**Deafness 101**

This module begins by analyzing how hearing is testing and measure. Problems with hearing and listening skills can occur at any point along the hearing pathway. Problems in different anatomical structures or location will cause different types of hearing loss. Oral language is the basis of our written language and therefore skills in this area directly impact reading abilities. This module will discuss how hearing loss can impact the development of spoken language, speech and reading and the effect of hearing low on accessing instruction.

Many people experience a conductive hearing loss at some point in their lifetime. Ear wax buildup or infection may cause conductive hearing loss. Some conductive problems are temporary while others are permanent.

A conductive hearing loss results from some form of blockage that prohibits the sound wave from moving through the outer and middle ear systems. Some examples of TEMPORARY conductive hearing loss problems are:

**External Otitis**

* More commonly called “swimmer’s ear”
* Can be caused by fungus or other organisms growing in the ear canal

**Otitis Media (Picture on left)**

* Fluid in the normally air-filled media ear
* Very common in infants, pre-school and younger elementary-aged children
* Fluid can become infected causing pain, rupture of the ear drum and significant hearing loss

**Perforated Ear Drum (Picture on right)**

* May or may not be associated with an ear infection
* Often heal on their own
* Surgery sometimes necessary

**Ear Wax Blockage**

The following permanent hearing problems occur as the fetus is developing in the womb and result in congenital hearing problems; that is, problems that are present at birth.

* **Atresia** refers to the lack of an ear canal opening.
* **Microtia** refers to an absent or partially formed pinna. The pictures show a pinna that is microtic with atresia.
* **Stenotic ear canals** are very narrow and sometimes are too small to allow for the sound wave to reach the ear drum.
* **Middle ear bones** can also be malformed or fused together. They can be dislocated through a severe trauma to the head.

# Sensory Hearing Loss

The second type of hearing loss is sensory hearing loss. **Sensory loss occurs when there is damage or malformation in the inner ear or cochlea.** With a sensory loss, loudness is not the only problem-clarity is compromised. While technology is able to make sound louder, it is not always successful at restoring clarity. Sensory hearing loss can cause a limitation of the range for comfortable hearing:

* Soft sounds are missing
* Loud sounds become uncomfortably loud very quickly

# Neural Hearing Loss

A third type of hearing loss is neural hearing loss. Neural hearing loss result in a loss of loudness and a severe loss of clarity. Speech sounds might be perceived as buzzing or clicking noises and understanding abilities can fluctuate dramatically from day to day.

### Neural hearing loss occurs when the auditory nerve is not sending a clear signal to the brain or the connection between the sensory cells and the nerve is not working well.

# Central Hearing Loss

The fourth type of hearing loss is central hearing loss. A central hearing loss occurs when there is a problem in
the lower brain or the auditory areas of the cortex that limits its ability to process the information. This results in difficulties with auditory memory and listening in the presence of competing background noise. PET Scans show that auditory regions of the brain are largely located in the temporal area.

# The Audiologist

The job of the audiologist is to identify and determine the possible problems that a hearing loss might create. Their role extends to recommending hearing technology and habilitative or rehabilitative interventions that allow the child to reach his/her maximum potential. They are key members of the hearing health team and the educational team. The hearing system can be tested at any age. A variety of hearing tests are available to identify and define the degree and type of hearing loss that a child is experiencing.

The audiologist will:

* Identify and measure the severity of hearing loss
* Provide speech perception information
* Recommend and fit hearing technology

In addition to measuring the person’s ability to detect these different frequencies in both ears, the audiologist will usually measure the person’s ability to understand speech in quiet and sometimes in the presence of background noise.

Hearing Loss that is present before language is developed can negatively impact:

* Language skills
* Reading skills
* Comprehension
* Academic success

## Unless there is early and effective intervention!