



A Client Care Module: Understanding Hearing Disorders

Instructions for the Learner

What will you learn?

After finishing this inservice, you will be able to:

- Compare the three types of hearing loss.
- Name at least three causes of temporary hearing loss.
- Name at least three causes of permanent hearing loss.
- Discuss the proper care for a hearing aid.
- Demonstrate your understanding of hearing disorders throughout your daily client care.

We hope you enjoy this Inservice, "Understanding Hearing Disorders." It's been prepared especially for nursing assistants like you. You work very hard, and we appreciate the effort you make to complete these educational materials. It shows your desire to continue learning and growing in your profession.

If you are studying the inservice on your own, please do the following:

- Read through **all** the material. You may find it useful to have a highlighting marker nearby as you read. Highlight any information that is new to you or that you feel is especially important.
- If you have questions about anything you read, please ask _____.
- Take the quiz. Think about each statement and pick the best answer.
- Check with your supervisor for the right answers. You need **8 correct** to pass!
- Print your name, write in the date, and then sign your name.
- Keep the inservice information for yourself and turn in the quiz page to _____ no later than _____. Show your Inservice Club Membership Card to _____ so that it can be initialed.

THANK YOU!



A Client Care Module: Understanding Hearing Disorders

Can You Hear Me Now?

Inside this issue:

<i>The Anatomy of the Ear</i>	2
<i>Three Types of Hearing Loss</i>	3
<i>Temporary & Permanent Hearing Loss</i>	4
<i>Diagnosing Hearing Loss</i>	5
<i>Treating Hearing Disorders</i>	6
<i>Age-related Hearing Loss</i>	7
<i>Learn About Hearing Aids</i>	8
<i>Tips For Working with Hard of Hearing Clients</i>	9
<i>American Sign Language</i>	10

Did you know that one out of every ten Americans has some level of hearing loss? It's true! Here are some other interesting facts:

- Over 28 million Americans have a significant loss of hearing, including 2 million under the age of 18. For 80% of them, the hearing loss is permanent.
- About 10 percent of the US population is considered "hard of hearing".
- Only one out of every ten hearing-impaired people was *born* with a hearing disorder.
- In the 1960's, an outbreak of German measles caused a large number of people to be born with hearing problems.
- As the "Baby Boomer" generation ages, they are experiencing hearing loss at a faster rate than their parents.
- For nearly half of the people who are born deaf or who become deaf, the cause is never known.



At least 40 percent of the elderly have a hearing problem, with one percent of them being deaf.

- Approximately 2 million Americans are profoundly deaf.
- About 12 million people in the U.S. have hearing aids.
- The third most common language in the United States (after English and Spanish) is American Sign Language (ASL).

You probably work with a number of clients who have difficulty hearing. To make their lives—and your job—easier, it's important to learn all you can about hearing disorders and how this common problem can be treated.

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306 Brandermill Drive
Durham, NC 27713

www.knowingmore.com

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How Does the Ear Work?

Our ears have two functions...allowing us to hear and keeping us balanced. Both jobs are very important and rely on the three parts of the ear:

The Outer Ear

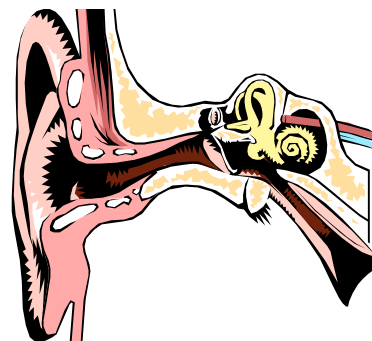
- The outer ear is the part of the ear we can see. The shape of the outer ear helps collect sound waves. A tube extends from the outer ear to the eardrum.

The Middle Ear

- The middle ear is separated from the outer ear by the eardrum. There are three tiny bones in the middle ear. These bones increase the power of the sound waves. The Eustachian tube connects the middle ear to the throat and helps stabilize air pressure.

The Inner Ear

- The inner ear maintains the body's sense of balance. Within the inner ear is a collection of canals filled with fluid. When the head moves, the fluid inside the ear sends messages to the brain—like how far, how fast and the direction the head is moving. If the brain knows the direction of the head, it can figure out how to keep the body balanced.
- In addition, as sound waves pass through the inner ear, tiny hairs sense the sound vibrations and turn them into electrical messages which are sent to the brain. The brain interprets the messages, identifying them as specific sounds.



Did You Know...?

- The outer part of the ear is called the "pinna".
- The bones of the middle ear are the *smallest* bones in the entire human body.
- There are 25,000 tiny hair cells inside the inner ear.
- The eardrum is less than half an inch wide.
- When people eat too much, their hearing becomes less sensitive.

How Loud Is a Decibel Anyway?



Most people notice some discomfort or pain from noises that are at or above 120 decibels.

Whispering	20 decibels
Background noise at home	40 decibels
Conversational speech	65 decibels
Disco music at a club	120 decibels
Jet engine	130 decibels

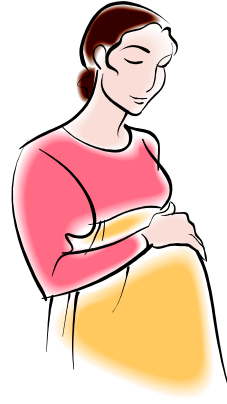
For more about decibels, please see page 5.

NOTE: *If you have to shout to be heard by the person next to you, the noise level is high enough to damage your ears!*

Three Types of Hearing Loss

Conductive Hearing Loss

- A person has *conductive* hearing loss when the sound waves can't get through the ear. For example, wax may be blocking the sound or there may be a build-up of fluid in the inner ear.
- Normally, this type of hearing loss is not total. Instead the person notices that sounds are weak, muffled or contorted.

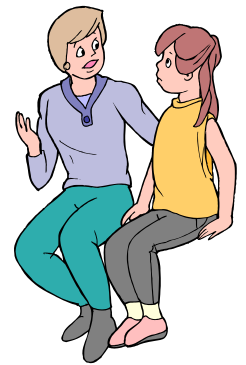


Deafness that develops *before* birth is known as "congenital" deafness.

Neural Hearing Loss

- *Nerve* deafness occurs when the auditory nerve is damaged and can't send signals to the brain.
- This type of hearing loss usually causes a decrease in the clarity and loudness of sounds.

Deafness that develops *after* birth is called "adventitious" deafness. The most common cause is chronic exposure to loud noises.



Mixed Hearing Loss

- As you may have guessed, mixed hearing loss is a combination of both conductive and neural hearing loss.

The Symptoms of Hearing Disorders

Some common symptoms of hearing loss include:

- Talking too loudly or too softly.
- Asking people to repeat what they are saying.
- Turning up the volume on the television or radio.



- Having problems hearing regular conversation.
- Giving inappropriate answers to questions.
- Staring at people's mouths to try to figure out what they are saying.
- Turning the head to one side to hear better.
- Not responding when spoken to.

Causes of Temporary Hearing Loss

Hearing loss may be temporary or permanent. Here are some causes of temporary hearing loss:



Wax Build-Up

- That yellowish-brown substance known as ear wax can build up, blocking the ear canal and preventing sound from passing through.
- Symptoms of this problem include mild deafness, earache, a feeling of fullness in the ear, tinnitus (ringing in the ears) and dizziness.

- Most of the time, the wax will fall out by itself, but occasionally, a trip to the doctor is necessary. The physician may use special drops to loosen the ear wax or squirt warm water into the ear to dislodge the “plug” of wax.

Foreign Objects

- Like wax, small objects—like the tip of a cotton swab—inserted in the ear can block the sound, causing temporary hearing loss.

Mucus

- Excess mucus from a cold, the flu, or allergies can also block the tubes of the ear—causing some short-term hearing loss.

Ear Infections

- The extra fluid and pus present during an ear infection can clog up the ears, muffling sound as it passes through the ear.

Medications

- Certain prescription medications can cause temporary deafness, too.

Causes of Permanent Hearing Loss

There are many causes of deafness, although for nearly half the people who become deaf, the cause is unknown. Here are some causes of permanent hearing loss:

Trauma

Injuries can cause deafness by puncturing the eardrum, fracturing the skull or causing a serious change in air pressure (like during an explosion).

Disease

Certain diseases, including meningitis, mumps, chicken pox, jaundice and ear infections, can cause hearing loss.

Prenatal Disease Exposure

A baby may be born with a hearing disorder if the mother was exposed to certain diseases such as rubella, mumps or influenza during her pregnancy.

Noise

Repeated or long-term exposure to loud noises—such as rock concerts, gun fire, explosions or loud equipment—is a common cause of hearing loss. Certain jobs carry a high risk for hearing loss, especially firefighting, heavy equipment operating and working at an airport.



Heredity

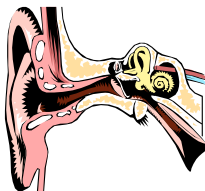
People may be born deaf due to a defective gene passed down from their parents.

Other Causes

Hearing loss may develop from Meniere's disease, exposure to certain chemicals, nerve damage, premature birth and aging.

Diagnosing Hearing Loss

Hearing disorders may be diagnosed by a family physician, an ear-nose-throat physician or an audiologist. If a hearing disorder is suspected, a hearing test may be ordered. Two of the most common hearing tests are:



In addition, there are tests to check if the eardrum is working properly (tympanometry) and tests that show how the brain responds to sound (auditory brainstem response testing).

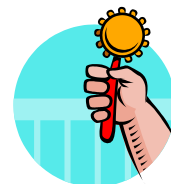
There are even hearing tests for babies and young children! These include:

Pure Tone Audiometry

While wearing headphones, Mr. Jones listens for special beeping and whistling noises. He presses a button when he hears each noise. A machine—called an audiometer—keeps track of his responses. This test shows the degree of Mr. Jones's hearing loss and may offer clues about what's causing it.

Behavioral Observation Audiometry

This test is used on babies less than seven months old. It's usually done by shaking a rattle and watching for the baby's response.



Speech Discrimination Test

Mrs. Wilson is asked to listen carefully while certain words are spoken to her. Then, she must repeat those words. This test helps show how well a person hears the spoken word.

Play Audiometry

Toddlers may be tested by playing a game, such as asking them to drop a marble when they hear a sound.



Interested in an informal test of your hearing? Go to:

www.sonus.com/onlinehearingtest.asp

Measuring Hearing Loss

The loudness of sound is measured in decibels (db), a term that comes from Alexander Graham Bell—the inventor of the telephone.

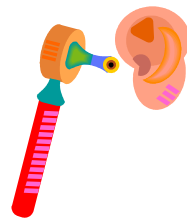
Hearing loss is also measured in decibels:

Mild	21 to 45 Decibels	Soft sounds can be hard to identify.
Moderate	46 to 60 Decibels	Conversations are hard to hear, especially with extra noise like the TV or radio.
Moderately Severe	61 to 75 Decibels	Ordinary speech is difficult to hear.
Severe	76 to 90 Decibels	Conversations can't be heard at all.
Profound	91 Decibels +	Not much is heard at all!

Adapted from www.disability.vic.gov.au

Treating Hearing Disorders

- Approximately 5 to 10% of adult hearing problems can be treated with medicine and/or surgery.
- Medicines may be used to treat any underlying disease that is causing the hearing problem...such as an ear infection, Meniere's disease (an inner ear disorder that causes dizziness) or a thyroid condition.
- There are a number of ear surgeries that may be of benefit. One type of surgery involves a *cochlear implant*—an electronic device that restores hearing to people with severe or profound deafness. Generally, cochlear implants permit deaf people to hear common everyday sounds, including the spoken voice.
- Many people with hearing loss benefit from the use of a hearing aid. Studies have shown that hearing aids often improve the quality of life for



hearing impaired people. If your client has been fitted for a hearing aid but does not use it, try to find out why—and let your supervisor know. There may be some simple adjustments that would help make the hearing aid more appealing to your client.

- Some of your clients may go through what is known as “aural rehabilitation”. This is the process of teaching them to use and care for their hearing aids and how to handle communication breakdowns.
- Keep in mind that for a few people with hearing disorders, no treatment is available.

Every year, it costs \$56 billion to treat Americans with hearing impairments.



“Cures” For Deafness

Throughout history, people have come up with some crazy ways to try to “cure” deafness. Here are some of these methods, none of which was successful and some of which caused more harm than good:

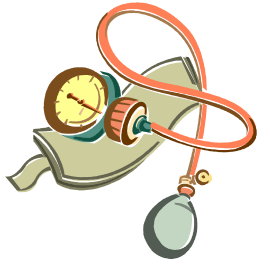
- Stick a twig in the ear and keep it there until the deafness disappears.
- Wash the ear out with gasoline or urine.



- Climb up to a very high spot and then jump down suddenly.
- Smoke some opium.
- Cut the body and let some blood out.
- Hypnotize the person.
- Chew some snuff to “clear out” the ears.
- Visit a chiropractor.
- Pour melted bear fat in the ears.

Hearing Loss & Children

- For children, the most common cause of ear problems and temporary hearing loss is a middle ear infection. As pus and fluid build up behind the eardrum, pain and mild deafness can occur.
- The bad news is that four out of five children develop an ear infection at least once.



- The good news is that by age six, most kids outgrow middle ear infections—without any long-term problems.
- Babies who are born deaf are said to have “congenital deafness”. Sixty percent of hearing loss is genetic.
- One of every 22 babies has a hearing problem, but most of them are not diagnosed until age three.

Hearing Loss & the Elderly

- As people age, the tiny hairs in the inner ear can become damaged, causing loss of hearing. Age-related hearing loss (known as “presbycusis”) happens gradually, but it usually begins with the loss of higher frequencies. This means that certain sounds, such as “s”, “f” and “t” start to sound similar.
- Age-related hearing loss can begin as early as middle age. Males are at a higher risk than females, especially after age 40.
- More than half of the people over age 75 have some hearing loss.
- Some elderly people stop socializing with others because of hearing loss. They have a hard time following a conversation, so they give up trying. This can be very isolating.
- Hearing aids are often helpful for people with age-related hearing loss.

Protecting Your Own Hearing!

- Avoid loud noises! Use ear plugs or ear muffs when using heavy equipment or even for activities such as mowing the lawn.
- Turn the volume down on boom boxes and Walkmans, especially when using headphones.
- Don’t put foreign objects, including cotton swabs, into the ear canal.
- Avoid traveling by airplane if you have a heavy cold. The changes in air pressure may damage the inner ear.
- If you suffer sudden, severe hearing loss, see a doctor right away.
- If you have an earache, see your doctor. Earaches are often a sign of an ear infection which, if not treated, can lead to hearing loss.



What You Might Not Know About Hearing Aids...

- Some hearing aids are fancier than others, but every hearing aid contains a microphone, an amplifier, a receiver and batteries.



- Moisture, heat and debris (like earwax) can build up in a hearing aid, causing it to stop working properly. Most hearing aids need to be cleaned at least once a day.

Why Do Hearing Aids Stop Working?

- A build-up of dirt or debris
- Excess moisture
- Defective or worn out batteries

- When clients handle their hearing aids—such as to clean them or change the batteries—they should do so in a well-lit area. Make sure they work over a soft pad or towel in case they drop the device.

- Hairspray, hand lotion or suntan lotion can damage a hearing aid, so it's important to handle hearing devices with clean hands.

- Water, alcohol or household cleaning fluids should never be used to clean a hearing aid. They can damage the device's delicate circuitry.



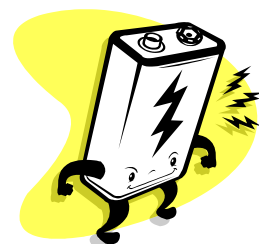
- There are special brushes, disinfectant sprays and wipes made for cleaning hearing aids. In a pinch, a hearing aid may be cleaned with a tissue or a soft, dry toothbrush.

- When a client is not wearing his hearing aid, it should be stored in a cool, dry place—with the battery door open.

- Hearing aids should be kept out of reach of children and pets to prevent accidental swallowing or damage.

- Hearing aids are not water-resistant and should not be worn in the shower or bathtub.

- A battery tester can help determine if a hearing aid battery has enough life left to properly operate the device.





- Most people find it more comfortable to sleep without their hearing aids. Storing them overnight also helps to dry out the devices.

- Hearing aids sometimes "whistle" when amplified sound reenters the hearing aid and is re-amplified. This is known as "feedback" and can happen if a hearing aid is turned on before it is inserted in the ear. It may also happen when clothes are slipped over the head or when the person lies down on a pillow.

The average hearing aid lasts from three to five years. Hearing aid batteries last from just a few days to a few weeks.

Tips For Working with Hard of Hearing Clients

- Look for this international access symbol to alert you that a client has trouble hearing. 
- If you work with clients who read lips, make sure the room is well-lit when you speak to them. In addition, be sure to face them, avoid chewing while talking and keep your hands away from your mouth. Do not speak with the light behind you or your face will be shadowed.
- Whenever possible, avoid communicating in a noisy atmosphere.
- If a client has a hearing aid, encourage her to wear it every day.
- Leave your clients' hearing aids within easy reach so they have easy access in the morning.
- Talk **to** a hard-of-hearing person—not about him.
- Don't shout. Speak clearly and distinctly at a normal pace. 
- Allow more time to communicate with hard of hearing clients. They have the right and deserve your attention.
- If necessary, write notes to communicate with hearing impaired clients.
- Get your client's attention before beginning a conversation.
- If a client doesn't understand what you are saying, try saying the same thing using different words. Some sounds are heard more easily than others.
- Don't do anything unexpected behind the client's back.
- Keep in mind that an inner ear disorder may cause more than hearing loss. It can also cause episodes of vertigo (dizziness) and can lead to sudden falls. Be sure to report any change in your client's hearing ability right away. 
- Always be patient if a client asks you to repeat yourself.

As you work with your clients, watch to see if they:

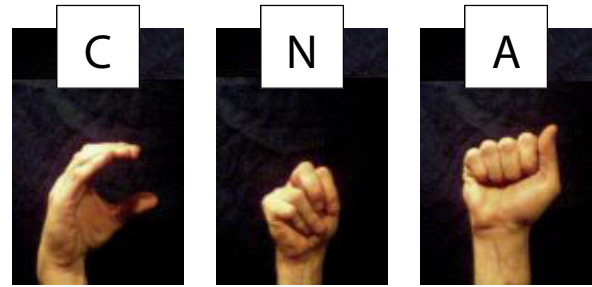
- *Seem to hear running water in a sink.*
- *Complain that other people "mumble" when they speak.*
- *Ask people to repeat what they just said.*
- *Turn the volume way up on the television or radio.*
- *Act like they understand what people are saying.*
- *Fail to hear the doorbell or telephone ring.*
- *Can hear you speak to them from behind.*

Please document your observations or report them to your supervisor.



American Sign Language

- Around the world, there are over 100 different sign languages spoken.
- While there is no universal sign language, American Sign Language (ASL) is widely known...and is the third most common language in the United States (after English and Spanish).
- Across America, 2.5 million people “speak” ASL. It is offered by many colleges as a “foreign” language.
- American Sign Language (ASL) combines gestures and finger spelling to make a visual language. ASL involves more than the hands; it incorporates facial features such as eyebrow motion and lip-mouth movements as a crucial part of the language.



- American Sign Language includes a complete alphabet. Here are the finger positions for the letters C, N and A.

To see the complete alphabet, go to:

<http://www.iwaynet.net/~ggwiz/asl/>

You can also type in a word or phrase and see it spelled out in sign language!

What's the ADA All About?

- The ADA—the Americans with Disabilities Act—is a law which demands equal treatment for all Americans.
- The ADA requires health care professionals to do whatever it takes to *communicate* with each client. For people with hearing impairments, this may mean arranging for an interpreter and/or providing special telephones or other assisted-listening devices.
- Keep in mind that deaf clients must be able to communicate with doctors, nurses, admission staff, and other health care workers.
- In addition, your hearing impaired clients must be allowed to choose the kind of communication that is needed such as sign language through an interpreter, written notes, lipreading, a TDD or other assistive devices.



NOTE: A **TDD** is a *Telecommunication Device for the Deaf*—a special appliance that lets people who are deaf, hard of hearing, or speech-impaired use the telephone to communicate. This is accomplished by allowing them to type messages back and forth to one another instead of talking and listening.



IN THE KNOW

YOUR SOURCE FOR GNA INSERVICES

A Client Care Module: Understanding Hearing Disorders

Are you "In the Know" about Hearing Disorders? Circle the best choice, or fill in your answer. Then check your answers with your supervisor!

1. TRUE or FALSE

Most people with hearing loss have had difficulty hearing since birth.

2. TRUE or FALSE

The inner ear contains tiny hair cells that carry sounds to the brain.

3. TRUE or FALSE

Decibels measure the loudness of a particular sound.

4. TRUE or FALSE

Wax build-up in the ears is a common cause of neural hearing loss.

5. TRUE or FALSE

A new medication may be the cause of sudden hearing loss.

6. Presbycusis is a term for:

- A. Excess ear wax.
- B. Chronic ear infections.
- C. Age-related hearing loss.
- D. Congenital deafness.

7. You can protect your own hearing by:

- A. Wearing ear plugs in the shower.
- B. Eating lots of protein.
- C. Limiting your exposure to noise.
- D. Visiting a chiropractor.

8. If your client has a hearing aid, you should:

- A. Clean it daily with alcohol wipes.
- B. Encourage your client to wear it.
- C. Speak loudly to the client.
- D. Change the battery every day.

9. TRUE or FALSE

Inner ear disorders can cause dizziness and lead to sudden falls.

10. TRUE or FALSE

According to U.S. law, your hearing impaired clients have the right to an interpreter or special assisted-listening devices, if needed.

EMPLOYEE NAME (Please print):

DATE: _____

- *I understand the information presented in this inservice.*
- *I have completed this inservice and answered at least eight of the test questions correctly.*

EMPLOYEE SIGNATURE:

SUPERVISOR SIGNATURE:

Inservice Credit:

<input type="checkbox"/> Self Study	1 hour
<input type="checkbox"/> Group Study	1 hour

File completed test in employee's personnel file.