

Hearing loss is a term that refers to many conditions. While the result may be difficulty hearing, the cause can vary widely. This infographic explains the **four types of hearing loss**, how they are caused, and what can be done to treat them.

To help manage your hearing loss, your audiologist will determine the cause of your case.

A. CONDUCTION HEARING LOSS

(CHL) is a condition in which sounds cannot penetrate the ear canal, eardrum, or middle ear (the malleus, incus, and stapes).

CHL can be caused by many factors including:

- A malformed outer ear, ear canal, or middle ear structure
- Fluid in the middle ear due to a cold
- Ear infection
- The ear is blocked with earwax or a foreign object is lodged in the ear
- Allergic reactions
- Perforated eardrums
- Benign tumors

There are several ways to treat CHL depending on its cause.

- If the hearing nerve is healthy, amplification may be accomplished by either a conventional hearing aid, a bone-conduction hearing aid or a surgically implanted hearing device.
- Antibiotic or antifungal medications are used to treat CHL caused by colds, infections, or other causes of middle-ear fluid buildup.
- It is sometimes possible to surgically implant ear tubes to assist in draining excess fluid.

A congenital lack of the ear canal or failure to have an open ear canal at birth, or malformed or dysfunctional middle ear structures (e.g. from a head injury) can be corrected with surgery. Tumors usually require surgery, as well.

B. SENSORINEURAL HEARING LOSS (SHL)

When there is a problem with the inner ear or the hearing nerve, hearing loss can occur. Here are a few examples of the conditions that can cause SHL:

- Malformations of the inner ear
- Ménière's disease
- Otosclerosis (abnormal growth of the tiny bones in the ear)
- Tumors
- Exposure to loud noise
- Aging (presbycusis)
- Head trauma
- Virus, autoimmune or other diseases
- Heredity
- Side effects due to certain medications, also referred to as ototoxic medications

What are the treatment options?

Various types of treatments exist for SHL, including:

- Corticosteroids are often used to treat viral-induced SHL and SHL caused by cochlea hair cell swelling and sudden inflammation after loud noise injury. Among other possible drugs, these are often prescribed to patients with auto-immune diseases affecting the inner ear. An emergency surgery may be necessary if the inner ear fluid leaks due to head trauma
- For those suffering from Ménière's disease, treatment is usually handled medically with low-sodium diets, diuretics and corticosteroids. Surgery is often a last result
- When SHL is determined to be irreversible, treatment recommendations include hearing aids or possibly cochlear implants

C. MIXED HEARING LOSS

Hearing loss that includes both CHL and SHL. Different causes for CHL and SHL can be present at the same time – for example, someone who works around loud noises who also has Ménière's disease may have Mixed Hearing Loss.

How is it treated?

Audiologists generally recommend treating the conductive component first. "There have been times when the addition of the conductive component made the person a better hearing aid candidate, by flattening out the audiogram for example, while the underlying sensorineural component presented a high-frequency loss

D. AUDITORY NEUROPATHY

Hearing loss that occurs when sound enters the ear normally, but because of damage to the inner ear or the hearing nerve, sound isn't organized in a way that the brain can understand.

In some cases, the cause may involve damage to the specialized sensory cells in the inner ear that transmit information about sounds through the nervous system to the brain. In other cases, the cause may involve damage to the auditory neurons that transmit sound information from the inner hair cells to the brain. These may be hereditary or the result of other neurological disorders as well.

How is it treated?

Researchers are still working to develop treatments for Auditory Neuropathy Management remains challenging and is frequently tailored case-by-case. It is based on bottom-up (auditory skills restoration by hearing aids) and top-down procedures (hearing and speech training). Generally, a multidisciplinary approach is favored. Once the full workup is completed, two main therapeutic options may be offered. The first relies on maximizing signal to noise ratio to improve listening in noise (such as an FM listening device). The second consists of sound amplification through conventional hearing aids or cochlear implant.