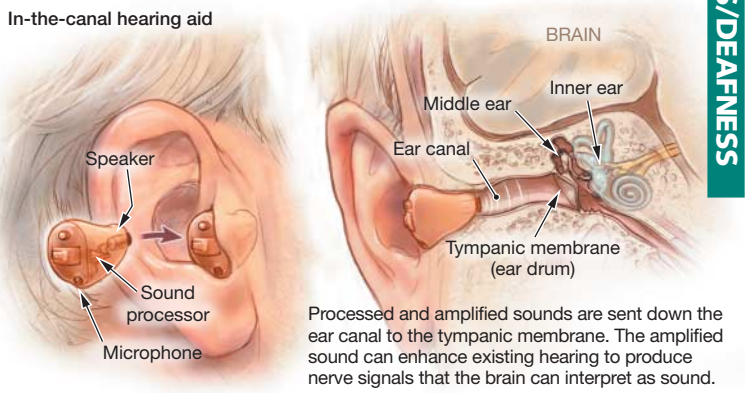
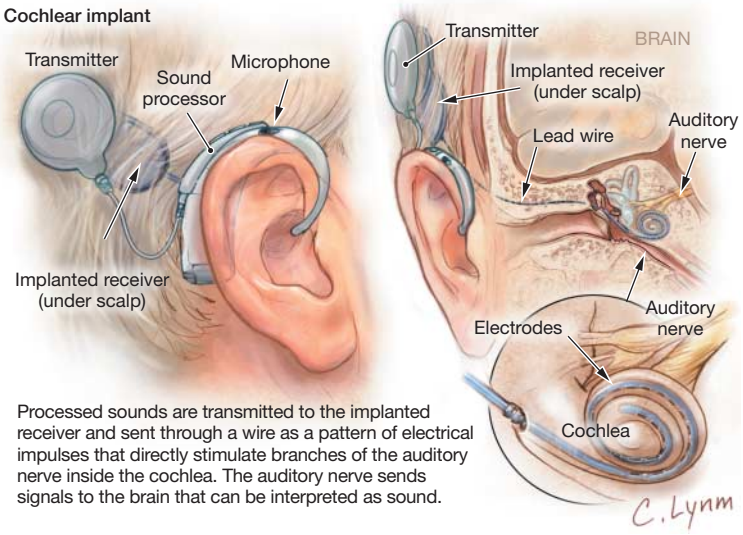
Adult Hearing Loss

As adults age, they can develop hearing loss, which can be partial (**hearing impairment**) or complete (**deafness**). **Conductive** hearing loss is caused by obstruction of or mechanical damage to the outer or middle ear. **Sensorineural** hearing loss is usually permanent and is caused by damage to the **auditory nerve** (a nerve that relays hearing information to the brain) or the inner ear. **Presbycusis** refers to age-associated sensorineural hearing loss and is the most common cause of hearing loss in older adults. In 2008, 31% of Americans older than 65 years had presbycusis and 70% older than 85 years had presbycusis. Risk factors for hearing loss include chronic exposure to loud machinery or music, chronic ear infections, increasing age, and **genetic predisposition** (passed on from parents to children).



Processed and amplified sounds are sent down the ear canal to the tympanic membrane. The amplified sound can enhance existing hearing to produce nerve signals that the brain can interpret as sound.



Processed sounds are transmitted to the implanted receiver and sent through a wire as a pattern of electrical impulses that directly stimulate branches of the auditory nerve inside the cochlea. The auditory nerve sends signals to the brain that can be interpreted as sound.

SYMPTOMS AND EVALUATION

People may have hearing loss if they

- Cannot hear someone talking close by.
- Have a hard time hearing conversations in crowds.
- Need to listen to the television at louder volumes than everyone else in the room.
- Complain of ringing in their ears.
- Frequently ask others to repeat what they just said.

When patients present with hearing loss, their doctors may

- Examine both ears to rule out problems that could lead to conductive hearing deficits, such as ear wax, ear infections, or **perforated** (torn) eardrums.
- Refer them to **otolaryngologists**, doctors who specialize in care of the ears, nose, and throat.
- Refer them to **audiologists**, who perform hearing tests and fit hearing aids.

If these evaluations have normal results or patients have other symptoms in addition to hearing loss, doctors may request a computed tomography (CT) scan or magnetic resonance imaging (MRI).

TREATMENT

Once hearing loss is diagnosed, the evaluation by an audiologist or otolaryngologist will help determine what treatment is best.

- Surgery can be used to correct conductive causes of hearing loss.
- **Hearing aids** can be used to treat partial sensorineural hearing loss. Hearing aids are small devices that fit inside or behind ears. They pick up sounds and amplify them to make them louder to the eardrum.
- **Cochlear implants** are usually used by people with severe or complete hearing loss. These devices are inserted surgically into the inner ear and electrically stimulate the auditory nerve.

Sources: Mayo Clinic, Cleveland Clinic

FOR MORE INFORMATION

- National Institute on Deafness and Other Communication Disorders www.nidcd.nih.gov/health/hearing/pages/presbycusis.aspx
- Mayo Clinic www.mayoclinic.com/health/hearing-loss/DS00172

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