Audiology on the Job: The Vocational Rehabilitation and Audiology Partnership

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**Recommended Citation**
AUDIOLOGY ON THE JOB:
THE VOCATIONAL REHABILITATION AND
AUDIOLOGY PARTNERSHIP

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Abstract

According to Census Bureau information, the majority of Americans with hearing loss are of working age. Historically, minimal resources have been allocated for the habilitation/rehabilitation of hearing loss which may affect the employment status of a significant number of individuals. Collaboration between the audiologist and other rehabilitation professionals is discussed and a functional occupational communication assessment is described. A description of assistive technology with practical applications is provided.

Introduction

It is imperative that networks and partnerships develop around individuals who are deaf and hard of hearing and who are challenged by attaining and maintaining employment. When respect and understanding is developed between all stakeholders involved in providing rehabilitation services to consumers, outcomes are improved and effective service delivery systems are developed. Audiologists, rehabilitation counselors, interpreters and others can and must communicate with each other when providing services to individuals who are deaf or hard of hearing.

Communication needs in the workplace are often not fully addressed in a trans-disciplinary manner. This article addresses specific strategies for all members working in the field of vocational rehabilitation, regardless of their specific job title, including the description of a functional job/worksite assessment and understandable information on alerting devices, telecommunication devices and visual communication displays that may assist individuals reach their personal employment goal. A case study will be presented demonstrating the benefits of developing a partnership with the audiologist of a hard of hearing consumer.
Deaf and Hard of Hearing Statistics

According to statistics gathered by the Bureau of Census from 1990-1991, (Holt, Hotto, & Cole, 1994; Kochkin, 2005b), the majority of Americans with hearing loss are between the ages of 18 and 65; yet the least resources are allocated for treatment of hearing loss in this population. There is almost no published information available describing the implications of hearing loss on people who work or intervention strategies that can help these individuals cope and continue to cope at their jobs. A report published in 2005 by the Center for Disease Control (CDC) indicated that 40% of working adults reported limitations on the job due to sensory disabilities; 17% of the adult population (21-64 years) has some degree of hearing loss (National Center for Health Statistics [NCHS], 2007). Seventy-eight percent of the non-disabled adult population is employed; only 42% of adults with sensory disabilities are employed (Rehabilitation Research and Training Center on Disability Demographics and Statistics, 2005). Individuals with a severe hearing loss earn $12,000 less per year than individuals with a mild hearing loss (Kochkin, 2007). Overall, those with a family income of less than $10,000 are twice as likely as those with a family income of $50,000 and over to have hearing impairment (Holt, Hotto, & Cole, 1994).

The Research and Training Center on Deafness and Hard of Hearing at the University of Arkansas estimates that in the U.S. population, there are 640,000 people who are culturally Deaf, 1,600,000 people who are late-deafened, and 29,760,000 who are hard of hearing. These totals represent about 10% of America’s population. Seventy-five percent of these individuals do not use hearing aids and/or assistive devices. The majority of these individuals do not seek services from Vocational Rehabilitation (VR) (Rehabilitation Research and Training Center for Persons who are Deaf or Hard of Hearing, 2005).

What is the Role of VR?

Vocational rehabilitation (VR) provides specialized employment, education-related services and training to assist teens and adults with disabilities in becoming employed. Individuals are eligible for VR services when there is a mental or physical impairment that is a substantial impediment to employment and must be able to benefit from services in terms of going to work. VR services can include educational services, vocational assessment, evaluation and counseling; job training, assistive technology, orientation and mobility training, and job placement. For individuals with an early or pre-
vocational hearing loss, there is a lack of access to knowledge and skills needed to be successful in the work force. The educational statistics for pre-vocational deaf and hard of hearing students are dismal; 54% of students with disabilities graduated from high school with a standard diploma; 31% dropped out before completion (Greene, 1994). The median reading level of 18-year-old deaf or hard of hearing students remains at 4th grade (Greene). Over 89% of students who are deaf or hard of hearing are educated in the public schools (Greene).

Common difficulties of individuals who are deaf or hard of hearing as identified by Rehabilitation Services Administration (RSA) include inadequate communication skills due to inadequate education and limited family support, vocational deficiencies due to inadequate educational training experiences during the developmental years, and changes in personal and work situations during adulthood. Other deficiencies are noted in behavioral, emotional, and social adjustment, independent living skills, and transition. Health, mental, and physical limitations are also present for a significant portion of this population. VR services consider educational history, employment history, reading/writing status, communication ability/needs, psychological status, neurological/cognitive status, and presence of other disabilities (Stauffer & Boone, 2007).

According to RSA, important factors should be taken into account in serving individuals who are deaf, late-deafened, or hard of hearing, including communication, limited knowledgeable resources, limited use of the telephone, and isolation. Job placement for individuals who are deaf or hard of hearing can also be complex. In accordance with the Rehabilitation Act of 1973, individuals who are deaf are considered significantly disabled. VR services for consumers who are deaf or hard of hearing may consist of: (a) assessment including educational, psychological, and vocational; (b) an individualized plan for employment or IPE; (c) counseling and guidance; (d) physical and mental restoration including hearing aids, assistive devices, cochlear implants; (e) interpreter services; (f) vocational training; (g) placement and follow up; (h) and post-employment services (Stauffer & Boone, 2007).

Referral of Deaf and Hard of Hearing Consumers to VR

Individuals who attend schools for the deaf are easily connected with their local VR counselors once they reach the age of 16. Almost 90% of students
who are deaf or hard of hearing however, attend public schools (Greene, 1994). VR counselors must network with school guidance counselors and special education teachers to locate transition age students with disabilities. VR counselors also network with audiologists and otolaryngologists (ENT doctors) for referrals. Many audiologists are not aware of VR services, as most audiologists obtain training in hospital/clinical settings. As a result, audiologists are not utilized to their full potential as referral sources.

**When is a Hearing Loss a Disability?**

In most states, hearing tests performed by an audiologist are required to document the disability. Some states use formulas to determine audiometric eligibility, other states use functional status of the individual. For vocational purposes individuals are classified by their functional communication skills and abilities. Important questions to consider regarding the individual’s communication abilities include:

1. Is hearing the only limitation involved?
2. How does the individual communicate with others?
3. Is the individual wearing hearing aids/cochlear implant?
4. Does the individual currently use other types of assistive technology?
5. Does the individual need an interpreter?

The degree of the disability created by the hearing loss is not solely related to the individual’s hearing in decibel levels. The functional impact of the hearing loss is significantly affected by: (a) The cause of the hearing loss, (b) the type of hearing loss, (c) degree of hearing loss, (d) the patient’s age at the onset of hearing loss, (e) patient health, (f) the patient’s educational history, (g) patient’s hearing technology history, (h) speech/language/reading/writing status, (i) communication mode of patient/family/peers, (j) psychological status, (k) neurological/cognitive status, and (l) motivation/compliance/acceptance of the hearing loss.

VR consumers who are deaf or hard of hearing are classified into four categories:

1. Hard of hearing consumers are individuals who communicate orally by speaking and listening.
2. Deaf consumers are individuals who communicate using sign language and are part of Deaf culture.
3. Oral deaf consumers are individuals who communicate by speaking and listening, but may require visual strategies and visual communication...
devices to supplement auditory information.

4. Late-deafened consumers are individuals who were hearing or hard of hearing but are not part of the Deaf Culture and can no longer communicate orally.

The Role of the Audiologist

The audiologist’s role is to diagnose the type and degree of hearing loss and provide recommendations as needed for improvement of the individual’s communication ability through the use of assistive technology including hearing aids, hearing assistive technology and visual assistive technology. Audiologists who provide aural rehabilitation services offer informational counseling, communication strategies, auditory training; and speechreading training. The audiologist verifies and/or validates the outcome of their recommendations using both quantitative and qualitative measures (i.e., real-ear measurement, speech mapping, sound field measurements, and communication surveys). The VR counselor may only see the audiologist’s role as a hearing aid dispenser, and may not utilize all the services an audiologist can offer.

The audiologist should refer individuals for vocational rehabilitation services when individuals who are deaf or hard of hearing require additional support services, is employed or has a goal for employment, and is age 16 years or older. Working-age individuals age 16 years and above should also be referred for VR services if they need financial support for hearing aids, assistive technology, and cochlear implants that will impact vocational goals. It is important for the vocational rehabilitation counselor to make contact with the audiologist and provide referral information and criteria.

The counselor must work closely with the audiologist and consider communication needs in the context of the type of training and/or job tasks the consumer is involved in. When a hearing aid is recommended, audiologists should quantify for counselors why they are recommending a particular hearing aid, and provide a rationale for the specified instrument(s). Recommendations should expand beyond the type and degree of hearing loss. Questions that the audiologist should consider during hearing aid selection include:

1. Is the work site hot and humid?
2. Is the work site noisy?
3. Is there equipment (e.g., headphone, gas mask, special vision protection device) that may interfere with the use of a particular style of aid?

In all cases the choice of hearing aids must be determined by the requirements of the training or job. In the hearing aid selection process, consumers may have cosmetic concerns regarding the hearing aid and/or may insist that the hearing aid be “top of the line” (Nemes, 2007). VR counselors discourage consumers from choosing smaller hearing instruments, as they often lack the flexibility and technology needed to meet on the job requirements (i.e., telecoil, directional microphones, or direct audio input capabilities). Costs may be a barrier in the hearing aid recommendation process; VR programs need to be as cost efficient as possible. The VR counselor needs to discuss with the audiologist any and all cost restraints, and the audiologist should be encouraged to make responsible choices. Consumer satisfaction surveys and a few clinical studies have suggested that digital hearing aids with a minimum of 4 channels and directional microphones will provide functional hearing benefit that is similar to other higher cost instruments (Kochkin, 2005a; Kochkin, 2003; Kochkin, 1996).

The audiologist may need support and assistance in recommending assistive technology. Assistive technology vendors have identified that VR counselors, not audiologists, are the primary purchasers of products other than hearing aids for deaf or hard of hearing individuals. This is unfortunately due to the poor time/cost benefits of assistive device sales and lack of insurance reimbursement for aural rehabilitation products and services. A 2004 American Speech-Language-Hearing Association (ASHA) audiology practice survey indicated that 24% of licensed audiologists do not dispense or recommend assistive devices (American Speech Language Hearing Association [ASHA], 2005). A dilemma exists for the VR counselor however, as assistive technology recommendations have become more complex given the technology changes in the hearing instrument/cochlear implant industry.

Most consumers lack information regarding available technology. A survey of workers who are deaf or hard of hearing suggests that they have inadequate assistive technology on the job, and they do not know better devices to request. Results of the survey indicated that 62% of assistive technology accommodations provided were not appropriate, 65% had inappropriate equipment, 16% had poor work site awareness of needs, and
74% wished for different accommodations – but were not sure what would be better. Employers are willing to provide accommodations, and only denied requests for assistive technology in 5% of the cases reviewed (Luft, 2005).

**Functional Occupational Communication Assessment**

What information is useful in determining technology needs? An analysis of the job tasks and what job tasks are difficult as a result of the hearing loss need to be established (Job Accommodation Network, 2007; EEOC, 2006). Important questions to be considered include:

1. Is background noise an issue in the work environment?
2. Is communication difficult?
3. What are the potential workplace hazards?
4. What if any accommodations have already been implemented?
5. Is education of supervisory personnel and perhaps coworkers necessary?

The work environment can usually be separated into the following categories for communication purposes, to facilitate communication, enhance telecommunications, and to alert to environmental auditory situations:

1. Communication one to one: (a) with a supervisor, (b) with coworkers, (c) at staff meetings in large or small groups, (d) with the general public (customers, students, etc). The consumer should consider the work environment, noting background noises of people, music and/or equipment, reverberant surfaces such as windows, and quieter cubicle environments.

2. Telephone communication issues include: (a) hearing on the telephone with/without hearing aid, (b) hearing the telephone ring, (c) the use of more than one telephone, (d) the use of a headset, (e) the use of a speaker phone, (f) the type of telephone used, (g) the use of a cell phone, and (h) the use of email?

3. Environmental alerts/warnings include: (a) Ability to hear fire alarms, smoke detectors, door knocks, (b) the use a paging system or closed circuit television for general announcements, (c) the use of other warning systems are used for weather emergencies and (d) are other unique hazards specific to the job task or work environment?

4. If there are communication needs at school or at home then apply questions 1-3 to every situation that will result in work success for the individual. For example: (a) a vibrating alarm clock will help the
individual wake up on time to get to work, (b) the consumer needs to ability to advise supervisor when they will not be at work that day, and (c) accommodations will be needed at school to ensure the individual benefits from educational programs.

5. Special circumstances should consider (a) the use of specialized equipment required to perform job tasks and (b) on the job travel may be necessary.

**What types of assistive technology are available?**

Hearing aids are recommended most often by audiologists, given that they are personal devices that can be tailored to the individual’s ear and hearing requirements. Assistive technology is helpful to use with a hearing aid or without a hearing aid if the individual has less than a severe hearing loss (Morris, 2006). Use of assistive technology can improve signal to noise ratios, overcome negative effects of distance from the speaker, enhance telecommunications, and/or provide a visual or tactile stimulus to augment auditory information (ASHA, 2005). Given the complexity of today’s hearing aids, assistive technology recommendations have become more complex for hearing aid and cochlear implant users. VR counselors often encourage the purchase of telecoils for their consumer’s hearing aid to provide connectivity to many assistive devices.

**Hearing Assistive Technologies**

Hearing assistive technologies or “HATS” are an option for an individual with a mild to moderate hearing loss when the user is not motivated or unable to use a hearing aid. HATS are strongly recommended for individuals that have a severe to profound hearing loss and communicate orally, to use in conjunction with their hearing aids. HATS include:

- **FM systems**: wireless transmission using radio waves from a microphone to a receiver (headphones, receiver boot on hearing aid, neckloop to hearing aid telecoil). Microphone technology in FM systems have become very sophisticated and include directional microphones, conference microphones, and a variety of very small boom microphones.

- **Hard-wired systems**: microphone and amplifier (such as Williams Sound Pocketer) are attached; user accesses signal through headphones, direct audio input from hearing aid or neckloop to hearing aid telecoil).
• **Infrared systems**: wireless transmission using infrared light waves from microphone to receiver (headphones, neckloop to hearing aid telecoil). Infrared is ideal for theatre use, television viewing and conference rooms.

• **Induction loop systems**: an induction loop wire is placed around the circumference of a room creating a magnetic field; input from the microphone is transmitted in the field and can be received through the hearing aid telecoil by anyone within the room’s loop.

• **Amplified telecoils**: available for hearing instrument users who have weak telecoils in their hearing aids. Many individuals have telecoils that are adjusted by hearing aid software, and often the telecoils need to be reprogrammed for more effective assistive device use. Automatic telecoils that are very popular in newer instruments are not strong enough to support use of assistive devices.

**Assistive Technology for Telecommunications**

Assistive technology specifically designed for telecommunications devices is the most popular type of assistive device. Many consumers use this type of technology because telephone work is often an important part of their job responsibilities. A consumer that has a slight or minimal loss of hearing may need use of assistive technology for the telephone at work but may not have any other communication concerns. In these cases amplified telephone systems are very effective. Amplified headsets for telephones are also available.

Consumers with a severe to profound hearing loss may need to use other assistive technologies with their hearing aids to hear well on the telephone or may be encouraged to use visual telecommunication devices such as e-mail and text messaging accessed by using a BlackBerry, Sidekick or Pocket PC, for example.

For individuals with sufficient residual hearing and word recognition skills various technologies exist to enable a direct connection to the telephone or other audio device. Hearing Aid Telephone Interconnect System (HATIS) and T-Link are examples of assistive technology designed to connect a hearing aid telecoil to a telephone, cell phone, computer or other audio device. Some models of hearing aids can be connected to telephones, including cell phones, using direct audio input cables, or by using a neckloop with their hearing aid telecoil. Hard wired systems such as
the Williams Sound Pocketalker, can also be connected to a telephone using a special adapter.

Cell phone use presents a problem for many oral deaf and hard of hearing consumers. Cell phones are not all compatible to hearing aids and therefore not all assistive technology (AT) for telephones will interface with the user's cell phone; consumers are advised to check the M and T rating of their cell phone prior to using any AT. A rating of 3 or 4 for M/T of a cell phone provides the best compatibility to hearing aids and use of assistive technology such as HATIS or T-link. This information is usually available in technical data that comes with the cell phone, or can be accessed on line by searching the cell phone manufacturer/model information. Portable voice carry over (VCO) phones are available for use with cell phones, however, more and more consumers who are oral deaf are using text messaging with their cell phones as an alternative.

Bluetooth wireless technology can currently be used to connect a user's hearing aid to a Bluetooth cell phone by use of various Bluetooth adapters, Bluetooth neckloop, or by using a special transmitter, such as the Phonak Smartlink or the Oticon Epoq. At the present time, Bluetooth is not compatible with business phone systems. Extensive research and development is being performed with Bluetooth and other short-range wireless devices, and it is possible that this technology will move more assistive devices to be completely wireless with hearing aids in the future (Sandrock & Schum, 2007). In all cases, the consumer's ability to hear and understand telephone conversations is limited to their word recognition ability no matter what type of assistive technology is utilized.

For individuals who are oral but can no longer understand conversational speech over the phone, use of a CapTel phone may be an option. Many states offer CapTel service, which provides captioning when the consumer places a call from their home or office. To receive captioning on incoming calls, the caller needs to contact the consumer using a special telephone number. Captioning is provided using real-time voice recognition by the operator, so the captions are somewhat faster than using a relay service. The CapTel phone can also be interfaced with a computer, allowing the consumer to save conversations or view the conversations in a larger font if needed.

Relay continues to be an option for many deaf or hard of hearing individuals, however, use of relay has declined significantly due to the accessibility of
text messaging and email. Use of TTYs has also become limited for the same reason. Many cell phone carriers offer lower cost text accessibility plans for individuals who are deaf or hard of hearing, and this may be a better option for most consumers given the rapidly expanded use of text messaging by cell phone users in the hearing community, as well as the deaf and hard of hearing community.

Another popular telecommunications device in the Deaf community is the video phone and/or video relay, which provides access to sign language using a web camera, video display/television and high speed internet connection.

**Visual Assistive Technology: Environmental Alerting Devices**

“Non-auditory” or visual assistive technology includes environmental alerting devices, and visual communication devices. Alerting devices are a necessity for consumers with a severe to profound hearing loss at home and in the workplace. Often consumers use these devices at home but may not have access to them at work, leaving them vulnerable in many emergency situations. There may be additional hazards in the workplace that an employee who is deaf or hard of hearing may be unaware of prior to employment. Many of the devices use a variety of strobe lights, flashing lights, pagers or vibrators. These devices are designed to alert to doorbells, telephones, clocks, voice/noise, smoke alarms and weather alert radios. There are a few auditory devices that signal on a lower pitch or louder sound for those with significant amounts of residual hearing. In addition, workers who are deaf or hard of hearing may need to be alerted when they are needed in another area, or need to contact their supervisor. Use of a Blackberry by the employee who is deaf or hard of hearing enables the employee to be contacted or paged by others as needed; in other settings, vibrating pagers are used to alert the employee who is deaf or hard of hearing that they are needed by the coworker or supervisor.

**Visual Assistive Technology: Communication Devices and Captioning**

Visual communication devices are designed to supplement information which cannot be heard. They are strongly recommended for oral deaf individuals, oral cochlear implant users, and deaf individuals with good English skills when an interpreter is not available. The Ubiduo and the Interpretype allow individuals to type information to one another in a fast,
accessible manner. These devices are portable and their use is popular in hospitals and other public service areas to provide communication access when an interpreter is not available. Visual displays, video captioning, and computer-assisted note takers can also be utilized to facilitate communication. Use of computer-assisted real-time captioning (CART), C-Print, and Typewell are technologies that are strongly recommended in educational settings beginning at the middle school level and are used at many colleges and universities. Voice recognition technology, the conversion of speech to text, can also be used by an individual who has successfully trained the software. It is not known at this time whether voice recognition technology will significantly expand use of captioning and visual communication devices as it develops.

Other Considerations

Many factors are involved in the consumer’s effective use of hearing aids and assistive technology. Consumers need to be assertive in the use of technology, and need to control/manage their environment as well as possible. Consumers need to know their own limitations, have an understanding of the impact of their hearing loss on their functioning level, and need to have appropriate expectations of what technology will and will not do. In some instances, a consumer’s knowledge about the technology recommended to them is limited to advertisements and sales pitches. In these cases, the consumer develops a high unrealistic expectation that use of a hearing aid or particular device will resolve all of their communication problems (Nemes, 2007). Developments in hearing technology have also been accompanied by higher expectations (Kochkin, 2005a). When the technology does not perform as expected in all situations, consumers become disillusioned and discontinue use of the equipment. One out of five individuals who obtain hearing aids does not use them or will discontinue use completely (ASHA, 2005). Informational counseling makes a difference for these individuals. The VR counselor and the audiologist need to work together to educate the consumer, their families and their coworkers on realistic, expected benefit of the technology recommended.

In the development of an individualized plan for the consumer, is the consumer coping with their hearing loss? Consumers who are not adequately coping with their disability often have difficulty using technology as they do not wish to appear different from everyone else. Many factors affect the ability of the consumer to cope, including their social support, educational
background, economic status, and work demands (ASHA, 2005). Personality, cultural background and the ability to adjust to change may also affect how the person accepts their disability and participates in the rehabilitation process. Consumers with congenital onset of their hearing loss often incorporate the hearing loss into part of their personalities; they may have developed a variety of coping strategies over time. Difficulties for these individuals occur if the hearing loss progresses, or when the consumer is in transition and experiences changes in their life. Many consumers with long-term hearing loss find it difficult to embrace newer technology as they feel a sense of security with equipment they have formerly used. In some cases if the family has never accepted or coped with the hearing loss, the child has never learned to either during their development (ASHA, 2005).

Consumers with adult onset of their hearing loss often suffer from depression, denial and resistance to the rehabilitation process (ASHA, 2005). Other factors affecting the rehabilitation process include the presence of other disabilities, and the consumer’s ability to use the technology recommended on a practical and functional level. Consumers with another primary disability such as blindness, for example, may not accept or cope with their hearing loss as their primary disability requires so much of their attention and effort. The thought of coping with yet another disabling condition is frightening and overwhelming.

A Case Study on the Partnership between VR and Audiologists

Initial consultation with VR Counselor

Nora X came to the local vocational rehabilitation office to apply for services. She had been living in the state for about one year, and had a history of a severe to profound hearing loss with onset during her teenage years. She is primarily an oral English user but does understand some sign language. She was assigned to a rehabilitation counselor for the deaf and hard of hearing and an interview was conducted. Nora has a bachelor’s degree in early childhood education and recently accepted a job as a teacher’s assistant at a day treatment program for the developmentally disabled; however, she has extreme difficulties communicating on the job and is seeking assistance from vocational rehabilitation to maintain employment. Her hearing aids are approximately seven years old and are beginning to malfunction. An appointment was scheduled with the rehabilitation audiologist to determine assistive technology needs and develop communication goals.
Consultation with Rehabilitation Audiologist

Nora X was seen for a consultation today on referral from her vocational rehabilitation counselor. An audiogram was performed which is in agreement with her report. She has excellent speech and generally communicates orally, with speaking and lipreading. She understands sign language fairly well, but prefers to speak given her history as a late-deafened individual. Nora X informed her audiologist that she is currently working as a teacher’s assistant. When she was hired the employer was aware of her hearing loss, but apparently did not realize the extent of the loss and assumed by Nora X’s excellent speech abilities that the loss was not very severe. They are very concerned that she does not hear children at a distance from her or behind her in the classroom. They have recently moved her to another classroom with fewer children, however, the children are more severely speech impaired and she is finding it very difficult to communicate with them.

Nora X’s hearing aids were evaluated and are not functioning adequately. Approximately one month ago she went to a dispensing audiologist and had her right ear mold replaced; this was all she could afford to do at that time. New hearing aids are needed with an additional ear mold for the left ear to provide sufficient amplification. In addition, use of an FM system with her hearing aids in her work place may provide improvement of signal to noise ratios and additional benefit.

Telephone communication difficulties were discussed. She noted that she uses an older TTY which is not functioning well; she would like to get a voice carry over/TTY combination phone but did not know what is available. Use of video relay, e-mail or Sidekick is not an option at this point due to financial hardships for Nora X. She uses a cell phone with text messaging.

Nora X noted that she does not have a suitable alarm clock or other alerting devices. Nora X uses a standard alarm clock with an extremely loud buzzer. This is becoming a significant problem as it is also waking her two young children and she is unable to ready herself for work properly. She also does not have any other alerting devices. She lives in a mobile home and is concerned that she does not hear tornado sirens. Nora X also recognizes that she needs to expand her knowledge/use of sign language. She requested information on deaf social activities and sign language classes.
Recommendations

One recommendation for hearing assistive technology is to obtain bilateral power digital hearing aids with an FM system. Both the aids and FM system can be used at work to determine whether the additional amplification would be enough to improve her communication abilities. A second recommendation for telecommunications is to obtain a portable voice carry over/TTY phone which can be used with Nora’s current cell phone.

Another recommendation for environmental alerting devices is to obtain a sonic boom alarm clock with a vibrator. She should also obtain a weather alert radio with a vibrator. Regarding her other communication needs, she should explore sign language instruction/social activities.

Nora X was scheduled to return on receipt of the hearing aids. Fitting with an FM system will be scheduled following adjustment to new hearing aid use. A work site visit will be scheduled at that time.

Work Site Visit and Follow Up

The audiologist and the VR counselor visited Nora X at her job. She noted that her hearing ability and use of the new hearing aids has improved with the adjustments. She is now able to adjust the volume to comfortable levels in a variety of situations.

Upon entering the classroom, it was noted that the noise levels are extreme. The classroom is small with large windows and a glass doorway on one side, and a large observation mirror on the other. There is a tremendous amount of reverberation. The children are noisy as they enter the classroom, and the other teachers are practically shouting to be heard over the children. Acoustically, the situation is very difficult. Nora X appeared to be somewhat disconnected at this time, as she had a tremendous struggle understanding what is happening. It was verified during the meeting that the overwhelming noise she hears is not over-amplification of the hearing aids, but she is realistically hearing noise that is present. She was relieved by this.

The audiologist dispensed a personal FM system with a zoom microphone for Nora X with the direct audio attachment to her hearing aids while the
VR counselor observed. Nora X noted a significant improvement in hearing ability, however, it remains to be seen whether the difference will be enough to improve her functioning in this very difficult environment. She will need to experiment with microphone use and placement, and will continue to need to use communication management strategies with the FM and hearing aids. She is hopeful that the school will try placing her in a higher functioning classroom where the noise levels are less. She was contacted the following week for follow-up and several minor difficulties were discussed. She reported great satisfaction with her devices. The VR counselor has regular contact with Ms. X and is offering guidance and support.

Conclusion

Hearing loss at even moderate levels can and often does have a major impact on an individual’s employment status. Through appropriate evaluation, services and with the use of assorted technology, individuals with hearing loss who desire to work can achieve their goal. A key component for assisting our consumer is to faithfully adhere to ADARA’s principle: “Networking for excellence in service delivery with individuals who are deaf or hard of hearing.”

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