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Management of Hearing Loss in Adults: An Overview and Implications for Life Care Planning

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Abstract

Hearing loss is the most prevalent chronic condition faced by adults, especially older adults; however, it is often not routinely screened or managed. Hearing loss can impact the quality of life not only of the individual who has hearing loss, but also their frequent communication partners, employers, family members, friends, and acquaintances. This literature review serves to examine what hearing loss is, how it is assessed, the evidence base for management of hearing loss and implications for life care planning.

Keywords: hearing loss, hearing aids, cochlear implants, hearing screening, management of hearing loss, audiologist, life care planning

Background

In 2008, over 34 million people in the United States reported a hearing difficulty. (Kochkin, 2009). By 2012, over 37 million people over the age of 18 reported having some difficulty with hearing loss (Blackwell, Lucas, & Clarke, 2014). The American Speech Language Hearing Association (2014) reports the number of Americans with hearing loss has doubled in the last 30 years. The National Institute on Deafness and Other Communication Disorders (2014) reports "about 2 percent of adults aged 45 to 54 have disabling hearing loss. The rate increases to 8.5 percent for adults aged 55 to 64. Nearly 25 percent of those age 65 to 74 and 50 percent of those who are 75 and older have disabling hearing loss." (National Institute on Deafness and Other Communication Disorders, 2014) The population of adults with hearing loss is increasing due to poor hearing health habits such as utilizing ear buds or headphones at high volumes.

In 2001, the International Classification of Functioning, Disability and Health (ICF) was developed by the World Health Organization (World Health Organization (WHO), 2001). A unique facet of the ICF as related to hearing loss was the goal of looking at a variety of factors influencing the functioning and quality of life of individuals with hearing loss, rather than mainly focusing on fitting them with hearing technology. A conceptual framework was included in the ICF to include all the following: health condition, body function and body structure, activity, participation, environmental factors, and personal factors (Tye-Murray, 2015). Hickson, Worrall & Sarinsci (2007), noted "it is generally conceded that hearing aid fitting alone does not meet the needs of all older people with hearing impairment" (p. 212). Research has identified a shortcoming of the ICF's conceptual framework to be its minimal focus on the inclusion of the family members and communication partners of people with hearing loss (Laplante-Lévesque, Hickson, & Worrall, 2010; Sarinci, Worral, & Hickson, 2009).

For many, a spouse or significant other is a primary source of support during a critical life event. "Communication, which is the centerpiece of intimacy, invariably suffers when a member of a marriage partnership has hearing loss" (Tye-Murray, 2015, p. 76). Family members and frequent communication partners of an individual with hearing loss often experience the secondhand effects of hearing loss. "Many times, the patient's hearing loss imposes an adverse effect on the perceived quality of life experienced by a frequent communication partner." (Tye-Murray, 2015, p. 6). Kramer, Allessie, Dondorp, Zekveld, and Kapteyn (2005, p. 256) note that "the role of the significant other (a person with whom an important and regular relationship is maintained) may be assumed to be just as relevant as the role of the affected individual for the enhancement of communication and improvement of performance and psychosocial wellbeing." It is clear that hearing loss can impact multiple aspects of an individual's life including but not limited to their social, occupational, physical, and emotional interactions with other.

Method

A literature review was conducted via literature searches from 1980 to 2016 in the following databases and search engines MEDLINE, PubMed, ProQuest, and Google Scholar. Additional articles and references from personal files and libraries were utilized as appropriate. The following search terms/phrases were searched: hearing loss, management of hearing loss, hearing screening, hearing technology, and adults with hearing loss. Articles selected for the review were chosen based on their relevance to clinical practice as well as the quality of research completed with randomized clinical trials being reviewed when available. A total of 244,248 articles were identified as relevant on these topics. There were 153, 819 articles found regarding hearing loss; 7,147 articles related to the management of hearing loss. A total of 24,223 articles were found related to hearing screening; many of these articles utilized hearing screenings as part of the methodology for their study. There were 54,076 articles that addressed hearing technology and 4,983 articles discussed hearing loss in the adult population. Relevant results for clinical application were reported.

Anatomy & Physiology of Hearing Loss

As a practicing clinician or counselor, it is important to understand how normal hearing works. This knowledge may impact service provision as it is pertinent to the individual with hearing loss as well as their family. Fucci & Lass (1999) wrote:

> The hearing mechanism is critical to the process of speech production and speech perception. It is responsible for the initial learning of speech from others, the monitoring of a speaker's own speech (feedback), and the reception of the acoustic speech signal for continued communication purposes throughout life. (p. 43)

A basic review of audition, the process of hearing, follows. The acoustic signal travels in invisible waves. For example, if someone were to ring a bell, an acoustic signal (series of waves) would be produced. This signal would travel to your outer ear which consists of your auricle (also referred to as the pinna) and your external auditory meatus (also referred to as the ear canal). The process of audition/hearing involving the conversion of the acoustic signal to a mechanical signal occurs in the middle ear.

The signal hits your tympanic membrane (TM) (also referred to as your ear drum) causing it to vibrate, thus converting the acoustic signal to a mechanical signal. Connected to your TM are the three smallest bones in your body, the incus, malleaus, and stapes (also referred to as the ossicles or ossicular chain). As the TM vibrates, the ossicles also vibrate, signaling the inner ear (comprised of the vestibular system and cochlea) to initiate activity.

The ossicular chain is connected to the fenestra vestibuli (also known as the oval window), located just above the fenestra rotunda (round window). As the sound moves medially from the ossicular chain, the stapes vibrate the oval window causing the fluid in the inner ear to be set into motion, converting the mechanical signal to a hydraulic signal. The small ringing sound initially detected has now entered the cochlea, a spiral cavity comprised of three channels that lie parallel to one another in a snail-like shape. The inner ear also contains the vestibular system which is comprised of three semicircular canals, each filled with fluid, and all necessary to maintain balance and equilibrium. The channels of the cochlea are filled with fluid that is set in motion by the hydraulic signal created by the movement of the oval window. The channels are separated by a thin membrane so that movement from one channel impacts the movement of another channel. It is important to know that the middle channel of the cochlea (also called the organ of Corti) is lined with small hair cells, or cilia, that have nerve fibers which help to form the auditory nerve (also known as cranial nerve VIII). As fluid moves in the cochlea, the hydraulic signal created by the movement of the fluid is converted into an electrical signal at the level of the auditory nerve as the hair cells in the organ of Corti create nerve impulses. This electrical signal is then transmitted to the brain via the central auditory pathway, which is a complex system comprised of the cochlear nucleus, superior olivary complex (located in the medulla), nucleus of lateral lemniscus (located in the pons), the inferior colliculus (located in the midbrain), and the medial geniculate (located in the thalamus). This pathway allows for sound to be transmitted to the auditory cortex of the brain located in the left temporal lobe (Fucci & Lass, 1999; Seikel, King, & Drumwright, 2000). Thus, the small ringing sound that initially passed through the outer ear was converted from an acoustic signal, to a mechanical signal, to a hydraulic signal, and finally to an electrical signal that was passed along the central auditory pathway to be processed by the auditory cortex to "hear" the sound.

Types and Degrees of Hearing loss

Hearing is a complex and intricate system and a breakdown at any point in the process described above results in a hearing loss. The type and degree of hearing loss depends on where the breakdown in the system occurs. Hearing loss can fluctuate and change over time. For some, hearing can change day to day, as is the case for an individual with a diagnosis of a fluctuating hearing loss or Meniere's disease. Hearing loss can be progressive in nature which means an individual who has been diagnosed with a mild hearing loss at eight years of age could have a significant drop in their hearing and be a candidate for a cochlear implant later in life. These unique facets of hearing loss highlight the need for continued management and monitoring by an audiologist, a licensed professional with specific training in diagnosing and treating hearing loss.

Bainbridge & Wallhagen (2014) note that the percentage of individuals presenting with a hearing loss increases dramatically with age, with a projected estimate of 41 million people (double the 2014 estimate) over the age of 65 to experience hearing loss in one or both ears by the year 2030. Thus, the impact and prevalence of hearing loss across the life span increases with age.

Hearing loss is described by hearing level and frequency. An audiogram is used to depict hearing loss. Loudness or hearing level (HL) is measured in decibels (dB) from very quiet sounds at the top of the chart to very loud sounds at the bottom of the chart. The frequency (or pitch) of sound is measured in cycles per second (Hertz (Hz)) and is represented as very low sounds to the far left of the chart to very high pitched sounds to the far right of the chart. Hearing loss is typically described by four common categories: degree, onset, causation, and time course (Tye-Murray, 2015). See figure 1.1 for an explanation of the degrees of hearing loss. See Figure 1.2 for an example of an audiogram with depictions of familiar sounds as well as the degrees of hearing loss.

Figure 1.1 Degrees of Hearing Loss Explained

Degree	Range
Normal Hearing	25 dB HL or quieter for adults, up to 15 dB HL for children
Mild Hearing Loss	26 dB HL to 40 dB HL
Moderate Hearing Loss	41 dB HL to 55 dB HL
Moderate-to-Severe Hearing Loss	56 dB HL to 70 dB HL
Severe Hearing Loss	71 dB HL to 90 dB HL
Profound Hearing Loss	90 dB HL or greater

Figure 1.1. Degrees of Hearing Loss Explained. dB = decibel and HL = Hearing Level. Information above is adapted from Clark, 1981.

Figure 1.2 Audiogram of Familiar Sounds

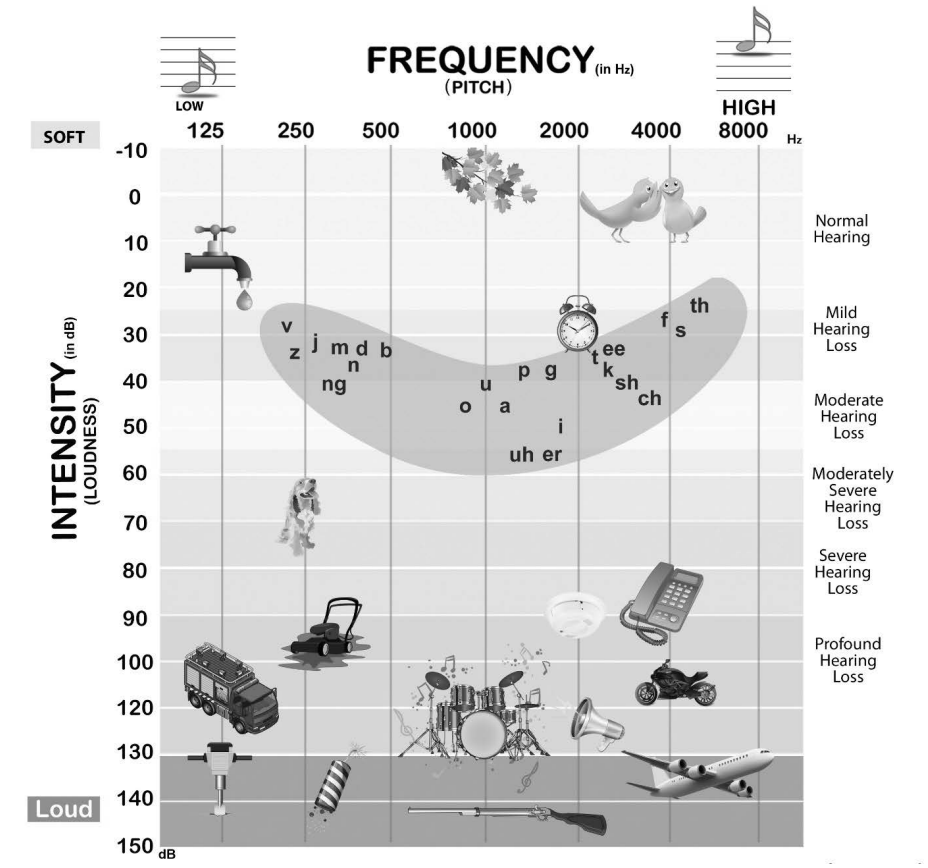

Figure 1.2 Audiogram of familiar sounds. This illustrates the graph on which hearing loss is plotted and is referred to as an audiogram. Hearing levels are typically represented as X (left) and O (right) on an audiogram. An individual is able to hear everything below their marked hearing threshold. They are unable to hear sounds above their marked hearing threshold. Reproduced with permission from Blue Tree Publishing Company (Retrieved on 1.31.17).

In 2012, McCreery noted that a child with even a unilateral hearing loss (normal hearing in one ear) has difficulty discerning speech, even if the speaker directs their signal to the better ear. "A child with a 35- to 40-dB [bilateral] hearing loss without hearing technology can miss up to 50% of class discussions" (Cole & Flexer, 2016, p. 45). Children with moderate hearing losses may miss 50% to 75% of speech information (Killion & Mueller, 2010). A child with a moderately severe hearing loss (a hearing loss greater than 55 dB across speech frequencies) can miss *one hundred percent* of the information shared in the classroom if the hearing loss remains untreated (Killion & Mueller, 2010). These same performances can apply to adults. It should be noted that the addition of background noise decreases speech perception skills. For adults (who use spoken language as their primary means of communication) working and interacting in loud environments, hearing loss can be detrimental to communication.

Hearing loss is also classified based upon when it was identified or by the date of onset. It can be classified as congenital, pre-lingual (occurring prior to learning speech and language), peri-lingual (occurring when the child has developed some language, but not all language has been acquired), post-lingual (occurring after learning speech and language), or acquired (occurs post-lingually as a person ages).

Hearing loss is also classified based on the causation of the hearing loss. Hearing loss that is caused by a breakdown in the acoustic signal in the outer or middle ear is referred to as a conductive hearing loss. For example, an obstruction in the ear canal or even something as simple as an ear infection can cause a conductive hearing loss. If the sound signal passes through the outer and middle ear with no obstruction or difficulty but has a breakdown at the level of the inner ear (and/or the auditory nerve or auditory cortex in the brain), it is termed a sensorineural hearing loss. A mixed hearing loss is a combination of both a conductive and a sensorineural hearing loss. In addition, hearing loss may be categorized as a progressive (i.e., gets worse over time) or sudden onset (Tye-Murray, 2015).

Implications of Hearing Loss

Hearing loss can have negative physical, social, occupational, and psychological affects on the individual with hearing loss. The literature indicates hearing loss is associated with poor quality of life (Cacciatore et al., 1999; Kramer, Allessie, Dondorp, Zekveld, & Kapteyn, 2002; Nachtegaal et al., 2009; Pronk, et al., 2011; Strawbridge, Wallhagen, Shema, & Kaplan, 2000). Hearing loss can lead to anxiety, depression, and feelings of isolation for the individual with hearing loss. Hearing loss can also have negative implications for the frequent communication partners and caregivers of the individual with hearing loss (Tye-Murray, 2015).

In recent years, a strong link between untreated hearing loss and neurological decline has been established. Uhlmann, Larson, Rees, Loepsell, & Duckert (1989) first identified the strong link between hearing loss and the likelihood of having dementia. As this concern was further investigated, a stronger link was revealed. Lin, Niparko, & Ferrucci (2011) reported that the greater the hearing loss, the greater the risk for the development of dementia. Untreated hearing loss has been shown to cause reduced cortical connections in the auditory cortex as well as temporal lobe atrophy (Lin & Albert, 2014; Peelle, Troiani, Grossman, & Wingfield, 2011). It is clear that hearing loss is a significant neurological concern at any age but it is important to note that hearing loss is most often a treatable condition that should be taken seriously.

Screening & Evaluation

The American Speech Language Hearing Association (ASHA) provides clear guidelines for the implementation of hearing screenings and recommends that adults are screened every decade through the age of 50 and then in 3-year intervals thereafter (ASHA, 2017). It should be noted that hearing loss is often associated with other disabilities and diagnoses such as Down syndrome, Meniere's disease, visual impairment, and cognitive disabilities. When working with individuals with diagnoses associated with hearing loss, it is wise to schedule regular hearing screenings. Minimal training is required to administer hearing screenings and no special certification is required. A hearing screening typically takes less than five minutes to complete. With no consistent hearing screening program in place, it is up to clinicians and individuals who suspect hearing loss to advocate for hearing screenings.

On average, adults who suspect or have been diagnosed with hearing loss wait an average of 10 years prior to seeking treatment (which in most cases is amplification through the use of hearing aids) (Davis, 1995). Pronk et al. (2011) report:

> Upon referral, the 'best practice' for any new patient would entail full audiological and otological assessment, evaluation of individual needs and wishes, decision of a rehabilitation path in consultation with the patient, then provision of rehabilitative care and monitoring for an audiological rehabilitation model (595).

Testing for hearing loss in adults involves behavioral, immittance, and speech perception testing. Traditional behavioral testing typically involves an adult in an audiological booth raising their hand when they hear a sound or tone. The primary purpose of immittance testing is to determine the health of the middle ear by utilizing tympanometry. This testing identifies if the tympanic membrane (ear drum) is moving as it should to be able to transmit the acoustic signal to the inner ear. A small change in the mass or mobility of the tympanic membrane can alter the acoustic signal perceived by the individual. After immittance and behavioral testing, speech perception testing is completed.

Speech perception testing is critical for cochlear implant candidacy, as it assess how the candidate hears speech information in predetermined functional settings. There are multiple speech perception tests that can be performed and analyzed several ways. Speech perception testing provides the most descriptive information about how an individual is functioning during natural listening situations and in ideal listening situations (Madell & Flexer, 2008). Results of speech perception testing are typically presented as a percentage of correctness. For example, if an individual's speech perception score is 85% when stimuli are presented at 55 dB, the assumption is that the individual hears around 85% of what is being communicated to them at typical conversational level during their daily life. It is important to note that speech perception testing is often completed in optimal listening conditions (i.e., a soundproof audiology booth). This means that with the addition of background noise (e.g., road noise while driving, restaurant noise, multiple talkers, etc.) the individual may not perceive speech as well as they did in optimal listening conditions.

Hearing Technology

There are multiple books, chapters, and articles dedicated to the discussion of the treatment of hearing loss and hearing technology. The following serves as a brief introduction to a few of the more common hearing technologies used to treat hearing loss. The primary goal for providing a patient with a listening device is to make speech audible, to restore range of loudness experience, to improve communication and to enhance personal safety and environmental awareness (Tye-Murray, 2015). Intervention for hearing loss can include hearing aids, a bone anchored hearing aid, cochlear implant(s) and assistive listening technology. When an audiologist performs a hearing evaluation, the degree of hearing loss, type of hearing loss, the individual's age and lifestyle, and the cost of devices are taken into consideration.

Hearing aids are typically the first intervention discussed with patients when they present with sensorineural hearing loss and meet the criteria to be a good hearing aid candidate. Hearing aid technology has undergone tremendous change over the last 10 -15 years. These devices have become smaller in size, and have improved signal processing, decreased distortion, and improved satisfaction by the hearing aid user (Montano & Spitzer, 2014). There are custom in- the-ear (ITE) options with hearing aids and behind-the-ear (BTE) options. Custom hearing aids are made to fit the patient's ears specifically with an ear-mold impression for each ear. These devices include: in the ear (ITE) in the canal (ITC), and completely in the canal (CIC) hearing aids. All components of hearing aids (microphone, receiver, amplifier, and battery) are contained in the device and fit into (or behind in the case of the BTE model) a patient's ear. When utilizing behind-the-ear (BTE) hearing aids, all the components fit behind the patient's ear with a custom ear-mold that directs the sound into the patient's ear. An open-fit BTE option is one in which the receiver/speaker fits inside the patient's ear with either custom ear piece or professionally selected and fit domes/tips. All hearing aids are digitally programmed to the patient's specific hearing loss and may have connectivity options for cell phones, TV systems and other audio inputs that can be streamed directly to the hearing device. It should be noted that a licensed audiologist is the most appropriate professional to diagnose hearing loss and fit hearing technology.

Bone anchored hearing aids (BAHA) are appropriate for patients with conductive hearing loss, mixed hearing loss and single-sided deafness. The device can be coupled to the mastoid bone through a surgically implanted titanium screw, which transmits that sound from the hearing unit directly to cochlea. When patients have a conductive or mixed hearing loss, the BAHA bypasses the damaged portion of the middle ear space and goes directly to the inner ear. With single-sided deafness, the BAHA routes the sound to the better hearing cochlea through bone conduction (minimal vibrations through the skull).

Cochlear implants are designed for individuals who receive minimal benefit from appropriately fit amplification. Individuals with moderately-severe-to-profound sensorineural hearing loss may have significant issues with recognizing the auditory speech signal, no matter how it is processed or how much it is amplified through the use of hearing aids (Tye-Murray 2015). For these individuals, a referral to an audiologist specializing in cochlear implant technology may be appropriate. A cochlear implant bypasses the damaged portion of the cochlea (hair cells) and stimulates the auditory nerve directly, which directs stimulation directly to brain to be processed. The internal components are implanted into the skull, with an internal receiver placed on the mastoid bone, and an electrode array which is inserted in the cochlea. These components are placed under the skin and are not visible after implantation. The external components include a microphone, connecting cables, speech processor and transmitter and are worn on the outside of the ear. The transmitter connects to the internal components through a magnet that connects to the skull (Tye-Murry, 2015). The microphone picks up sound in the environment and converts it to an electrical signal and then delivers it to the sound processor, which then processes the sound to an electrical signal which is transmitted to electrode array inside the cochlea. The electrode array carries electrical current to the auditory nerve fibers and the signal is then directed to auditory cortex portion of the brain to be processed.

Assistive listening technology can include several different types of devices. They can include alerting devices such as vibrating/strobe alarm clocks, fire alarms, door bells, wireless TV amplifiers, pocket talkers and closed caption telephones. They can also include wireless systems that use telecoil in the listening device or an FM signal to send sound directly to a listening device. Assistive listening devices may

also include those that improve the sound signal through an infrared/induction loop system or directly from a speaker into a hearing device through an FM system.

Listening devices alone often will fall short of fully addressing all of the daily communication challenges that an adult with hearing loss encounters in the home, at work and within social environments. Many times, auditory rehabilitation and/or auditory training will help the individual with hearing loss utilize their listening devices to improve their listening and communication skills (Montano & Spitzer, 2014). Despite modern hearing technology there are fundamental problems. When individuals with visual impairments receive prescription lenses they will usually experience near perfect correction of their poor eyesight. However, hearing is a more complex process than seeing. Individuals with hearing loss must re-learn how to hear while utilizing their appropriately fit hearing device to fully benefit from their hearing technology (Tye-Murry, 2015). The process of re-learning how to hear is addressed through auditory (aural) rehabilitation, which takes time and dedication on the part of the individual with hearing loss and their frequent communication partners.

Auditory (Aural) Rehabilitation

In 2007, Boothroyd defined auditory rehabilitation as "the reduction of hearing-loss-induced deficits of function, activity, participation, and quality of life through sensory management, instruction, perceptual training, and counseling" (p. 63). Auditory rehabilitation is a process by which individuals learn to best utilize the hearing they have through the hearing technology they are using. It is a program that must be flexible in nature to meet the needs of each individual. Auditory rehabilitation is appropriate for both users of hearing aids and cochlear implants. As a clinician, one must take into account adult learning styles, have a thorough knowledge of the typical development of auditory skills, and must understand the role of speech perception, specifically, phoneme perception, as they are key elements in helping an individual to achieve success with their hearing technology.

Auditory Skill Development

One of the primary goals of auditory rehabilitation is the development of auditory (listening) skills. Hearing, or the reception of sound waves, should not be confused with the complex task of listening. Listening is an active process that requires concentration on and attending to the message and then demonstrating understanding of the content of the message (Edwards, 1994). Listening is intentionally focusing on information presented via an auditory modality and can be measured by activity in the prefrontal cortex of the brain (Musiek, 2009). To achieve optimal listening skills, one must first have access to sound. Access to sound is what is provided by the hearing technology; however, access alone does not correlate to satisfactory listening skills. "Hearing aids [or cochlear implants] can enhance the child's [or adults] hearing, but the act of listening is a behavior that must be learned" (Hull, 2001, p. 119).

There are four skill categories that are essential to auditory development: (1) detection [awareness], (2) discrimination, (3) identification, (4) comprehension" (Hull, 2001). This is also referred to as the auditory skills hierarchy. Hull (2001) defines each element as follows:

> Detection [awareness] involves children [or adults] becoming aware of sound and learning to attend to sounds. (p. 118)
>
> Discrimination develops as children [or adults] learn to perceive the difference in sounds. Suprasegmental [vowel] discriminations of intensity, duration, pitch and timing appear first. (p.118)
>
> Identification is the stage at which children [or adults] can repeat or point to a representation of a specific set of sounds. (p. 118-119)
>
> Comprehension is the final and most complicated stage of auditory development….the comprehension and understanding that the child [or adult] gives, completes the cycle of connecting sound to meaning. (p. 119)

Figure 1.2 The Auditory Skills Hierarchy below, is a visual representation of the auditory skills hierarchy discussed above.

Figure 1.2 Auditory Skills Hierarchy

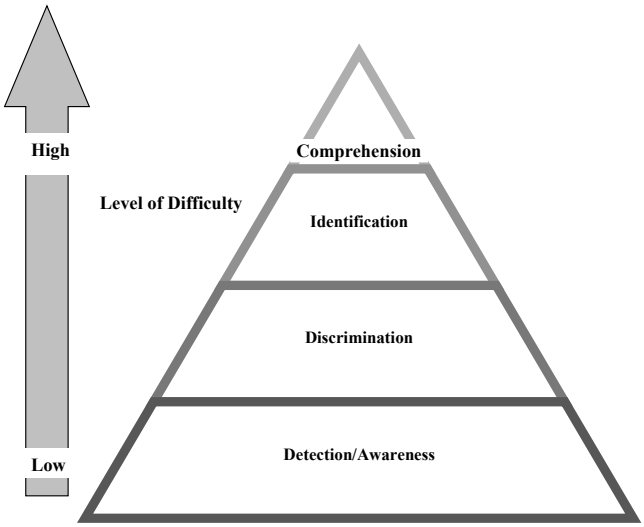

Figure 1.2 Auditory Skills Hierarchy. This is a representation of auditory skills in a hierarchy from least

difficult to most difficult.

It is important to note that auditory skills found in this hierarchy often naturally develop for individuals with normal hearing. Adults who are post-lingually deafened have often acquired these auditory skills at some point in their life when they had hearing within the normal range. However, when hearing loss occurs, these skills are much more difficult to execute. In auditory rehabilitation, the clinician helps the adult to work back through the auditory skills hierarchy to re-activate neural pathways, improve listening skills, and subsequently positively impact the individual's ability to communicate. If an individual is utilizing hearing technology and is dissatisfied with their performance, they should first be referred to their managing audiologist. When the technology is confirmed to be fit and functioning well, a referral for auditory rehabilitation may benefit the individual because the program would allow the individual to practice listening skills while utilizing their hearing technology; subsequently improving their communications skills. Auditory rehabilitation is within the scope of practice of both an audiologist and speech-language pathologist; therefore, a referral for auditory rehabilitation is appropriate with either one of these licensed and specifically trained professionals.

Recommendations for Life Care Planning

Hearing loss has been shown to be a catalyst for neurological degeneration as well as a primary source of psychological concerns including depression and anxiety. It is imperative that clinicians be aware of hearing loss, the implications of hearing loss, and the importance of hearing screening, evaluation and follow-up. It is also important that clinicians encourage their clients to see licensed audiologists for evaluations, follow up, and management of their hearing loss. Audiologists are the primary professionals for diagnosing, managing, and treating hearing loss. They have received extensive training in diagnosis, hearing technology, and management of hearing loss. Recommendations for life care planning are as follows:

Complete hearing screenings as part of annual physical evaluations. Request hearing screenings as needed. Screenings are recommended every 3 years after the age of 50. Keep in mind that hearing loss is associated with several other diagnoses and disabilities and should be closely monitored in these cases.

Referral to a licensed audiologist should be included in the life care plan if there is a concern about hearing loss or a failed hearing screening has occurred.

Encourage follow-up care and management of hearing loss by an audiologist as soon as possible. It should be identified and managed by a licensed professional as quickly as possible.

Consider a recommendation of auditory rehabilitation/aural rehabilitation by a licensed audiologist or speech-language pathologist if your client struggles to adjust to hearing technology.

Ensure caregivers are educated on the care and maintenance of hearing technology. For detailed information, contact the individual's managing audiologist.

Delineate a plan for who will check the function of hearing technology utilized by your client on a daily basis. If the hearing technology is placed, but is not functioning or is not functioning well, it could serve as a source of frustration and defeat for the individual whom you are serving.

Encourage case managers to keep a record of the client's audiogram on file to document any potential changes in hearing and to revisit any potential needs for additional audiological or auditory rehabilitation services.

In conclusion, the prevalence of hearing loss continues to be on the rise. Hearing loss can affect neurological functioning and the quality of life of the individual with hearing loss. It can also impact their spouses, employers and other frequent communication partners. Regular hearing screenings, evaluations, and follow-up are strongly recommended.

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