



Guidelines for Audiology Service Delivery in Assisted Living and Nursing Homes

American Speech-Language-Hearing Association

According to the Omnibus Budget Reconciliation Act of 1987, all persons living in nursing home or assisted living (AL) settings should receive or have access to comprehensive and continuing integrated audiology services for the purpose of attaining and maintaining the highest practicable level of physical, mental, and psychosocial well-being.¹

Guidelines

The standard protocol for audiology evaluation and management traditionally requires an acoustically treated test environment in accordance with American National Standards Institute (ANSI) standards and the ASHA *Preferred Practice Patterns for the Professions of Speech-Language Pathology and Audiology*.

The general purpose of providing hearing screenings is to distinguish apparently healthy individuals from those with a greater probability of having a disease or condition and to refer these individuals for appropriate diagnostic testing.²

The purpose of an audiological assessment is to (a) determine the need for medical and/or rehabilitative intervention; (b) identify residents with hearing loss who have been misdiagnosed as “senile” or “depressed”; and (c) assess the rehabilitation potential of residents.³ Identifying and managing hearing loss often can reverse the diagnosis or lessen the severity of a confusional state. Decisions regarding the nature and severity of hearing loss generally can be reached using routine behavioral audiometry and immittance tests. It is the responsibility of the audiologist to ensure that audiometers, audioscopes, and immittance instrumentation are calibrated biologically on a daily basis and electroacoustically on an annual basis. Committee members consider the following protocol to be representative of an appropriate audiological evaluation protocol:

1. **Otoscope examination of the external ear canal and tympanic membrane.** At the time of the otoscopic examination, the audiologist should check carefully for collapsed ear canals; their prevalence increases with increasing age, especially when supra-aural earphones are used. Collapsed ear canals may interfere with the validity of air conduction testing. Although cerumen management is within the audiologist’s scope of practice, assuming appropriate knowledge and skills,⁶ caution should be exercised when removing cerumen—many AL residents are frail and have complex medical conditions. In addition, AL facilities may regulate which professionals are permitted to perform cerumen

management. Audiologists performing cerumen management should follow specific measures to prevent disease transmission.

2. **Air conduction testing at 250, 500, 1000, 2000, 3000, 4000 and 6000 Hz.** The use of insert earphones is recommended if a sound-treated booth is not available. The 250 and 500 Hz test tones may be omitted if ambient noise levels exceed the ANSI standard (ANSI, 1991) or if acoustic immittance testing is done (ASHA, 1994).
3. **Bone conduction testing from 250 to 4000 Hz or at those frequencies for which ambient noise levels are within ANSI standards (ANSI, 1991).** Following bone conduction testing, the audiologist again should check carefully for collapsed canals in the event that an unexplained high frequency air-bone gap presents.
4. **Speech recognition or detection thresholds to determine a recognition level for speech information.**
5. **Suprathreshold word recognition testing using face valid materials such as sentence materials or simple questions presented in quiet and/or noise.** The primary purpose of word recognition testing for residents of AL facilities is to identify persons who need assistive technology. Functionally relevant test materials are recommended because the adequacy of the resident’s functional communication capacity is of primary importance in the evaluation of hearing status. The secondary goal is uncovering peripheral or central auditory processing difficulties.
6. **Assessment of most comfortable and uncomfortable listening levels if the individual is considered a hearing aid candidate.**
7. **Immittance testing in the presence of air/bone gaps and/or when bone conduction thresholds may be contaminated by excessive ambient noise levels.**
8. **A reliable and valid functional communication assessment scale standardized on institutionalized individuals should be administered to determine candidacy for and benefit from hearing aids.** If the resident is too confused to provide valid self-report data, a simple questionnaire regarding communication abilities could be completed by a formal or informal caregiver. For adults likely to return to or for adults living in less restrictive environments, the screening version of the Hearing Handicap Inventory for the Elderly (HHIE-S) or the Self-Assessment of Communication (SAC) may be considered.⁴
9. **The audiologist should monitor functional status annually to determine whether any significant change in resident status has taken place.**

Referral and Intervention Options

If otoscopic examination and/or audiometric tests suggest a possible medical condition requiring treatment, immediate referral (see Table 1) to a physician is indicated. A referral for audiological rehabilitation should be made if audiometric findings or cognitive, physical, and psychosocial conditions suggest that the resident can use and benefit from a hearing aid and/or assistive device.

Hearing Aid Assessment and Fitting

Table 2 lists the factors that should be considered when recommending a hearing aid.

The appropriate electroacoustic characteristics of the hearing aid should be determined at the time of the prefitting using standard procedures (eg, audiometric data; real ear measures, when available; loudness judgments). Studies have indicated that hearing aid users older than age 60 prefer less amplification than various fitting strategies recommend. Care should be taken to recommend an earmold or hearing aid that the resident or staff can easily maintain, insert, and remove.

The caregiver should be included in the rehabilitation process and should be encouraged to attend the hearing aid orientation sessions. A successful hearing aid fitting depends in large part on the resident's level of dependency and the availability of a caregiver to assist the resident in inserting and adjusting the hearing aid. To establish realistic expectations, the limitations of hearing aid use should be explained to the user and caregiver.

At the time of the hearing aid fitting, it is important for the audiologist to verify the hearing aid response using one or more of these techniques: (a) real ear measures of insertion gain and output when the necessary instrumentation is available; (b) functional gain measures when patient or physical variables permit; (c) valid speech measures; and/or (d) informal questionnaires to verify adequacy of the hearing aid settings. At the postfitting session, which should take place within 2 to 3 weeks of the fitting, the adequacy of the hearing aid fitting should be verified electroacoustically, with real ear measures, speech tests, and/or self-report data.

Audiologists are encouraged to wear latex gloves when handling hearing aids and earmolds, but glove use should be discouraged when taking silicone earmold impressions. The audiologist should maintain a list of residents who obtain hearing aids. At a minimum, the list should include the resident's name, hearing aid make and model, battery type, serial number, and which ear(s). The nursing unit at the facility should receive a revised hearing aid list each time a resident is fitted with a new hearing aid. The volume control setting for each resident should be marked in red and the hearing aid(s) should be imprinted with the resident's name to help prevent loss.

As part of the prefitting and fitting, ongoing hearing

Table 1.
Referral Indicators

- Does the person require repetition of verbal questions, instructions, or messages?
- Has a family member or caregiver voiced concern about the adequacy of the individual's hearing?
- Does the person complain of current or past history of difficulty hearing or understanding?
- Does the person complain of current or past history of head noise, ear pain, or ear discharge?

aid orientation sessions should be scheduled to optimize the benefits of hearing aid use. A staff caregiver or family member should participate in the orientation and counseling sessions when feasible to ensure carryover of information into daily life.

Older adults with central auditory processing disorders (CAPD) tend to derive minimal benefit from hearing aids partly because of the interference posed by external distortions such as noise. Cognitive impairment associated with dementia, delirium, depression, amnesic syndromes, or benign senescent forgetfulness may render residents dysfunctional and unable to use hearing aid devices. Older residents who are withdrawn, isolated, and rarely interact with others may be adverse to hearing aid use but may benefit from assistive listening devices. Personal amplifiers are less costly than hearing aids and may provide sufficient auditory benefit for individuals with limited financial resources or because audiologic or nonaudiologic considerations do not warrant full-time hearing aid use.

Assistive Listening Devices

Assistive listening devices improve the signal-to-noise ratio of the primary message by transmitting speech directly to the listener's ears free of external distortion such as noise or reverberation. A broader, more descriptive, and inclusive term for these devices is "audiological rehabilitation technology." Audiological rehabilitation technology can be classified operationally according to 4 functional categories, including sound enhancement technology, television enhancement technology, telecommunication technology, and signal/alerting technology.

Sound enhancement devices are available as hard-wire, wireless, FM, or audio-induction systems. These listening devices are ideal for one-on-one, large or small group situations, and television or radio listening. Hard-wire systems, which couple directly to the sound source via a microphone, amplifier, and external receiver to the listener, are ideal for the AL setting. They can facilitate resident-to-resident, resident-to-staff, or informal caregiver-to-resident interactions. These systems, which are in-

Table 2.
Factors to Be Considered When Fitting Hearing Aids

- General health
- Audiometric status: peripheral, central
- Visual status
- Manual dexterity
- Affect
- Expectations
- Communication status
- Self-perception of auditory disability, listening needs, and psychosocial handicap
- Auditory-visual speech recognition ability
- Expressive/receptive communication abilities
- Lifestyle, financial factors, cosmetic factors
- Physical/social environment and caregiver availability

expensive, durable, and easy to use, make communication exchanges easier and more meaningful; it is difficult and tiresome to communicate with residents who need but do not use amplification or assistive listening devices. An additional advantage of hardwire systems is that they represent a visible symbol of hearing loss, signaling to other residents and staff that it is necessary to modify communication techniques to ensure understanding. This minimizes misunderstandings and the tendency to ignore people who have significant hearing loss.

Wireless devices such as infrared systems are ideal for residents who enjoy television viewing. These devices enable the signal from the television to be delivered directly to the listener's ear free of interference and distortion. If the AL facility's lounge area is equipped with a television, AL facilities should make sure to include a transmitter along with several receivers to enable residents to enjoy television viewing. Infrared systems have been installed successfully in large listening areas such as auditoriums, activity rooms, and places for religious observance, enabling large numbers of residents to follow the speaker free of noise or the disadvantage posed by distance.

A variety of telecommunication technologies that enhance speech understanding over the telephone are ideal for use in AL facilities. Given the high prevalence of hearing loss among residents of AL facilities, it may be desirable to have in-line amplifiers installed in each resident's telephone. Staff members in regular contact with residents, family members, or potential residents also should have in-line amplifiers installed in their telephones. All telephones should be compatible with hearing aids. All coin-operated telephones should be hearing aid-compatible and contain in-line amplifiers. At least one coin-operated telephone should incorporate a text telephone.

A variety of signal/alerting devices should be used throughout the AL facility, especially in large areas where residents congregate. Personal rooms of residents with significant hearing loss should be equipped with telephone alerting devices and smoke detectors with strobe lights or vibrotactile stimulation. Some smoke alarms emit a pungent aerosol spray into the air when visible or audible alarms are not effective.

Audiology restorative treatment and maintenance recommendations (ie, audiological rehabilitation, hearing aid orientation, maintenance programs) for AL residents with hearing loss should be included in the resident's comprehensive care plan (CCP). The degree of assistance necessary from nursing staff/caregivers also should be specified (eg, full assist, partial assist, supervised use, etc.).

When a resident is placed on a hearing aid maintenance program, the audiologist or designated staff member should conduct bimonthly checks to ensure that the aid remains clean and in good working order. Zinc air batteries are recommended because they are less toxic than mercury batteries and have a longer battery and shelf life. Extended warranties and/or supplemental insurance for loss and damage should be considered.

The audiologist should provide regular and periodic in-service training for AL staff to support the rehabilitation program designed for the resident and to provide carry-over of therapeutic aspects into their daily lives.¹⁰

Lost hearing aids are a significant concern of audiologists working with AL and nursing home populations. Although there is no guaranteed method of prevention, resident orientation, staff education, quality improvement (QI), spot checks, and appropriate reporting to nursing supervisors and administrators can help keep the problem at a minimum. Basic indicators (eg, working battery, hearing aid worn, volume correctly adjusted, hearing aid present/lost) serve to verify consistent and appropriate usage.

Audiological summaries, professional and self-help resource listings, educational literature, and instructions for families should be made part of the resident's care plan to ensure carryover of information and inclusion of recommendations into the resident's daily life and routines. **ALC**

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References

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