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A SURVEY OF AWARENESS PROGRAMS REGARDING

INFANT HEARING LOSS

by

Ronald Rao Bateman

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

MASTER OF SCIENCE

in

Communicative Disorders

Approved:

UTAH STATE UNIVERSITY  
Logan, Utah

1972

## ACKNOWLEDGMENTS

The writer wishes to extend recognition and appreciation to all who contributed advice and time toward the completion of this study.

Especial thanks is expressed to my major professor, Dr. Frederick S. Berg for his guidance and patience throughout the study. Gratitude is extended to the other committee members: Mr. Thomas Clark, Dr. Richard Taylor, and Dr. J. Whorton Allen for their interest and valuable assistance.

The author thanks Dr. Aaron Roylance, Chief of the Speech Pathology/Audiology Section, Division of Health in Utah for the cover letter. The author is also indebted to the specialists who responded to the questionnaire.

Heartfelt thanks and deepest gratitude is expressed to my wife, Beverly, who found time away from her own study to give encouragement and assistance. A special word of appreciation is expressed to concerned parents, Mr. and Mrs. Rao H. Bateman for their encouragement and support.

Ronald R. Bateman

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## ABSTRACT

A SURVEY OF AWARENESS PROGRAMS REGARDING  
INFANT HEARING LOSS

by

Ronald R. Bateman, Master of Science

Major Professor: Dr. Frederick S. Berg  
Department: Communicative Disorders

Hearing conservation specialists are aware of the need for early identification and diagnosis of impaired hearing. This awareness of need has led to the development of several identification methods in the United States. Public awareness programs designed to inform laymen and professionals of the danger signals of infant hearing impairment currently are coming into focus, both as a separate entity and as part of total identification procedures.

Current public awareness programs regarding infant hearing loss were surveyed in the present study and recommendations on a model awareness program of this type were obtained. Fifty-one hearing conservation specialists participated in the survey. The data from questionnaire returns indicated existence of eighteen programs from among the total respondents. It also showed strong support for dissemination of pertinent information of hearing loss to the professional and parent populations of the United States. The data further revealed that program direction and finance should primarily be through state health departments with federal governmental assistance.

(92 pages)

## INTRODUCTION

### Problems

Evidence is found in the literature which shows that the early years from zero to six are critical for normal language development. Prelinguistic and language acquisition during these years occurs in certain stages. In this maturation process, comfort and discomfort sounds, recognition and imitation of sounds, simple and complex language forms occur chronologically. The end result is linguistic competence and a child who can generate his own sentences.

Some young individuals are deprived of the sensory experiences needed in acquiring language. For example, hearing loss may prevent the child from hearing himself vocalize and from hearing others speak. Such a child is neither able to recognize or imitate sounds nor capable of learning language in a natural way.

However special language training is available for this child and can be very beneficial if applied during the critical early years. Notwithstanding training, however, language may never be used generatively if therapy is delayed past the infant-preschool years.

Identification and diagnosis of hearing impairment should take place soon after birth and before six months to take advantage of the crucial time for teaching language (Peterson, 1971). Unfortunately, early identification is more rare than commonplace. The two prominent

identification methods of audiometric screening of newborns and high risk registries are not fulfilling the need. On the other hand, increased public awareness leading to early identification of hearing loss might be effective if designed and implemented. This requires focus on the parent, the general public, the physician and other professionals who may come in contact with the child. They have a responsibility of knowing danger signals for identification of impaired hearing and watching for these in infants.

Fellendorf (1970) and Kendall's (1970) studies both indicate that the parents are generally the first to suspect or identify hearing loss in infants. For this reason, special consideration must be given to ways of disseminating information to them encompassing: symptoms of hearing impairment; possibilities of deafness stemming from high risk conditions such as Rubella; and location of referral agencies.

Currently an increasing trend exists to bring about public awareness of the need to identify and quickly diagnose and treat the hearing impaired infant. General public and professionals should have such information. The recent Illinois Commission on Children (1968) suggest that awareness of hearing impairment in infants is a responsibility of all professional people who see young children. The participants of the study indicate that this awareness can be brought about through special programs established in medical schools and teaching hospitals.

#### Purpose

The purpose of the present study is to survey public awareness programs which deal with early identification of hearing impairment. Many such programs throughout the country will be investigated to

determine what is being done and to obtain recommendation on what should be done. The information gleaned will hopefully lead to recommendations concerning successful types of programs that could be implemented.

It is the hope of the researcher that this study will accelerate the dissemination of information about hearing impairment to appropriate people and organizations throughout the United States. In the event that data obtained reveals that successful programs are nonexistent, this study may contribute to the development of a model program which can be propagated in different situations across the country.

#### Delimitations

The present investigation is delimited in at least three ways:

1. The sample of respondents was not random.
2. Those chosen to be in the population were only assumed to have expertise in the area of public awareness because of their professional background. The sample was limited to hearing conservation specialists affiliated with state health department or with universities.
3. The timing was not conducive to a high return percentage. The questionnaire was distributed late in the Spring. The 49 percent return may somewhat reduce the generalizing value of the responses.

## LITERATURE REVIEW

Physiological impairment of hearing has a great impact on both the deaf child and the hard of hearing youngster. Griffeths (1967) and Poitras (1961) among others state that early severe hearing loss has lasting effects upon the congenitally deaf child in communication, in social interaction, in personality, in educational achievement, and in vocational adjustment. The hard of hearing child generally exhibits these same deficits, but to a lesser degree (Davis and Silverman, 1970, Berg, 1971). Of greatest concern are the effects of hearing loss on language acquisition which seem to be learned best early in life.

Within the United States increasing focus is being given to the early identification of hearing loss among children. Through early identification many of the deficits brought on by hearing loss may be totally or partially alleviated. This chapter addresses itself to this topic by reviewing current literature encompassing (1) early language development and the effect of hearing impairment upon it, (2) existing identification methods, and (3) public awareness programs with emphasis on the need for such programs, the effect of public relations, and established infant hearing awareness programs.

### Rationale for Early Identification of Congenital Hearing Loss

#### Early language development

In order to understand why early identification of hearing loss is important, we may examine language and its early acquisition.



Secondly, we may determine the effects of hearing impairment on language development.

First, let us examine language acquisition. Berg defines language "as the complex system of phonological, syntactical, morphological, and semantical forms by which humans communicate with one another." (Berg, 1970, p. 111) The phonological or speech aspect of language is that which includes the sound or phoneme production. The syntactical classification or subsystem involves the grammatical relationships of language. Another part of language is the morpheme or the smallest meaningful unit. This essentially encompasses roots or affixes to words. Lastly, one might also mention the semantical form of language. This refers to vocabulary.

Many authors have discussed these subsystems of language. They all recognize that development occurs in a definite pattern or sequence. Johnson et al. (1967) list emerging stages of verbal behavior. They note the birth cry as the first vocalization. At two to four months of age, syllables are vocalized and responses to the human voice occur. By six months, babbling and cooing in expressing pleasure are characteristic. At seven to eight months of age, vocalizations by others are recognized and are consequently imitated. Twelve months of age signals the emergence of the first word.

At this point, language development extends to syntax. At 18 to 21 months, the child will be combining words; and at two, he will produce his first simple sentences. Between three and five years of age, he will characteristically be able to speak intelligibly so that all persons can understand him. The child will also be generating most forms of original sentences.

By the time the normal child is school age, the great majority of speech sounds are articulated correctly and ongoing speech is typically intelligible (Templin and Darley, 1969).

It is interesting to note that between two and eight, the normal child experiences rapid semantic development. By the first grade, the average child has a receptive vocabulary of 24,000 basic and derivative words with about half that number in his expressive vocabulary, according to one author (Smith, 1941). There is not general agreement on the amount of vocabulary words normally acquired at each age but most authors note that the growth is rapid.

At seven years of age, the normal child produces sentences containing an average of seven words. Also, the correctness of syntax at this age is almost complete (Myklebust, 1965).

From these examples and others available, it can be said that as the normal child passes the preschool years his communication system of phonological, syntactical, morphological, and semantical forms is functionally complete. He knows the meaning of many words, he can articulate most of them, and he can insert them in grammatically correct sentences.

#### Critical period

As just noted, the basics of language emerge optimally during the first few years of the life of a child. This is considered a critical period by several authors including Moores (1967), Davis and Silverman (1970), and McNeill (1966).

Some of the researchers refer to specific age ranges encompassed within the critical period. For example, Lenneberg (1967) states that the first six years of life is the critical period. He asserts that a sudden onset of hearing loss before that age deleteriously effects language and speech. Another author, Griffeths (1967) points to the first three years of life as when language acquisition is least difficult. Her study suggests that a child in being removed from one language environment to another has no problem in learning the second language, until after age three. Instruction seems to become necessary after that age.

#### The effect of hearing impairment upon language

The overall effect of hearing loss was briefly mentioned at the beginning of this chapter. Its restriction upon language is particularly devastating. As mentioned before, language occurs optimally during an early critical period. When auditory impairment goes undetected, serious defects among the several parameters of language occur.

Early hearing loss places a definite handicap on spoken language. The effect on speech and specifically articulation especially becomes evident when imitation of speech sounds is attempted. The severely hearing impaired child does not hear sounds or he may perceive fewer of them than normal and therefore, will not be able to imitate well at an early age. He may not be understood even if he does vocalize.

Factors which influence the speech intelligibility or understandability of the deaf were discussed by a panel at the Convention

of the Alexander Graham Bell Association for the Deaf in 1946. Panel members listed breathiness, nasality, inaccurate articulation, lack of pitch or tone variation, abnormal rhythm and to a lesser extent voice quality as factors influencing speech intelligibility. The panel also indicated that all of these aspects must be focused upon in oral language rehabilitation (Bodycomb, et al., 1946).

Severely hearing impaired individuals are characteristically retarded in vocabulary development from two to six years. Their vocabulary consists mainly of concrete nouns, verbs and adjectives. They will usually have a fixed meaning for a word and will not generalize to other meanings.

According to Young and McConnel (1957) even a mild to moderate hearing loss will result in retarded vocabulary growth oftentimes. In a controlled study of vocabulary development, twenty hard of hearing and normal hearing children were matched. The researchers concluded that the hard of hearing children were significantly inferior in receptive vocabulary development to the normal hearing population.

Brannon (1968) analyzed the spoken language of three groups: the deaf, the hard of hearing and the normal hearing. He identified fourteen different word classes within which to sort the spoken language. The author concluded that significant degrees of hearing loss create underuse of some classes of words and result in a tendency to overuse concrete words such as nouns and articles.

There are many other studies which point to the language restriction caused by early hearing loss. Hopefully, the reader can begin to understand the effects of this handicap from the preceding examples.

Existing Methods for Identification  
of Infant Hearing Loss

At present, there is nationwide interest in identification of hearing impairment in the neonate. It has already been established that a need exists for early identification both from the standpoint of a critical period for language acquisition and the resulting effects stemming from lack of language input.

These are basically three avenues presently advocated to facilitate early identification of infant hearing loss. For many years audiometric testing devices have been promoted and utilized in early detection. Also, much exists in the literature concerning the use of high risk registers of different types. The last technique mentioned is public awareness programs directed at the general public, the professional and the parent populations.

Auditory screening of neonates

An emphasis placed on auditory screening of newborn infants throughout the country has been apparent. Downs (1968) lists nine existing programs in the cities of Denver; San Francisco; Houston; Philadelphia; Salt Lake City; Providence, Rhode Island; Greenville, South Carolina; Kansas City, Missouri and Montreal, Quebec, with

still others being planned. Gerber (1971) cites seven identification studies which indicate a great number of neonates have been tested in this fashion. In two studies alone, as many as 5,000 and 17,000 newborns were tested. The results of these studies indicate an incidence of early severe hearing loss ranging from one per thousand to two per thousand infants.

The basic procedures used in infant hearing screening are simple to describe. A sound producing machine is calibrated to produce noises or pure tone signals of specified intensity levels such as 90 decibels. The speaker is positioned at a certain distance from the ear. Reflexes of babies to those intense sounds are coded and recorded beside their name by a trained observer-tester. In many procedures a recheck is required for babies not responding. Some differences of procedure exist among the many mass screening programs in the United States.

Several advantages are listed for neonatal hearing screening. Both Goldstein and Tait (1971) and Bernheimer, Keaster, and Linthicum (1972) say that hospital screening is desirable because this is the only situation when most babies are available for testing en mass. Additionally, hearing screening provides opportunity to catch a few deaf infants which would be missed by a high risk register. It may provide information concerning adequate hearing at birth in those who may lose their hearing later. In some cases, it may alert a physician to other disorders. Also, screening may provide data about the normal development of auditory responsivity, and it provides a stimulus to

to physicians to become more aware of hearing impairment in children. Another very definite advantage is that early identification allows for effective rehabilitation.

There are also difficulties in a routine screening program which are becoming more and more apparent according to recent studies. For example, Ling, Ling, and Doehring (1970) screened 144 infants under controlled conditions. The results indicated that observer's judgments of infant behavior may be influenced greatly by knowledge of stimulus events. Sources of error were related to the infant, the observer, and the stimulus.

As a consequence of experience in the Congenital Deafness Clinic of the University of Colorado Medical School, Bergstrom, Hemenway, and Downs (1971), list four deficiencies of neonatal screening. These deficiencies are: (1) occasional false negative results; (2) a large number of false positive tests, (3) difficulty in detecting a maximal conductive hearing loss, and (4) inability to detect genetic predisposition to lose hearing later in life.

Other additional disadvantages are: screening is too time consuming, it has unreliability because of the labile physiological state of the neonate, and many smaller and rural communities cannot afford mass screening (J. Hardy, 1967; Wedenberg, 1971; Kerones, 1971).

However mass neonate hearing screening cannot be discounted completely because of the recognized disadvantages. Instead, research efforts may enable this technique to become valid and reliable.

High risk registry screening of neonates

Davis and Silverman (1970) state that it is unnecessary to wait for perfection in routine hearing screening among infants. They and others advocate instituting a high risk register at birth after which follow-up would monitor the developmental stages of the infant until age two. This is a very feasible and logical identification procedure.

In general, it is a simple two-part program. The first part involves a list of prenatal, perinatal, and postnatal factors which may contribute to or be associated with a given handicap. The list is used to select or identify infants who have one or more risk factors in evidence. The second part consists of infant audiometric testing and follow-up on these high risk individuals.

A high risk register procedure can be economical, time saving, objective, and easily learned. The prevalence of hearing impairment is at least sixteen times greater in the high risk grouping than in the general population which is one in 1,000 to 2,000 infants (W. Hardy, 1967; Bergstrom, Hemenway and Downs, 1971).

Increased support from research has stimulated use of high risk registers. Recently high risk questionnaires have been distributed to new parents in one locality of Utah as a pilot phase of a total hearing impaired infant program. All hospitals within the state may eventually provide this service. The method alleviates staff time in completing high risk forms. It also alerts the parents to possible problems and informs them as to where to go for help. In addition, it informs the professional of high risk conditions that exist among infants.



A planned follow-up phase to the identification program will utilize audiological and EEG evaluations. Referrals from high risk registries and preschool hearing screening clinics provide cases for these evaluations (Clark, 1972; Roylance, 1972).

An audiologist and a medical doctor take issue with the use of high risk registers by stating that these are of limited value. These persons say that when too many children are on a register list an unmanageable follow-up situation arises. However, when they raise their screening standards, some babies with problems will likely be missed. Also, the risk categories are usually ill-defined, imprecise, and incomplete. They conclude that both newborn screening and high risk registries in present forms are questionable. They contend that other specialists hold similar views (Feinmesser and Bauberger-Tell, 1971).

The literature refers to several more techniques used to lesser extents for identification of hearing loss among infants, and for diagnostic and follow-up. Among the techniques described are automated Crib-O-Grams, Cardiac Evoked Response, Parent Awareness Questionnaires (Downs, 1971); Electrodermal measurements, conditioned play audiometry for older children (W. Hardy, 1967; Auro-palpebral Reflex threshold measurement (Wedenberg, 1971).

#### Public Awareness Programs

##### Recognized need for awareness programs

Until reliable testing procedures are developed, we must continue to depend on the alertness of parents, the awareness of the general

public and the knowledge of the medical profession and other specialists in order to identify hearing impairment early in infancy (Fiedler, 1969).

At the same time, we must recognize that parents do not easily discover deafness before an age at which the child normally begins to talk (Telford and Sawrey, 1967). Harris says that "most parents have little if any knowledge of deafness and what can be done for the deaf child." (Harris, 1969, p. 8) Hence, they do not know how to detect loss, and after discovery, they do not know where to go for help or even what kind of help is available. Levine (1960) and Fiedler (1952) concur.

Karlan (1970) explains that there is an all encompassing need for a nationwide public relations program to acquaint the general public with problems of deafness. He advocates utilization of mass media to meet certain prescribed goals in informing the public.

Now only the general public and parents but the medical and related professions need to become more aware of hearing impairment and what can be done for both child and parents to help them cope with it. Hedgecock (1955), Lowell (1967), and Downs (1971) clearly maintain that it is the responsibility of the physician to make careful identification and diagnosis, and to recommend a definite course of action. But O'Conner laments that "there are still physicians including pediatricians, who are not prepared to help their patients..." (O'Conner, 1950, p. 397). He further reflects that even in this day of increased enlightenment on deafness, some doctors counsel parents

to wait until a child is six and then send him to a school for the deaf. Also, McAree (1970) consulted eight different physicians before one counseled her in what to do concerning definite identification of her child's suspected hearing loss.

Impetus has been given through various professional conferences to public awareness programs promoting knowledge of hearing impairment in infants.

Two national conferences cited previously in this chapter include recommendations on such programs. Participants of the National Conference on Education of the Deaf (1967) mentioned awareness approaches directed at two populations. First, they recommended the use of public information media to make hearing loss as common a concern as cancer and heart disease. Second, they recognized the responsibility for early management which devolves upon the physician. Therefore, they recommended that medical schools emphasize education of their students in that area.

Participants of the Conference on Newborn Hearing Screening (1971) recommended that parents as well as all health and educational personnel refer children with suspected hearing losses for testing. This requires that these people be aware of the danger signals of hearing impairment and of places of referral where suspect children can be taken.

#### Public relations programs in general use

Alerting professionals and laymen to overt indicators of impaired hearing in infants will require publicity through an intense and wide-spread public relations program.

It is of interest to note the relationship between publicity and public relations. Several authors have said that public relations encompasses the planned effort to influence and maintain favorable opinion through relying on two-way communication. Stahl (1962) draws a distinction between public relations and publicity. He states that public relations are designed to promote a desired attitude among the public and that publicity may be designed to give only facts. But Baus (1962, p. 429) in the Public Relations Handbook clearly explains "Publicity is the major ingredient of public relations in action."

In any event, both dissemination of facts and spreading of attitudes rely on mass media for existence. O'Reilly (1970) maintains that the media of communication include newspapers, magazines, radio and television, films, speeches, debates, interviews, and face-to-face encounters (oldest and maybe the most effective). Additionally, Bloomenthal (1971) listed posters, leaflets, brochures, displays and exhibits in connection with booths and billboards. He, also, distinguished two entities of mass media. He labeled one the medium or material and the other the vehicle or method of dissemination.

#### Research on effectiveness

Vast amounts of good scientific research on the effectiveness of public relations is difficult to discover from a review of the literature. Carlson (1970) speculated that the low status of research in the field has probably always been the case. He advocated good research and asserted that the tools are now available. Perhaps experience with public relations has been the best indicator of its effectiveness.

This is not to say that research on effectiveness is unavailable. The contrary is true. For instance, Nofziger, Engstrom, and MacLean (1951) selected three populations: metropolitan areas, small cities, and rural communities and surveyed them to find out the effect of media on their level of information. The media involved were newspapers, radio, magazines, movies and books. These authors found, in extensive research, there is some correlation between a person's level of information and his exposure to information through media.

Since the television industry began in 1946, it has become an important medium in public relations. Neiger (1970) reports that there is no better medium than television. He explains how a planned parenthood organization promoted it's message through public service announcements along with radio broadcasts, newspapers, printed handouts and interviews. He maintains that increased responses are a result of continual coverage on television.

Dipman (1970) referred to a drug awareness program which used local TV, films and booklets to disseminate information as a public service. He said measurement of effectiveness of the program through use of these media was difficult, but felt it had a far-reaching impact in terms of responses from a concerned public. In addition, he indicated that awareness programs sponsored by private enterprise had inspired similar efforts elsewhere. There are also studies which support use of the newspaper medium (Harral, 1958, PR news content of media measured, 1963). Other studies present guidelines for use of volunteers and suggest taking advantage of free television and radio time (Koten, 1971; Paluszek, 1971).

Existence of public awareness  
programs regarding hearing  
impairment

It is surprising to note that almost nothing on existent awareness programs regarding hearing loss seems to exist in the current literature. Two programs which are described will be mentioned below.

Harris (1967) did not refer to a specific program by name but claimed that great effort had been done to educate the public and specifically the parents concerning danger signals suggesting hearing loss. She further commented on the arising need at that time for more public and professional education stimuli because of the 1963-1965 Rubella epidemic.

Also, in 1971, the Alexander Bell Association for the Deaf began a national campaign to alert the public to infant hearing impairment. Association members, who were involved, utilized national television to promote information in interview. They also made available to inquirers, a free information kit. The kit contained a pamphlet which answered parent questions, a reprinted article from the New York Times, and a list of danger signals of possible hearing problems ("Hearing Alert!" Introduced on network television program, 1971).

The present study is designed to clarify the efforts being made to educate the public concerning hearing impairment and the underlying danger signals in infants.

## PROCEDURES

### Introduction

The development of strong public relations programs designed to broaden knowledge of the danger signals of hearing impairment in infants may be of great value at the present time. In this section procedures will be described that led to: (1) a determination of the existence or planning of public awareness programs in this specific area of concern, and (2) recommendations and guidelines for a model public awareness program. Specifically, procedures will be described including the construction of a questionnaire, the identification of respondents, the distribution of the research device to them, the obtaining of returns, and lastly, the method of presenting and interpreting of the data.

### Development of the public awareness questionnaire

Initially, guidance in selection of a method of research was sought from individuals with expertise in areas of educational research. Also, a review of literature was undertaken and the survey method of research was chosen. A checklist questionnaire format was selected for the evaluation model.

### Construction

The format and content of the questionnaire is described below. An explanation of the purpose and intent of the study and instructions

to respondents was placed at the beginning of the questionnaire. Also, identifying information on each respondent was sought.

Following the identification section, the questionnaire (see Appendix B) was divided into two parts. Part I contained ten questions about currently planned or implemented public awareness programs for infants. It was subdivided into public awareness programs for infants directed at the general public, at parents, and at professionals. Respondents were to first indicate which of these three categories were included in their program. They were then instructed to answer questions pertaining to only the categories they had checked. Within each category, questions were asked pertaining to methods and materials of dissemination of information.

At the conclusion of Part I, a request was made for sample materials or listings of such materials in disseminating information in a public awareness program.

Part II consisted of eight questions designed to determine what an ideal program should include for informing public and professionals concerning danger signals of hearing loss among infants. The same subdivisions of parent, public, and professional were made as in Part I. Similarly, within each category questions were asked pertaining to methods and materials of dissemination of information. The final page of Part II had three questions dealing with direction and finance of public awareness programs. It should be noted that respondents were allowed to check more than one item per question. Also, additional comments were invited.



### Pilot questionnaire

A pilot questionnaire was sent out to discover problem areas with regards to completeness and clarity. Twenty audiologists and professors in related fields of study from universities around the country were used as subjects. An introductory letter, soliciting their help, accompanied the pilot questionnaire. All suggestions were carefully considered and revisions made. No major changes in questionnaire format or content stemmed from these recommendations. The only modification was to label the columns in questions eleven, twelve, and thirteen.

### Identification of respondents and distribution of the final questionnaire

Selection of respondents was narrowed to include hearing conservation programs in state departments of health and hearing conservation specialists who were connected mainly with universities. It seemed to the experimenter that these specialists would be most likely to be involved in the planning or implementation of public awareness programs for hearing impairment among infants.

The specific individuals selected were persons in state health programs listed in the American Annals of the Deaf (April 1972) and selected audiologists from the ASHA Membership Directory (1971). A consulting audiologist on the staff of Utah State University assisted in the identification of the audiologists outside of state departments. A geographical cross-section of the United States was included with at least one potential respondent from each state.

Fifty-one questionnaires were consequently sent to each state health program including the District of Columbia and directed specifically to the hearing conservation specialist. Another 52 questionnaires were distributed to the non-health department specialists.

A cover letter from Aaron A. Roylance, Chief, Speech Pathology/Audiology Section, Division of Health, State of Utah was included with each questionnaire (see Appendix C). The letter encouraged the respondents to complete and return the questionnaire. A second letter was included which gave the rationale for the questionnaire. It was signed by the author and by the consulting audiologist (see Appendix C).

The public awareness questionnaires were mailed on May 16, 1972. Subsequent follow-up letters were mailed four weeks later to all individuals who had not responded to the initial mailing (see Appendix C). Completed copies of the questionnaire received before June 28, 1972 were included in this study.

#### Data analysis

The research was designed to obtain information about planned or current public awareness programs for informing laymen and professionals of the danger signals leading to recognition of hearing impairment in infants. Also, the questionnaire was designed to obtain opinions from specialists on guidelines for a program of public awareness. In both instances, the information was limited to (1) methods of and materials

for dissemination; (2) suggestions for financing and program administration. It should be noted that it was difficult to separate the categories of methods and materials.

The method of reporting the results of each question encompassed a tabulative summary containing the category of vehicle, participation and location of respondents, and an accompanying interpretive discussion. The percentages listed in the participation column are based upon the total number of respondents filling in that part of the questionnaire. They are not based upon the total number of respondents per question, as that number differs from question to question, nor are the percentages based on the total number of responses the respondents made per question.

The percentages given under the location headings of Part I or Part II are not based upon the total number of respondents. They are, instead, based upon the number of respondents per location. For example, the 56 percent value for General Public of Table 2 is derived from 8/14 not 8/18.

## RESULTS AND DISCUSSION

The information and data derived from the questionnaire returns will be presented in this section. Tables are provided to present results and provide focus for discussion. Each table ordinarily includes data from one question of the questionnaire. The title of each table contains the number of specialists responding to the question represented. The type of program or category of methods and materials is given. Also, the corresponding participation and location of respondents is presented.

Each table discussion includes: an introductory descriptive paragraph, pertinent data, and interpretation of responses. In cases where two tables have some association, they will be discussed together.

The questionnaire was sent to hearing conservation specialists of 51 state health departments including the District of Columbia and to 52 other persons who were certified audiologists of the American Speech and Hearing Association. A total of 103 copies were sent. Fifty-one or approximately 49 percent of these were returned within six weeks. Thirty of the 50 state departments of health were represented in the return. Twenty-one otherwise affiliated specialists responded, also.

It should be mentioned that fourteen additional specialists replied with letters of explanation. They claimed a lack of familiarity with public awareness programs regarding infant hearing loss and,

therefore, did not complete the questionnaire. These fourteen additional replies plus the 51 questionnaire returns constitute a 63 percent total response.

Questionnaire responses received during the first three weeks were compared to responses received during the second three weeks. A visual perusal revealed little or no apparent difference in the general trend of responses. Also, very little difference was observed in responses made by the two participating populations. These observations suggest that additional questionnaire returns would reveal similar results.

It might be mentioned, again, that a relatively low percentage of returns was expected due to:

- (1) the lateness in the school year in which it was distributed. One university-based respondent commented that he lacked secretarial help at the end of the semester. Another said he did not receive the questionnaire until he returned from summer vacation.
- (2) the probability of lack of familiarity with public awareness programs, particularly by some of the specialists who were not working for state health departments. Also, a lack of familiarity was expected because so few existent programs were known to be in operation. Six people noted that they felt unqualified to respond as they were not acquainted or associated with a public awareness program of any type. They returned the questionnaires unanswered or forwarded them to specialists whom they considered more qualified.

Six respondents added extra comments voicing their approval of the survey. One said: "It is a good questionnaire; I'm sorry that I didn't have more to offer." A second person stated: "We wish you success in your effort to compile information about public awareness programs. The information will surely be beneficial to many professionals in improving their programs." Eight requested a copy of results to help in setting up new programs.

#### Existing public awareness programs

Part I of the questionnaire was concerned with current or planned public awareness programs. The plan was to first obtain identifying information related to those programs in operation. Surveys included both methods of and materials for dissemination to populations of general public, parents, and professionals who work with infants. Eighteen out of 51 or 36 percent of respondents completed Part I. The use of other avenues of identification by the remaining 35 or sixty-nine percent was not determined.

Table 1 includes responses to Part I and specifically to items one and two of the questionnaire. Persons who planned or implemented public awareness programs were asked to provide three items of information: program, sponsor, and an indication of whether or not the program functioned in addition to other diagnostic and identification techniques. It may be noted that ten of eighteen existing programs reporting included identification procedures other than just public awareness programs. Three programs relied solely on public awareness for identification of hearing loss in infants. Five did not provide this information. Four, or 22 percent of the 18 programs, are sponsored

Table 1. A listing by name and sponsor of current public awareness programs for infants provided by 18 respondents. Thirteen of these respondents indicate whether or not the program functions in addition to other identification methods.

Name of Program	Sponsor	State Health Department	Other	Program Functions Additionally
1. Hearing Conservation Committee - Albermarle, Charlottesville, Nelson Counties	Univ. of Virginia; Hearing and Speech Foundation; Albermarle, Charlottesville, Nelson County Health Department, Children and Youth Dept.; public schools		X	Yes
2. Children's Hearing and Speech Clinic in Association with Arkansas Chapter of the Int'l Parents Organization	Not given		X	NR
3. Not given	Parents and friends of Deaf and Hearing Impaired in West Virginia		X	Yes
4. Hearing Conservation (planned)	Illinois Dept. of Public Health	X		Yes
5. Children's Health Services Division	Hawaii State Department of Health	X		Yes
6. Office of Public Information	New Jersey State Dept. of Health	X		Yes

Table 1. Continued

Name of Program	Sponsor	State Health Department	Other	Program Functions Additionally
7. Not given	Maryland State Dept. of Education	X		NR
8. Kentucky School Health and Accident Prevention	Maternal and Child Health, Kentucky Department of Health	X		Yes
9. High Risk Infant Register	State Department of Health, Hearing Conservation Program (Montana)	X		No
10. Maternal and Child Health Speech and Hearing Program	Missouri Division of Health	X		NR
11. Defective Hearing Program	Bureau of Crippled Children, Virginia Dept. of Health	X		Yes
12. Maternal Child Health Program conducted thru Child Health Clinics, Pediatric Nursing Stations and Community Based Primary Health Care for Children	County Health Dept. and Public Health Guidance Centers (Oklahoma)	X		Yes
13. Child Health Services	Vermont Dept. of Health	X		No



Table 1. Continued

Name of Program	Sponsor	State Health Department	Other	Program Functions Additionally
14. Not given	Utah State Division of Health	X		Yes
15. Joint Committee on Newborn Hearing Screening	American Speech and Hearing Association, American Academy of Pediatrics, American Academy of Ophthalmology and Otolaryngology		X	Yes
16. Medicaid Screening and Diagnostic Program	Division of Welfare contracted to Division of Public Health (New Hampshire)	X		No
17. Hearing Conservation Section Workshops	Kansas State Health Department	X		NR
18. Handout distribution to professionals	Minnesota Department of Health	X		NR

Key: NR = no response  
Dept. = department

by non-government public and private organizations; the other fourteen or 78 percent by state government agencies. The relative emphasis upon public awareness in total programs of infant identification is of relevance to this study.

The data of Table 1 reveals that the government and non-government organizations did not duplicate services in specific localities. Also, the predominance of state agency involvement suggests the willingness of government to finance and direct programs in contrast to the minimal support provided by non-government organizations.

Table 2 summarizes participation of the 18 existing public awareness programs in informing the general public, parent, and professional populations concerning infant hearing impairment. Also, the location of programs is presented.

Programs directed at professionals received the greatest support. Seventeen of 18 or 94 percent of those responding included professional awareness within their total program. It is interesting to note that both state health affiliates and those listed under "other" gave strong support to professional awareness as an approach. However, responses from participants in a majority of programs indicated that information for the identification of hearing loss among infants was typically distributed to each of the general public, parent, and professional populations.

The data therefore suggests that all three populations should be considered when evolving a new program of this type. Special emphasis might well be given to informing the professional population. This includes nurses, physicians, speech and hearing therapists and the like.

Table 2. Types of public awareness programs and corresponding participation and location among 18 existing operations.

Type of Program	Participation		Location			
	Number	Percent	State Health		Other	
			Number	Percent	Number	Percent
General Public	11	61	8	56	3	75
Parent	13	72	10	71	3	75
Professional	17	94	13	93	4	100
Miscellaneous: agencies, health department sponsored programs	2	11	2	14	0	0

\*In the Participation column, the percentages are based on the 18 existing programs. For example, 11/18 or 61 percent of programs directed information at the general public. In the Location column, the percentages are based on fourteen state health and four otherwise supported programs. For example, 8/14 or 56 percent of State Health and 3/4 or 75 percent of Other respondents directed information at the general public. Note that respondents were allowed to check more than one type. All 18 individuals responded to the question from which this information was derived.

Data shown in Table 3 and 4 is from programs directed at the general public. Methods of dissemination and corresponding utilization among 18 current programs is given in Table 3. Materials for dissemination and their use among 18 current programs is given in Table 4. Methods listed are the vehicles for disseminating materials. For example, television and radio broadcasting, noted in Table 3, is the vehicle for public service announcements as shown in Table 4.

The results of Table 3 suggest that at least nine methods were used for dissemination of information. The methods utilized most frequently among programs were television and radio broadcasts, information booths at public meetings, and mailing lists, in that order.

The data on Table 4 shows that six categories of materials were used in the dissemination of information to the general public. Written matter in the form of pamphlets, brochures, and leaflets was by far the most used material, followed by public service announcements. The other four materials received only token use. These include magazine articles, billboard signs, newspaper articles, and poster information.

The data indicates that written information in ten operational programs of general public awareness is distributed by more than one vehicle of dissemination. For example, the Hawaiian Department of Health distributed pamphlets through physician's office and well-baby clinics; and the Kentucky Department of Health employs magazine articles and pamphlets in physician's offices and in well-baby clinics, and also use periodical circulation. This example is taken from the raw data of the questionnaire and does not appear, as such, in Tables 3 and 4.

Table 3. Methods of dissemination to the general public and corresponding participation and location among 18 existing programs.

Categories of Methods	Participation		Location			
	Number	Percent	Number	Percent	Number	Percent
Mailing lists	5	28	3	21	2	50
Television and radio broadcasts	10	56	6	43	4	100
Billboard campaigns	0	0	0	0	0	0
Journal or magazine circulation	3	17	3	21	0	0
Information booths at public meetings, etc.	6	33	4	29	2	50
Miscellaneous: monthly general publications; statewide hearing impaired symposiums; newspapers (3); lectures to clubs, etc. (2).	6	33	4	29	2	50

\*In the Participation column, the percentages are based on the 18 existing programs. For example, 5/18 or 28 percent of programs utilized mailing lists. In the Location column, the percentages are based on fourteen state health and four otherwise supported programs. For example, 3/14 or 21 percent of State Health and 2/4 or 50 percent of Other respondents used mailing lists. Note that respondents were allowed to check more than one category. Eleven individuals responded to the question from which this information was derived. The data from seven other persons did not support general public programs including underlying dissemination methods.

Table 4. Materials for dissemination to the general public and corresponding participation and location among 18 programs.

Categories of Materials	Participation		Location			
	Number	Percent	State Health		Other	
			Number	Percent	Number	Percent
Brochures, pamphlets, leaflets, etc.	10	56	7	50	3	75
Public service announcements	6	33	3	21	3	75
Billboard signs	0	0	0	0	0	0
Journal or magazine articles	3	17	2	14	1	25
Posters (strategically placed in public halls, etc.)	2	11	1	7	1	25
Miscellaneous: local newspapers (2).	2	11	1	7	1	25

\*In the Participation column, the percentages are based on the 18 existing programs. For example, 10/18 or 56 percent of programs utilized brochures, etc. In the Location column, the percentages are based on fourteen state health and four otherwise supported programs. For example, 7/14 or 50 percent of state health and 3/4 or 75 percent of other respondents used brochures, etc. Note that respondents were allowed to check more than one category. Eleven individuals responded to the question from which this information was derived. The data from seven other persons did not support general public programs or materials therein.

It is peculiar that billboard signs in billboard campaigns are not used in any current operation within this survey. In contrast, they are used by lazy-eye clinics to increase awareness of need for annual eye checkups and the presence of early childhood eye diseases. The author asserts that well-organized billboard campaigns could be employed to alert the public to danger signals of hearing impairment in infants and to the location of well-baby clinics and the like.

Tables 5 and 6 present data concerning methods and materials directed at parent awareness. Information concerning participation and location among eighteen respondents is shown as it related to the categories of methods and materials.

Table 5 displays eleven different methods which were utilized in disseminating information to parents. Eleven of eighteen or 61 percent of operations relied on well-baby clinics. Both state health and other sponsoring agencies used them. No other single method was used by a majority of parent awareness programs.

Table 6 indicates that eight categories of materials are disseminated to varying extents among the agencies represented by the 13 respondents. Pamphlets, brochures, and leaflets was the only category of materials approaching a majority of use.

The data of Table 6 reveals that parent awareness programs utilize a variety of materials. Each program is unique in divising their own combination of materials. The listing of materials in both the main categories and the miscellaneous classification may be valuable references for development of new public awareness programs. It is

Table 5. Methods of dissemination to parents and corresponding participation and location among 18 existing programs.

Categories of Methods	Participation		Location			
	Number	Percent	State Health		Other	
			Number	Percent	Number	Percent
Maternity class lectures	3	17	3	21	0	0
Physician's office visits	3	17	3	21	0	0
Television and radio broadcasts	2	11	1	7	1	25
Mailing lists	3	17	2	14	1	25
Well baby clinics	11	61	9	64	2	50
Journal or magazine circulation	1	5	1	14	0	0
Miscellaneous: hospitals, physical offices and clinics; meetings (lectures, discussions (2)); local newspapers; health department media distribution; workshops.	7	39	5	36	2	50

\*In the Participation column, the percentages are based on the 18 existing programs. For example, 3/17 or 17 percent of programs utilized maternity class lectures. In the Location column, the percentages are based on fourteen state health and four otherwise supported programs. For example, 3/14 or 21 percent of State Health and 0/4 or 0 percent of Other respondents used maternity class lectures. Note that respondents were allowed to check more than one category. Thirteen individuals responded to the question from which this information was derived. The data from five other persons did not support parent awareness programs including underlying dissemination methods.



Table 6. Materials for dissemination to parents and corresponding participation and location among 18 existing programs.

Categories of Materials	Participation		Location			
	Number	Percent	State Health		Other	
			Number	Percent	Number	Percent
Checklist for expectant mothers	4	22	3	21	1	25
Articles in magazines	1	5	1	7	0	0
Public service announcements directed at parents	3	17	2	14	1	25
Pamphlets, brochures, leaflets etc.	8	44	7	50	1	25
Mailing lists	2	11	2	14	0	0
Miscellaneous: checklist (to be filled in during first four months); lecture information; audiovisual aids.	5	28	5	36	0	0

\*In the Participation column, the percentages are based on the 18 existing programs. For example, 4/18 or 22 percent of programs utilized checklists for expectant mothers. In the Location column, the percentages are based on responses among fourteen state health and four otherwise supported programs. For example, 3/14 or 21 percent of State Health and 1/4 or 25 percent of Other respondents used checklists for expectant mothers. Note that respondents were allowed to check more than one category. Thirteen individuals responded to the question from which this information was derived. The data from five other persons did not support parent awareness programs or materials therein.

interesting to note that most of these materials shown in Table 6 could be disseminated through the highest utilized method of well-baby clinics, as noted in Table 5.

Tables 7 and 8 summarize data on methods of dissemination and corresponding participation and location data among the 18 existing programs.

As noted, Table 7 presents a summary of data on dissemination methods. Nine methods received some use. A majority of programs direct information through professional organization meetings. The next most used single category of methods was teaching hospital lectures with five or 28 percent of the respondents listing it.

Table 8 presents the materials used by each of the participating programs and corresponding data. Nine categories of materials were employed. The most frequently used material was lecture information. Ten of eighteen respondents identified with programs using this material type. None of the other materials were used by more than seven respondents.

At least some direct contact with pre-professional personnel and practicing specialists may be noted in the miscellaneous category of Table 7. For example, counsel was given to cooperating physicians and to speech and hearing therapists.

Table 7. Methods of dissemination directed at professionals and corresponding participation and location among 18 existing programs.

Categories of Methods	Participation		Location			
	Number	Percent	State Health		Other	
			Number	Percent	Number	Percent
Teaching hospital lectures	5	28	2	14	3	75
Professional organization meetings	10	56	7	50	3	75
Medical school classes	4	22	2	14	2	50
Journal or magazine circulation	4	22	2	14	2	50
Mailing lists	1	6	1	7	0	0
Miscellaneous: symposiums, inservice workshops (2) and clinics; counselor to cooperating physicians and speech and hearing personnel; lectures and demonstrations; handout distribution.	7	39	6	43	1	25

\*In the Participation column, the percentages are based on the 18 existing programs. For example, 5/28 or 28 percent of programs utilized teaching hospital lectures. In the Location column, the percentages are based on fourteen state health and four otherwise supported programs. For example, 2/14 or 14 percent of State Health and 3/4 or 75 percent of Other respondents used teaching hospital lectures. Note that respondents were allowed to check more than one category. Seventeen individuals responded to the question from which this information was derived. The data from one other person did not support professional awareness programs including underlying dissemination methods.

Table 8. Materials of dissemination directed at professionals and corresponding participation and location among 18 existing programs.

Categories of Materials	Participation		Location			
	Number	Percent	State Health		Other	
			Number	Percent	Number	Percent
Checklist for professionals	4	22	3	21	1	25
Information through lectures	10	56	7	50	3	75
Brochures, pamphlets, leaflets, etc.	7	39	5	36	2	50
Professional journal articles	5	28	4	29	1	25
Miscellaneous: observation and supervised practice; counsel given; adequate history form; handouts (2).	5	28	4	29	1	25

\*In the Participation column, the percentages are based on the 18 existing programs. For example, 4/18 or 22 percent of programs utilized checklists for professionals. In the Location column, the percentages are based on fourteen state health and four otherwise supported programs. For example, 3/14 or 21 percent of State Health and 1/4 or 25 percent of Other respondents used checklists for professionals. Note that respondents were allowed to check more than one category. Seventeen individuals responded to the question from which this information was derived. The data from one other person did not support professional awareness programs or materials therein.

Guidelines for public awareness  
programs involving infant  
hearing impairment

All respondents were asked to make recommendations leading to guidelines for planning and implementing a public awareness program for infants. Part II of the questionnaire was reserved for this. Essentially, the same information was sought as in Part I with regard to methods and materials for dissemination. The respondents were allowed to make additional recommendations and comments on all questions in the survey. All fifty-one returnees completed Part II. Tables 9 through 18 present the data of Part II.

In the literature, communication of information on infant hearing impairment by public awareness programs was suggested toward three main populations, the general public, parents, and professionals who deal with infants. Recommendations were obtained on inclusion or exclusion of each population in a total program. Table 9 presents the data on program types and the corresponding participation and location among fifty-one persons responding.

Within Table 9, the type of program receiving the highest endorsement was that oriented toward the professional. Twenty-five of 30 health department specialists and nineteen of twenty other specialists felt that this type of program was essential. However, the parent oriented program was advocated by only two fewer respondents. The results indicate that a program of awareness aimed at the general population was considered least effective of the three. It, nonetheless, was recommended by 35 of the respondents.

Table 9. Guidelines for types of public awareness programs and corresponding participation and location among 51 respondents.

Type of Program	Participation		Location			
	Number	Percent	State Health		Other	
			Number	Percent	Number	Percent
General public	31	61	17	57	14	66
Parent	42	82	25	83	17	81
Professional	44	86	25	83	19	90
Miscellaneous: paraprofessional personnel (2); legislators; high school seniors.	4	8	3	10	1	5

\*In the Participation column, the percentages are based on the 51 total respondents. For example, 31/51 or 61 percent of returnees recommended awareness programs directed at the general public. In the Location column, the percentages are based on responses among thirty state health and twenty-one otherwise affiliated respondents. For example, 17/30 or 57 percent of State Health and 14/21 or 66 percent of Other respondents recommended general public awareness programs. Note that returnees were allowed to check more than one type. All 51 individuals, who completed the questionnaire, responded to the question from which this information was derived.

The data of Table 9 suggests that a public awareness program should reach at least the professional and parent populations. In comparison with existing programs noted in Table 2, little difference exists between what has been done and what was recommended. For example, as noted in the Participation column of Table 2, seventeen or 94 percent of the current programs, represented, directed methods and materials at professionals. In the Participation column of Table 9, however, forty-four or 86 percent of the total respondents recommended the same.

A later item of the questionnaire (see Appendix B, number 14) allowed respondents to include methods and materials for dissemination to populations which they added under the miscellaneous category of Table 9. The methods and materials which respondents listed are as follows:

1. Pamphlets, lectures and audio-visual media for para-professional personnel.
2. Lobbying and distribution of brochures and reprints which stress the importance of early detection and the financial aspects of undetected loss for legislators.
3. Education about hearing impairment as part of a course in family living for high school seniors.

Data in Tables 10 and 11 include recommendations on general public awareness programs. Methods and materials of dissemination are given in Tables 10 and 11 respectively. Also, participation and location among 51 respondents is included in both tables.

Table 10. Guidelines for methods of dissemination to the general public and corresponding participation and location among 51 respondents.

Categories of Methods	Participation		Location			
	Number	Percent	State Health		Other	
			Number	Percent	Number	Percent
Mailing lists	3	6	3	10	0	0
Television and radio broadcasts	33	66	19	63	14	66
Billboard campaigns	8	4	5	17	3	14
Journal and magazine circulation	19	37	10	33	9	43
Information booths at public meetings	21	41	14	47	7	33
Miscellaneous: newspapers; meetings of state, community and school groups who are interested (3).	4	8	3	10	1	5

\*In the Participation column, the percentages are based on the 51 total respondents. For example, 3/51 or 6 percent of returnees recommended mailing lists. In the Location column, the percentages are based on responses among thirty State Health and twenty-one otherwise affiliated persons. For example, 3/30 or 10 percent of State Health and 0/21 or zero percent of Other respondents recommended mailing lists. Note that returnees were allowed to check more than one category. Thirty-five individuals responded to the question from which this information was derived. The data from 16 other persons did not support general public awareness programs and underlying dissemination methods.



Table 11. Guidelines for materials to disseminate to the general public and corresponding participation and location among 51 respondents.

Categories of Materials	Participation		Location			
	Number	Percent	State Health		Other	
			Number	Percent	Number	Percent
Brochures, leaflets, etc.	22	43	16	53	6	28
Public service announcements	32	63	18	60	14	66
Billboard signs	9	17	6	20	3	14
Journal or magazine articles	20	37	12	40	8	40
Posters	14	27	10	33	4	20
Miscellaneous: newspaper articles (2); educational television programs.	3	6	1	3	2	10

\*In the Participation column, the percentages are based on the 51 total respondents. For example, 22/51 or 43 percent of returnees recommended brochures, etc. In the Location column, the percentages are based on responses among thirty state health and twenty-one otherwise affiliated persons. For example, 16/30 or 53 percent of State Health and 6/21 or 28 percent of Other respondents recommended brochures, etc. Note that returnees were allowed to check more than one category. Thirty-five individuals responded to the question from which this information was derived. The data from 16 other persons did not support general public awareness programs or materials, therein.

A total of seven methods of dissemination were recommended for use as noted in Table 10. The method of dissemination which was the most frequently recommended was television and radio broadcasts with thirty-three or 66 percent of the respondents supportive. Also receiving a considerable amount of respondent endorsement were information booths at public meetings and magazine circulation.

Seven categories of materials for dissemination were advocated for use as shown in Table 11. Public service announcements was a category most highly supported. It received 32 respondent endorsements. Other material types receiving a noteworthy amount of recommendations were brochures and magazine circulation. The other four categories of materials were endorsed in fewer instances.

It seems reasonable that a certain combination of methods and materials should be fitted to a given situation. However, emphasis might well be placed on public service announcements broadcast by radio and television and directed at the general public as revealed in Tables 10 and 11. It is interesting to note from Tables 3 and 4 that ten or 56 percent of existing programs used broadcasting in the form of public service announcements as compared to the 66 and 63 percent recommendation in Tables 10 and 11.

Tables 12 and 13 summarize recommendations for methods of and materials for dissemination to parents and corresponding participation and location data among 51 respondents.

Table 12 presents guidelines for methods of dissemination to parents and accompanying data. Ten methods received recommendations but only four by a majority of respondents. Forty-one or 80 percent

Table 12. Guidelines for methods of dissemination to parents and corresponding participation and location among 51 respondents.

Categories of Methods	Participation		Location			
	Number	Percent	State Health		Other	
			Number	Percent	Number	Percent
Maternity class lectures	36	71	21	70	15	71
Physician's office visits	27	53	16	53	11	52
Television and radio broadcasts	27	53	16	53	11	52
Mailing lists	8	16	5	17	3	14
Well baby clinics	41	80	24	80	17	81
Journal or magazine circulation	18	35	11	37	7	33
Miscellaneous: group and individual counseling in workshops (3); newspapers (2); hospitals (2).	7	14	7	23	0	0

\*In the Participation column, the percentages are based on the 51 total respondents. For example, 36/51 or 71 percent of returnees recommended maternity class lectures. In the Location column, the percentages are based on responses among thirty state health and twenty-one otherwise affiliated persons. For example, 21/30 or 70 percent of state health and 15/21 or 71 percent of other respondents recommended maternity class lectures. Note that returnees were allowed to check more than one category. Forty-seven individuals responded to the question from which this information was derived. The data from four other persons did not support parent awareness programs including underlying dissemination methods.

Table 13. Guidelines for materials to disseminate to parents and corresponding participation and location among 51 respondents.

Categories of Materials	Participation		Location			
	Number	Percent	State Health		Other	
			Number	Percent	Number	Percent
Checklist for expectant mothers	35	69	20	67	15	71
Journal or magazine articles	18	35	11	37	7	33
Public service announcements	25	49	13	43	12	57
Pamphlets, leaflets, etc.	35	69	23	77	12	57
Miscellaneous: information through forms of audio-visual media (3); information through work- shops (2); checklist concerning infant behavior; good history form; information with birth certificate; infor- mation through private consultation (2).	10	20	9	30	1	5

\*In the Participation column, the percentages are based on the 51 total respondents. For example, 35/51 or 60 percent of returnees recommended checklists for expectant mothers. In the column, the percentages are based on responses among thirty state health and twenty-one otherwise affiliated persons. For example, 20/30 or 67 percent of state health and 15/21 or 71 percent of other respondents recommended checklists for expectant mothers. Note that returnees were allowed to check more than one category. Forty-seven individuals responded to the question from which this information was derived. The data from four other persons did not support parent awareness programs or materials therein.

advocated establishment of well-baby clinics and 36 or 71 percent supported maternity class lectures. Twenty-seven or 53 percent endorsed both broadcasts and billboard campaigns.

Table 13 shows recommendations concerning materials for dissemination to parents and accompanying data. Eleven different materials are supported by the data. Checklists for expectant mothers, pamphlets and the like, and public service announcements were considered important by half or more of the respondents. The two respondent locations are generally similar in responses.

Information directed at parents was advocated by 84 percent of the respondents (see Table 9). This corresponds with 72 percent use by existing programs (see Table 2). The data summary again gives reason to believe that a combination of methods and likewise of materials should be applied. Well-baby clinics distributing pamphlet materials should definitely be considered when setting up an ideal program. Also, checklists for expectant mothers might be a particularly useful vehicle according to Table 12.

Tables 14 and 15 present data summaries on dissemination methods and materials directed at professionals. They also include related information concerning the participation and location of specialists responding.

Table 14 contains responses to eight categories of methods important in informing professionals of the danger signals of infant hearing impairment provided among the 51 respondents. Four methods received a majority recommendation. They were: medical school classes,

Table 14. Guidelines for methods of dissemination to professionals and corresponding participation and location among 51 respondents.

Categories of Methods	Participation		Location			
	Number	Percent	State Health		Other	
			Number	Percent	Number	Percent
Teaching hospital lectures	38	74	20	67	18	86
Professional organization meetings	38	74	22	70	16	76
Medical school classes	39	76	22	70	17	80
Journal circulation	32	62	16	53	16	76
Mailing lists	9	17	6	20	3	14
Miscellaneous: workshops; consultation; university classes.	4	8	4	13	0	0

\*In the Participation column, the percentages are based on the 51 total respondents. For example, 38/51 or 74 percent of returnees recommended teaching hospital lectures. In the Location column, the percentages are based on responses among thirty state health and twenty-one otherwise affiliated persons. For example, 20/30 or 67 percent of State Health and 18/21 or 86 percent of Other respondents recommended teaching hospital lectures. Note that returnees were allowed to check more than one category. Forty-seven individuals responded to the question from which this information was derived. The data from four other persons did not support professional awareness programs and underlying dissemination methods.

Table 15. Guidelines for materials to disseminate to professionals and corresponding participation and location among 51 respondents.

Categories of Materials	Participation		Location			
	Number	Percent	State Health		Other	
			Number	Percent	Number	Percent
Checklist for professionals	24	47	15	50	9	42
Information through lectures	39	76	23	77	16	76
Brochures, leaflets, etc.	27	53	18	60	9	42
Professional journal or articles	30	59	16	53	14	67
Miscellaneous: video tape information (2); cooperative counseling with physicians (2).	4	8	4	13	0	0

\*In the Participation column, the percentages are based on the 51 total respondents. For example, 24/51 or 47 percent of returnees recommended checklists for professionals. In the Location column, the percentages are based on responses among thirty state health and twenty-one otherwise affiliated persons. For example, 15/30 or 50 percent of State Health and 9/21 or 42 percent of Other respondents recommended checklists for professionals. Note that returnees were allowed to check more than one category. Forty-seven individuals responded to the question from which this information was derived. The data from four other persons did not support professional awareness programs or materials therein.

thirty-nine respondents or 76 percent; teaching hospital lectures and professional organization meetings, thirty-eight or 74 percent each; and journal circulation, thirty-two or 62 percent. The other four got only minor support. Nine (17 percent) or less respondents supported mailing lists, workshops, consultation, and university classes.

Table 15 presents the six categories of materials and recommendations given among the 51 respondents. The most support was given to lecture information with thirty-nine or 76 percent responses. Thirty respondents or 59 percent recommended journal articles; twenty-seven or 53 percent checked brochures and the like, and twenty-four or 47 percent checklists for professionals. Another four or 8 percent recommended either audio-visual aids or individual counseling with physicians.

Results from Table 14, indicated that the first four categories of methods might well be effective separately or in combination. In Table 15, lecture information seems to be a very useful vehicle in informing the professional. Table 7 illustrates that in existing programs, professional organization meetings was by far the most utilized category of method. It may be noted from Table 8 that lecture information was a substantially supported material type used. Both were utilized by 56 percent of current programs.

The only section of Part II in which non-state health personnel seemed to give greater support than did state health specialists was in use of the first four categories of methods in Table 14. For example, eighteen or 86 percent of non-state health people recommended the



category of teaching hospital lectures in contrast with twenty or only 67 percent recommendations by state health personnel.

Table 16 presents recommendations regarding the level from which direction of public awareness programs should originate. The location and participation among the 51 respondents is included.

The data of Table 16 reveals that thirty-six or 70 percent of the respondents promoted the state level as being the most suitable level for direction of programs. However, a majority also listed national or local levels as adequate.

The results indicate that each level might well take some responsibility for direction. One specialist suggested that a national organization serve in a consulting role for each state directed program. This was a comment not noted in the data of Table 16. The current status of programs as reported in Table 1 revealed fourteen or 78 percent of them are state supervised and headed. One might hypothesize that this may be the appropriate level for focus in developing new public awareness programs in the states of the country. After development, the other government levels might perhaps then assume some responsibility.

The results in Table 17 are an extension in scope of the data of Table 16. The respondents were asked to recommend the organization or organizations which should be responsible for directing public awareness programs. Table 17 contains the responses summarized according to location and participation among the 51 specialists responding.

The respondents recommended ten organizations as appropriate sponsors as seen in Table 17. Thirty-six or 72 percent of the

Table 16. Guidelines for level of direction of public awareness programs and corresponding participation and location among 51 respondents.

Levels	Participation		Location			
	Number	Percent	State Health		Other	
			Number	Percent	Number	Percent
National	27	53	14	47	13	62
State	36	70	21	70	15	71
Local	31	60	18	60	13	62
Miscellaneous: voluntary agencies at all levels; national consul- tation for each state.	2	4	2	7	0	0

\*In the Participation column, the percentages are based on the 51 total respondents. For example, 27/51 or 53 percent of returnees recommended the national level. In the Location column, the percentages are based on responses among thirty state health and twenty-one otherwise affiliated persons. For example, 14/30 or 47 percent of State Health and 13/21 or 62 percent of Other respondents recommended the national level. Note that returnees were allowed to check more than one level. Fifty individuals responded to the question from which this information was derived. One person did not support any level of direction.

Table 17. Recommendations leading to the organization(s) which should be responsible for directing public awareness programs and corresponding participation and location among 51 respondents.

Organizations	Participation		Location			
	Number	Percent	State Health		Other	
			Number	Percent	Number	Percent
A federal government bureau	19	37	9	30	10	48
A national organization	20	39	8	27	12	57
State department of education	14	27	8	27	6	29
State health department	36	72	23	77	13	62
State children's bureau	20	39	15	50	5	25
A university	7	13	6	20	1	5
Private	6	12	4	13	2	10
None	1	2	1	3	0	0
Miscellaneous: local health department; community programs with state consultation (2); professional organizations.	4	8	4	13	0	0

\*In the Participation column, the percentages are based on the 51 total respondents. For example, 19/51 or 37 percent of returnees recommended a federal government bureau. In the Location column, the percentages are based on responses among thirty state health and twenty-one otherwise affiliated persons. For example, 9/30 or 30 percent of State Health returnees and 10/21 or 48 percent of Other respondents recommended a federal government bureau. Note that returnees were allowed to check more than one organization. Fifty individuals responded to the question from which this information was derived. One person did not support any organization.

respondents recommended state health department direction. Twenty-three of these respondents were state health affiliated and thirteen were otherwise based. Secondly considered by state health personnel were state children's bureaus while the non-state health specialists supported either a federal government bureau or a national organization as suitable to direct public awareness programs. The remaining organizations were supported by fourteen or fewer respondents according to the data.

Both locations of respondents in Table 17 reflected support for more than one organization. In other words, some direction should be assumed at all levels and from both government and non-government agencies. One respondent suggested that all levels should communicate with each other to avoid duplication and to provide a common front of strength and resources.

An important item to consider in any program is finance. Table 18 summarizes recommendations on this subject. The location and participation among 51 respondents is given also.

The data indicates that seven categories of funding were supported to different degrees. Forty respondents or 78 percent recommended state funding and thirty-three or 65 percent recommended federal funding. The remaining five categories within Table 18 were considered much less important in assuming financial responsibilities. They were public contribution, private endowment, local school fund, voluntary agencies, and everyone's responsibility.

Generally, Table 18 respondents did not differ noticeably in their recommendations on source of funding. For example, 24 state health

Table 18. Guidelines for responsibility in financing public awareness programs and corresponding participation and location among 51 respondents.

Categories of Funding	Participation		Location			
	Number	Percent	State Health		Other	
			Number	Percent	Number	Percent
Federal funding	33	65	18	60	15	71
State funding	40	78	24	80	16	76
Public contribution	11	21	4	13	7	33
Private endowment	13	25	8	27	5	25
Miscellaneous: local school fund; voluntary agencies (3); everyone's responsibility.	5	9	2	7	3	14

\*In the Participation column, the percentages are based on the 51 total respondents. For example, 33/51 or 65 percent of returnees recommended federal funding. In the Location column, the percentages are based on responses among thirty state health and twenty-one otherwise affiliated persons. For example, 18/30 or 60 percent of State Health and 15/21 or 71 percent of Other respondents recommended federal funding. Note that returnees were allowed to check more than one category. Fifty individuals responded to the question from which this information was derived. One person did not support any category of funding.

specialists or 80 percent supported state funding and 16 or 76 percent non-state health respondents did so, also. In some instances of lesser importance, the data shows a difference. Public contribution is an example with seven or 33 percent non-state health support and only four or 13 percent state health recommendation.

The results of Table 18 reveal that a combination of state and federal funding is very strongly suggested. A state might perhaps be the primary financier with ample support given by the federal government. Other sources of funding listed might possibly contribute supplementary or extra forms of income. One respondent indicated that states should finance their own programs with assistance from the federal government. In the event of the federal funding being cut off, she explained that states should be able to "go it alone." Another considered the possibility of state appropriated monies being matched federally. These comments are not included in the table data.

## SUMMARY AND CONCLUSIONS

Specialists have increasingly recognized the need for early identification and diagnosis of hearing impairment. The result in large part has been the utilization of high risk registries and mass audiometric screening of newborns. However, these identification methods are proving unsatisfactory in and of themselves in locating every child with a hearing loss. For this reason, public awareness programs concerning infant hearing impairment has currently been suggested by many authors as a supplementary or alternative approach.

The objectives of the present study were to obtain data throughout the country and to solicit recommendations for further development of such program types. The procedures utilized include the development of a questionnaire, the selection of a representative population, the distribution of the questionnaire, and the collection and analysis of the results.

The questionnaire included nine questions surveying implemented public awareness programs for infants and eight questions seeking recommendations on a model program. It was subdivided into programs directed at the general public, at parents, and at professionals. The information asked for was limited to methods and materials for dissemination, financing and program administration. The respondents were encouraged to add additional comments or content.

The representative population was selected largely from among hearing conservation specialists affiliated with state health

departments or with universities. One hundred-three copies of the questionnaire and a subsequent number of follow-up letters were distributed throughout the United States. Fifty-one completed copies were returned to the researcher within a six-week period.

The data was compiled, tabulated and discussed. Eighteen existing programs were described by the respondents. The following conclusions may be taken from the results:

1. A public awareness program regarding infant hearing loss was deemed necessary by a substantial number of respondents. Many considered it an essential component in a total infant identification program.

2. Some aspects of a public awareness program received more support than others. Professional awareness programs followed by parent awareness programs was most widely utilized and recommended. Less utilization and importance was given to general public awareness and miscellaneous awareness programs.

3. A variety of methods of dissemination and materials for dissemination were utilized and recommended for all three populations.

4. The methods of dissemination highly utilized and recommended for the professional population were professional meetings and teaching hospital lectures. The material most utilized and recommended was lecture information.

5. The method of dissemination most highly employed and most recommended for the parent population was well-baby clinics. Similarly, the dissemination material most utilized was pamphlets and the like.



6. The method of dissemination most often used and most often recommended for the general public was television and radio broadcasts. The most utilized material was printed handouts while the highest recommended material was public service announcements.

7. Current program direction is usually from the state level and sponsored by state health departments. The same level of direction and the same organization sponsor was generally recommended for a model program.

8. Most programs of public awareness use or suggest use of primarily state funding accompanied with federal support as needed.

9. The location of respondents did not seem to be related to the characteristics of the programs with which they were identified or which they recommended.

Recommendations and suggestions  
for further study

1. The data from this questionnaire should be made available to interested hearing conservation specialists in the United States.

2. A comprehensive survey may be justified to determine the location and program type of all awareness programs regarding infant hearing loss in the United States.

3. A long range study of the effectiveness of public awareness programs regarding infant hearing loss is critically needed.

4. A rating scale or ranking system should be utilized in further surveys of methods, materials, financing, and direction in public awareness programs to provide more sensitive measures.

5. A study should be undertaken to determine the relative effectiveness of public awareness programs when used in conjunction with other identification methods.

6. All materials currently available for use in informing professionals, parents and the general public of the danger signals of hearing impairment should be identified through an appropriate survey method. It should, then, be submitted to a relevant journal for publication.

## GLOSSARY

- Audiologist:** a person who evaluates hearing defects and/or re-habilitates those who have such defects.
- Conductive loss:** a hearing impairment due to interference of acoustic transmission of sound to the sense organ, usually in the outer or middle ear (Davis and Silverman, 1970).
- Congenital:** existing as such at birth; resulting from one's heredity or prenatal environment.
- Danger signals:** observable abnormal behavior or ear pathology which may or may not indicate hearing loss.
- Deaf:** a child with a hearing loss sufficient to make auditory input of minimal value for learning or adjustment; this hearing loss is above 90 dB (ISO) in the better ear.
- Decibel:** a unit for measuring the volume of sound; abbreviated dB.
- EEG audiometry:** a specialized testing technique of measuring by electro encephalographic means, brain waves for an indication of auditory perception.
- False negative response:** a response which indicates no hearing loss when in reality, one exists (Watkins, 1971).
- False positive response:** a response which suggests a hearing loss when really none exists.
- Hard of hearing:** a child having a hearing sensitivity of between 26 and 90 dB (ISO) in one or both ears.
- Hearing impaired:** a generic term for a child having a measurable degree of hearing insensitivity, usually 26 dB (ISO) or above in either ear.
- High risk register:** a list of factors that could contribute to or be associated with a hearing handicap.
- Infant:** a child between zero and three years of age.
- Labile:** unstable; liable to change.
- Neonate:** a newborn child.

Noise: a number of simultaneously produced tones distributed randomly along the frequency spectrum or range.

Otologist: a medical specialist who deals with the care of the ear and with treatment of ear-associated diseases.

Perinatal: at birth.

Postnatal: after birth.

Prenatal: before birth.

Public awareness program: a procedure implemented to inform the public of the danger signals of hearing impairment.

Pure tone: a simple tone or sound having a single frequency.

Residual hearing: the remaining functional hearing of a hearing impaired individual.

Rubella: German measles.

Screening: a testing procedure utilized to identify infants or children with hearing impairment.

Well-baby clinic: a place where infants are studied or treated by pediatricians and related specialists.

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## APPENDIXES

Appendix A  
Supportive Letter providing Impetus  
for the Study

# Alexander Graham Bell Association for the Deaf, Inc.

1537 THIRTY-FIFTH STREET, N.W. • WASHINGTON, D. C. 20007 • TELEPHONE: 337-5220

HEADQUARTERS: THE VOLTA BUREAU  
OFFICIAL JOURNAL: THE VOLTA REVIEW

January 7, 1972

Mr. Ronald R. Bateman  
Department of Communicative Disorders  
College of Education  
Utah State University  
Logan, Utah 84321

Dear Mr. Bateman:

I am happy to respond to your letter of December 17 concerning your thesis on public relations programs designed to inform professionals and laymen concerning danger signals identifying hearing impairment among infants.

I'm pleased to forward a copy of the questionnaire which was used in connection with the study we did here several years ago. I'm also enclosing some copies of our HEARING ALERT! materials which are intended to improve the public understanding of the danger signals and implications of hearing loss in very young babies. Please use this material in any way that you see fit. I hope it is helpful.

You also might be interested to know that my own doctoral dissertation on which I am presently working will involve a study of the delivery of health care and educational services to hearing impaired children both in this country and abroad. More specifically, I'm leaving in October, 1972, for Stockholm, Sweden, where I expect to spend as much as six to eight months in an in-depth study of the Swedish and Danish systems for informing parents and serving them and their children. In connection with this study, I am hoping to develop what I refer to as a Delivery Service Index. Hopefully the DSI will be developed as a rating index for the national, state or community system for delivery of education and health services to the families as well as to the very young hearing impaired child. It is my hope that this index will not only provide some basis for measuring the effectiveness of delivery systems between countries but also may be helpful in establishing the variability of such systems based upon such factors as age of the child, socio-economic status of the family, and race.

If you plan on doing any surveys, I'd be very pleased to review your instrument for you and perhaps use that opportunity to make some constructive suggestions that might not only help your survey but also develop some information that might be useful to me. I'd be glad to hear from you if you'd like to do this type of informal collaboration.

Sincerely yours,

  
George W. Fellendorf  
Executive Director

GWF:sls  
Enclosures

P.S. Please give my best regards to Dr. Berg.

Appendix B

Copy of the Public Awareness Questionnaire

The questions in Part I are listed to determine current or planned public awareness programs designed to alert professionals and laymen of the danger signals that suggest hearing impairment among infants. Part II contains questions leading to recommendations for an effective public awareness program.

It is not within the scope of this survey to determine current, planned, or recommended hearing identification techniques per se, other than when such identification programs overlap into the area of public awareness programs, (which is the focus of this study).

NAME \_\_\_\_\_ ADDRESS \_\_\_\_\_

POSITION \_\_\_\_\_

\*\*\*\*\*

If you are currently involved in the planning or implementation of public awareness programs for infants in the area of hearing impairment, please answer the questions in Part I (if you are not thus associated turn to Part II):

Part I

1. Please identify the public relations programs with which you are associated.

NAME OF PROGRAM \_\_\_\_\_

SPONSOR \_\_\_\_\_

2. Does this public awareness program for infants function in addition to diagnostic and identification techniques. Yes \_\_\_ No \_\_\_

3. Which of the following general categories is included in the public awareness program you are concerned with? (Please check each applicable category)

- \_\_\_ a. general public (refer to items # 4 and 5)  
 \_\_\_ b. parent (refer to items # 6 and 7)  
 \_\_\_ c. professional (refer to items # 8 and 9)  
 \_\_\_ d. other (specify) \_\_\_\_\_

PUBLIC AWARENESS PROGRAMS FOR INFANTS DIRECTED AT THE GENERAL PUBLIC

4. What methods of dissemination are used? (please check each applicable item)

- \_\_\_ a. mailing lists  
 \_\_\_ b. television & radio broadcasts  
 \_\_\_ c. billboard campaigns  
 \_\_\_ d. journal or magazine circulation  
 \_\_\_ e. information booths at public meetings, etc.  
 \_\_\_ f. other (specify) \_\_\_\_\_

5. What materials are disseminated? (please check each applicable item)
- a. brochures, pamphlets, leaflets, etc.
  - b. public service announcements
  - c. billboard signs
  - d. journal or magazine articles
  - e. posters (strategically placed in public halls, etc.)
  - f. other (specify) \_\_\_\_\_

PUBLIC AWARENESS PROGRAMS FOR INFANTS DIRECTED AT PARENTS

6. What methods of dissemination are used? (please check each applicable item)
- a. maternity class lectures
  - b. physician's office visits
  - c. television and radio broadcasts
  - d. mailing lists
  - e. well baby clinics
  - f. journal or magazine circulation
  - g. other (specify) \_\_\_\_\_
7. What materials are disseminated? (please check each applicable item)
- a. checklist for expectant mothers
  - b. articles in magazines or journals
  - c. public service announcements directed at parents
  - d. pamphlets, brochures, leaflets, etc.
  - e. mailing lists
  - f. other (specify) \_\_\_\_\_

PUBLIC AWARENESS PROGRAMS FOR INFANTS DIRECTED AT PROFESSIONALS

8. What methods of dissemination are used? (please check each applicable item)
- a. teaching hospital lectures
  - b. professional organization meetings
  - c. medical school classes
  - d. journal or magazine circulation
  - e. mailing lists
  - f. other (specify) \_\_\_\_\_
9. What materials are disseminated? (please check each applicable item)
- a. checklist for professionals
  - b. information through lectures
  - c. brochures, pamphlets, leaflets, etc.
  - d. professional journal articles
  - e. other (specify) \_\_\_\_\_

Please send sample materials which you have available for dissemination and/or a listing of material you are aware of including the title, author, publisher, and cost. These materials should be involved in a public awareness program designed to inform professionals and laymen of the danger signals that lead to recognition of hearing impairment among infants (0-3 years old). Include pamphlets, brochures, reprinted articles, bulletins, leaflets, checklists, etc.

A list of the available materials will be compiled and submitted to a relevant professional journal for publication.

Additional comments:



## Part II

The questions in Part II are addressed to the following basic question: "What would be an ideal program for informing public and professionals concerning danger signals of hearing loss among infants?"

10. Which of the following categories would be included in an ideal public awareness program? (please check each applicable category)

- a. general public  
 b. parent  
 c. professional  
 d. other (specify) \_\_\_\_\_

11. If "a" (general public) was checked, what methods (first column) and materials (second column) would be recommended for use? (please check each applicable item)

III

- |   |  |
|---|--|
| <input type="checkbox"/> a. mailing lists                         | <input type="checkbox"/> a. brochures, leaflets, etc     |
| <input type="checkbox"/> b. television & radio broadcast          | <input type="checkbox"/> b. public service announcements |
| <input type="checkbox"/> c. billboard campaigns                   | <input type="checkbox"/> c. billboard signs              |
| <input type="checkbox"/> d. journal & magazine circulation        | <input type="checkbox"/> d. journal or magazine articles |
| <input type="checkbox"/> e. information booths at public meetings | <input type="checkbox"/> e. posters                      |
| <input type="checkbox"/> f. other (specify) _____                 | <input type="checkbox"/> f. other (specify) _____        |

12. If "b" (parent) was checked, what methods (first column) and materials (second column) would be recommended for use? (please check each applicable item)

III

- |   |   |
|---|---|
| <input type="checkbox"/> a. maternity class lectures        | <input type="checkbox"/> a. checklist for expectant mothers |
| <input type="checkbox"/> b. physician's office visits       | <input type="checkbox"/> b. journal or magazine article     |
| <input type="checkbox"/> c. television & radio broadcast    | <input type="checkbox"/> c. public service announcements    |
| <input type="checkbox"/> d. mailing lists                   | <input type="checkbox"/> d. pamphlets, leaflets, etc.       |
| <input type="checkbox"/> e. well baby clinics               | <input type="checkbox"/> e. other (specify) _____           |
| <input type="checkbox"/> f. journal or magazine circulation |   |
| <input type="checkbox"/> g. other (specify) _____           |   |

13. If "c" (professional) was checked, what methods (first column) and materials (second column) would be recommended for use? (please check each applicable item)

III

- |  |   |
|--|---|
| <input type="checkbox"/> a. teaching hospital lectures         | <input type="checkbox"/> a. checklist for professionals               |
| <input type="checkbox"/> b. professional organization meetings | <input type="checkbox"/> b. information thru lectures                 |
| <input type="checkbox"/> c. medical school classes             | <input type="checkbox"/> c. brochures, leaflets, etc.                 |
| <input type="checkbox"/> d. journal or magazine circulation    | <input type="checkbox"/> d. professional journal or magazine articles |
| <input type="checkbox"/> e. mailing lists                      | <input type="checkbox"/> e. other (specify) _____                     |
| <input type="checkbox"/> f. other (specify) _____              |   |

14. If "d" (other) was checked, what methods and materials would be recommended for use? (please list below)

---

---

15. Ideally, from what level should a public awareness program for infants be directed? (check one or more)

- a. national
- b. state
- c. local
- d. other (specify) \_\_\_\_\_

16. Ideally, what organization should be responsible for direction of the public awareness program? (check one or more)

- a. a federal government bureau
- b. a national organization
- c. state department of education
- d. state health department
- e. state children's bureau
- f. a university
- g. private
- h. none
- i. other (specify) \_\_\_\_\_

17. Ideally, how should a public awareness program for infants be financed? (check one or more)

- a. federal funding
- b. state funding
- c. public contribution
- d. private endowment
- e. other (specify) \_\_\_\_\_

Appendix C

Samples of Rationale, Cover, and Follow-up Letters  
to the Public Awareness Questionnaire



DEPARTMENT OF  
COMMUNICATIVE  
DISORDERS

May 16, 1972


Enclosed is a survey serving a Master's study that I am conducting at Utah State University under the direction of Dr. Frederick Berg.

The questionnaire is concerned with public awareness programs designed to inform professionals and laymen concerning the danger signals leading to recognition of hearing impairment in infants. Copies of this survey are being sent to the fifty state departments of health and also to fifty university personnel throughout the nation whom we feel have the interest and expertise to provide the needed information.

The purpose of the questionnaire is two fold: (1) to determine the status of current and planned public awareness programs in this specific area of concern, and (2) to make recommendations for an ideal program as far as this can be done from the data made available. A bibliography of available literature for dissemination will be submitted for publication to a professional journal.

It would be appreciated if you could complete your comments and return the questionnaire by May 31 in order that the results can be compiled and published. We will be pleased to send you a summary of the results, if you so indicate. Thank you for your cooperation.

Sincerely yours,

  
Ronald R. Bateman, B.S.  
Graduate Student

  
Frederick S. Berg, Ph.D.  
Professor

Enclosures



STATE OF UTAH—DEPARTMENT OF SOCIAL SERVICES

CALVIN L. HAMPTON  
Governor

PAUL S. ROYCE 81  
Executive Director

DIVISION OF HEALTH  
44 MEDICAL DRIVE  
SALT LAKE CITY, UTAH 84113  
AREA CODE 801

Board of Health  
Air Conservation Committee  
Health Facilities Council  
Medical Examiner Committee  
Nursing Home Advisory Council  
Water Pollution Committee

IAN J. OLSEN, M.D., M.P.H.  
Director of Health

BUREAU OF SPECIAL HEALTH SERVICES

Dear Colleague:

One of the major deficiencies in the area of Speech and Hearing is public education. The lay individual, especially the parents, do not know what to expect from a child between birth and school age in the way of communication, and what signs would demonstrate a deficiency.

A system of public education needs to be established, but before this can be done we need to know where we now stand, so we can see where we can go from here. The study made in this paper will indicate this to us.

As you are aware, a study of this nature is only as good as the returns. If you do not return this questionnaire as soon as possible, we will be no further ahead in our plans than we are right now.

Sincerely,

Aaron A. Roylance, Ph.D., Chief  
Speech Pathology/Audiology Section

DEPARTMENT OF  
COMMUNICATIVE  
DISORDERS

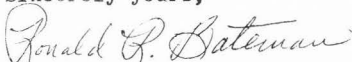
June 16, 1972

I am writing in regards to a questionnaire sent on May 16. It is concerned with public awareness programs designed to inform professionals and laymen concerning the danger signals leading to recognition of hearing impairment in infants (0-3 years old).

As of this date I have not received a reply from your office. I soon will be compiling the results. It is important to get your professional comments to make it representative and complete. I would very much appreciate your assistance.

I will not be able to use any information after the 28th of June as that is the cutoff date.

Sincerely yours,



Ronald R. Bateman B.S.  
Graduate Student

## Appendix D

## A Listing and Selected Samples of Dissemination

## Materials which Respondents Sent

- Alexander Graham Bell Association for the Deaf. [1971]. Hearing Alert! Alexander Graham Bell Association for the Deaf, Washington, D. C.
- American Hearing Society. A Child Will Not Outgrow a Hearing Loss. Distributed by the Arkansas Children's Hearing and Speech Center, Little Rock, Arkansas.
- Hardy, W. Doctor Is my Baby Deaf? Alexander Graham Bell Association for the Deaf, Washington, D. C.
- Lillywhite, H. 1958. A Brief Guide for Checking Speech. Reprint from the Journal of the American Medical Association, June 14, 1958.
- Masland, M. 1970. Speech and Hearing Checklist. Reprint from January 1970 Volta Review.
- Moffat, G. 1970. They Hear the Sound of Silence. Reprint from The New York Times.
- National Institutes of Health. 1965. Hearing Loss. Public Health Service Publication No. 207. U.S. Department of Health Education and Welfare, Washington, D. C.
- Speech Pathology/Audiology Section. 1972. High Risk Questionnaire.
- The Baby Can't say Mama Because He Can't Hear Mama. [1972] Blue Shield Advertisement in monthly magazine.
- Utah State Division of Health. [1972]. High Risk Questionnaire. Speech Pathology/Audiology. Salt Lake City, Utah.
- Utah School for Deaf P.T.A. 1971. Detect Hearing Impairments Early. Utah School for the Deaf, Ogden, Utah.

**SOUND** is one of a child's first contacts with the world around him. He hears his mother's voice, her footsteps, he responds to noises with expressions of pleasure or dismay. By the time he is three or four months old, he will be making babbling sounds, and at six months he will be answering sounds with noises of his own. This is when speech and language first begin to develop.

But this is also the time when the hearing impaired infant begins to miss out on the first valuable stimulation of listening from which the normal child will begin to pattern his own speech. About three out of every one hundred schoolchildren have a hearing impairment which will affect their later language and speech. If the disability is noticed early enough by concerned parents, many of the later handicapping conditions of the hearing problem may be eased.

In some cases of hearing loss, medical or surgical methods may be the first step toward correcting the problem. In many others, however, medical treatment isn't indicated. The early use of properly fitted hearing aids and help from skilled teachers are necessary to allow the child to take advantage of whatever small traces of hearing he has left to develop his awareness of sounds and to lessen the effect of his hearing loss on his language and speech development. For a baby with a hearing impairment, the prompt, understanding, and enlightened attention of his family can serve to alleviate the isolation of a child in a silent world.

Doctors and parents should be especially alert to the possibility of hearing loss if (1) there is a history of hearing loss in the family, (2) there is an RH or other blood incompatibility, or (3) if the mother was known to have had German measles (Rubella), a high fever, or some viral infection during the first three months of her

pregnancy. But if none of these conditions exists, a hearing impairment may go unsuspected unless the parents know the danger signals to watch for as their child grows. Informed parents will watch for signs of response to sounds, and if the child's behavior is different (see Speech and Hearing Checklist) they will have his hearing tested. Even a very young baby can be tested.

Not all hearing impairments are present at birth. They may develop at any age as the result of childhood diseases like scarlet fever, mumps, etc., from accidents, from chronic allergic reactions, or even from the use of certain drugs or medications. Any child with a speech or language problem, regardless of how he seems to respond to sound, deserves a hearing test. In older children, however, a sudden loss of hearing is more easily noticed and the impact upon their language and speech is much less.

## WHERE TO GO FOR HELP

There are several types of centers where a child's hearing can be tested properly. Your pediatrician or family doctor may recommend a private otologist, a doctor who specializes in disorders related to the ear. Or, he may suggest a hearing and speech clinic, where testing will be done by a clinical audiologist, a professional person trained to measure the exact degree of hearing loss, tell you how the loss will affect the child's listening, and possibly recommend a hearing aid. All of these specialists may work together to help you with your child.

### The pediatrician or family doctor will tell you

- about your child's general health
- about your child's respiratory system, his nose, throat, ears, the parts of the body involved in speech and hearing

### The combined efforts of the otologist and the audiologist will tell you

- what seems to have caused the condition
- if hearing is involved
- if so, how much does the child hear
- how does the child hear
- what amount of change in condition can be expected
- what medical and educational therapy and training are indicated
- where to go and what to expect

### You may find these specialists

- through a well-baby screening health clinic
- at a hospital speech and hearing center
- at your local hearing society
- at a rehabilitation center
- at an Easter Seal or Crippled Children's Society clinic
- at your community health department
- at a university speech and hearing department
- at a hospital
- you may write to the Alexander Graham Bell Association for the Deaf for a list of the nearest available services

Through **HEARING ALERT!** we are hopeful that undetected hearing loss in young children will become rare, and the dream of Alexander Graham Bell "that no deaf child should grow up without the maximum opportunity to learn to speak" will become a reality.

### The Alexander Graham Bell Association for the Deaf

3417 Volta Place, N.W.  
Washington, D. C. 20007



# SPEECH and HEARING checklist

This checklist outlines behavior which may be expected of a child at various age levels. If he consistently fails to respond as the checklist suggests, he may have a problem which requires further evaluation.

AVERAGE AGE	QUESTION	AVERAGE BEHAVIOR
3-6 Months	What does he do when you talk to him?  Does he react to your voice even when he cannot see you?	He awakens or quiets to the sound of his mother's voice. He typically turns eyes and head in the direction of the source of sound.
7-10 Months	When he can't see what is happening, what does he do when he hears familiar footsteps . . . the dog barking . . . the telephone ringing . . . candy paper rattling . . . someone's voice . . . his own name?	He turns his head and shoulders toward familiar sounds, even when he cannot see what is happening. Such sounds do not have to be loud to cause him to respond.
11-15 Months	Can he point to or find familiar objects or people, when he is asked to? <i>Example: "Where is Jimmy?"</i> "Find the ball."  Does he respond differently to different sounds?  Does he enjoy listening to some sounds and imitating them?	He shows his understanding of some words by appropriate behavior; for example, he points to or looks at familiar objects or people, on request.  He jabbars in response to a human voice, is apt to cry when there is thunder, or may frown when he is scolded. Imitation indicates that he can hear the sounds and match them with his own sound production.
1½ years	Can he point to parts of his body when you ask him to? <i>Example: "Show me your eyes."</i> "Show me your nose."  How many understandable words does he use—words you are sure <i>really</i> mean something?	Some children begin to identify parts of the body. He should be able to show his nose or eyes.  He should be using a few single words. They are not complete or pronounced perfectly but are clearly meaningful.
2 years	Can he follow simple verbal commands when you are careful not to give him any help, such as looking at the object or pointing in the right direction? <i>Example: "Johnny, get your hat and give it to daddy."</i> "Debby, bring me your ball."  Does he enjoy being read to? Does he point out pictures of familiar objects in a book when asked to? <i>Example: "Show me the baby."</i> "Where's the rabbit?"  Does he use the names of familiar people, and things such as <i>Mommy, milk, ball, and hat</i> ? What does he call himself? Is he beginning to show interest in the sound of radio or TV commercials? Is he putting a few words together to make little "sentences"? <i>Example: "Go bye-bye car."</i> "Milk all gone."	He should be able to follow a few simple commands without visual clues.  Most 2-year-olds enjoy being "read to" and shown simple pictures in a book or magazine, and will point out pictures when you ask them to.  He should be using a variety of everyday words heard in his home and neighborhood. He refers to himself by name. Many 2-year-olds do show such interest, by word or action. These "sentences" are not usually complete or grammatically correct.

OVER ►

2½ years	<p>Does he know a few rhymes or songs? Does he enjoy hearing them?</p> <p>What does he do when the ice cream man's bell rings, out of his sight, or when a car door or house door closes at a time when someone in the family usually comes home?</p>	<p>Many children can say or sing short rhymes or songs and enjoy listening to records or to mother singing. If a child has good hearing, and these are events that bring him pleasure, he usually reacts to the sound by running to look or telling someone what he hears.</p>
3 years	<p>Can he show that he understands the meaning of some words besides the names of things? <i>Example:</i> "Make the car go." "Give me the ball." "Put the block in your pocket." "Find the big doll."</p> <p>Can he find you when you call him from another room? Does he sometimes use complete sentences?</p>	<p>He should be able to understand and use some simple verbs, pronouns, prepositions, and adjectives, such as <i>go, me, in, and big.</i></p>
4 years	<p>Can he tell about events that have happened recently? Can he carry out two directions, one after the other? <i>Example:</i> "Bobby, find Susie and tell her dinner's ready."</p>	<p>He should be able to locate the source of a sound.</p> <p>He should be using complete sentences some of the time.</p> <p>He should be able to give a connected account of some recent experiences.</p> <p>He should be able to carry out a sequence of two simple directions.</p>
5 years	<p>Do neighbors and others outside the family understand most of what he says? Can he carry on a conversation with other children or familiar grown-ups? Does he begin a sentence with "I" instead of "me"; "he" instead of "him"? Is his grammar almost as good as his parents'?</p>	<p>His speech should be intelligible, although some sounds may still be mispronounced.</p> <p>Most children of this age can carry on a conversation if the vocabulary is within their experience.</p> <p>He should use some pronouns correctly.</p> <p>Most of the time, it should match the patterns of grammar used by the adults of his family and neighborhood.</p>



DIVISION OF HEALTH  
44 MEDICAL DRIVE  
SALT LAKE CITY, UTAH 84113  
AREA CODE 801  
328-6175

Board of Health  
Air Conservation Committee  
Health Facilities Council  
Medical Examiner Committee  
Nursing Home Advisory Council  
Water Pollution Committee

MAN J. OLSEN, M.D., M.P.H.  
Director of Health

BUREAU OF SPECIAL HEALTH SERVICES

Baby's Name \_\_\_\_\_ Birthdate \_\_\_\_\_ Birth weight \_\_\_\_\_

Parent's Name \_\_\_\_\_ Phone \_\_\_\_\_ Hospital \_\_\_\_\_

Address \_\_\_\_\_ Zip \_\_\_\_\_ Doctor \_\_\_\_\_

## DEAR MOTHER:

Please complete the information above and fill the following blanks:

- Is there a hearing loss in any close relative?  
 father       grandparent       other \_\_\_\_\_  
 mother       aunt  
 brother       uncle       no one  
 sister       cousin
- Did you have rubella (German measles) or were you exposed to rubella at any time during the pregnancy?       no       yes      month? \_\_\_\_\_
- Was the baby born with cleft lip or palate?       no       yes
- Was there an RH problem?       no       yes
- Was there any other apparent physical disorder?       no       yes
- Was any close relative born with an abnormal ear?       no       yes
- Was any close relative born with cleft lip or palate       no       yes
- What is the major language spoken in the home? \_\_\_\_\_
- What other languages are spoken in the home regularly? \_\_\_\_\_
- Was there anything unusual about your pregnancy? \_\_\_\_\_
- Were there any complications with the birth? \_\_\_\_\_
- Has the baby been well since? \_\_\_\_\_

## Hospital staff:

Please place one copy in the baby's file and return the other to:

Speech Pathology/Audiology  
Utah State Division of Health  
44 Medical Drive  
Salt Lake City, Utah 84113



## The baby can't say Mama because he can't hear Mama.

If your baby isn't babbling and cooing by the time he's six months old, if he doesn't jump or blink at sudden loud sounds, if he sleeps regardless of noise—it's possible his hearing is impaired.

Each year thousands of children are born with severe hearing losses. The earlier the handicap is detected, the better chance the

child has for a more normal life.

Today, children as young as three months can wear hearing aids. To develop what hearing they have.

And totally deaf children need to start special education just as early.

Observe your child's reaction to sounds. Report any suspicions of a hearing loss to your pediatrician.

If special testing is needed, he can

refer you to an audiology clinic, hospital or health center.

Of course, it's a traumatic experience to learn that your baby has a hearing handicap. But it's even worse to learn it too late.

Watch your baby.

You can see if he can hear.



**Blue Shield**

Appendix E  
Sample Letters of Specialists not Completing  
the Questionnaire



# State of West Virginia

DEPARTMENT OF HEALTH

CHARLESTON 25305

May 23, 1972

Ronald R. Bateman, B.S.  
Graduate Student  
College of Education  
Department of Communicative Disorders  
Utah State University  
Logan, Utah 84321

Dear Mr. Bateman:

This is in answer to your inquiry about public awareness programs regarding signs of possible hearing impairment in infants. We do not have such a program and, therefore, do not have experience in which methods are the most effective. However, we would like to have a summary of your survey results if possible.

Sincerely yours,

A handwritten signature in cursive script that reads "Jack Basman".

Jack Basman, M.D., Director  
Division of Maternal and Child Health

Approved and forwarded:

A handwritten signature in cursive script that reads "N. H. Dyer".

N. H. Dyer, M.D., M.P.H.  
State Director of Health

JB-MSS:krt

BAYLOR COLLEGE OF MEDICINE  
TEXAS MEDICAL CENTER  
HOUSTON, TEXAS 77025

DEPARTMENT OF OTOLARYNGOLOGY  
DIVISION OF AUDIOLOGY AND SPEECH PATHOLOGY  
(713) 526-3311

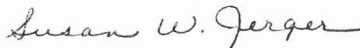
June 20, 1972

Ronald R. Bateman, B.S.  
Graduate Student  
Dept. of Communicative Disorders  
Utah State University  
Logan, Utah 84321

Dear Mr. Bateman:

In reply to your letter of June 16, we did not receive the questionnaire that you mailed on May 16th. We wish you success in your effort to compile information about public awareness programs. The information will surely be beneficial to many professionals in improving their programs. Let's hope the mail did not foul up your other informants.

Best regards,



Susan W. Jerger, M.S.  
Instructor, Audiology

SWJ:pd

## VITA

Ronald R. Bateman

Candidate for the Degree of

Master of Science

Thesis: A Survey of Awareness Programs Regarding Infant Hearing Loss

Major Field: Educational Audiology

Biographical Information:

Personal Data: Born in Salt Lake City, Utah, May 20, 1947, son of Rao H. and Phyllis R. Parrish Bateman; served as a missionary for the Church of Jesus Christ of Latter Day Saints 1965-68; married Beverly Christiansen, August 15, 1969.

Education: Attended Ibabah Elementary School; graduated from Tooele High School in 1965; received the Bachelor of Science degree with a major in Audiology-Speech Pathology and with a minor in Psychology; completed requirements for the Master of Science degree in Educational Audiology at Utah State University in 1972.

Professional Experience: Member of a diagnostic team in Cooperative Clinic at Utah State University, 1971; Dactylology lab instructor, 1972; practiced as a teacher-in-training at Indian Hills School in Salt Lake City, Utah, 1972 and at West Kearns Elementary School in Kearns, Utah, 1972; tutor in total communications for a deaf adult, 1972; joined the staff of the Granite School District in Salt Lake City, Utah, 1972.