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AN ASSESSMENT OF THE EFFECTIVENESS OF IN-SERVICE TRAINING
REGARDING THE CARE AND MAINTENANCE OF HEARING AIDS TO
PERSONNEL OF HEALTH CARE FACILITIES

By

Mary Eve Bakula

B.A., University of Montana, 1986

Present in partial fulfillment of the requirements

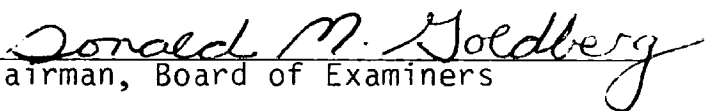
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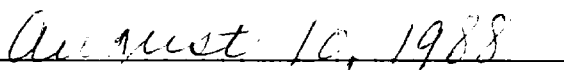
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ABSTRACT

Bakula, Mary Eve., M.A., July, 1988; Communication Sciences and Disorders

An Assessment of the Effectiveness of In-Service Training Regarding the Care and Maintenance of Hearing Aids to Personnel of Health Care Facilities

Director *Donald M. Koedlitz, Ph.D.*

Thesis Approved *7-8-88*

The purpose of the present study was to assess the base knowledge of nursing home staff members regarding the care and maintenance of hearing aids as well as issues related to hearing aids. In addition, the effects of an in-service presentation regarding this topic were examined. In-service presentations were administered to three area nursing homes. A pretest assessment revealed a low mean accuracy score, indicating the respondents did not have adequate knowledge to provide maximal care of the residents' personal amplification systems. Following the in-service, a posttest was administered to assess the effects of the in-service. Statistical analysis revealed a significant difference between the two questionnaire assessments, indicating the in-service was effective in training nursing home personnel.

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CHAPTER ONE

INTRODUCTION

An increase in the number of older Americans has been observed due to an expanded average life expectancy. There are currently more than 28 million elderly persons over the age of 65 (Chapey, Lubinski, Salsburg, and Chapey, 1979). Approximately five percent of this population resides in health care facilities, comprising almost 1.5 million individuals (Hull, 1982).

Various figures are reported in the literature regarding the prevalence of hearing impairment in the elderly population and the percentage of elderly persons who wear hearing aids. It has been estimated that 35% to 50% of all individuals over 65 years of age have at least some degree of hearing loss (Schow and Nerbonne, 1980). Goldstein (1984) reported the prevalence of hearing impairment in individuals over the age of 65 was between 25% and 32%. Approximately 82% of residents in long-term health care facilities exhibit at least a slight hearing loss and about 50% have at least a moderate hearing loss (Schow and Nerbonne, 1980). However, the percentage of hearing-impaired residents who use hearing aids is substantially lower. Schow (1978, as cited in Hull, 1980) estimated that only 11% of potential hearing aid candidates actually wore them. Schow also estimated another 20% of hearing aid candidates had hearing aids but did not currently use them. Alpiner (1963) indicated that approximately one-third of possible candidates for hearing aids were using them. These figures demonstrate that there may be a large number of hearing-impaired individuals who do

not utilize their amplification systems or are not fit with hearing aids.

The elderly population is a heterogenous group of individuals who may have a wide range of communication disorders. Speech and language problems may exist in the group as well as hearing impairment. Hearing loss that is due to degenerative changes in the auditory pathway is termed presbycusis (Schuknecht, 1974, as cited in Hull, 1980).

Presbycusis typically affects auditory discrimination of speech as well as hearing sensitivity. An individual with presbycusis may experience more difficulty understanding speech than would be expected from their measured auditory acuity (phonemic regression). Diggs (1980) estimated that 25% of individuals over age 65 had some degree of presbycusis. Hull and Traynor (1977) suggested that approximately 60% of individuals over 65 were affected by presbycusis to some degree.

Many elderly hearing-impaired individuals may be reluctant to admit they have a hearing loss and thus do not seek help through amplification. A negative attitude towards hearing aids is found in some individuals who may feel the hearing aids are unattractive or draw attention to their hearing loss. However, Iler, Danhauer, and Mulac (1982) investigated elderly individuals' impressions of peers who wore hearing aids and found that hearing aid wearers were rated no differently than non-wearers.

The reasons for the non-use of hearing aids is unclear. Some individuals who have hearing aids may not use them due to a lack of knowledge on the operation of the hearing aids. Still other individuals may experience difficulty in the care and maintenance of their hearing aids, thus minimizing the degree of their use. Alpiner (1963)

attributed the rejection of hearing aids by nursing home residents to denial of hearing impairment as well as due to financial reasons. Alpiner reported that a general feeling of "hopelessness" was often prevalent in these facilities and residents were usually reluctant to seek assistance with their hearing aids. In some cases, the personnel in health care facilities must take responsibility for the residents' hearing aids (Smith and Fay, 1977).

There are several benefits associated with hearing aid use by older hearing-impaired persons. The consistent use of amplification in health care facilities and elsewhere, can facilitate communication among hearing-impaired individuals and others. Hearing aid use can be especially important for hearing-impaired individuals in health care facilities in order to follow various instructions or answer questions of staff members. Hearing-impaired residents of health care facilities may often need to be informed of medical advice or in making medical decisions. Hearing aid use therefore, may provide an individual with their optimal hearing, which can benefit them in a variety of situations.

Personality traits have been examined in their relation to hearing impairment. Harless and McConnell (1982) administered a self-concept to two groups of hearing-impaired individuals. One group was fitted with hearing aids and the other group chose not to wear hearing aids. The researchers demonstrated that hearing aid users had a higher degree of self-esteem than did hearing-impaired individuals who did not use hearing aids. This is further demonstration for the need for amplification in hearing-impaired individuals.

Elderly individuals who reside in nursing homes may often feel isolated or lonely. Nuru (1985) reported that successful communication could facilitate adjustment to institutionalization, including nursing homes. Increasing the effectiveness of communication through hearing aid use may be difficult, however, in the nursing home. Mueller and Peters (1981) found a low representation of audiological services in these settings. Few nursing homes independently employ audiologists, rather they contract the services from outside agencies. The adequacy and frequency of contractual services is not well documented. Elderly individuals as well as other hearing-impaired residents, require the services of audiologists for many functions, in addition to concerns relative to amplification, which may include the following:

- 1) Identification of hearing loss
- 2) Evaluation of auditory and vestibular functioning
- 3) Hearing aid selection, fitting, and orientation
- 4) Aural rehabilitation
- 5) Referral to other agencies when necessary
- 6) Provision of education to medical and allied health professionals and to the general public.

Hull and Traynor (1977) included these components in their model aural rehabilitation program. Unfortunately, the audiological needs of nursing home residents may be unmet, thus decreasing effective communication by some hearing-impaired individuals.

Researchers have assessed various groups' (teachers, parents, speech-language pathologists) knowledge of hearing aids and hearing loss through questionnaire studies. Lass, Tecca, and Woodford (1987) assessed

teachers' knowledge of hearing aids, as well as their attitudes towards hearing aids. A questionnaire with 20 items assessed various aspects of amplification, including attitudes towards hearing aids and hearing aid wearers, academic exposure to hearing aids, and their experiences with hearing aid wearers. The results from this survey indicated that the majority of the respondents had not had a previous course that included the topic of hearing aids. The answers to other questionnaire items generally indicated limited knowledge regarding hearing aids. The authors provided suggestions for increasing the knowledge base of teachers regarding hearing aids which included in-service workshops.

Blair, Wright, and Pollard (1981) conducted a similar study with the parents of hearing-impaired children. This survey examined the current level of knowledge regarding hearing loss and hearing aids. Results indicated that approximately one-half of the parents were somewhat knowledgeable about hearing loss, however, most parents knew little about their child's hearing aid(s). These findings revealed that parents were not receiving adequate education regarding their child's hearing aid(s).

Woodford (1987) administered a written and practical examination to speech-language pathologists to assess their knowledge and skills regarding hearing aids. Results from this study indicated a deficiency in the knowledge base of this group. These speech-language pathologists typically had taken a class or had some exposure to the care and maintenance of hearing aids, however, they still lacked the basic skills to assist a hearing-impaired student with their hearing aid(s).

Based on the lack of information that the above-noted persons exhibited, it might be projected that nursing home personnel may be in need of instruction regarding hearing loss and amplification. Many rehabilitation programs include in-service training sessions for the nursing home attendants. Hull and Traynor (1977) stressed the need for an in-service training at least monthly to account for the rapid turnover in nursing homes. Hearing aid use and troubleshooting techniques were a component of the in-service session. Smith and Fay (1977) incorporated in-service training for staff members into their aural rehabilitation program. Karp (1987) employed in-service videotapes as a means of educating nursing home staff members regarding hearing loss and hearing aids.

The purpose of this study is to determine the current level of knowledge regarding hearing aid care and maintenance in nursing care facilities and to assess the impact of an in-service presentation to nursing home staff members regarding hearing aids.

CHAPTER TWO

METHODS

Subjects

The nursing home personnel who served as subjects primarily included registered nurses, licensed practical nurses, and nurses' aides. Some of the nurses' aides were certified, while others were not certified. Personnel at several nursing facilities were sampled in order to generate an adequate subject pool. Although seven nursing homes were contacted to receive the in-service training, only three of the facilities participated.

Questionnaire

A 21-item questionnaire (see Appendix A) was used to assess the knowledge of the nursing facility staff members. Items on the questionnaire addressed the care and maintenance of hearing aids, as well as some general questions regarding hearing loss. The questionnaire also assessed the respondents' previous exposure to hearing aids. True-false and fill-in-the-blank questions were utilized in the questionnaire. Many items on the questionnaire were patterned from Lass et al. (1987) and Lass, Carlin, Woodford, Campenelli-Humphreys, Judy, and Hushion-Stemple (1985). All items contained in the questionnaire were addressed during the in-service training. For scoring purposes, the standards used by Lass et al. (1985; 1987) were followed. Additional standards for scoring were determined by consensus of three full-time certified audiologists on the faculty at the University of Montana Department of Communication Sciences and Disorders.

Procedures

The questionnaire was initially completed by the nursing home personnel in the experimental group no less than one week prior to the in-service presentation. Individuals who completed the questionnaire were instructed not to discuss the questions with fellow workers or refer to textbooks. The personnel were also advised to mark "don't know" rather than guessing if they were unsure about an answer. The completed questionnaires were returned to the facility coordinator within two days of completion, with the staff member's name and job position recorded on the forms. Confidentiality was assured in the instructions.

Immediately following the presentation and a "hands on" period, the same questionnaire was readministered to assess any changes in the knowledge base of the subjects in regards to hearing aids and hearing loss. Subjects were again advised to provide their name and job position to this questionnaire.

In-Service Guidelines

The purpose of the in-service was to acquaint nursing home personnel with hearing aid care and maintenance, as well as issues related to hearing loss. The program was directed toward individuals who have little or no knowledge of hearing aids. Specific topics included a discussion of the following:

- 1) Audiologists and hearing aid dealers
- 2) The importance of amplification
- 3) Hearing loss
- 4) Types of hearing aids

- 5) Components of hearing aids
- 6) Troubleshooting tips for hearing aids and batteries
- 7) Suggestions for communicating with hearing-impaired individuals.

Specific points that were covered in the training session are provided in Appendix B. The script format was developed in order to control for variability across presentations. In addition, transparency overhead slides accompanied the lecture to provide visual aids.

The program was approximately one hour in length, beginning with approximately 40 minutes of lecture. The "hands-on" section followed the lecture and lasted for 10-15 minutes. Smaller groups were formed and each group was led by a graduate student who had demonstrated competence in manipulating hearing aids. Each student participating as a group leader had successfully completed a course in hearing aids and had oriented individual hearing aid wearers to the operation and care of their hearing aid(s). A certified audiologist was also available to lead a group or answer questions as needed. During this activity emphasis was placed on practical suggestions regarding hearing aid care and maintenance. In particular, battery removal and insertion of batteries for various types of hearing aids, turning the hearing aid off and on, and listening checks were targeted during this portion of the training. Other areas were addressed as questions developed. This manipulation of the hearing aids was intended to reduce the anxiety that nursing home personnel may feel toward hearing aids.

Purpose

The purpose of this study was to determine the current level of knowledge regarding hearing aid care and maintenance in nursing care facilities and to assess the impact of an in-service presentation regarding this topic.

Analysis of Results

The results of individual questionnaire items on the pre- and posttest were analyzed by tallying the number of correct responses and obtaining a mean percentage correct score for each item. T-tests were performed on the overall pretest scores and the posttest scores to determine if a significant difference existed between the two questionnaires. In addition, analysis of variance (ANOVA) procedures were performed to determine the impact of the respondents' experience with hearing aids and job positions on their pretest and posttest scores. These procedures were computer-assisted with the statistical analysis software SPSSx (SPPS Inc., 1983).

CHAPTER 3

RESULTS

Sample Size and Description of Subjects

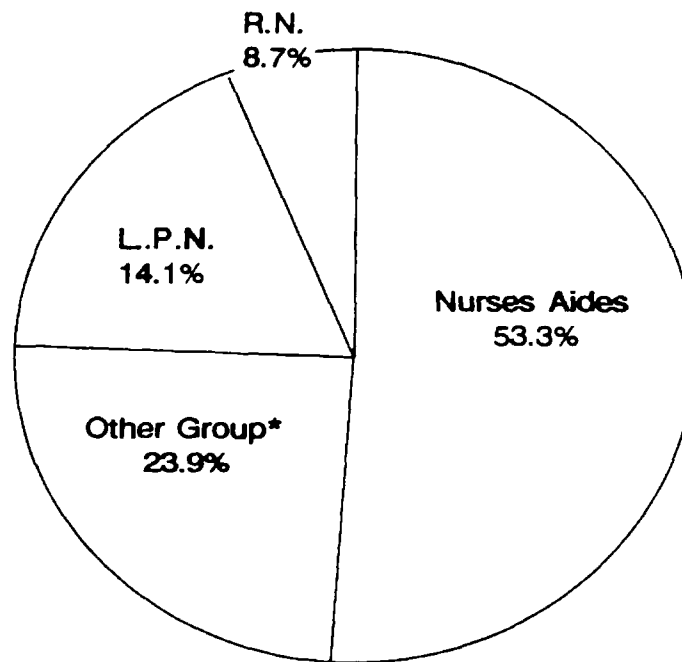
Three area nursing homes participated in the study and included the following facilities: Valley View Estates Nursing Home (Hamilton, MT), Wayside Nursing Facility (Missoula, MT), and Hillside Manor (Missoula, MT). A total number of 97 individuals completed the questionnaire. However, only 40 of these individuals completed both a pretest and a posttest questionnaire. Twenty-nine (29) of the respondents completed a pretest only and did not attend the training program. Twenty-eight (28) of the respondents did not complete a pretest. However, they did attend the training session and completed the posttest. Only the subjects who had completed both questionnaires were used to make the comparison of knowledge base before and after the in-service program. All pretests were analyzed to determine knowledge prior to the in-service. Finally, all posttests were analyzed as a group.

The subjects in attendance who reported their job position consisted of registered nurses (8.7%), licensed practical nurses (14.1%), nurses' aides (53.3%), and other personnel (23.9%)(see figure 1). Other personnel consisted of administrators, case coordinators, activities coordinators, and social workers. Five percent of the respondents did not identify their position.

Familiarity with Hearing Impairment

The following information was obtained from questionnaire items one through five (see Appendix A). The majority of respondents (89.7%) did

Figure 1. Job position breakdown for those participants who identified their position.



*Other group includes administrators, case coordinators, activities coordinators, and social workers.

not have a hearing loss. Of the 10.3% individuals who reported a hearing loss, only 1% of these had a hearing aid. However, 86.6% of the total respondents knew someone with a hearing aid, which were most often reported as family members, friends, or residents of the health care facilities. Approximately twenty-two percent (22.1%) of the respondents reported they had previously taken a class which covered the topic of hearing aids.

Approximately fifty-eight percent (58.3%) of the respondents indicated they interacted with a hearing aid wearer more than once a day. Over nineteen percent (19.8%) of the respondents interacted with a hearing aid wearer approximately once a day. Over sixteen percent (16.7%) indicated they interacted with a hearing aid wearer approximately once a week. Approximately five percent (5.2%) rarely interacted with hearing aid wearers.

Over fifty-eight percent (58.3%) of the subjects indicated they currently assisted a resident with the care and maintenance of their hearing aid. Approximately forty-two percent (41.7%) did not assist a resident with their hearing aid at the time the survey was taken.

Survey Questions

A detailed analysis of the respondents' answers to the remaining questionnaire items is presented in Table 1. A summary of the findings of the survey is presented below. All numbers in this section correspond to the same numbered item on the questionnaire which is presented in Appendix A. Acceptable responses which were coded as correct can be found in Appendix C.

The findings are presented in the following enumerated format for the ease of the reader. The reader is reminded that all subjects who completed a pretest did not complete a posttest (N=29). Also, 28 individuals only completed a posttest. The total number of subjects who completed both a pretest and posttest was 40.

Item 6. The pretest measure indicated that the majority of individuals (97.1%) knew that extended hearing aid use did not permanently improve hearing, such that the hearing aid user no longer needed a hearing aid. On the posttest, all participants (100%) answered this question correctly.

Item 7. Over sixty-five percent (65.2%) of the respondents to the pretest knew that not everyone with a hearing aid could benefit from a hearing aid. On the posttest, 73.5% of the respondents correctly answered this question.

Item 8. On the pretest, the majority of the respondents (97.1%) knew that individuals over the age of 65 could use hearing aids. All respondents (100%) correctly answered this question on the posttest.

Item 9. Only 17.4% of the respondents to the pretest knew that a hearing aid set on the 'T' switch would not pick up environmental or

Table 1. Mean Percentage Correct for All Respondents (N=97) for Individual Pretest and Posttest Items.

Item#	Pretest Score (in % correct)	Posttest Score (in % correct)
6	97.1	100
7	65.2	73.5
8	97.1	100
9	17.4	94.1
10	72.5	91.0
11	76.5	100
12	64.7	98.5
13	34.3	41.8
14	62.7	100
15	52.9	91.2
16	83.6	93.9
17	93.9	100
18	52.2	90.9
19	10.4	83.6
20	29.0	74.6
21	42.6	80.9

room sounds. Over ninety-four percent (94.1%) of the subjects correctly answered this question on the posttest.

Item 10. Approximately three-fourths (72.5%) of the subjects initially knew that the function of hearing was not returned to normal when using a hearing aid, as opposed to eyeglasses restoring vision. On the posttest, 91% of the subjects answered this item correctly.

Item 11. Over three-fourths (76.5%) of the subjects originally knew that speaking very loudly to a hearing-impaired person did not make it easier for him/her to understand. All subjects (100%) responded correctly to this question on the posttest.

Item 12. Over sixty percent (64.7%) of the subjects initially knew that it is a normal function of the aging process to lose some hearing. Almost all (98.5%) respondents correctly responded to this item on the posttest.

Item 13. Approximately one-third (34.3%) of the subjects responded correctly on the pretest of this item, indicating they knew that most hearing losses could not be medically treated. Slightly more than 40% (41.8%) of the respondents responded correctly to this item on the posttest.

Item 14. Over sixty percent (62.7%) of the pretest subjects knew that there are an assortment of sizes for hearing aid batteries. All posttest respondents (100%) answered this item correctly.

Item 15. On the pretest, more than one-half (52.9%) of the respondents knew that feedback is not a normal function of a hearing aid while positioned in a person's ear. A large majority of the posttest respondents (91.2%) answered this item correctly.

Item 16. More than three-fourths of the pretest respondents (82.6%) knew that a person could wear more than one hearing aid. On the posttest, this percentage increased slightly (93.9%).

Item 17. The majority of the pretest respondents (93.9%) knew that hearing aids are powered by batteries. All posttest respondents (100%) answered this question correctly.

Item 18. Over one-half of the pretest respondents (52.2%) knew who the non-medical professional is who specifically studies hearing and tests hearing. A large majority of the posttest respondents (90.9%) answered this item correctly.

Item 19. When asked what type of amplification system would be most appropriate for an individual with poor dexterity of the hands, only 10.4% of the individuals in the pretest group answered this item correctly (correct answer-body aid). A large increase in correct responses (83.6%) was observed in the posttest group.

Item 20. Twenty-nine percent (29%) of the pretest respondents gave acceptable answers to the question of how often hearing aid batteries needed to be replaced. Approximately three-fourths (74.6%) of the posttest respondents correctly answered this question.

Item 21. When asked where hearing aids could be purchased, less than one-half (42.6%) of the pretest respondents gave acceptable answers to this question. On the posttest, 80.9% of the subjects provided acceptable answers.

ANOVA for Background Variables' Effects on Test Performance

An analysis of variance (ANOVA) was performed for the pretest data as well as the posttest data. Assorted variables were analyzed to determine whether they affected the participants' performance on the two questionnaire measures. Variables evaluated included the following: job position, previous coursework, history of assisting residents, amount of time interacting with amplified residents, and familiarity with person(s) fitted with a hearing aid. On the pretest, there were no significant differences in test score means depending on the individual's job position. However, there was a tendency for licensed practical nurses and the 'other' group to perform above the mean across groups. The F value for this ANOVA was 2.33 (df 3,56) with a significant level of .08.

There were no significant differences across pretest scores if the participant had a previous course that covered the topic of hearing aids or whether they assisted a resident with the care of their hearing aid. The frequency at which a participant interacted with a resident who had a hearing aid had no significant bearing on the pretest scores.

Finally, on the pretest, an individual who knew someone fitted with a hearing aid had the probability of scoring significantly higher than those individuals who did not know a hearing aid wearer. The t value was 14.05 (df: 59) with a probability of .0004 (see Table 2).

Table 2. t-test of individuals' pretest scores who knew persons with hearing aids.

Source	D.F.	Sum of Squares	Mean Squares	t-Value	p-Value
Knew person with hearing aids	59	70.63	70.63	14.05	.0004*

* probability <.05

Analysis of variance measures were conducted on the posttest, based on the above noted variables. The individual's job position, the frequency of the interaction they had with a resident with amplification, or their previous classwork in hearing aids had no significant bearing on their posttest score. Additionally, participants who knew hearing aid users did not perform significantly different than those who did not know hearing aid users. There was a tendency, however, for the individuals who currently assisted a resident with the care of their hearing aid to score higher on the posttest. The t value for this statistic was 2.95 (df: 58) with a probability of .09.

t-Test for Pretest versus Posttest Scores

Forty (40) subjects completed both the pretest and the posttest measures. A comparison was made to determine if there was a difference in accuracy between these two evaluations. The mean accuracy score for pretest questionnaire was 9.76 with a standard deviation of 2.35. The mean accuracy score for the posttest questionnaire was 14.4, with a standard deviation of 1.28. The total possible score on both tests was

16. A t-value of -13.16 demonstrated a significant difference between the means in favor of the posttest score (see Table 3). As hypothesized, the scores on the posttest were significantly higher than the pretest scores.

Table 3. Means and Standard Deviations of Pretest and Posttest Scores (N=40).

	Mean	SD	t-Value	Probability
Pretest	9.76	2.35	-13.16	.000*
Posttest	14.40	1.28		

*probability <.05

t-Test for Posttest Groups

The participants who completed the posttest were divided into two groups. One group consisted of those individuals who took the pretest and the posttest (N=40). A second group consisted of individuals who completed the posttest only (N=28). The purpose of this analysis was to determine if individuals who had been exposed to the pretest would perform better on the posttest as a function of taking the test on two occasions. This analysis indicated no significant differences in posttest scores (see Table 4) between those subjects who only completed a posttest versus the posttest scores of individuals who had also completed a pretest questionnaire.

Table 4. Comparison of Mean Scores and Standard Deviations of Two Posttest Groups.

	Mean	SD	Probability T-Value	Level
Group 1	14.08	1.76		
Group 2	14.40	1.28	-0.91	.370

Group 1=Individuals who took posttest only (N=28)

Group 2=Individuals who took both pretest and posttest (N=40)

CHAPTER FOUR

DISCUSSION

The purpose of this study was to assess the knowledge base of nursing home personnel regarding the care and maintenance of the residents' hearing aids. An additional objective was to determine the impact of an educational in-service that focused on the topic of hearing aids. Although researchers have assessed the knowledge of other professional groups' regarding hearing aids, nursing home personnel have not previously been assessed on their knowledge of this subject. The present study evaluated the amount of change that occurred in the knowledge base of 40 individuals as a result of the educational in-service. In addition, fifty-seven (57) subjects completed either the pretest or the posttest and were included in assorted individual item analyses.

Summary of Results

From the statistical analyses of the data generated from this study, the following results were found:

1. Analysis of individual test items indicated growth on all posttest questions when compared to the pretest item. However, this comparison indicated some items had greater growth than other items. (See following section for a discussion of specific findings.)
2. The overall mean score on the posttest was significantly higher than the overall mean score on the pretest.
3. Individuals who knew a hearing aid wearer had the probability of scoring higher on the pretest than those individuals who did not know a hearing aid wearer.

4. There was a tendency for licensed practical nurses and the group with administrators, social workers, activities coordinators, and case coordinators, to perform better than registered nurses and nurses' aides, on the pretest measure.
5. There was a tendency for individuals who currently assisted a resident with their hearing aid to score higher on the posttest than individuals not assisting a resident.
6. There were no significant differences in the posttest scores of individuals who completed the posttest only and those who completed the assessment on two occasions. This indicated that individuals did not perform better on the posttest solely based on their previous exposure to the test.

Differences in Growth on Individual Questionnaire Items

Items with High Pretest Accuracy: Several questionnaire items were answered with high accuracy (greater than 90% correct) on the pretest, indicating that a large majority of the participants had this knowledge prior to the in-service. The large majority of respondents knew prior to the in-service that long term hearing aid use did not restore normal hearing (pretest score: 97.1% correct; item 6) and that hearing aids were useful for individuals over 65 years of age (pretest score: 97.1% correct; item 8). Also, most individuals (pretest score 93.9%; item 17) knew that hearing aids were powered by batteries. Each of the above mentioned items were answered correctly by all respondents (100%) on the posttest. This finding indicated that this knowledge may be more common information for the layperson to possess, irrespective of training discussions.

Items with Low Pretest Accuracy: Some items were responded to with little accuracy (less than 30% accuracy) on the pretest but much growth was noted on the posttest. Among these pretest items was the question regarding the function of the telephone switch (pretest score: 17.4% correct; item 9), the type of system most appropriate for a hearing-impaired individual with poor dexterity of the hands (pretest score: 10.4% correct; item 19), and an item regarding the frequency with which a hearing aid battery should be replaced (pretest score: 29% correct; item 20). This finding indicated that many individuals who work in health care facilities were initially less knowledgeable about the operation of hearing aids and specific details regarding personal amplification.

The lack of knowledge regarding the telephone switch warrants further discussion. Many nursing home personnel may be charged with the care of a resident's hearing aid (Smith and Fay, 1977). This care may include insertion of the hearing aid into an individual's ear, as well as setting the hearing aid such that it is operational. The finding of a low mean accuracy score on this questionnaire item at the pretest period may suggest that some nursing home residents with hearing aids attempt to communicate with one another while their hearing aids are set inappropriately.

In addition, the apparent lack of knowledge of how often a hearing aid battery should be changed is of concern. Individuals who are unable to express to health care providers that their hearing aid is not functioning may spend time without adequate amplification. Several respondents (11.6%) answered 'three weeks' or 'monthly' to this

questionnaire item. While this amount of time for a battery to last is not unheard of, it is not a typical battery life for someone who wears their hearing aid consistently. Almost two-thirds of the respondents (59.4%) answered this item incorrectly with answers such as 'every two months' and 'when the hearing aid doesn't squeal.' Included in this percentage was a large portion of the respondents who answered 'don't know.' These findings suggest that residents who rely on assistance with battery replacement may not be appropriately served.

The posttest responses to the two forementioned questionnaire items (T-switch and battery change questions) suggested that the individuals who attended the inservice increased their knowledge regarding these important operational aspects of hearing aid usage (posttest scores changed to 94.1% and 74.6%, respectively). These items were addressed in the 'hands-on' portion of the presentation. It is realized that many residents in health care facilities can operate their own hearing aid and verbalize their need for assistance. However, in cases where the individual is maximally assisted with their hearing aid, these factors are considered important for reception of spoken language and environmental sounds. Attention is apparently warranted regarding the microphone (M) versus telecoil (T) position, as well as battery voltage issues.

The low accuracy mean score (pretest score: 10.4% correct; item 19) on the questionnaire item regarding the type of system that would be most appropriate for a hearing-impaired individual with poor dexterity, is of somewhat less concern than specific operational items. Typically, the audiologist or hearing aid dispenser will make the initial recommen-

dation regarding the type of system most appropriate for that individual. However, cases may arise where a resident has dexterity abilities which deteriorate over time or they are initially fit with an inappropriate amplification system. Thus, if health care providers are aware that more appropriate systems are available for such individuals (i.e., body aids), they are more likely to recommend a return to the audiologist or hearing aid dispenser. It should be noted that posttest score change indicated a large growth in accuracy on this item (posttest score: 83.6% correct; item 19) following instruction.

Items with Little Growth Between Pretest and Posttest: One item on the pretest (item 13) had a low accuracy mean score (less than 35% correct) and then demonstrated little growth (less than 10% growth) as assessed on the posttest. This questionnaire item asked whether most hearing losses could be medically treated. The pretest score for this item was 34.3% and the posttest score was 41.8%. This question had the least growth of those items with a low mean score on the pretest. There are several possibilities for this finding and include the following. The wording of this question did not specify the population targeted. Many respondents who have children or who may themselves have experienced temporary hearing losses due to otitis media as children, may have used children (versus elderly adults) as the referent to this question. Also, the presentation itself contrasted medically treatable conditions with permanent sensorineural hearing loss. Although the point was stressed that most hearing losses in the adult population were not medically treatable, confusion may have arisen from the mention of resolvable conductive hearing loss.

Another questionnaire item (item 7) showed little growth (less than 10% change) between the two test administrations. However, approximately two-thirds (65.2%) of the respondents answered this item correctly on the pretest. On the posttest, 73.5% answered this item correctly. This item is somewhat related to the issue of medically treatable hearing losses. During the in-service, it was presented that some individuals have hearing losses which are medically treatable and therefore may not be candidates for hearing aids. In addition, it was addressed that while hearing aids amplify sounds, they do not necessarily increase the clarity of speech for some individuals. Poor word discrimination abilities were cited as a possible reason for not fitting certain individuals with a hearing aid. This issue may have confused some individuals, thus limiting the number of respondents who answered this item correctly on the posttest.

The remaining questions (item numbers 10, 11, 12, 14, 15, 16, 18, and 21), had pretest scores ranging from 52.2% to 83.6% correct. Following instruction, the posttest scores on these same items ranged from 80.9% to 100% accuracy.

Pretest versus Posttest Scores

Pretest mean scores ($\bar{x}=9.76$, maximum score=16) suggested that the knowledge base of nursing home staff members was inadequate for maximally appropriate care and maintenance of resident's hearing aids. While some of the questionnaire items were not essential to hearing aid care and operation, others were quite important. The finding that only a small percentage of the respondents were aware of the function of the T-switch

may indicate that many hearing aid wearers are dependent on others for the care of their instrument and may not be hearing environmental or other sounds. The lack of awareness of battery life time is also considered an important problem in this setting.

The significant change in posttest scores is indicative that the staff members of health care facilities can benefit from educational in-service training regarding hearing aid care and operation. However, this study only assessed the immediate change in knowledge following the in-service. It is hoped that the important points of the in-service were retained by the participants.

Influence of Background Variables on Test Performance

Few variables that were assessed as having a possible impact on the respondents' test scores, were determined, via ANOVA procedures, to actually have a significant influence on the test results. Possible reasons for these findings warrant further discussion.

The majority of the respondents (86.6%) knew someone fitted with a hearing aid. This factor did not impact these individuals' performance on the posttest. However, respondents who knew someone fitted with a hearing aid had the probability of scoring higher on the pretest than individuals who did not know someone fitted with a hearing aid. Some basic information regarding hearing aids may be passed on by hearing aid wearers to their acquaintances. In addition, many individuals reported family members who were fitted with hearing aids. This exposure may also contribute to an increased understanding of the hearing aid operation and maintenance.

Over one-half (58.3%) of the respondents reportedly assisted a resident with their hearing aid at the time of the in-service. Pretest scores did not appear to be affected by this variable. However, there was a tendency for individuals who assisted a resident with their hearing aid to score higher on the posttest. This could be due to these individuals' familiarity with certain hearing aid issues. For example, someone who was familiar with the T-switch on a hearing aid but unsure of the exact function of this setting may have remembered this portion of the in-service with greater accuracy than someone exposed to this concept for the first time. Other similar examples along these lines may have existed as well.

The job positions held by the respondents did not significantly affect their performance on the posttest. However, there was a tendency for licensed practical nurses (LPN) and "other" personnel to perform better on the pretest. It should be noted that the membership in the various groups was not balanced for size. Subjects in the LPN group and the "other" group made up approximately 40% of the total respondents. Nurses's aides were the majority of (53.3%) of attendants at the health care facilities in this study. The tendency for LPNs and individuals in the "other" group to perform better than the two remaining groups has significance in that these groups may be the best choice for providing continuing education of other health care facility workers. It should be noted again, however, that all groups did equally well on the posttest.

The variable of an individual having had a previous course that covered hearing aids had no apparent impact on the respondents' pretest

or posttest scores. Only 22.1% of the participants had been exposed to coursework that covered the topic of hearing aids. Although the exact nature of the coursework was not determined, it might be assumed that hearing aids were briefly covered in these training classes. From the present study, it appears that few individuals in health care facilities have training that covers hearing aids and that this training was not sufficient to increase their performances on the test measures regarding hearing aids. This finding reinforces the importance of in-service training that covers the topic of hearing aids.

The frequency at which a health care provider interacted with an individual who was fitted with a hearing aid did not significantly affect their pretest or posttest performance. While one may hypothesize that an individual who interacts frequently (more than once a day) with a hearing aid wearer may do better than someone who interacts less (approximately once a week), this was not the current finding. A possible reason for this may be that although a health care provider interacts frequently with a hearing aid wearer, they do not necessarily assist them with the care and maintenance of their hearing aid.

Influence of Taking the Test on Two Occasions Versus One Occasion

The group who took the pretest and the posttest (N=40) was compared to the group who completed the posttest only (N=28) to determine if any significant differences existed between the two groups. The purpose of this analysis was to specifically determine if individuals who had been previously exposed to the questionnaire would perform better than individuals completing the questionnaire for the first time. This

analysis indicated no significant differences in posttest scores for the two groups (see Table 4). Since the same questionnaire was implemented for the preassessment and the postassessment, this lack of significance between the groups indicated that individuals were not more sensitive to specific items in the presentation due to their previous experience with the pretest.

Limitations of the Present Study

Participation of Limited Facilities: The initial difficulty encountered with this study was the refusal of four area nursing homes to receive the in-service presentation. Reasons given for this denial included the following:

1. The facility had no available in-service times that were not already filled with other types of presentations.
2. The facility reported they had adequate audiological services and the staff did not need additional information regarding hearing aids.
3. The facility had a certain number of in-services required by the licensing board and hearing aid education was not included.

The willingness of the three facilities which did participate in the study, to receive the in-service, might lead one to believe that the lack of knowledge regarding hearing aids may be specific to certain nursing homes. However, follow-up of one of the nursing homes which declined the in-service revealed no such educational in-service had transpired within the last year. In addition, inadequate care of a resident's hearing aid was brought to the attention of this audiologist.

Thus, the reluctance of personnel at certain nursing homes to receive hearing aid in-services should not be construed as their necessarily having sufficient knowledge.

Variations in the Physical Environment of the Facility: The presentation environment at the facilities which did receive the in-services varied across settings. One facility provided an excellent environment for the actual in-service. The large room was conducive to this type of program and extraneous noise was minimal. Conversely, another facility provided a small portion of the dayroom, where extraneous activity and a high degree of ambient noise was present. The remaining facility was adequate for the presentation, with minimal distraction from a paging loudspeaker. This variation in environmental surroundings may have impacted the performance of the presenter due to the assorted distractions. However, this variable could not be held constant across all facilities.

Sharing of Answers by Participants: A possible confounding factor was also observed on at least one occasion at all facilities. Although individuals taking the posttest were instructed not to discuss their answers, the presenter observed some discussion taking place. After the hands-on portion of the presentation, the participants were given the posttest while still seated in their groups. This may have been conducive to individuals asking their peers for the correct answer(s). On at least four occasions at the three total in-services, the presenter or an assistant reminded the respondents not to discuss the answers. This factor of sharing answers may have also been in evidence at the

time of the pretest administration, due to the fact that the presenter was not present when the pretests were completed. However, instructions were specifically provided that the questions should not be discussed.

A possible solution to this factor would have been to break the groups up prior to distribution of the posttest. Physical separation of the participants would have been less conducive to this type of sharing of answers.

Variation in In-Service Program: Due to the transparency slide presentation and the script format of the in-service, it was judged by the presenter as well as another individual present at all in-services, that all presentations were equivalent. However, there is a possibility that various points may have been stressed more at one facility than another. Also, distractions may have occurred during portions of the presentation which could affect posttest performance.

Considerations for Future In-Services

The current study suggested that nursing home personnel could benefit from an educational in-service regarding hearing aid care and maintenance. However, the changing staff at these facilities would indicate that in-services should be provided at least every six months. Another option would be to videotape an in-service to periodically show to incoming personnel.

The hands on portion of the in-service appeared to be an important aspect of this presentation. The participants appeared more interested and asked more questions during this portion of the in-service than at any other time. In addition, the actual manipulation of hearing aid

switches and controls was judged more significant to these personnel. A certain amount of background information, however, was judged to be necessary. Therefore, reducing the formal verbal presentation (lecture) to approximately 30 minutes and increasing the hands-on portion to 30 minutes is recommended for future in-services. In view of the large degree of change in knowledge on several items specifically reinforced in the 'hands-on' portion of the in-service, this component deserves careful consideration in future in-services.

In setting up in-service programs, contact should be made well in advance of the time of the projected in-service. These facilities typically schedule their in-services in advance. Contact should be made in person rather than over the telephone. Nursing home administrators may accept the offer of an in-service more readily when face-to-face with an audiologist.

Considerations for Future Research

The present study examined the change that occurred in the knowledge base of nursing home personnel regarding hearing aids immediately after an in-service presentation. A question remains regarding the long-term effects of such an in-service. Individuals who utilize the information provided at the in-service are more likely to retain the information than individuals who don't assist a resident with their hearing aid. An assessment of the long-term value of such an in-service is indicated in order to determine the frequency with which in-services should be implemented.

To some degree, the findings of this study may be generalized to other nursing home settings. However, further research is needed to determine the status of the personnels' knowledge at other nursing home facilities regarding hearing aids.

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APPENDIX A
HEARING AID QUESTIONNAIRE

Your Name: _____

Test 1 2
Facility: _____

Position at Facility: RN _____
LPN _____
Nurse's Aide _____
Other (please specify: _____

1. Do you have a hearing loss? YES _____ NO _____
If YES, do you wear a hearing aid? YES _____ NO _____
2. Do you know someone who wears a hearing aid? YES _____ NO _____
If YES, what is your relationship to this person(s)?
Describe: _____
3. Have you ever had a course that included the topic of hearing aids?
YES _____ NO _____
4. Approximately how often do you interact with someone who wears hearing aids?
More than once/day _____ Approximately once/week _____
Approximately once/day _____ Rarely _____
5. Do you currently assist a resident with the care or maintenance of their hearing aid(s)? YES _____ NO _____
6. A hearing aid improves a person's hearing so that after extended use, he/she eventually does not have to wear it anymore. True _____
False _____
Don't Know _____
7. Anyone with a hearing loss can benefit from a hearing aid. True _____
False _____
8. Hearing aids are not useful for individuals who are over 65-years-old. True _____
False _____
Don't Know _____

9. A hearing aid set on the "T" (telephone) setting will not pick up environmental (room) sounds. True _____
False _____
Don't Know _____
10. A hearing aid brings hearing back to normal just as eyeglasses bring vision back to normal. True _____
False _____
Don't Know _____
11. Speaking very loudly to a hard-of-hearing person makes it easier for him to understand. True _____
False _____
Don't Know _____
12. It is a normal function of the aging process to lose some hearing as we get older. True _____
False _____
Don't Know _____
13. Most hearing losses can be medically treated. True _____
False _____
Don't Know _____
14. There are an assortment of sizes for hearing aid batteries. True _____
False _____
Don't Know _____
15. Feedback (squealing) is a normal function of a hearing aid while positioned in a person's ear. True _____
False _____
Don't Know _____
16. A person should only wear a hearing aid in one ear. True _____
False _____
Don't Know _____
17. Hearing aids are powered by _____.
DON'T KNOW _____
18. Who is the non-medical professional who specifically studies hearing and tests people's hearing? _____
DON'T KNOW _____
19. What type of hearing aid system would be most appropriate for a hearing-impaired individual with poor dexterity of the hands?

DON'T KNOW _____

20. How often should hearing aid batteries be replaced?

DON'T KNOW _____

21. Where can hearing aids be purchased?

DON'T KNOW _____

Adapted from Lass, N., Tecca, J., and Woodford, C. (1987). Teachers' knowledge of, exposure to, and attitudes toward hearing aids and hearing aid wearers. Language, Speech, and Hearing Services in Schools, 18 (1), 86-95; and Lass, N., Carlin, M., Woodford, C., Campanelli-Humphreys, A., Judy, J., and Hushion-Stemple, E. (1985). A survey of classroom teachers' and special educators' knowledge of and exposure to hearing loss. Language, Speech, and Hearing Services in Schools, 16, 211-222.

APPENDIX B

NURSING HOME IN-SERVICE TRAINING FOR HEARING AID CARE

I. Introduction

Define audiologists as the non-medical professional concerned with hearing testing, hearing aids, and rehabilitation of hearing-impaired individuals. Audiologists must have a master's degree and be certified/licensed. Differentiate audiologists from hearing aid dispensers, who have not had the extensive academic background that audiologists are required to have. Hearing aid dealers typically have a short course in hearing aids and the auditory system and sales techniques. Many hearing aid dispensers are knowledgeable and reputable, while others are primarily interested in monetary gain. Hearing aids can be purchased from most audiologists and from hearing aid dispensers. If a hearing aid is purchased through a hearing aid dispenser, it should be ensured that this individual is available to provide follow-up care for that hearing aid.

II. Importance of Hearing Aids

Stress the importance of hearing aids operating appropriately. Include the following:

1. Daily activities - For senior citizens to understand directions and options in daily living activities.
2. Medical decisions - Senior citizens need to be adequately informed regarding medical information and decisions.

3. Communication with one another and family - some elderly have low intensity voices, making it especially difficult for hearing-impaired senior citizens to communicate. Also, many hearing-impaired individuals have losses primarily in the higher pitches. Their grandchildren, with higher pitched voices, may be hard to hear.

In addition, some nursing home facilities may have poor acoustics, which can make the listening situation even more difficult for individuals with hearing losses. Situations with high levels of background noise are difficult for all listeners; for those with a hearing loss, these situations can be devastating when attempting to converse.

III. Hearing loss can be in one ear (unilateral) or both ears (bilateral).

A person with a bilateral hearing loss may have one or two hearing aids. Two are generally recommended for bilateral hearing losses. However, some elderly may be advised against two if they have dexterity difficulties or general problems taking care of their hearing aid. Many people who need hearing aids do not have them due to expense, medical reasons, and denial, among others. Many who have them do not wear them due to vanity, problems with maintenance and operation, denial, etc. An individual may have differing hearing losses in each ear. Hearing losses vary in severity and may be mild or severe/profound. There are two types of hearing loss--conductive and sensorineural. A conductive loss involves a blockage of sound, usually in the middle ear. Sensory

III. continued

loss is often referred to as nerve deafness. Conductive hearing loss may be medically treatable whereas sensory losses usually are not. Sensory losses are the majority of hearing loss, therefore most hearing losses are not medically treatable. Some degree of hearing loss should be expected with aging; it is a normal part of the aging process.

Most individuals with hearing loss should be allowed to try a hearing aid. However, not everyone can wear a hearing aid. Some people have nerve damage such that when sounds are made louder they are not necessarily clearer. There is no set age at which someone can or cannot wear hearing aids. Very young children as well as very elderly individuals can be fit with hearing aids. Hearing aids should be worn throughout the waking day to provide maximum auditory functioning by a hearing-impaired individual. Hearing aids will not restore hearing to normal with extended use.

IV. Types of Hearing Aids (Demonstration and hands-on will follow in the small groups)

1. Behind-the-ear (ear level) hearing aids - fairly common hearing aid style which fits behind the external ear and is connected to an earpiece which fits in the ear.
2. In-the-ear (ITE) - fits within the "bowl" portion of the ear.
3. Canal aids - fits almost entirely within the ear canal. Canals and ITEs may be difficult to handle for seniors with dexterity difficulties.

4. Body aids - powerful hearing aid that is worn on the body via a harness or in a pocket. Easier to manipulate for seniors with poor dexterity.
5. Eyeglass aids - rarely used anymore but may run across them.

V. Hearing Aid Components and Considerations for Each

1. Hearing aids are powered by batteries (types: Mercury-shorter life; Mercury Oxide; Silver Oxide-expensive; Zinc Air-longest life) recommended batteries. Zinc air batteries come with a plastic stick-on tab which, when removed, activates the battery through contact with the air. Zinc air batteries must be used immediately after the plastic tab has been removed. Zinc air have the best shelf life since they are not activated until the air hits them. All batteries should be kept in a cool dry place. (Provide example: not on windowsill in the heat.) Batteries should be checked with a battery tester. Many will read 'good' for batteries with adequate voltage and 'replace' or bad for batteries with low voltage. Some testers will read in voltage which should be at least 1.1 volts.

Many 'broken' hearing aids can be 'repaired' by replacing the battery. There are various sizes of hearing aid batteries. One individual may or may not have the same size batteries as his neighbor. Like other batteries, there is no standard amount of time they will last. The power of the aid, the amount of wearing time, whether the user turns the hearing aid off when not in use, the volume setting, and the shelf date of

V. 1. continued

batteries will all contribute to the amount of time the battery will last. However, most batteries lose power quickly and a hearing aid user is more likely to notice this.

2. Earmolds - connect to behind-the-ear style, eyeglass hearing aids, and body-style hearing aids. Earmolds should be cleaned with soft dry cloth. If they become clogged with wax, they need to be cleaned with a wax loop or pipe cleaner. Elderly individuals' ears tend to lose some of their collagen, thus appearing larger. Earmolds need to be replaced periodically to ensure a proper fit. Earmolds which don't fit well may lead to feedback (squealing). (Will address further in troubleshooting section.)
3. Tubing - plastic tubing connects the hearing aid earhook to the earmold. It needs to be free of moisture and can be blown dry with an air pumper. Tubing should be checked periodically for cracking, holes, or obstructions. It can be replaced by an audiologist or hearing aid dealer if this is observed. Discoloration may also indicate that the tubing needs to be replaced.
4. Microphone - if it gets clogged with debris it should be cleared with a soft brush which is generally provided to a hearing aid user. However, you MUST BE CAREFUL, especially with in-the-ear hearing aids.

5. Switches and controls - volume control (VC) allows the individual to vary the intensity. (Demonstrate index finger turning.)

On/off switch - may be separate from the volume control (VC) or included on the VC. Feel a slight 'pressure' or 'click' once the hearing aid is off. If separate, usually M-T-0, where 0 is off and M (microphone) is on. The 'T' switch stands for telephone (telecoil) and is for use with a telephone. A hearing aid on T will not pick up environmental sounds. There are also internal controls which should only be adjusted by the audiologist or hearing aid dispenser.

6. Cord - with a body aid. Needs to be replaced if broken or corroded (replacement by audiologist or hearing aid dealer).

VI. Typical Problems and Solutions

1. Feedback - the high-pitched squeal that is often heard. This IS NOT a normal part of hearing aid functioning while positioned in a person's ear. It can be due to several reasons but can almost ALWAYS be remedied.

POSSIBLE REASONS FOR FEEDBACK:

-A poor fitting earmold or hearing aid is the most common reason for feedback. Refer to an audiologist for this problem.

-Volume control set too high. Reduce volume until no feedback is heard.

1. continued

-Excessive wax buildup - remove wax with wax loop or pipe cleaner.

2. Dead hearing aid - steps to take to remedy the problem:

-Check the battery--should be at least 1.1 volts, replace if lower.

-Make sure the battery is inserted correctly (demonstrate) + matches +; groove of battery fits in groove of battery compartment.

-Check for corrosion on battery or terminals.

-Ensure that the battery is the right size and type of battery. Never force a battery into a hearing aid.

-Check for a clogged earmold, clean if necessary.

-Check to make sure hearing aid is on appropriate switch setting (M).

If no luck with the above suggestions, call the audiologist.

3. Moisture buildup - can use air pumper to dry the tubing. Dri-pack can dry hearing aid out at night if this is a recurrent problem.

4. Intermittent hearing aid - usually warrants a call to the audiologist. However, check for a low (<1.1 Volts or less) or corroded battery or battery terminals.

5. Lost hearing aids - new hearing aids can be insured with special (relatively inexpensive) hearing aid insurance. Some warranties cover loss as well as repairs.

VII. Other Considerations

1. Batteries are extremely toxic and have been mistaken for medications with individuals who have poor eyesight. Have on hand the poison control center phone number. Never keep hearing aids in containers which resemble medicine vials. Dead batteries should be disposed of properly and never incinerated.
2. Hearing aids shouldn't get wet. If they, do dry immediately with cloth and open battery compartment (take battery out).
3. Hearing aids shouldn't get hairspray or perfume/cologne on them.
4. No rubbing alcohol should be used on hearing aids as it will dry them out. Use a soft cloth instead.
5. Hearing aids should ALWAYS be turned off when not in use. Opening the battery compartment will ensure that the hearing aid is off.
6. Listening checks should be performed at a minimum, weekly, to determine if hearing aids are functioning (particularly with individuals who may not be able to tell you when something is wrong with their hearing aid. Have normal listener perform the listening check.

VIII. Suggestions for Increasing the Ease of Communication with Hearing-Impaired Senior Citizens

1. Slow down rate of speech, using a slightly elevated volume. Shouting or speaking very loudly can distort speech. A slower rate may prove more helpful.

2. Provide other cues such as pointing and gesturing when appropriate.
3. Check to see if the message has been understood.
4. Give alerting comments when appropriate, such as "In 10 minutes, it will be time for whatever."
5. Allow extra time for the individual to respond. Patience is important with many elderly individuals.
6. Face people when talking to them. Visual cues used by everyone, but hearing-impaired individuals rely heavily on them.
7. Turn off or down tv, radio when talking.

APPENDIX C
HEARING AID QUESTIONNAIRE

Your Name: _____

Test 1 2
Facility: _____

Position at Facility: RN _____
LPN _____
Nurse's Aide _____
Other (please specify: _____

- 1. Do you have a hearing loss? YES _____ NO _____
If YES, do you wear a hearing aid? YES _____ NO _____
- 2. Do you know someone who wears a hearing aid? YES _____ NO _____
If YES, what is your relationship to this person(s)?

Describe: _____

- 3. Have you ever had a course that included the topic of hearing aids?
YES _____ NO _____

- 4. Approximately how often do you interact with someone who wears hearing aids?
More than once/day _____ Approximately once/week _____
Approximately once/day _____ Rarely _____

- 5. Do you currently assist a resident with the care or maintenance of their hearing aid(s)? YES _____ NO _____

- 6. A hearing aid improves a person's hearing so that after extended use, he/she eventually does not have to wear it anymore. True _____
False x
Don't Know _____

- 7. Anyone with a hearing loss can benefit from a hearing aid. True _____
False x

- 8. Hearing aids are not useful for individuals who are over 65-years-old. True _____
False x
Don't Know _____

9. A hearing aid set on the "T" (telephone) setting will not pick up environmental (room) sounds. True X
False
Don't Know
10. A hearing aid brings hearing back to normal just as eyeglasses bring vision back to normal. True
False X
Don't Know
11. Speaking very loudly to a hard-of-hearing person makes it easier for him to understand. True
False X
Don't Know
12. It is a normal function of the aging process to lose some hearing as we get older. True X
False
Don't Know
13. Most hearing losses can be medically treated. True
False X
Don't Know
14. There are an assortment of sizes for hearing aid batteries. True X
False
Don't Know
15. Feedback (squealing) is a normal function of a hearing aid while positioned in a person's ear. True
False X
Don't Know
16. A person should only wear a hearing aid in one ear. True
False X
Don't Know
17. Hearing aids are powered by batteries .
DON'T KNOW
18. Who is the non-medical professional who specifically studies hearing and tests people's hearing? audiologist
DON'T KNOW
19. What type of hearing aid system would be most appropriate for a hearing-impaired individual with poor dexterity of the hands?
 body style hearing aid or description of body aid
DON'T KNOW

20. How often should hearing aid batteries be replaced?

varies; not a set period of time; when voltage is low; as needed

DON'T KNOW _____

21. Where can hearing aids be purchased?

dispensing audiologist; hearing aid dispenser; ENT office

DON'T KNOW _____

Adapted from Lass, N., Tecca, J., and Woodford, C. (1987). Teachers' knowledge of, exposure to, and attitudes toward hearing aids and hearing aid wearers. Language, Speech, and Hearing Services in Schools, 18 (1), 86-95; and Lass, N., Carlin, M., Woodford, C., Campanelli-Humphreys, A., Judy, J., and Hushion-Stemple, E. (1985). A survey of classroom teachers' and special educators' knowledge of and exposure to hearing loss. Language, Speech, and Hearing Services in Schools, 16, 211-222.