGRAM

This left ear will have much better Word Recognition than the right ear for three reasons.

- The left ear has less hearing loss.
- Many left thresholds fall inside the speech banana.
- The loss has a flatter shape as it crosses through the frequency range.



# **HARD-OF-HEARING AUDIOLOGY PANEL**



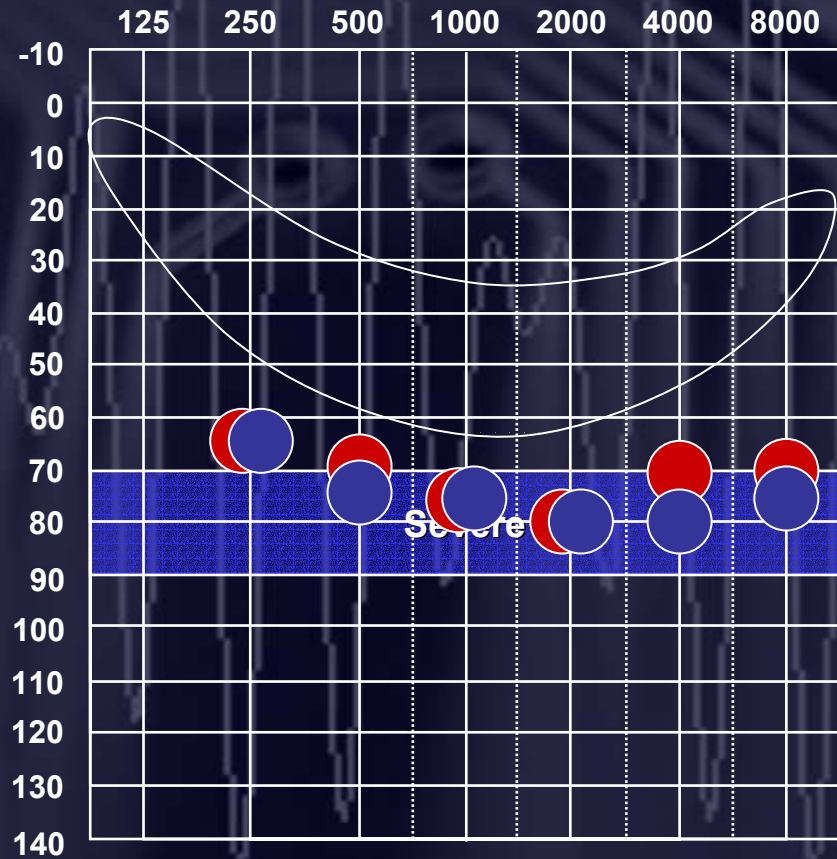
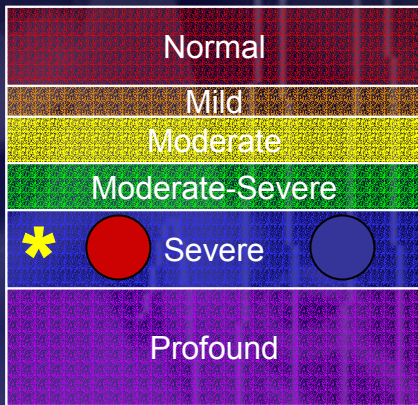


**GLORIA V. NATHANSON**

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**Culturally Deaf Individual Selects  
the Profession of Audiology**

# GLORIA



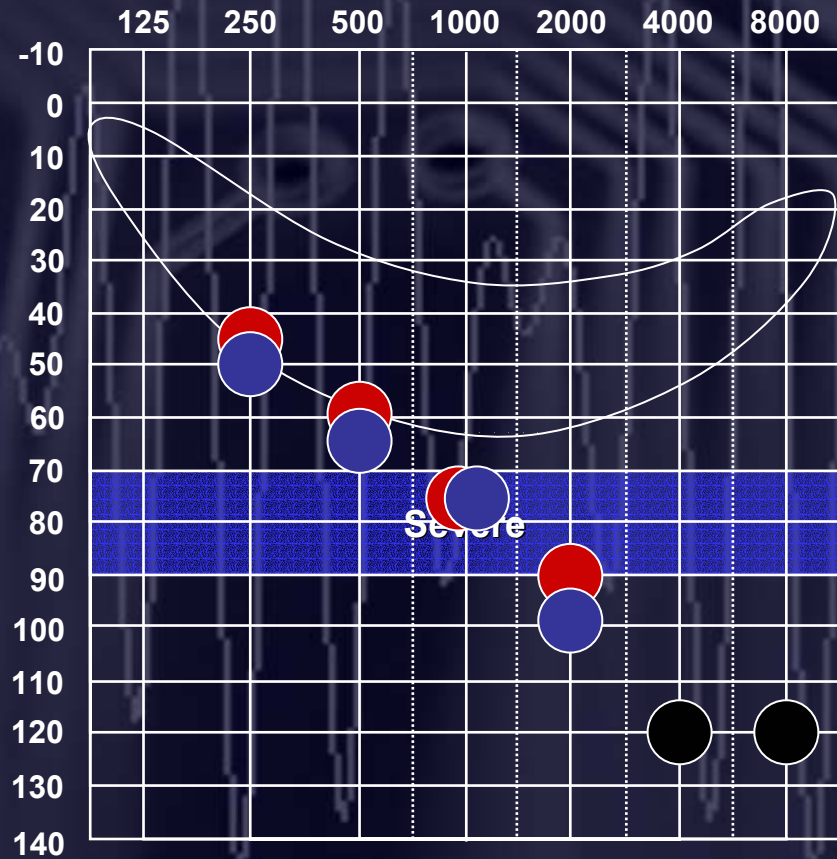
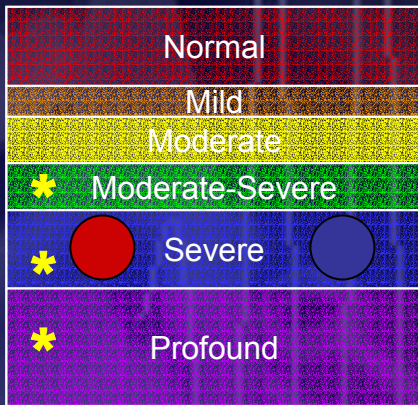


**JAY SHEEHAN**

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**Decision Making: Facing  
Significant Clinical Training and  
Employment Challenges**

# JAY



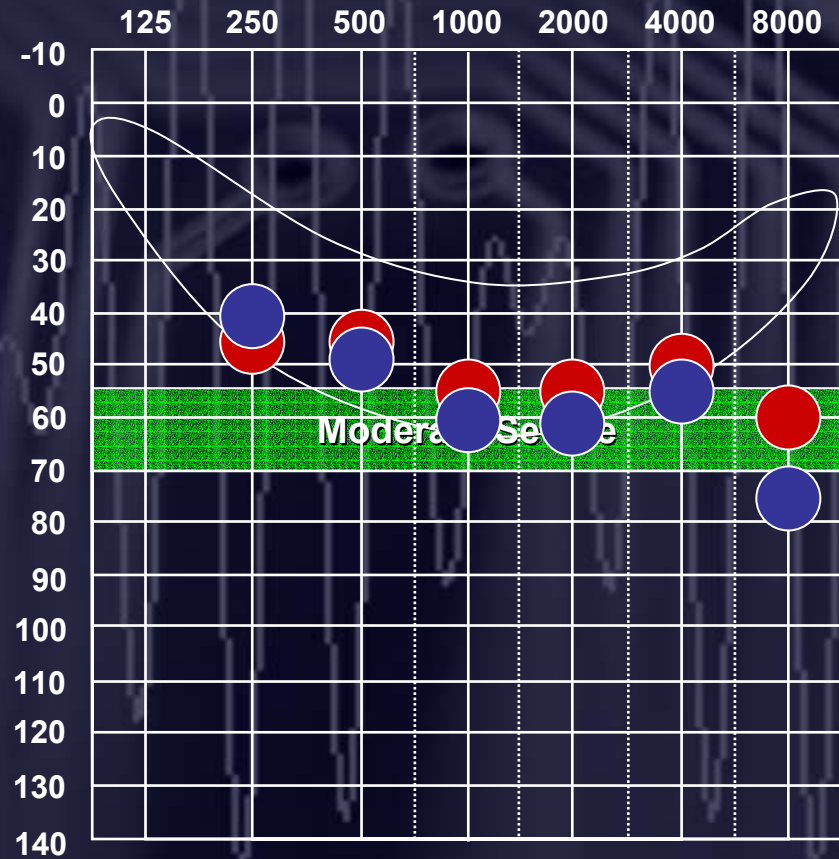
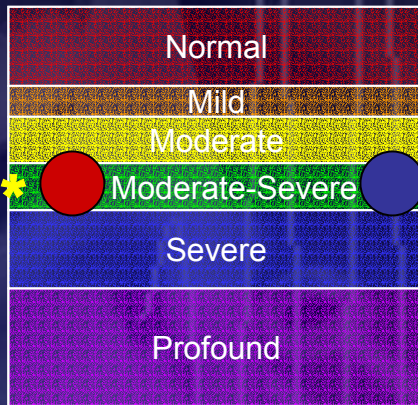


**LISA DEVLIN**

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**Supervision of New Deaf/Hard-  
of-Hearing Graduate Students in  
Audiology Clinical Practicum**

# LISA



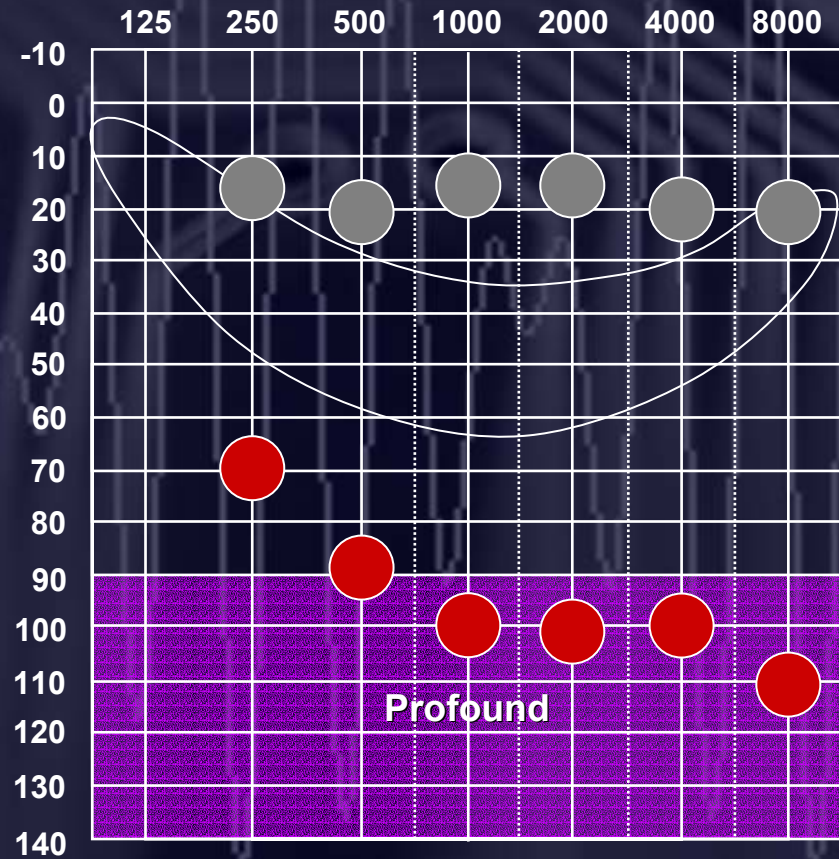
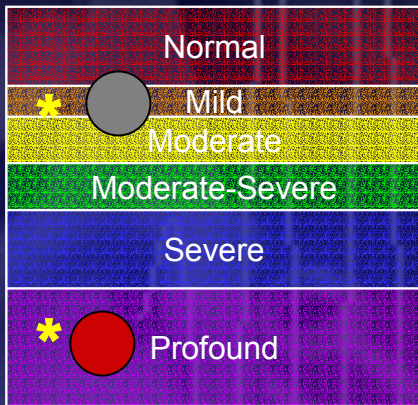


**SANDRA MINTZ**

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**Vocational Impact of Hearing  
Loss**

# SANDY



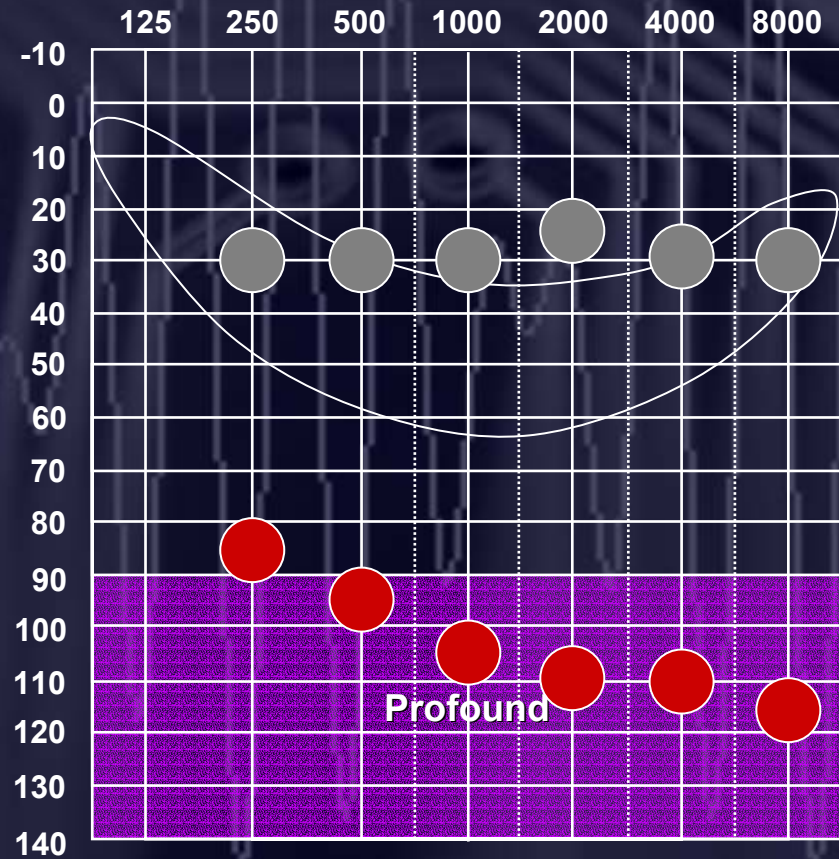
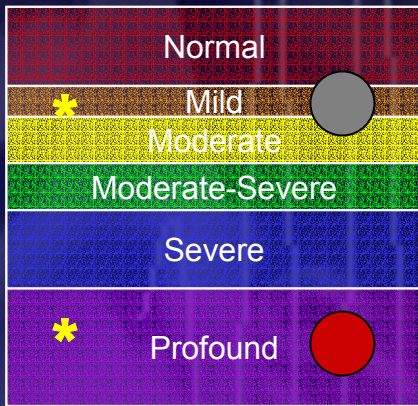


**SAMUEL ATCHERSON**

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**Life Impact of Receiving a  
Cochlear Implant**

# SAM





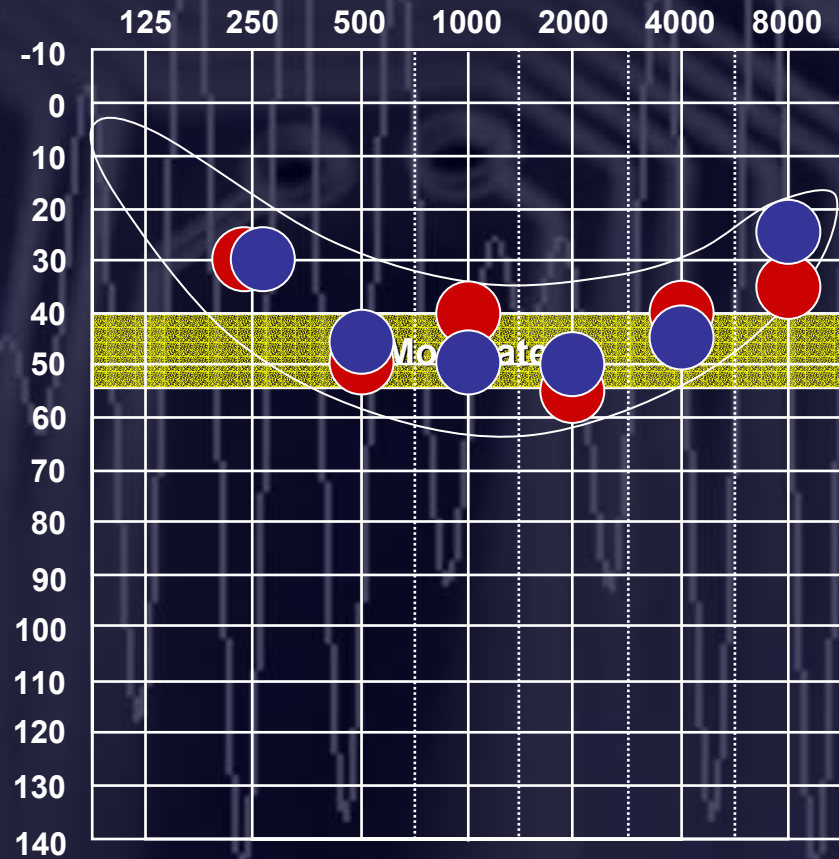
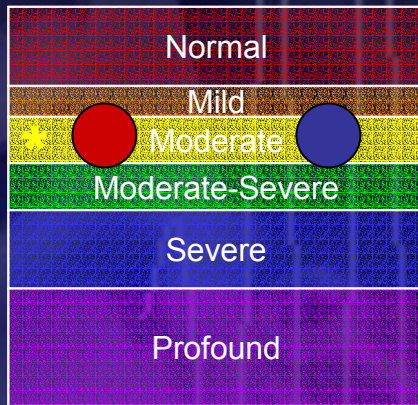
**BEVERLY A. GOLDSTEIN**

[MommyBAG@aol.com](mailto:MommyBAG@aol.com)

**Confirming Properly Fit  
Technology**

**Timing Stresses in Successful  
Use of Technology**

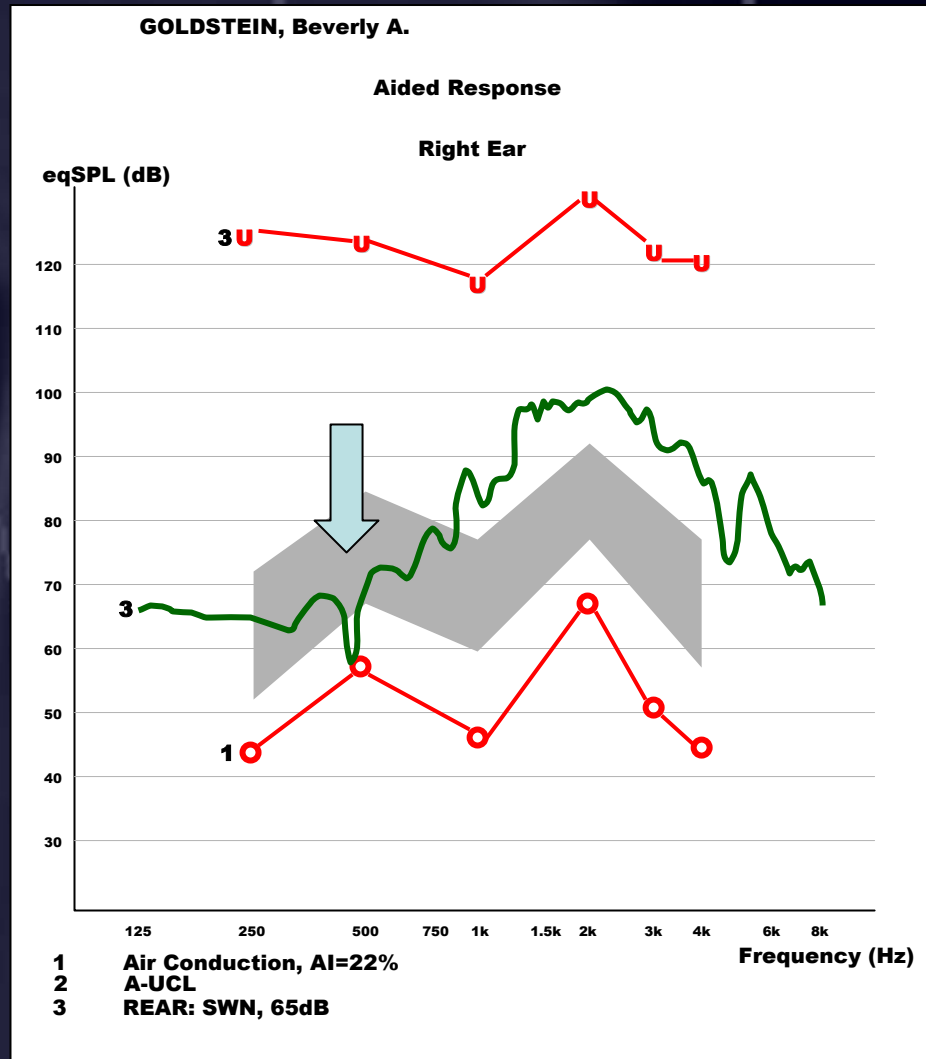
# BEVERLY



# RIGHT EAR AIDED REAL EAR ANALYSIS

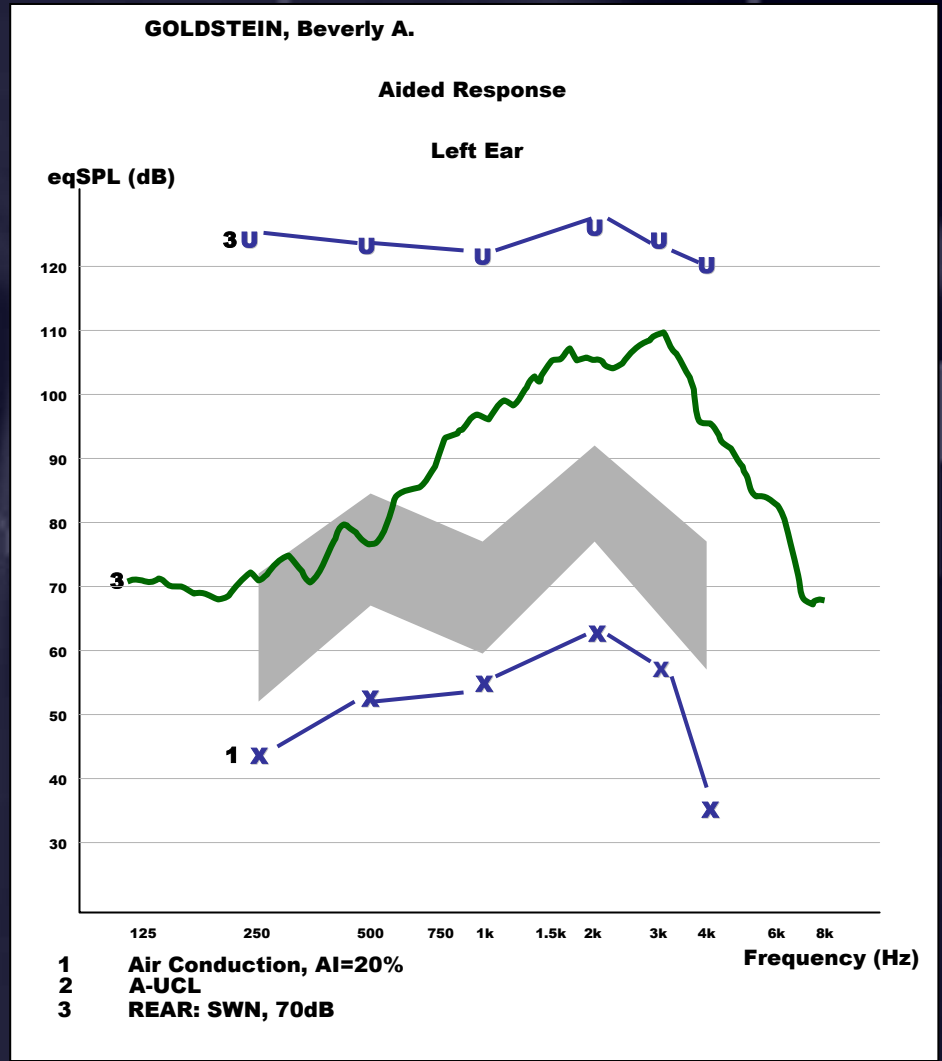
## STIMULUS SPEECH WEIGHTED NOISE

500 Hz  
PROVIDES APPROXIMATELY  
42% SPEECH POWER  
15% SPEECH RECOGNITION



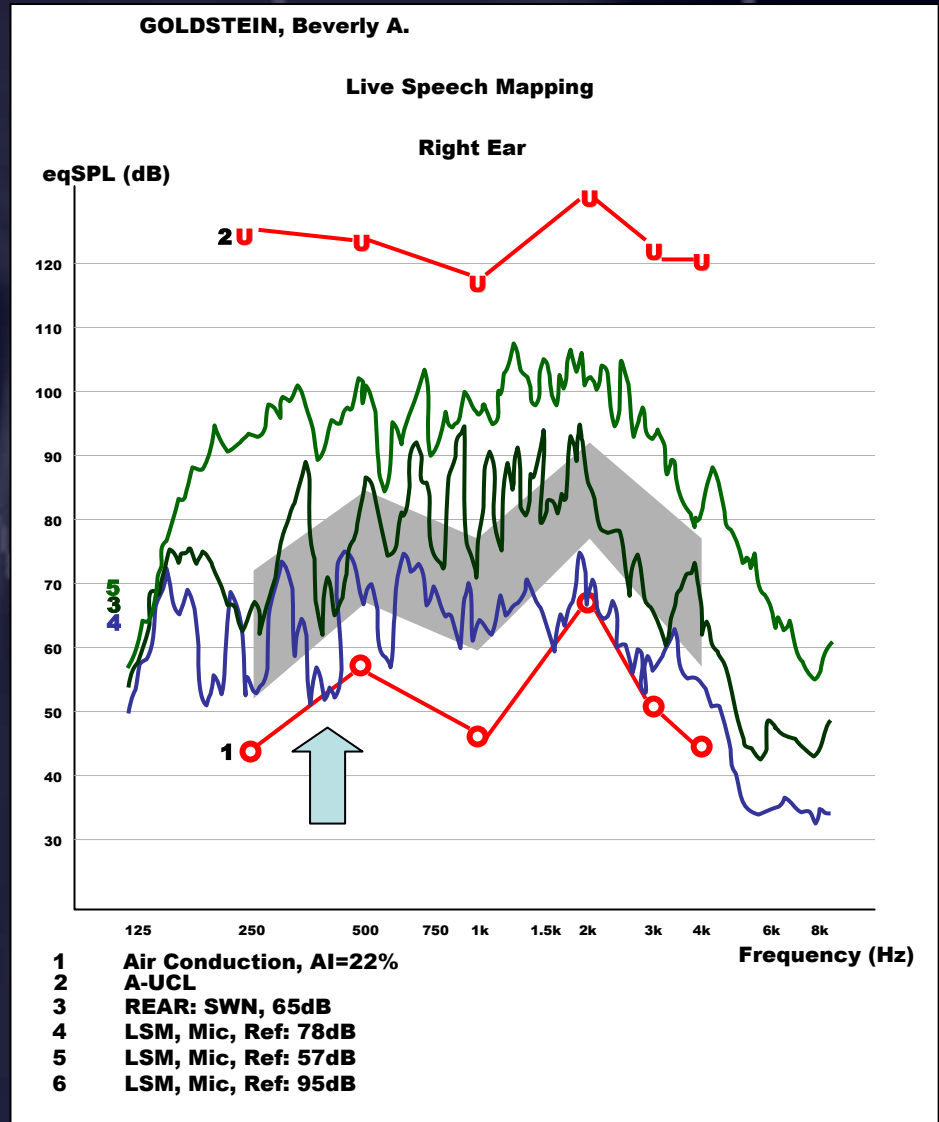
# LEFT EAR AIDED REAL EAR ANALYSIS

## STIMULUS SPEECH WEIGHTED NOISE



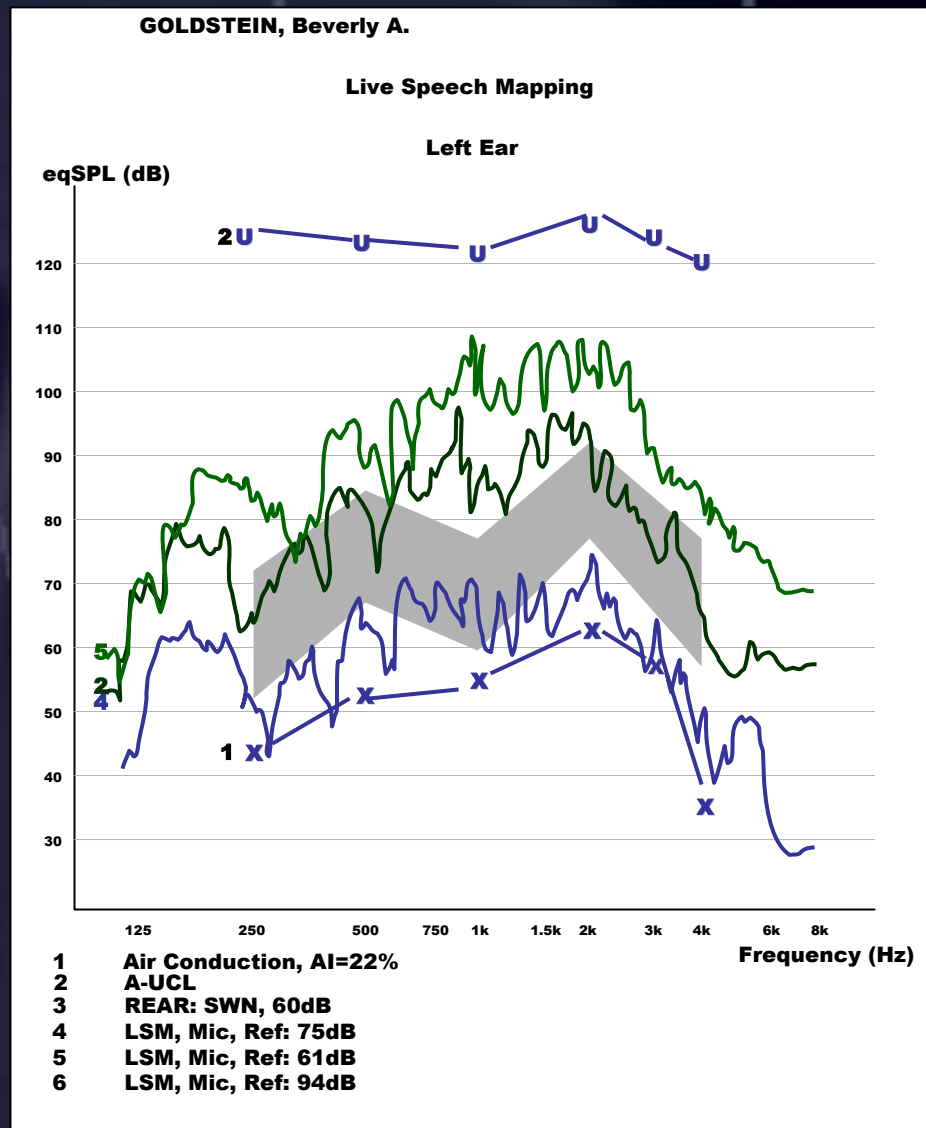
# RIGHT EAR AIDED REAL EAR ANALYSIS

STIMULUS  
LIVE VOICE



# LEFT EAR AIDED REAL EAR ANALYSIS

## STIMULUS LIVE VOICE





**CAN PEOPLE WITH  
HEARING LOSS  
BE AUDIOLOGISTS?**

**Absolutely!**



**THANK YOU!!**

**WHAT?!**

GILL