

# Considerations in Selecting Assistive Devices for Hearing-Impaired Adults

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Contemporary audiologic practice includes counseling in the selection and use of assistive devices. Devices for amplifying and decoding telephone and television signals, amplifying speech in interpersonal communication, and alerting hearing-impaired individuals to activities in their environment are increasing in popular use. Factors to consider in the selection of such devices are described. Counseling guidelines are offered as they relate to user capability and interest, as well as to the usual characteristics of general categories of devices. Estimated cost ranges are provided, along with references to historical overview, clinical research and practice, and device ordering information.

Interest in assistive devices for hearing-impaired individuals is well-documented. Vaughn (1983) described large-area amplification systems developed and used in the United States over the past 50 years. Demands for accessibility of communication information by hearing-impaired individuals have resulted in federal legislation and new incentives for development and refinement of telephone amplifiers, teletypewriters, and television captioning units (Vaughn & Lightfoot, 1987a). Consumer organizations and publications for hearing-impaired individuals emphasize the benefits derived from use of available devices (Vaughn & Lightfoot, 1987b). Further, demonstration centers have been established throughout the country (Vaughn & Lightfoot, 1987b) to promote greater awareness and use of various devices.

Audiologists and equipment manufacturer's representatives have made an effort to inform the professional community about assistive device products and systems (Brixey, 1985; Hurvitz & Carmen, 1981; Kaplan, 1985a, 1985b; Palmer & Garstecki, 1988; Vaughn, 1983; Vaughn, Lightfoot, & Gibbs, 1985) and to present the benefits and limitations of available devices and systems (Leavitt, 1985; Williams, 1985a, 1985b; Kaplan, 1987). However, little attention has been directed toward the hearing professional's role in counseling hearing-impaired individuals in the use of assistive devices.

This report presents factors to consider in advising hearing-impaired individuals in the selection of various types of devices. Suggestions provided in this report are based on clinical observation and the result of a study concerning use of assistive devices by

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aging adults (Garstecki, 1987).

To counsel someone in the selection of assistive devices, it is important to understand his/her need for a particular device and ability to benefit from it. It is not necessary or practical to review the benefits, limitations, and uses of all known devices with everyone. If detailed information is desired, a series of counseling sessions can be dedicated to this purpose and reference can be made to information included in publications cited in this report.

### GENERAL COUNSELING GUIDELINES

Consider devices *with*, rather than *for*, hearing-impaired individuals. Elicit reaction to particular devices, eliminating those that are not likely to be accepted. As with hearing aids, by involving the client in the selection process, the hearing professional may motivate the client to use a device. Also, interaction during the selection process provides an opportunity to observe clients' communication skills and engage in preselection of devices. For example, you would not recommend a telephone amplifier to someone who requires and prefers to use a TDD (telephone device for the deaf).

Whenever possible, refer to recent audiometric information, including hearing aid evaluation results, for an estimate of the individual's sensory capability. From this one can infer potential need for and benefit from use of amplification and auditory alerting devices.

Gain insight into the individual's personal lifestyle. Learn about the individual's vocational and social interests and consider how these interests and activities might influence device selection. For example, if personal mobility is required, a wireless amplification system would be considered before a hard-wired system. If personal vanity is an issue, the size and color of the device is a consideration (Garstecki, 1987).

Learn about the hearing-impaired person's most difficult communication situation(s). Solving a primary problem may motivate the individual to consider ways to resolve secondary problems. For example, if the major problem is understanding others in noisy restaurants and this problem is resolved through use of a personal FM amplification system, then the suggestion to use other signal enhancing devices for other situations such as television listening/viewing is more likely to be accepted.

Estimate the individual's ability and willingness to pay the initial and maintenance costs for various types of devices. Clinical experience suggests that some people only will consider the least expensive solution to their problem, while others want the best possible device regardless of the cost.

Determine the individual's ability to independently install, operate, and maintain use of an assistive device. Obviously, if the hearing-impaired individual is dependent on others to operate the device, it may be used less.

Finally, it is wise to determine whether single-use or multiple-use devices are preferred. Some individuals are interested in versatility and want to be able to use one device in different locations and possibly for different purposes. A built-in telephone receiver-amplifier is an example of a single-use device, although modular built-in receiver-amplifiers can be used on any modular telephone in any location. A hard-wired amplification system is an example of a device that could serve multiple purposes (e.g., amplifying personal communication or a television broadcast).

While the above suggestions will serve to guide the counseling process, additional factors should be considered for specific types of devices. Telephone, television, inter-

personal communication, and home alerting devices have unique user requirements which are reviewed below.

### TELEPHONE

In counseling an individual in the selection of a telephone amplifying device, it must be established whether the person can use a telephone with an amplifying device and/or hearing aid, or whether a TDD is required. If a decoding unit is needed or preferred, will the individual be able to see push-buttons on a telephone and/or keys on a TDD keyboard? Does the person have sufficient manual dexterity to operate TDD equipment? If both amplifying and decoding equipment can be used, do particular communication needs dictate the type of equipment that should be selected?

Consider the possibility of multiple users of telephone devices and multiple-use devices. Will all telephone users have a need for special assistance (amplifying or decoding) or will normal-hearing people be using telephones equipped with receiver-amplifiers? If the telephone will be used by hearing-impaired people as well as normal-hearing individuals, preference might be given to devices that reset themselves to their lowest gain level when not in use. Is there an interest in both telephone and television amplifying devices? If so, combined telephone-television amplifying devices should be considered.

Ask the hearing-impaired individual to describe telephone unit locations, commenting on typical noise and traffic patterns in the area. Room lighting may be a consideration, especially for those using TDD keyboards. Some TDD units will require an electrical outlet, while many are battery-powered. Telephone equipment should be conveniently located or portable so that hearing-impaired users can use it without concern about being overheard.

Strap-on (telephone receiver) and snap-in (telephone base) portable amplifiers, as well as most modular handset receiver-amplifiers range in price from approximately \$15 to \$70 (Hal-Hen Company, Inc., P.O. Box 6077, Long Island, NY 11106-9990; Radio Shack, 300 One Tandy Center, Fort Worth, TX 76102; Sound Resources, Inc., 201 East Ogden Avenue, Hinsdale, IL 60521). Consult recent issues of *Hearing Instruments* (Harcourt Brace Jovanovich Publications, 7500 Old Oak Boulevard, Cleveland, Ohio 44130) and other product catalogs for up-to-date product and price information for telephone amplifiers and all other assistive devices for hearing-impaired individuals. TDD prices range from approximately \$150 to \$700, depending on the features incorporated in the unit. TDD costs may be subsidized by state departments of rehabilitative services, telephone companies, and philanthropic organizations. *Silent News* (Williams-ville Branch, P.O. Box 830, Buffalo, New York 14221), a popular newspaper for the deaf, includes TDD advertising information in each issue.

### TELEVISION

As with telephone devices, consider the hearing-impaired person's ability to benefit from an amplification device. If preference is expressed for a television decoding (captioning) device, consider the person's ability to read televised captions. Captioned text may be difficult for some people to see and some older adults may have difficulty keeping pace with the rate of captioned text presentation (Garstecki, 1987).

In selection of television amplifying devices, it is important to take into account usual noise levels and traffic patterns in the listening-viewing area. This will help in determining whether to consider hard-wired or wireless FM systems, for example. If a tele-

vision area can be dedicated to the needs of a hearing-impaired person, a hard-wired system or portable loop induction system can be considered. If not, infrared or FM systems may be preferred. Finally, the availability of electrical outlets must be considered, particularly for those planning to use a telecaptioning device or hard-wired amplification system.

Television amplifying devices often are portable and easy to use. They may range in price from approximately \$50 to just under \$100 for units that attach to the television set and up to \$200 for infrared systems (refer to Sound Resources catalog). Television decoding devices often are less easy to install and less easily transported than amplifying devices. Television decoding device prices range from approximately \$160 to just under \$250 (National Captioning Institute, Inc., 5203 Leesburg Pike, Falls Church, VA 22041).

### INTERPERSONAL COMMUNICATION

In selecting an interpersonal communication system, portability may be an important factor. For personal radio or television listening, as well as in selected interpersonal communication situations, a hearing aid with direct audio input may be preferred for optimal signal transmission. In restaurants, dining areas, kitchens, and other noisy areas it is important for the hearing-impaired person to consider seating arrangements and his/her desire for mobility. In lecture rooms, large-area amplification systems may be available and personal FM systems should be considered, particularly for primary signal enhancement in a noisy lecture room. As noted with other devices, the professional involved in this process should determine the potential user's ability to assemble, operate, purchase, and maintain each device.

Traffic patterns in intended use areas should be reviewed to avoid potentially hazardous circumstances where wires from hard-wired systems may interfere with personal navigation. Microphone placement should be anticipated and the need for portability should be discussed. Other choices include wearable versus table-top microphone options, multiple use possibilities, and the need for external power sources with hard-wired devices. Costs vary according to type of system, ranging from a low of approximately \$100 for self-contained hand-held or body-worn devices to several thousand dollars for room amplification systems (refer to Sound Resources catalog).

### HOME

In determining home alerting device needs, it is helpful to sketch an outline of the hearing-impaired person's home, room by room. Note where he/she stays most of the time, general activities in rooms throughout the home, and specific alerting needs or problems in each area. In large homes or offices, it is useful to consider systems that include a central monitor that responds to sensors placed in a variety of locations. Also, consider need for signaling appliances (e.g., fans, lamps, vibrators) and, therefore, extra electrical outlets. Some individuals may find it desirable to use a hard-wired system that, for example, may use existing household electrical wiring as an antenna linking sensor and alerting mechanisms. Many of these devices serve multiple purposes. The cost of these devices may range from under \$50 for a simple alerting device to over \$600 for an elaborate system having multiple sensors (refer to Sound Resources catalog).

Finally, telephone use may require an alerting device. In selecting a telephone alerting device, the warning signal must be audible to the client or he/she must be able to detect a visual (lamp) or tactile (fan) alerting signal. Telephone users with severe hearing and/

or vision problems may benefit from a vibrating alerting system. Regardless of the system selected, it may be wise to consider multiple signaling devices throughout the hearing-impaired person's home or work area. In equipping a home or work area with alerting devices, others who may not require such assistance and who may, in fact, find signaling devices to be obtrusive should be included in the selection process.

As information concerning the physical characteristics of available devices, standards for the fitting of assistive devices, and survey data relating to consumer preference for certain types of devices become available, selection of appropriate devices by and for hearing-impaired individuals will be better controlled than it can be at present. Until more information is available, the audiologist might guide the hearing-impaired consumer in the selection process by taking the above factors into account.

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#### REFERENCES

- Brixey, N.L. (1985). Getting started. In T. Snopce (Ed.), *Assistive listening devices and systems* (pp. 13-24). Rockville, MD: American Speech-Language-Hearing Association.
- Garstecki, D.C. (1987, June). *Aging adults: Reaction to audiologic services and assistive devices*. Paper presented at the Summer Institute of the Academy of Rehabilitative Audiology, Mt. Summit, PA.
- Hurvitz, J., & Carmen, R. (1981). *Special devices for hard of hearing, deaf, and deaf-blind persons*. Boston: Little, Brown and Company.
- Kaplan, H. (1985a). Alerting and convenience devices. In T. Snopce (Ed.), *Assistive listening devices and systems* (pp. 13-24). Rockville, MD: American Speech-Language-Hearing Association.
- Kaplan, H. (1985b). The audiologist and assistive listening devices. In T. Snopce (Ed.), *Assistive listening devices and systems* (pp. 13-24). Rockville, MD: American Speech-Language-Hearing Association.
- Kaplan, H. (1987). Assistive devices for the hearing-impaired. *The Hearing Journal*, 40 (5), 13-18.
- Leavitt, R. (1985). Counseling to encourage use of SNR enhancing systems. *Hearing Instruments*, 36 (2), 8-9.
- Palmer, C.V., & Garstecki, D.C. (1988). A computer spreadsheet for locating assistive devices. *Journal of the Academy of Rehabilitative Audiology*, 21, 158-175.
- Vaughn, G.R. (1983). Assistive listening devices — Part II: Large area sound systems. *Asha*, 25 (3), 25-30.
- Vaughn, G.R., & Lightfoot, R.K. (1987a). ALDS Pioneers: Past and present: Part I: An historical overview of hearing societies and ALD systems. *Hearing Instruments*, 38 (2), 4-12.
- Vaughn, G.R., & Lightfoot, R.K. (1987b). ALDS Pioneers: Past and present: Part II: ALDS consumer advocacy. *Hearing Instruments*, 38 (3), 39-57.
- Vaughn, G.R., Lightfoot, R.K., & Gibbs, S.D. (1985). Assistive listening devices — Part III: Space. In T. Snopce (Ed.), *Assistive listening devices and systems* (pp. 13-24). Rockville, MD: American Speech-Language-Hearing Association.
- Williams, G.I. (1985a). The five technologies of large space hearing assistance systems. In T. Snopce (Ed.), *Assistive listening devices and systems* (pp. 25-31). Rockville, MD: American Speech-Language-Hearing Association.
- Williams, G.I. (1985b). Hearing assistance systems technology. In T. Snopce (Ed.), *Assistive listening devices and systems* (pp. 87-92). Rockville, MD: American Speech-Language-Hearing Association.