HEARING LOSS AND PRIMARY CARE

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Disclosure

Neither I, nor an immediate family member (parent, sibling, spouse, partner, or child), has any financial relationship with or interest in any commercial interest connected with this presentation

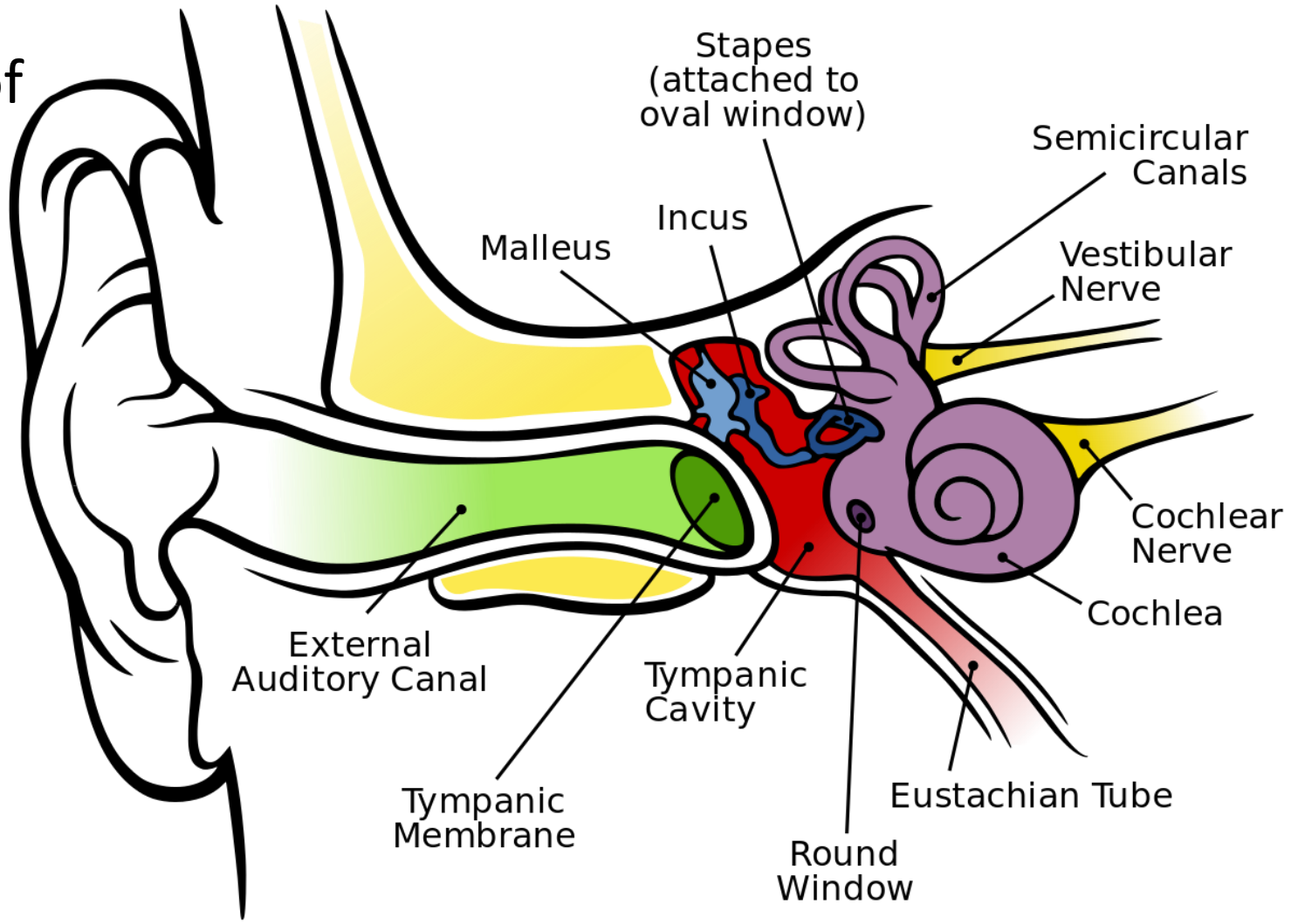
Objectives

- 1. Describe mechanisms of normal hearing and types of hearing loss
- 2. Describe at least 2-3 general effects of hearing loss
- 3. Describe relationship between hearing loss and cognition
- 4. Describe prevalence of hearing loss
- 5. Suggest guidelines for addressing hearing loss in primary care settings

Anatomy of the ear

The ear is made up of three parts:

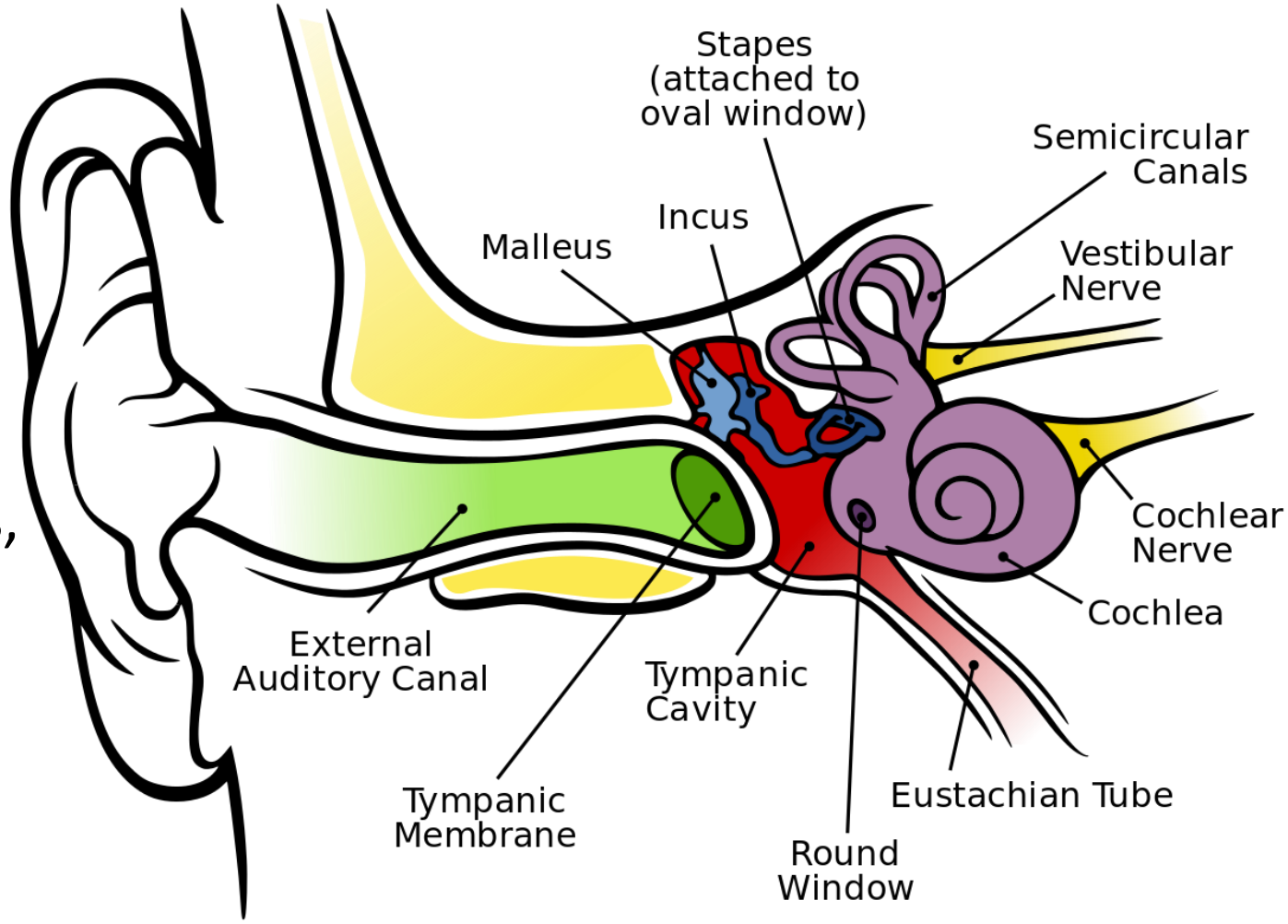
- Outer ear
- Middle ear
- Inner ear



Anatomy of the ear

Passive and Active Hearing Mechanisms

- Passive Structures react to sound waves – pinna, tympanic membranes, ossicles
- Active Structures move and fire spontaneously – outer hair cells, auditory nerve fibers

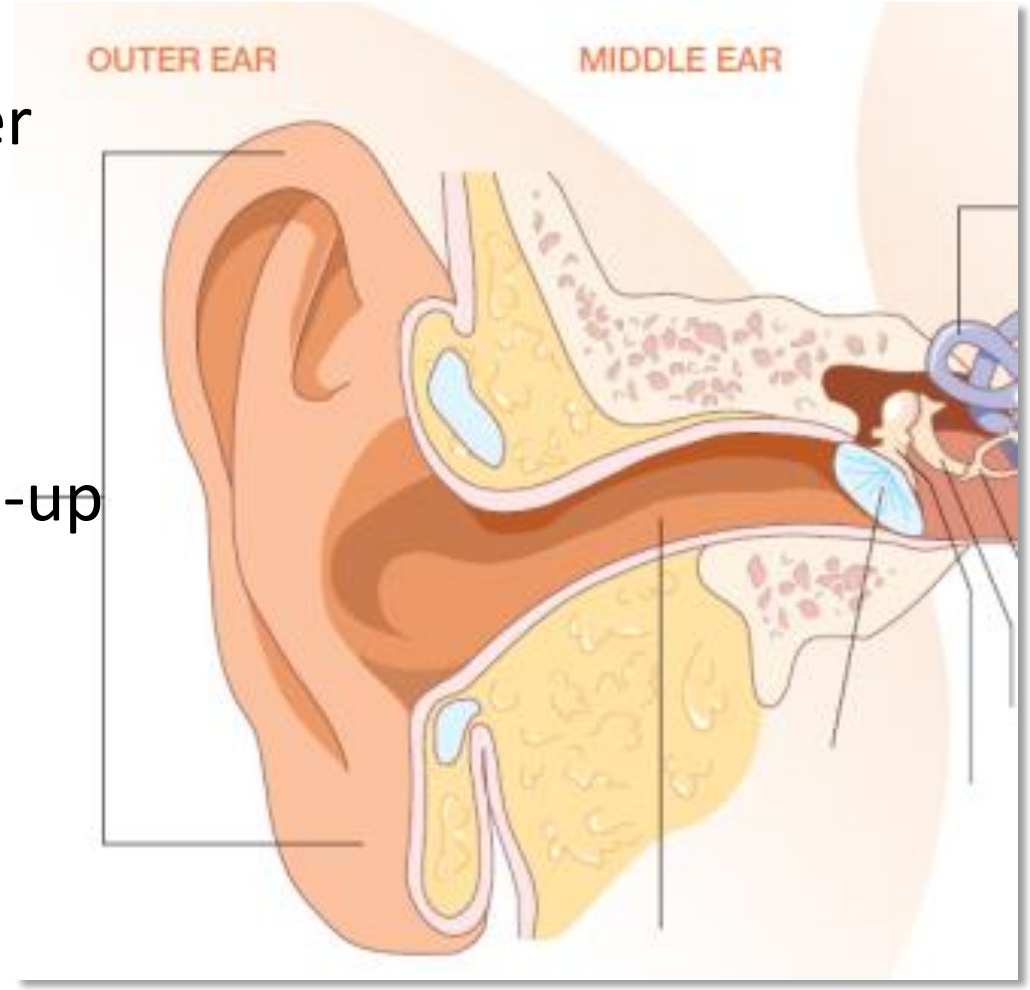


Hearing loss

- Conductive hearing loss
- Sensorineural hearing loss
- Mixed hearing loss

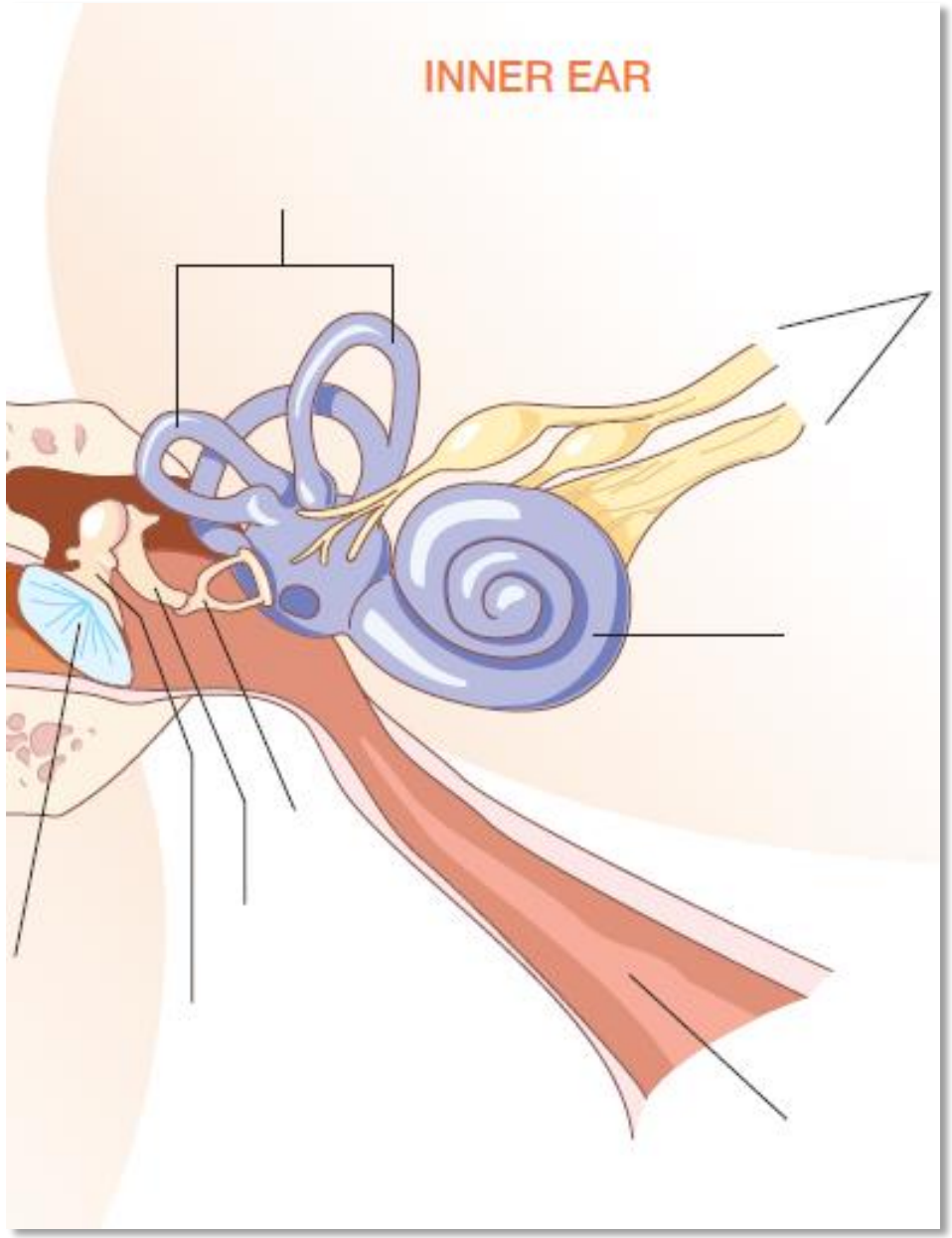
Conductive Hearing Loss

- Blockage of sound in the outer or middle ear
- Possible Causes:
  - Excessive earwax
  - Ear infection or fluid build-up in the middle ear cavity
  - Ossicular disruption
- Often medically treatable

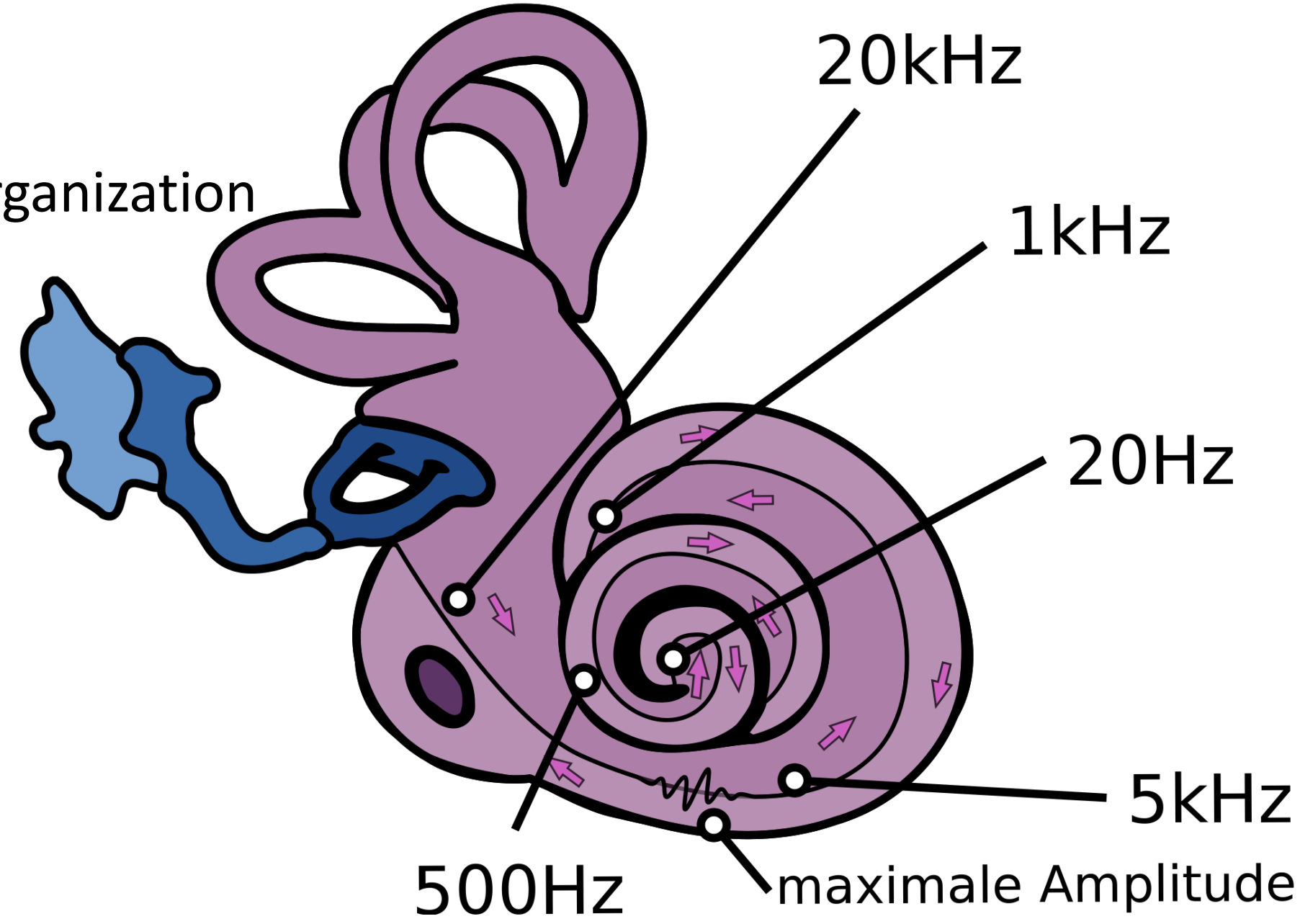


Sensorineural Hearing Loss

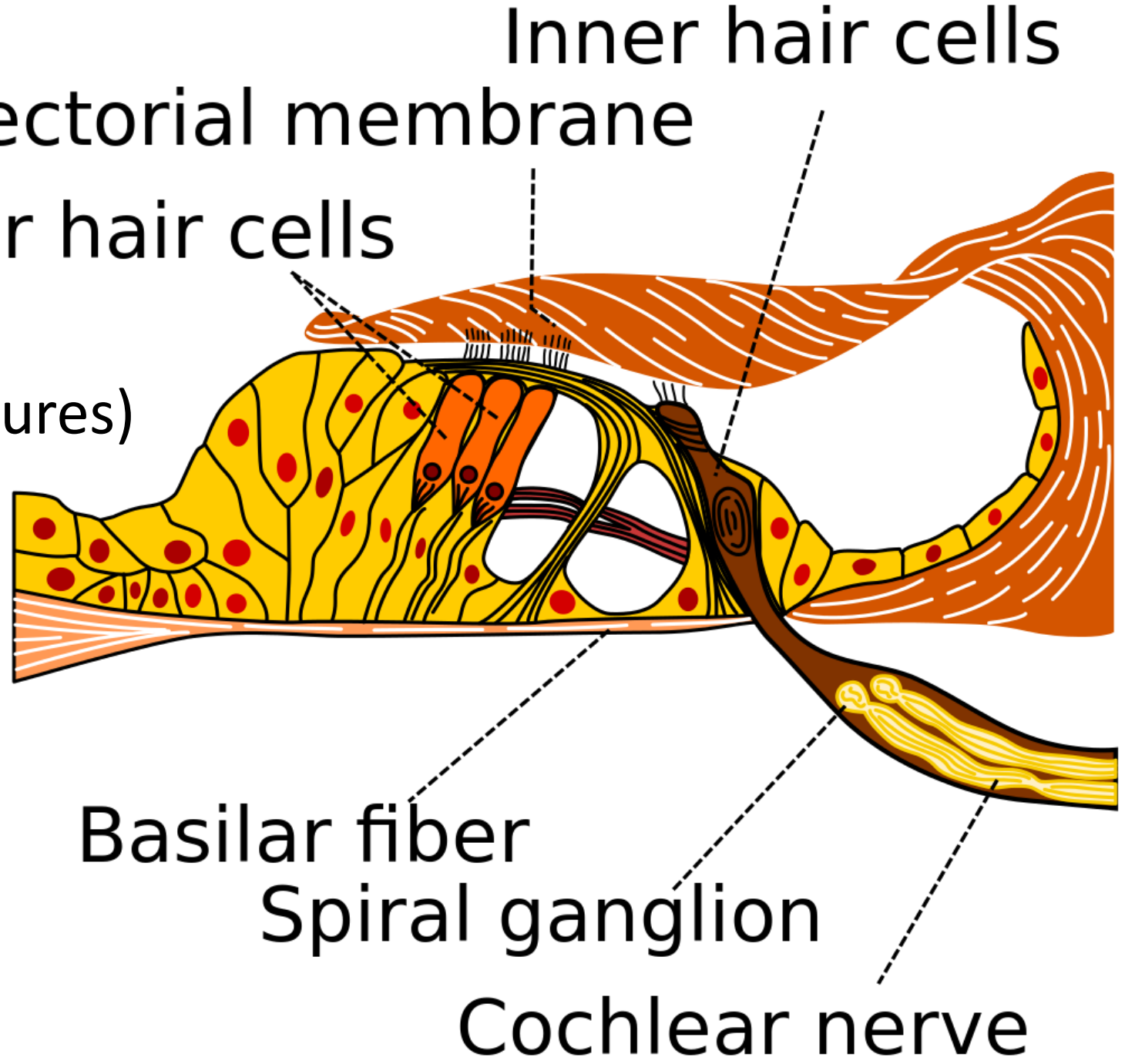
- Damage to either the sensory cells of the inner ear and/or the hearing nerve
- Main Causes:
  - Noise exposure
  - Aging
  - Hereditary factors
- Permanent hearing loss that cannot be medically corrected with surgery or medication



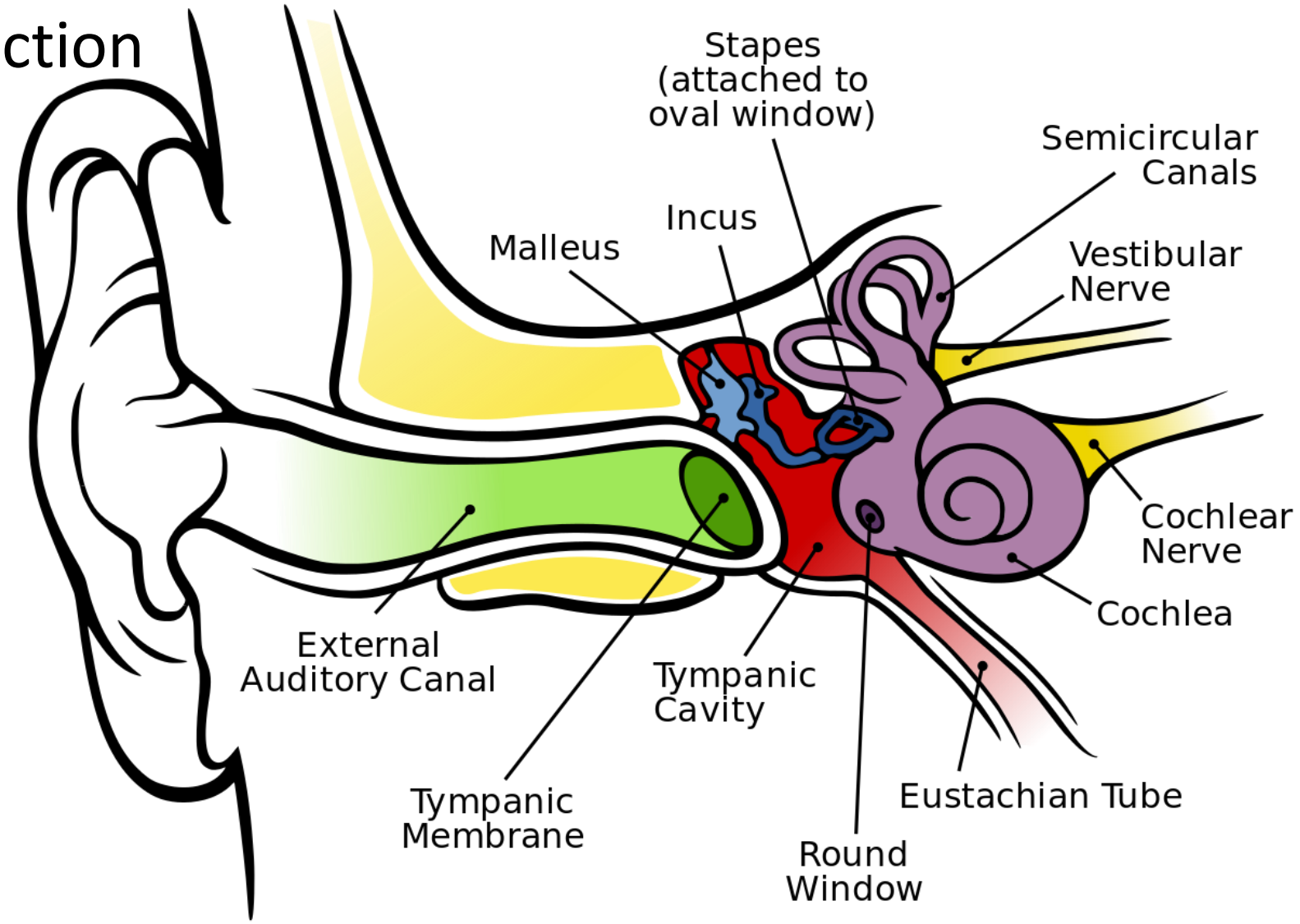
- The Cochlea
  - Tonotopic organization



- The Cochlea
  - Hair Cells (active structures)

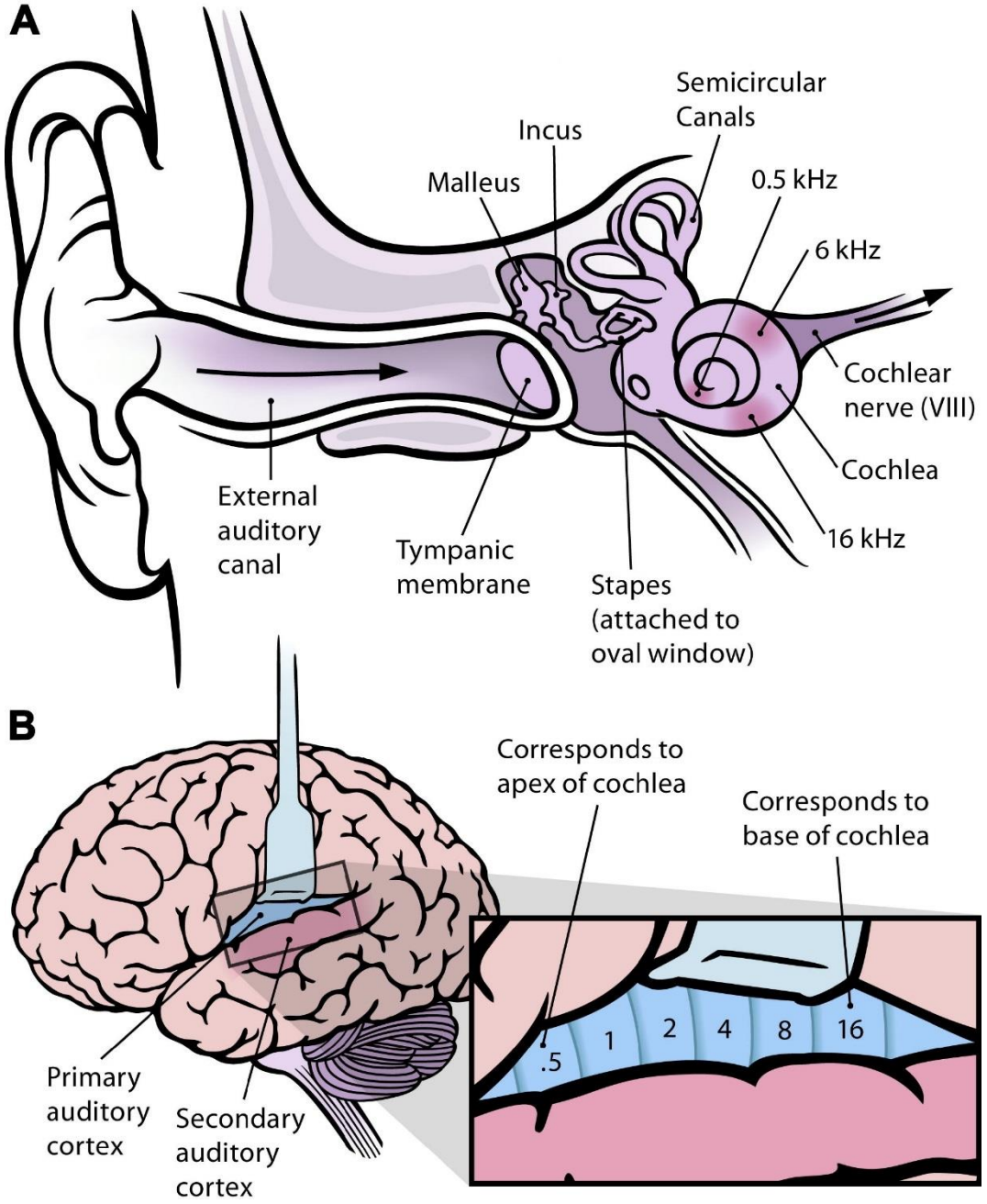


- The Cochlea
  - Nerve Conduction



Central Auditory Pathway

- Nerve Pathways
- Neural Stimulation
- Central Stimulation



EFFECTS OF HEARING LOSS
SOCIAL & EMOTIONAL

EFFECTS OF HEARING LOSS SOCIAL AND EMOTIONAL

- Impaired audibility
- Impaired temporal resolution
- Impaired spectral resolution
- Frustration in communication
- Increased effort of listening
- Social isolation
- Decline in overall quality of life
- Reduced performance and earnings in workplace

EFFECTS OF HEARING LOSS MECHANISMS OF ASSOCIATION

- Reduced quality of life/ quality of communication
- Frustration
- Gradual social isolation

EFFECTS OF HEARING LOSS OVERALL HEALTH

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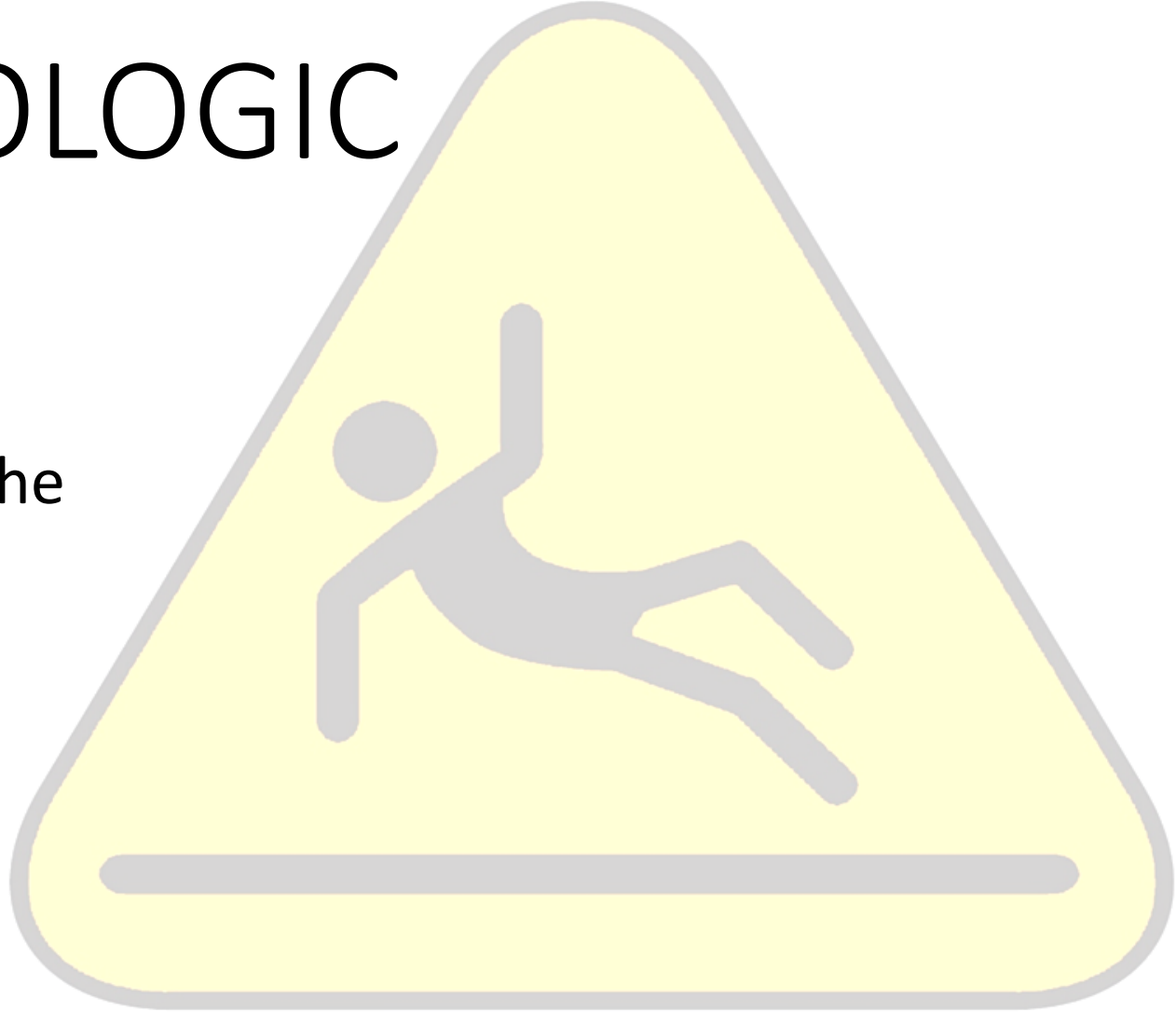
- Increased risk of dementia/cognitive decline
- Increased risk of falls and injuries related to falls
- Increased risk of depression

EFFECTS OF HEARING LOSS PHYSIOLOGIC

- Auditory deprivation
- Reduced environmental awareness
- Reduced and/or distorted input to the brain
- Cognitive load/ listening effort



HEARING LOSS & COGNITIVE DECLINE

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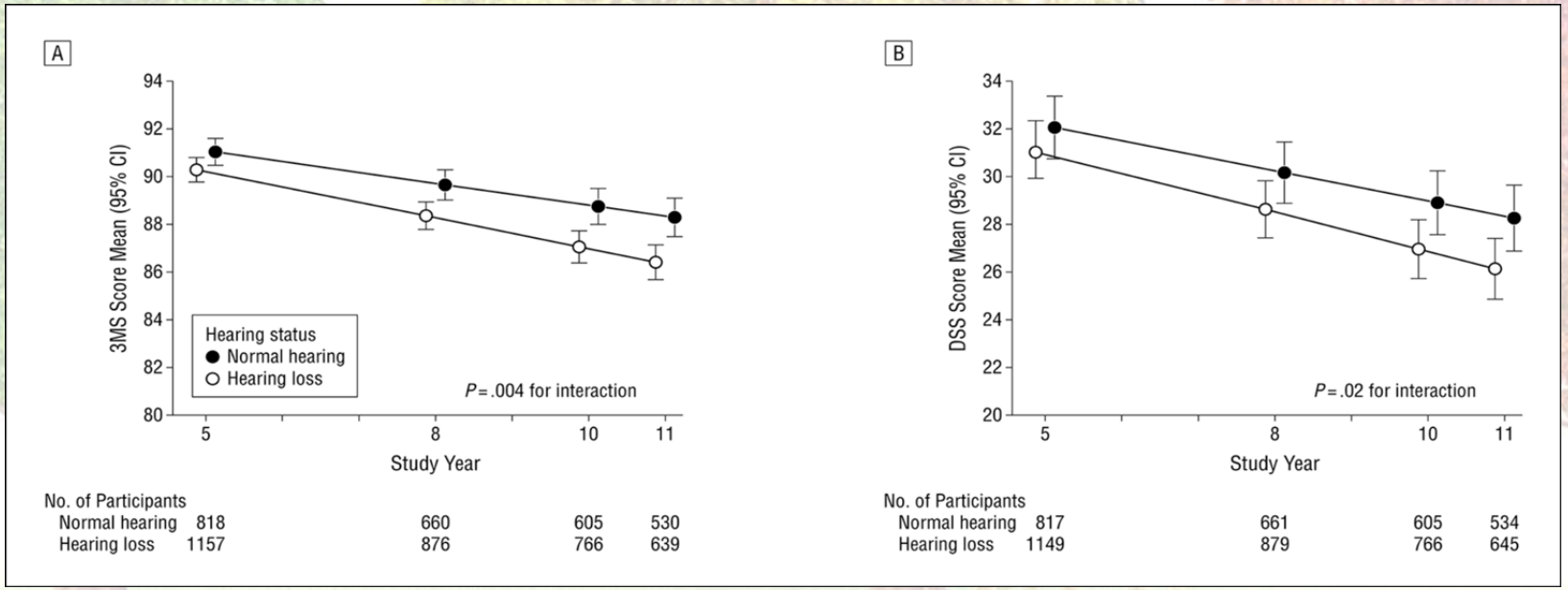
- Dementia has been identified as a major public health concern for coming years in the US
- Hearing loss is independently associated with accelerated cognitive decline
- Among older adults, mild, moderate, and severe hearing loss increases risk of dementia by 2,3,& 5 times, respectively

HEARING LOSS & COGNITIVE DECLINE

HL is independently associated with dementia, and the likelihood of dementia increases with the severity of HL. The exact nature of the association has not been established firmly. Adults with hearing loss decline by 5 points on the 3MS in 7.7 years compared to 10.9 years in normal hearing adults.



JAMA Intern Med. 2013;173(4):293-299. doi:10.1001/jamainternmed.2013.1868 Hearing Loss and Cognitive Decline in Older Adults

HEARING AIDS

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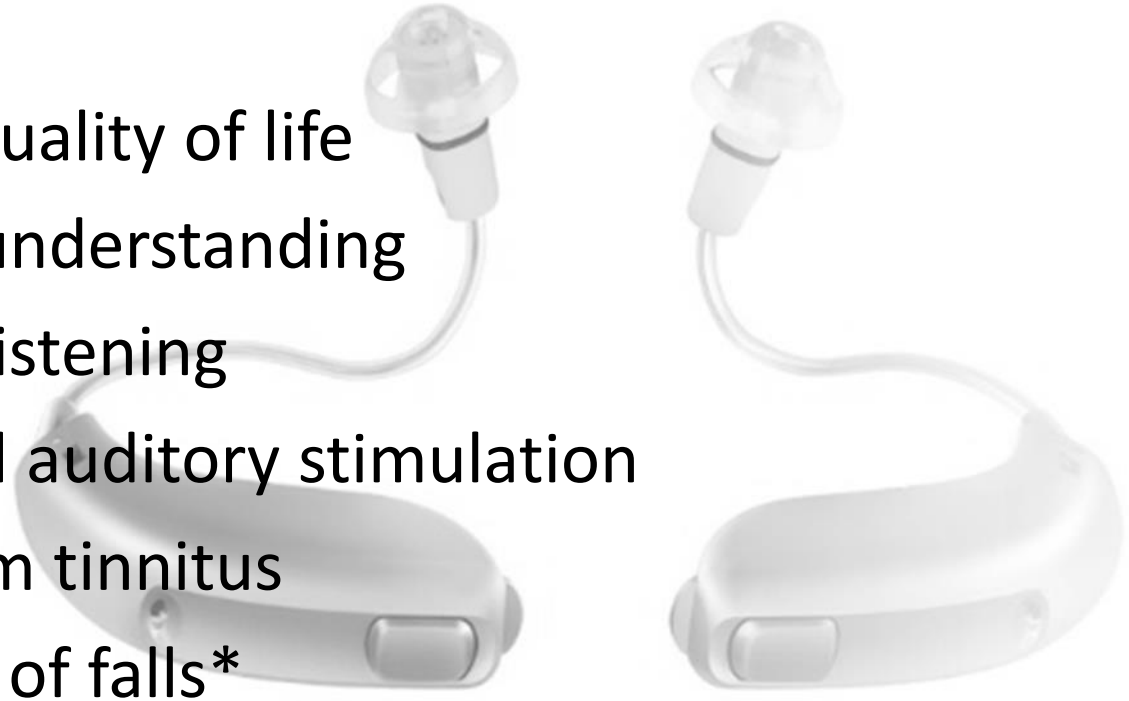
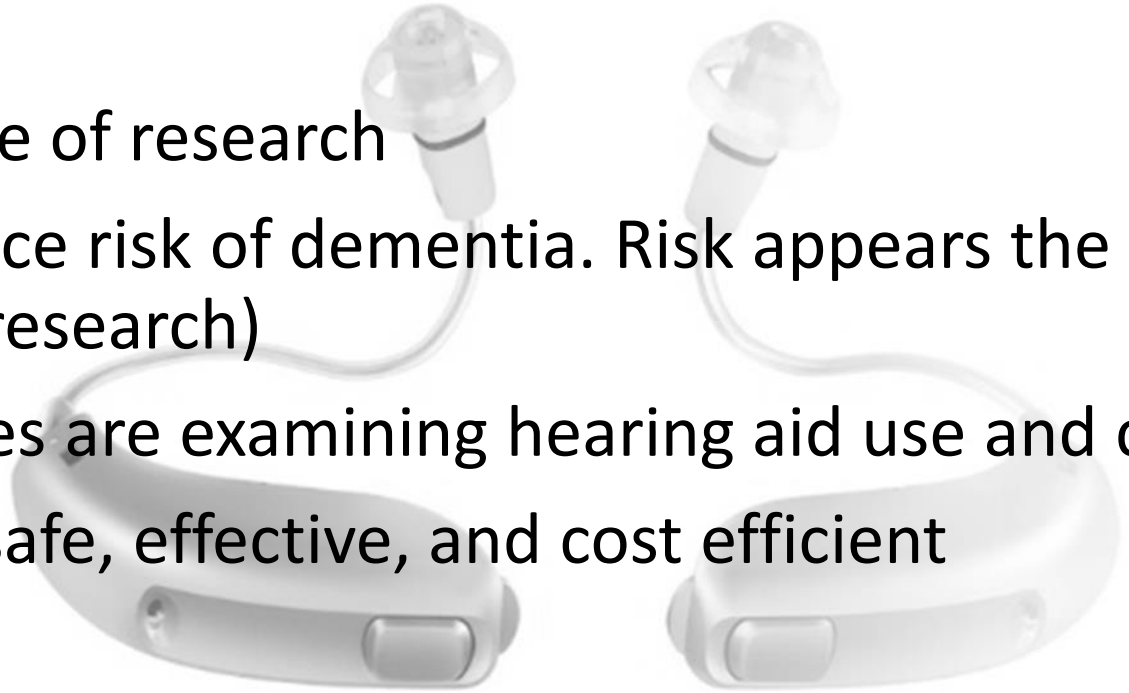


- Improve overall quality of life
- Improve speech understanding
- Improve ease of listening
- Provide increased auditory stimulation
- Provide relief from tinnitus
- Decrease the risk of falls*
- Decrease the risk of dementia*

HEARING AIDS & COGNITION



- Relatively new line of research
- Hearing aids reduce risk of dementia. Risk appears the same as normal hearing (Amieva research)
- Many small studies are examining hearing aid use and cognition
- Hearing aids are safe, effective, and cost efficient

TRADITIONAL & EXTENDED WEAR HEARING AIDS

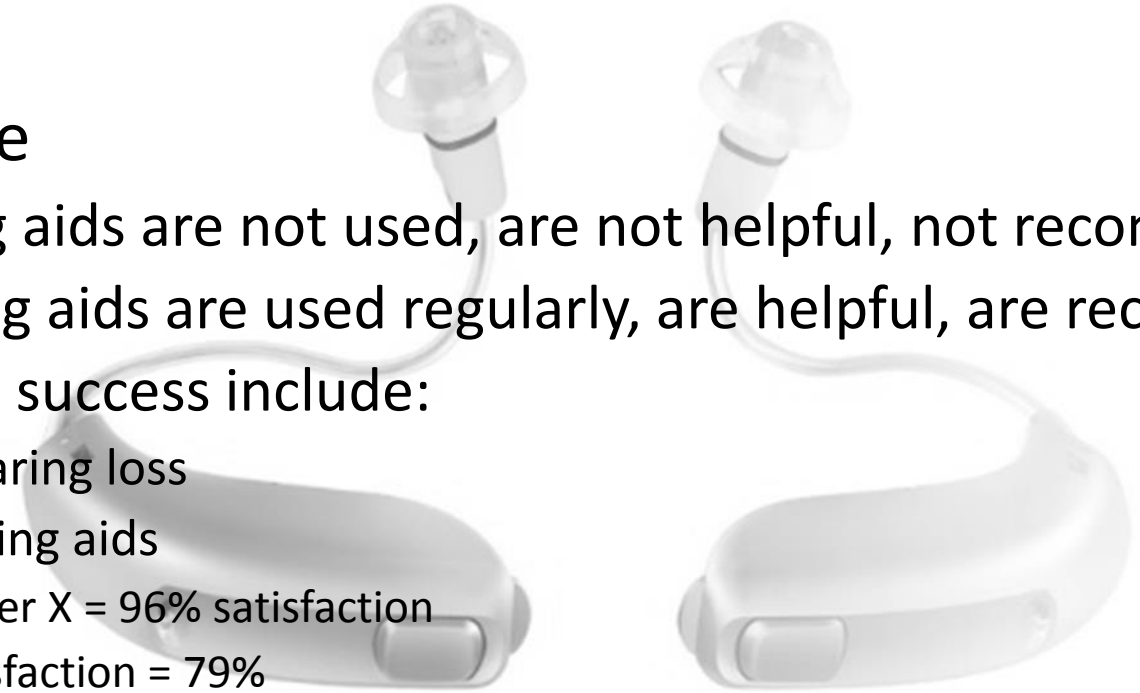
TRADITIONAL

- Daily-wear devices
- Patient inserts/removes
- Highest technologies

EXTENDED WEAR

- Lyric hearing aids
- Placed by audiologist in-office
- Worn 24 hours a day.
- No battery replacement

DO HEARING AIDS WORK?



- Success vs. Failure
  - Failure = hearing aids are not used, are not helpful, not recommended
  - Success = hearing aids are used regularly, are helpful, are recommended
  - Factors affecting success include:
    - Duration of hearing loss
    - Quality of hearing aids
      - Manufacturer X = 96% satisfaction
      - Overall satisfaction = 79%
    - Quality/expertise of hearing care
    - Collaboration of care

PUBLIC HEALTH IMPLICATIONS

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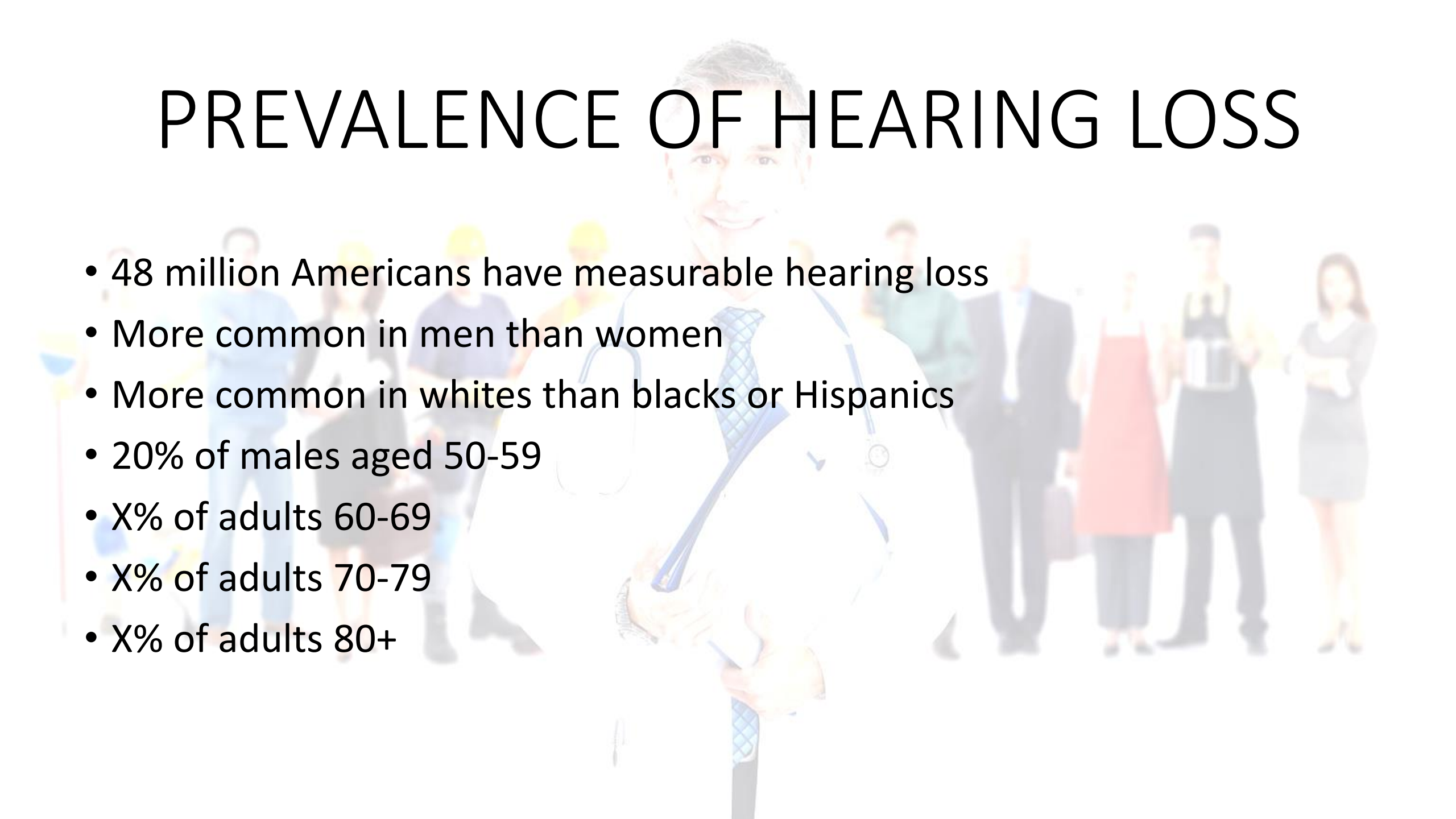
- Cognitive health is a major concern for an aging population
- Hearing loss affects tens of millions of American adults but is largely ignored in primary care offices
- The pathway of hearing loss treatment is obscure for most primary care providers
- Collaboration among audiologists and primary care providers is essential to identify and meet the needs of millions of Americans with hearing loss

PREVALENCE OF HEARING LOSS



- 48 million Americans have measurable hearing loss
- More common in men than women
- More common in whites than blacks or Hispanics
- 20% of males aged 50-59
- X% of adults 60-69
- X% of adults 70-79
- X% of adults 80+

HEARING LOSS FOR PRIMARY CARE

SUGGESTED GUIDELINES:

- Hearing loss and tinnitus questions at intake
- Recommend full hearing evaluation at age 50
- Standardized questionnaire for screening/Medicare exams (HHIE-S)
- In-office screening and testing
- Referrals to audiology
- Maintain oversight of ears and hearing loss

OUR CHALLENGE

- Hearing loss is a quiet condition that occurs gradually.
- Individuals with hearing loss often deny or minimize the condition
- Hearing aids are a solution nobody wants for a problem nobody wants to admit
- We have the opportunity to significantly improve our patients' quality of life and overall health through collaboration with audiology services

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