

Two Strategies for Aural Rehabilitation in an Extended Care Facility

B. Purves & B. Brooks

Abstract

A hearing aid maintenance and registration program was established in a 300-bed extended care facility. Hearing aid use was monitored over a 3-month period. Although the program initially resulted in increased hearing aid use, attrition was noted by the end of the program. A second part of the study focused on effectiveness of a training videotape in increasing staff's use of communication strategies with hearing-impaired residents. The study showed a significant increase in staff's use of these strategies after viewing the videotape. Effective use of aural rehabilitation services is discussed in terms of these results.

Introduction

Aural rehabilitation for the elderly is of increasing concern in view of the relative growth of this population. Incidence of significant hearing impairment, defined as 40 dB HTL and greater, is approximately 50% in individuals over 65 years of age in nursing homes (Schow and Nerbonne, 1980). Yet, in spite of improvements in hearing aid technology, hearing aid use among the institutionalized elderly is generally low. A 2-year program in Idaho aimed at increasing hearing aid use in three nursing homes resulted in only 4% more of the facility population using hearing aids (for a total of 9%). This low increase resulted despite provision of free hearing aids (Schow, 1982). These results are similar to those obtained in earlier studies (Gaitz and Warshaw, 1964; Smith and Fay, 1977). According to another study at Gorge Road Extended Care Unit in Victoria, BC, 12% of 300 residents were using hearing aids at the beginning of the study (Reid and Young, 1983).

In their discussion of hearing aid use in this extended care facility, Reid and Young have suggested that the difficulties facing institutionalized hearing aid users include, firstly, their own limitations in caring for their hearing aids and, secondly, primary care staff's lack of knowledge about individual hearing aid procedures. The Gorge Road program therefore included a strong inservice component about hearing aid care, with specific guidelines and procedures for individual resident's hearing aid care. A questionnaire evaluation of the program showed no statistically significant change after 7 months in hearing aid care, but 1 month after the start of

the inservice program the number of requests for speech-language pathologists to resolve simple maintenance problems dropped dramatically and remained consistently low over a period of 2½ years.

The Extended Care Unit (ECU) of the UBC Health Sciences Centre Hospital (HSC) is a 300-bed long-term care facility with a primarily geriatric population. Speech-language pathology services are available to the unit from the Acute Care Unit of the hospital; these are generally consultation services. Audiology services are not available within the hospital and must be arranged on an outpatient basis in community facilities.

In the 3 years preceding the project described below, many requests to the speech-language pathology service were for trouble-shooting residents' hearing aids and for inservice education about hearing impairment and its management. As part of a special projects program funded by the hospital's Endowment Fund, it was possible to obtain audiology services on a short-term basis to assist in determining most effective use of the limited consultative services and to develop procedures and resources to facilitate service delivery.

In order to achieve these goals, it was decided to establish and evaluate a maintenance/registration program for hearing aids already used in the ECU. In view of the estimated high proportion of hearing-impaired residents, it was also decided to develop a videotape primarily for nursing and nursing aide staff on strategies for communicating with the hearing impaired. This could be later used as part of an ongoing inservice program. A follow-up test procedure to ensure that the information could be readily understood and implemented was also developed.

Hearing Aid Registration/Maintenance Program

Procedures

Identification of Residents With Hearing Aid Experience

Residents with hearing aid experience were identified by means of a chart audit, yielding a total of 59 of 294 charts listing hearing loss as a permanent problem. Chart review, contact with primary care nurses and contact with residents identified 27 with hearing aid experience.

At the beginning of the program, six residents were using hearing aids routinely, with their aids in good repair. The audiologist re-established use with an additional 10 residents by arranging for new ear models and locating and repairing aids as needed. Audiological eval-

Barbara Purves and Beth Brooks
Health Sciences Centre Hospital
University of British Columbia

uation was done for these additional users to ensure that aids were still appropriate. This evaluation consisted of otoscopic inspection, impedance testing and monaural pure tone air conduction thresholds (Schow, 1982). Additionally, monaural speech awareness and speech reception thresholds were obtained. All testing was done with calibrated portable equipment in a quiet room. Hearing aids were tested through listening checks (Duhamel and Yoshioka, 1985 and 1986). Aided function was assessed with informal conversation in the quiet room and in the noisier common room.

The remaining 11 residents with hearing aid experience either did not wish to re-establish use or were no longer appropriate candidates, given the limited time and support that could be offered in this study. A total of 16 hearing aids were therefore included for a 3-month registration/maintenance program.

Registration of Hearing Aids

Registration cards including information about battery type and supply, repair record and resources, and serial numbers were prepared for each hearing aid. Registers of all hearing aids on each of the four floors were placed at the appropriate nursing stations with a master list in the Speech-Language Pathology Department.

Maintenance of Hearing Aids

A card was placed at each resident's bedside with information about type of aid, appropriate settings and placement, environment for use and suggestions for communicating with hearing-impaired residents.

An earmold cleaning kit and battery tester was placed on each floor. One staff person per floor accepted responsibilities for checking and, if necessary, cleaning earmold once weekly. Demonstration was provided as needed. An Earmold Cleaning Record was placed on each floor to be signed as earmolds were checked.

Primary care nurses were contacted when possible to demonstrate correct positioning of earmolds. Inservice was provided at the request of one floor. In addition, at intervals throughout the 3-month monitoring period, spot checks were carried out by the speech-language pathologist to promote earmold cleaning and hearing aid use.

Results

At the end of the 3-month period, the audiologist reviewed all hearing aids in terms of condition and use. This review showed that of the 16 hearing aids initially established, 11 were in use in good repair with adequate battery supply. Two hearing aids could not be located, two hearing aid users had died and one hearing aid was out for repair. A summary of hearing aid use is provided in Table 1.

Table 1: Summary of Hearing Aid Use

	No. of Residents
Resident Population	294
Hearing Problem Listed	59
Hearing Aid Experience	27
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Hearing Aid Use	
Prestudy	6
Study Onset	16
Poststudy	11
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Reasons for Discontinued Usage	
Deceased	2
Aid Lost	2
Aid Broken	1

The hearing aid register had been used during the 3-month period to reunite three hearing aids with their owners. The cleaning record showed the earmolds were either not checked once weekly or had been checked without record entry. Inspection of earmolds showed that all were adequately clean.

Comments from nursing staff participating in the study indicated support for routine registration and maintenance but identified a need for ongoing assistance with these procedures. Generally, nursing staff, although recognizing the importance of hearing aid use, did not feel able to devote sufficient attention to hearing aid care and expressed concern about breakage and loss. It is perhaps noteworthy that of the 11 residents still using their hearing aids at the end of the 3-month period, 5 received assistance from their families during frequent routine visits in keeping track of and/or donning their aids.

Communication Program

Procedures

A 15-minute videotape entitled "Communicating Effectively with a Hearing-Impaired Person", outlining strategies for improving communication and using filtered speech to simulate hearing loss in a variety of communication environments, was prepared. All strategies included are among those frequently encountered in inservice and published material on communicating with the hearing impaired. Given the project limitations on time and resources it was decided that validation of the strategies themselves could not be undertaken, and it was accepted at the outset that use of such strategies would improve communication.

In order to determine whether the information was adequately presented, a test using 10 patient care aides as subjects was undertaken. Three hearing-impaired residents agreed to participate. Each subject was requested

to present 10 randomly selected C.I.D. Everyday Sentences¹ to one of the three residents, first instructing the resident to repeat the sentences as accurately as possible. The C.I.D. sentences were used to standardize the type of interaction across communication pairs. Each subject had not met his/her resident "partner" prior to the initial session. The audiologist observed the session and scored the subject using a 15-point checklist designed for the study (Appendix A), assigning one point for the presence of each target behaviour. The checklist was based on information presented in the videotape.

Within the week following the initial session, each subject watched the videotape. A second session was then arranged for the subject to present 10 different C.I.D. sentences to the same hearing-impaired resident, with the audiologist scoring the checklist.

A binary scoring system was designed to reduce the effect of scorer bias. In both the pre- and postviewing sessions the audiologist did not provide any feedback about communication strategies. The patient care aides were not informed of the format of or items on the checklist until after completion of the study. In both pre- and postsessions, subjects were asked to select a location for the session.

Results

Every subject used more of the demonstrated strategies in the second session, with a mean of 12.2 out of a possible 15. Results are shown in Table 2.

Table 2: Communication Strategy Evaluation Summary

Subject	Session 1 [Max. 15]	Session 2 [Max. 15]
1	10	14
2	11	13
3	8	12
4	6	13
5	9	13
6	3	12
7	8	12
8	9	11
9	5	10
10	6	12
X	7.5	12.2

The difference between mean scores in the first and second session was statistically significant ($t = 6.87$, $p < 0.001$).

Discussion

Analysis of the outcome of the maintenance/registration program for hearing aids shows that, although this type of program initially improved hearing aid use, some attrition was nonetheless noted over the 3-month

period. It is anticipated that, despite the checking procedures, maintenance problems and loss of hearing aids would continue to have a negative effect on overall use over a longer time. As the Gorge Road program demonstrated, a major emphasis on education of care staff about hearing aids, with inservice talks held twice per week, although beneficial, nonetheless resulted in attendance of only 40% over a 7-month period (Reid and Young, 1983). These results, taken with those of the present study, suggest that effective hearing aid maintenance in a long-term care facility requires the continuing presence of someone knowledgeable about hearing aids and specifically responsible for their care. In the event that such service is not available, the ability of an individual to accept responsibility for use and care of his own aid is an extremely important factor in hearing aid candidacy. In the HSCH-ECU, responsibility for the maintenance/registration procedure has now been assumed by the speech-language pathology service. Nonetheless, since completion of this study, a resident's ability to keep track of a hearing aid remains a prime consideration in selecting possible candidates.

An unforeseen benefit from this project has been that, as a possible result of increased awareness of hearing aid care in ECU, several hearing aids have been donated to the speech-language pathology service by residents' families. This has made possible a hearing aid loan program. In addition, hearing assistive devices have been purchased and are used with some residents.

The test of the videotape indicated that staff were able to understand and implement the demonstrated strategies after watching the videotape. In view of the frequency of hearing loss in institutions for the elderly, it is reasonable to place major emphasis on improving communication by encouraging staff to alter their behaviour as an alternative to reliance on technical aids. Results of such behavioural changes are often immediate and self-reinforcing. Long-term benefits can include increasing staff's confidence in their own ability to manage hearing loss. Given also that a hearing aid can only partially compensate for hearing loss, information for staff about communication strategies is a useful precedent to provision of a hearing aid. Such education would possibly result in more effective communication with the hearing aid user, ultimately resulting in increased support for hearing aid use.

References

- Duhamel, G., Yoshioka, P. Subjective listening techniques for assessing hearing aid function. Part I (1985): Basic listening tests. *Hearing Instruments*, vol. 36, no. 10, pp. 34-43, 77. Part II (1986): Trouble shooting common hearing aid problems. *Hearing Instruments*, vol. 37, no. 3, pp. 19-22. (Previously distributed by Unitron Industries.)
- Gaitz, C., Warshaw, H. (1964). Obstacles encountered in correcting hearing loss in the elderly. *Geriatrics*, 19, 83-86.

Reid, H., Young, M. (1983). A program for managing hearing aid care in an extended care unit. Paper presented at the meeting of the Gerontological Nursing Association, Victoria, BC

Schow, R. (1982). Success of hearing aid fitting in nursing homes. *Ear and Hearing*, 3, 173-177.

Schow, R., Nerbonne, M. (1980). Hearing levels among elderly nursing home residents. *Journal of Speech and Hearing Disorders*, 45, 124-132.

Smith, C., Fay, T. (1977). A program of auditory rehabilitation for aged persons in a chronic disease hospital. *ASHA*, 19, 417-420.

APPENDIX A

Communication Strategy Evaluation

	Present	Comments
A. ENVIRONMENT		
1. Appropriate lighting (light on speaker's face)		
2. Reduced background noise		
3. Appropriate distance (1 to 2 m)		
4. Facing listener		
B. SPEAKING HABITS		
1. Hands/distractions away from face		
2. Head still when speaking		
3. Normal volume of voice		
4. Appropriate rate		
5. Clear speech with normal mouth movements		
C. CONVERSATION		
1. Establish eye contact before speaking		
2. Maintain eye contact		
3. Establish topic		
4. Use appropriate gestures		
5. Use appropriate facial expression		
6. Check for understanding		
STRATEGIES TO USE IF REQUIRED (not included in score)		
1. Physical contact		
2. Writing		
3. Position on side of hearing aid/better ear		
4. Rephrasing		
SCORE [add A, B and C above]	_____	[Maximum 15]

Author Notes

Barbara Purves is sole charge speech-language pathologist, Health Sciences Centre Hospital, University of British Columbia, Vancouver, BC.

Beth Brooks is an audiologist in Vancouver, BC.

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Footnotes

¹ The C.I.D. Everyday Sentences are a set of sentences developed by the Central Institute for the Deaf and widely used in speech reading and discrimination activities.