

GREAT PATIENT CARE BEGINS WITH GREAT COMMUNICATION– LIVING WELL WITH HEARING LOSS

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- President/Owner of Hearing Associates
- Established in 1980
- Gurnee and Libertyville



Objectives

- Provide awareness of hearing loss
- Potential effects of ototoxicity and how to monitor for it
- Treatment options for hearing loss and how to communicate more effectively

Prevalence of Hearing Loss

- 36 million American adults-17% of the US population has some degree of hearing loss
- 3 in 10 people over age 60
- 65% of people with hearing loss are younger than age 65 years

Consequences of UNTREATED Hearing Loss

- Irritability, Negativity, Anger
- Fatigue, Tension, Stress
- Avoidance or Withdrawal
- Social Rejection and Loneliness
- Reduced Alertness
- Impaired Memory (link to dementia)
- Diminished Psychological and Overall Health

Consequences of UNTREATED Hearing Loss–Significant Other

- ◎ More than a third of married adults over age 50 with hearing loss believe their hearing loss has a **negative impact on their marriage.**
 - Asking for repetition
 - Debates on volume of the television
 - Less socialization
 - Reduced attendance to social events

How We Hear

● Four Components

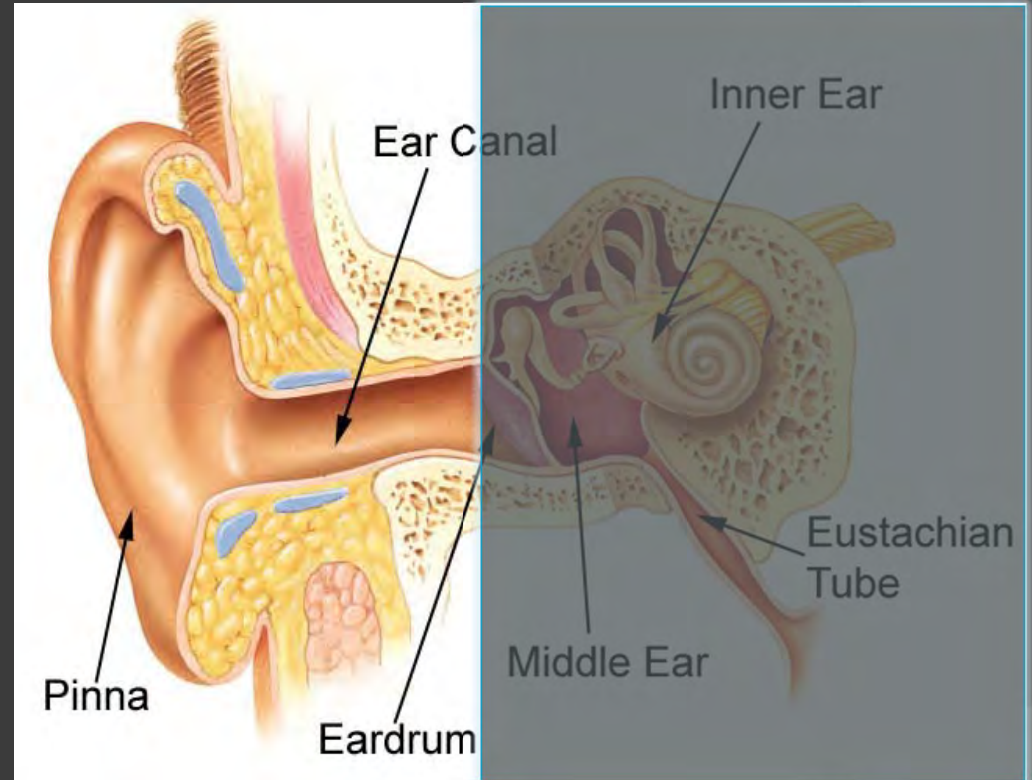
- Outer Ear
- Middle Ear
- Inner Ear
- Central Auditory Pathways



● Hearing loss can occur in any one or more of these areas

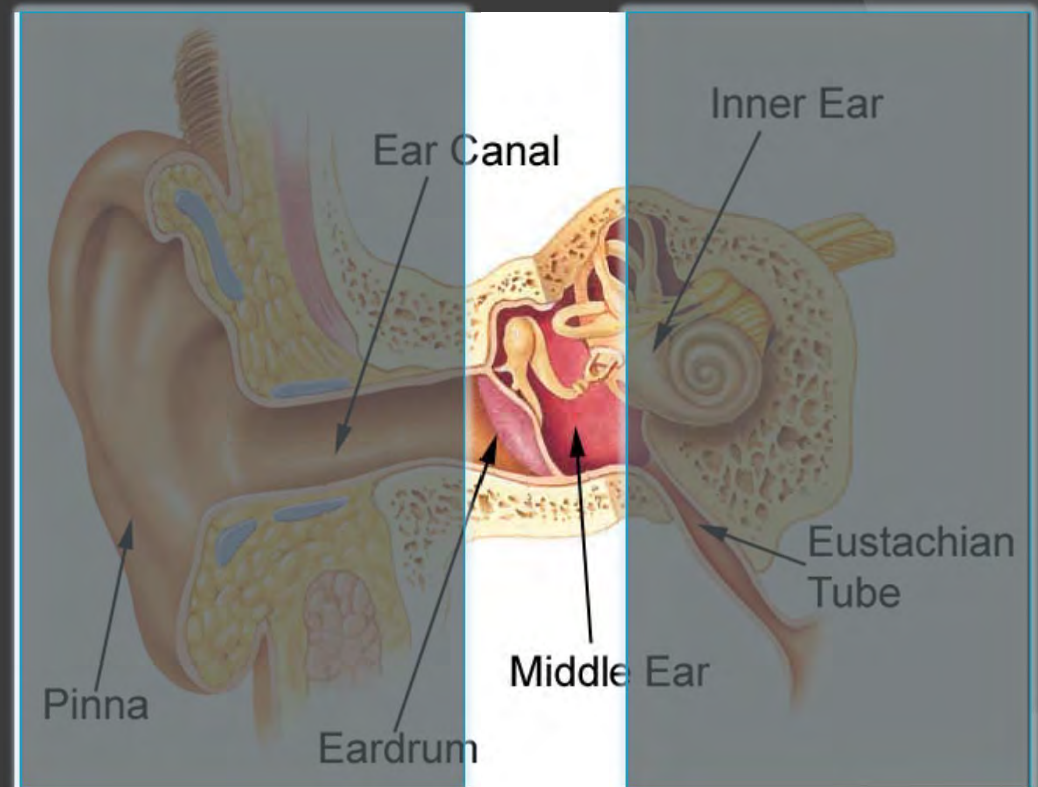
Outer Ear

- Comprised of Pinna (Auricle) and External Auditory Canal
- Purpose is to Collect and Funnel Sound
- 1 inch long in adults
- Purpose of Cerumen (Ear Wax) is to lubricate skin and prevent debris from getting deep into the ear canal
- Hearing Loss causes:
 - Traumatic (i.e. Cauliflower Ear)
 - Congenital (i.e. Atresia)
 - Medical (i.e. External Otitis)



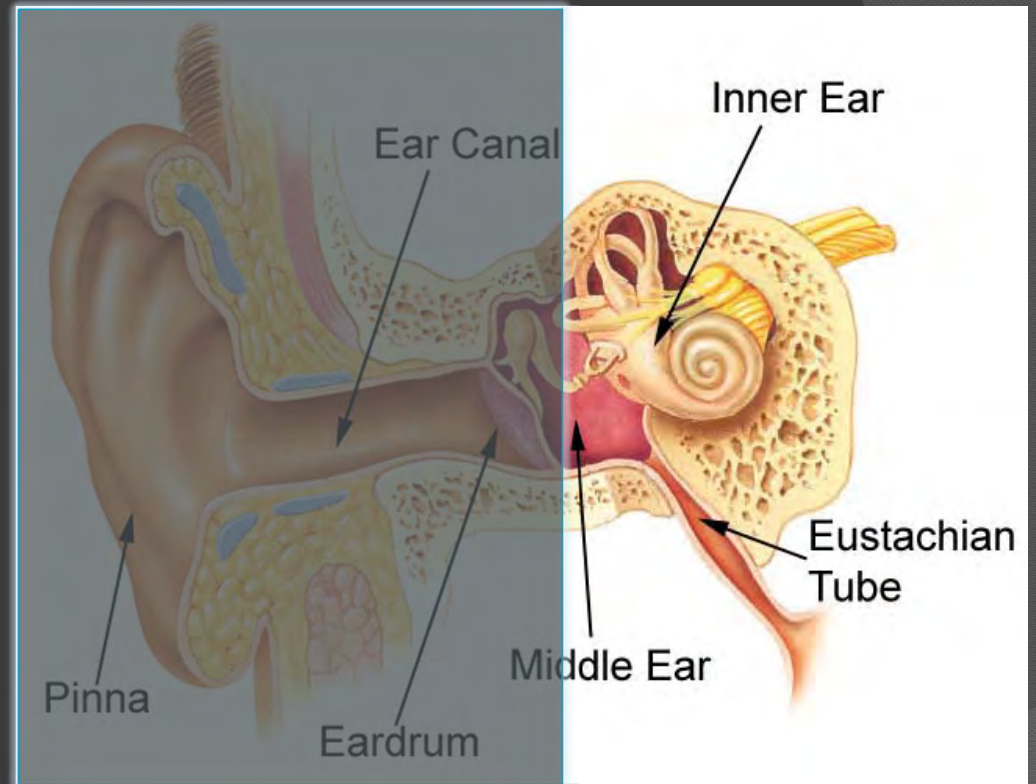
Middle Ear

- Made up of the Tympanic Membrane (Ear Drum) and the ossicles: Malleus (Hammer), Incus (Anvil), and Stapes (Stirrup)
- Transmits sound by vibrating the TM and the ossicles
- Hearing Loss Causes
 - Traumatic (i.e. Ossicular Discontinuity)
 - Congenital (i.e. anatomical abnormality)
 - Medical (i.e. Otosclerosis, Otitis Media)



Inner Ear

- Houses the Hearing and Balance Organ
- Comprised of the fluid filled cochlea and the eighth (auditory) cranial nerve
- Around 15,000 Hair Cells on the Organ of Corti—releases chemicals to nerve
- Hearing Loss Causes and Contributing Factors:
 - Traumatic (i.e. Noise Induced, Ototoxicity)
 - Medical (i.e. Viral, Autoimmune, Diabetes, Acoustic Neuroma)



Central Auditory Pathways

- Complex network of neural pathways
- Responsible for:
 - Sound Localization
 - Understanding Speech in Background Noise
 - Music Perception
- Hearing Loss Causes
 - Central Auditory Processing Problems

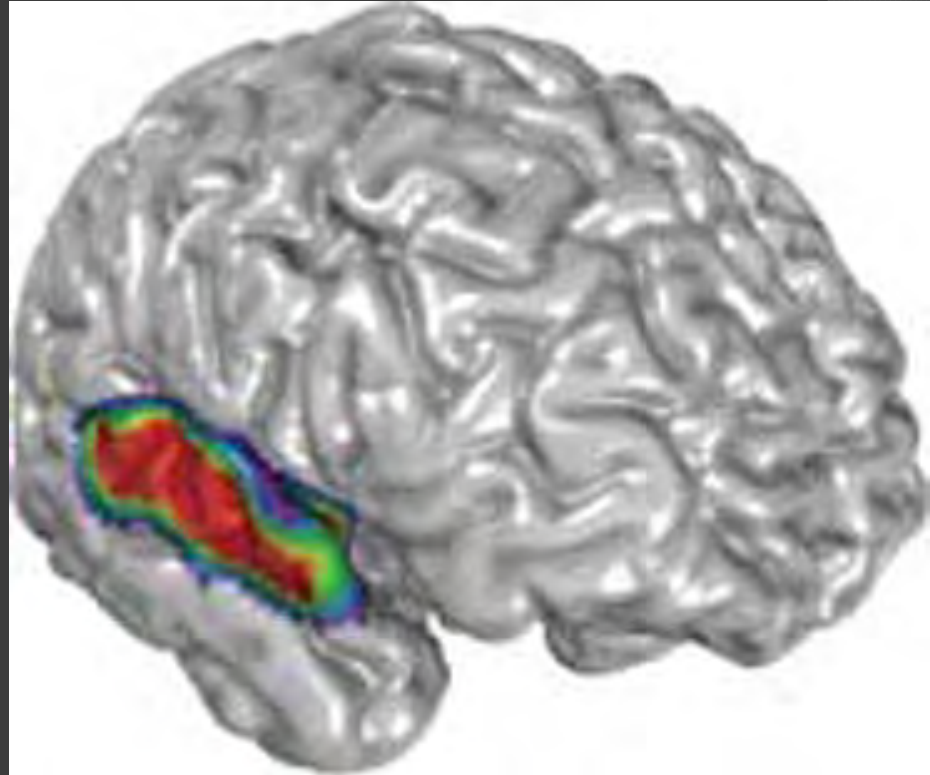


Image taken from <http://www.dana.org/news/brainwork/detail.aspx?id=766>

Two main purposes of the Ear

- ⦿ Conversion of sound energy into neural impulses for the brain to interpret
- ⦿ Conversion of movement of head relative to gravity into neural impulses for the brain to interpret

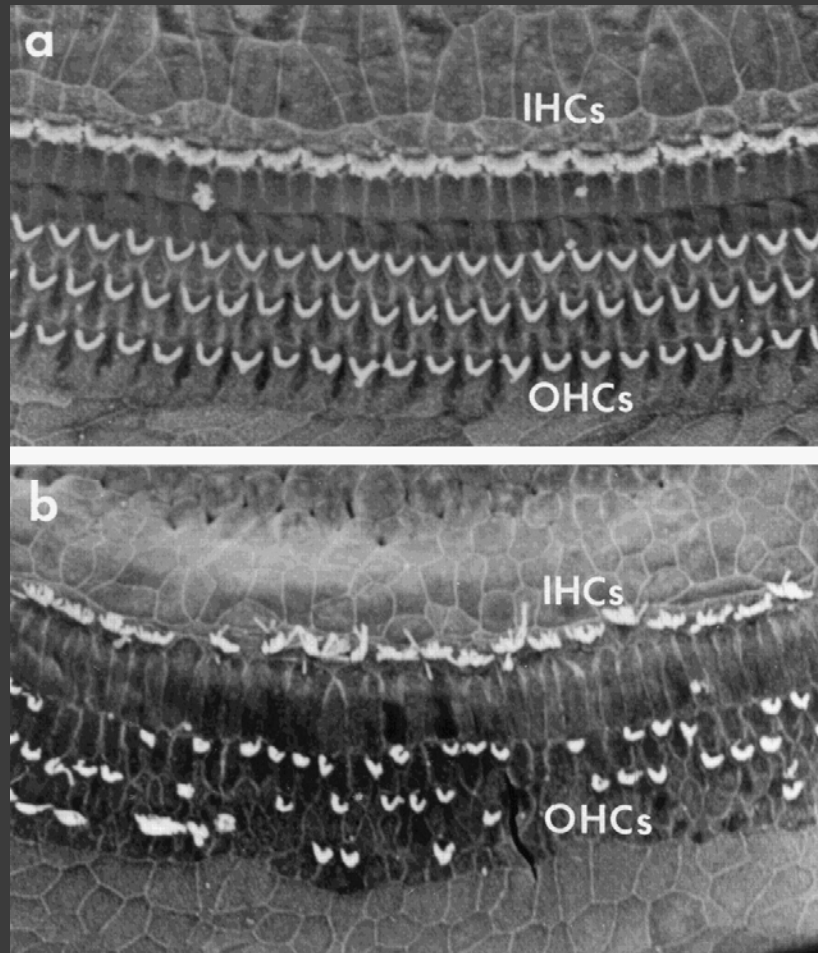
Ototoxicity

- ⦿ Cochleotoxicity and Vestibulotoxicity
- ⦿ Over 200 medications are known to potentially have harmful effects on the ear
 - Aminoglycosides (i.e. streptomycin, gentamicin)
 - Platinum-based chemotherapeutics (i.e. cisplatin, carboplatin)
 - Loop diuretics (i.e. furosemide)
 - Salicylates (i.e. aspirin)
 - Quinine

Risk Factors

- ⦿ Advanced age
- ⦿ Impaired renal function
- ⦿ Genetic susceptibility
- ⦿ Noise exposure
- ⦿ Pre-existing hearing loss
- ⦿ Concurrent administration of another ototoxic drug

Cochleotoxicity



Diagnosis

- ⦿ Diagnosed through routine audiometric monitoring
 - Pure-tone audiometry at 0.125-16 kHz
 - Distortion product otoacoustic emissions
 - Word recognition testing
 - Tympanometry
 - Acoustic reflexes

Ototoxic Monitoring Protocol

Platinum
Derivatives

Cranial
Radiation

Baseline
Assessment

Baseline
Assessment

Carboplatin
Chemotherapy

Cisplatin
Chemotherapy

Post Treatment
Monitoring

Monitor following
every 2-4 cycles

Monitor following
every cycle

High Risk-
monitor every 6
months for 5
years

Low Risk-
monitor annually
for 5 years

Post Treatment
Monitoring- 3,
6, 9, 12 months
then annually

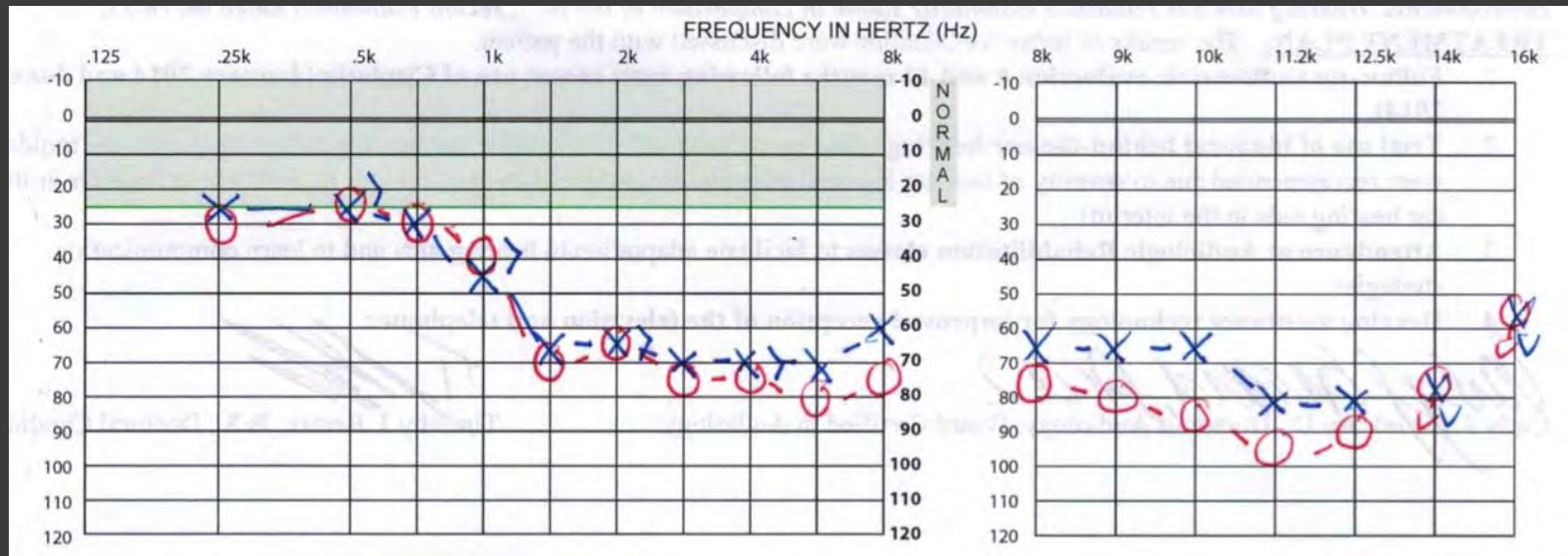
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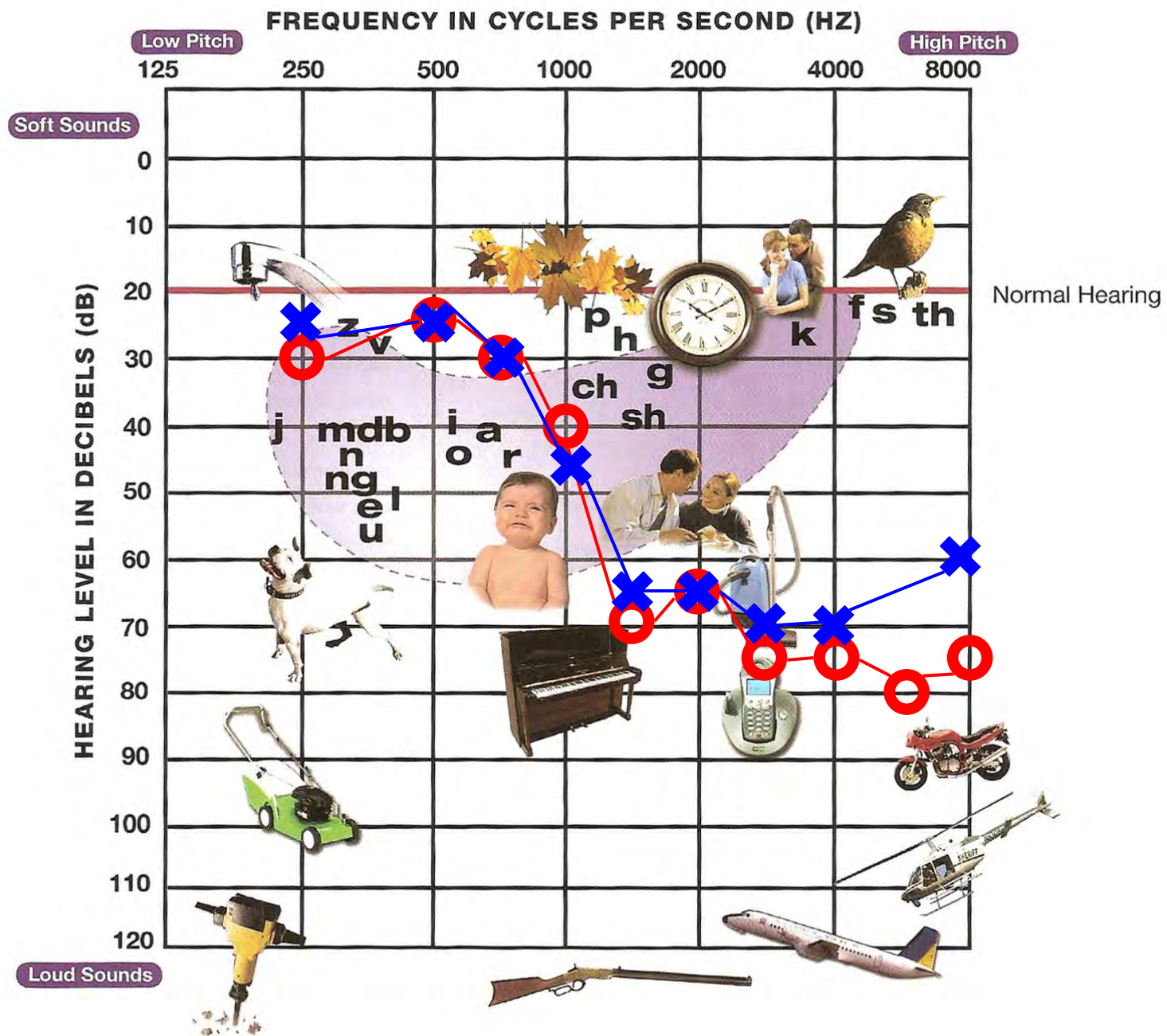
Symptoms

- ⦿ Tinnitus
- ⦿ Aural fullness
- ⦿ Unilateral or bilateral hearing loss
- ⦿ Vertigo or imbalance

Case Study

- 59 year old treated for esophageal cancer
- Treatment began every three weeks with Cisplatin, Herceptin, and Xeloda in Feb 2013
- June 2013 patient noticed difficulty understanding conversation





Prognosis and Treatment

- ⦿ Irreversible vs reversible
- ⦿ Currently no known treatment for ototoxicity apart from withdrawing the ototoxic medication
- ⦿ Under investigation
 - Molecular therapy- use of an otoprotective to block the toxin receptors
 - Intratympanic injections of corticosteroids

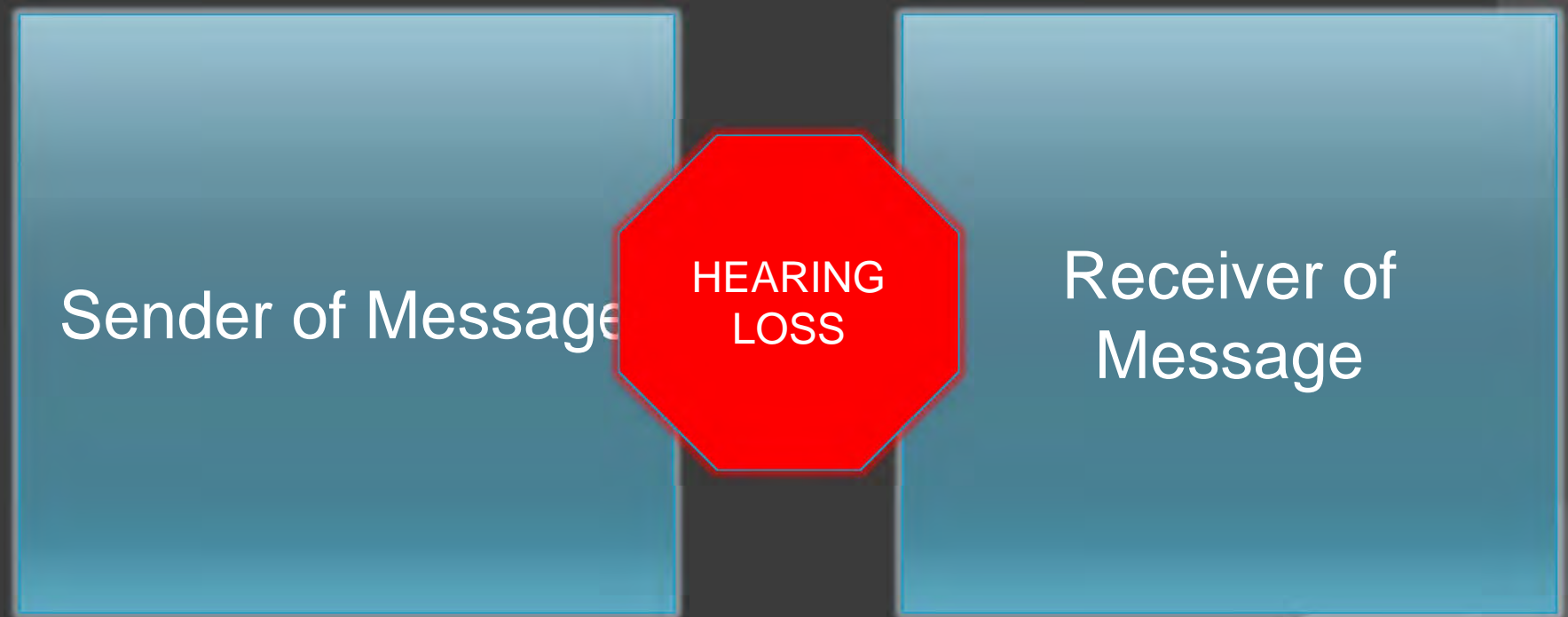
Living Well with Hearing Loss



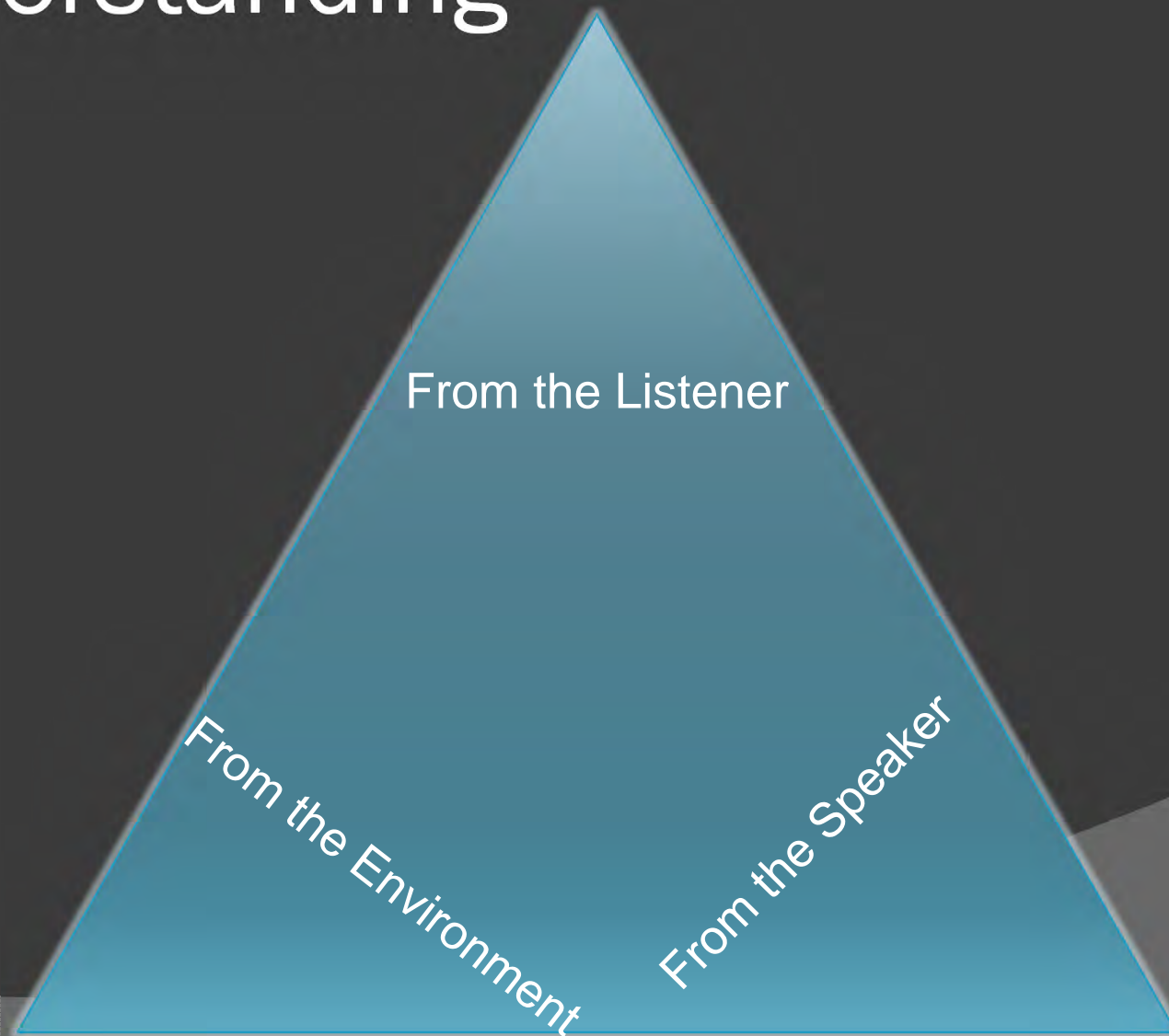
GOOD COMMUNICATION



Communication



Factors That Influence Understanding



Factor that Influence Understanding—Listener

- Level of Hearing Loss
- Type of Hearing Loss
- Use of Hearing Aids
- Attention and Motivation
- Expectations
- Emotional State/Fatigue
- Tinnitus
- Tension Level/Stress
- Vision



Factors that Influence Understanding– Environment

- Background Noise
- Lighting Conditions
- Room Acoustics
- Distance From Speaker
- Assistive Devices
- Use/Readability of Visual Aids
- Interfering Objects
- Angle of Vision



Factors that Influence Understanding– Speaker

- ◉ Voice Intensity
- ◉ Voice Projection
- ◉ Rate of Speech
- ◉ Clarity of Speech
- ◉ Facial Expressions
- ◉ Body Language and Position
- ◉ Accents
- ◉ Beard or Mustache
- ◉ Objects Near Face
- ◉ Interest in Message
- ◉ Relationship to Listener





So What Can You Do?

PERSONAL CONSIDERATIONS

- ⦿ Hearing Loss: Treat and Be Consistent
- ⦿ Vision: Treat and Be Consistent
- ⦿ State of Mind: Alert and Well Rested
- ⦿ Observe
 - Facial expressions and cues
 - Attentive listening skills
 - Context cues
- ⦿ Request Clarification: Ask and Summarize

ENVIRONMENTAL MANAGEMENT

- Room Size: Small Is Better
- Wall and Floor Coverings: Think Soft
- Background Noise: Avoid
- Noise Sources: Turn Off or Move Away
- Lighting: Keep the light on
- Distance: Get Close

SPEAKER CONSIDERATIONS

- Rate of Speech: SLOW DOWN
- Speak Clearly: Don't Overemphasize
- Voice Pitch: Higher is Harder
- Volume: Loud but DON'T YELL
- Facial Expression
- Objects and Head Movements
- Get Attention
- Rephrase

MORE SPEAKER CONSIDERATIONS

- ⦿ State the Topic
- ⦿ Confirm Details
- ⦿ Use Gestures
- ⦿ Move into the Room

Questions?

SOCIAL

Signs of Hearing Loss

- ⦿ Think other people are mumbling or are muffled
- ⦿ Require frequent repetition
- ⦿ Difficulty following conversation involving 2 or more people
- ⦿ Difficulty hearing in noisy situations
- ⦿ Trouble hearing women and children
- ⦿ Trouble hearing unless you can see the speakers face

EMOTIONAL

Signs of Hearing Loss

- ⦿ Feeling annoyed because you have difficulty understanding other people
- ⦿ Feeling embarrassed when meeting new people or when you misunderstand
- ⦿ Feeling anxious about being unable to hear
- ⦿ Withdrawal from social situations