

EVALUATION OF THE 1978-79
KANSAS HEARING CONSERVATION PROGRAM--A PARENT SURVEY

by

IRENE KAY WAGNER

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Approved by:


Major Professor

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EVALUATION OF THE 1978-79
KANSAS HEARING CONSERVATION PROGRAM--A PARENT SURVEY

Kansas school attendance during the 1978-79 school year has been estimated by the statistics office of the Kansas Department of Education to be 433,547 students. Estimates from the Kansas Department of Health and Environment indicate that ten percent of these students may have some degree of hearing loss (Kansas State Department of Health, 1973).

In 1974, McCandles and Thomas estimated that 50 to 80 percent of school-age children who do show some hearing loss have medically treatable middle ear pathologies. Northern and Downs (1974) estimate that 20 to 30 percent of the population of children ages birth to six years would be handicapped by a mild or fluctuating hearing loss. The importance of a school hearing conservation program lies in the identification of children with hearing losses and providing these children with the opportunity to use their sense of hearing to assist them in the total learning process. Ling, 1959, states "even very slight losses of hearing may set a child back in such basic subjects as English and arithmetic." It is imperative that Kansas schools provide quality hearing conservation programs for their students if all students are to function at their highest level of capability.

The objectives of a school hearing conservation program are to: (1) identify children with hearing losses, (2) refer these children to the proper specialists, and

(3) provide remedial assistance to those children identified as hearing impaired. A school hearing conservation program should train teachers and staff to help identify and assist with the rehabilitation of hearing impaired students. In addition, the program serves to educate parents and community about hearing impairments and the importance of follow-up.

Darley, 1961, described the objective of the school hearing conservation program as follows:

The goal is to locate children who have even minimal hearing problems so that they can be referred for medical treatment of any active ear conditions discovered to be present and so that remedial educational procedures can be instituted at the earliest possible date. Programs should be designed to identify not only children with a chronic disability but also children who have difficulty during only certain times of the year or under certain conditions. The period when a child may not be hearing well (as during a respiratory illness or during a season with high pollen-count) and consequently be functioning at a low level may be just the time when social and educational demands on him are great. (p. 16)

These statements stress two of the critical aspects of any comprehensive school hearing screening program, namely, the identification of students with hearing losses and the referral procedure. With the knowledge that these are extremely important aspects of the school hearing conservation program, an attempt is made to examine referral procedures in Kansas.

History of Identification Audiometry

The purpose of identification audiometry has been

defined by Wilson and Walton (1974, pg. 143) as the use of audiometric assessment to "detect those children who may be educationally handicapped by hearing loss." The first public school hearing screening program in the United States was initiated in 1927. The program utilized a group hearing test known as the "fading numbers" or "group phonograph speech" test which was designed by Dr. Harvey Fletcher (Feldman, 1976). An audiometer was used to present calibrated speech signals from 33 dB through 9 dB to as many as 40 earphones simultaneously. There were several major drawbacks with the fading numbers test. The test failed to identify children with high frequency hearing losses, and a written response was required. In addition, it was felt that children with mild to moderate losses at 1000 Hz and 2000 Hz could pass the test at the 9 dB level by guessing what the correct numbers were. Finally, it was felt that the numbers spoken in the "fading numbers" test were not comparable to running speech and that the test failed to assess a child's ability to hear or understand speech (Reger and Newby, 1947).

The "fading numbers" test was used until the pure-tone tests were developed in the 1940's. In 1948, Dr. Phillip Johnston developed the Massachusetts Test which was designed to test hearing at 500, 4000, and 8000 Hz at the levels of 20, 25, and 30 dB (ASA-1951). Forty children could be tested at one time. A major drawback with the Massachusetts

Test was that the test required a written response from each child which increased the testing time as well as the time involved in scoring each child's results (Newby, 1972).

Another group test developed by Johnston was called the Johnston group Pure-Tone Screening Test (Johnston, 1952). This test was administered at frequencies from 125 through 6000 Hz at 15 dB HL (ASA-1951). With the Johnston group Pure-Tone Test children as young as five could be evaluated and ten children could be tested simultaneously.

All group tests have several drawbacks which includes the amount of time required to set up and score each of these tests. Also calibration becomes more tedious because the output of each set of earphones must be checked against the hearing level of the audiometer dial (Newby, 1972).

Current Status of Identification Audiometry

Group pure-tone tests are rarely administered today because individual screening tests are more reliable in detecting hearing impairments. Many school hearing conservation programs now use the individual pure-tone "sweep frequency" test which can be administered fairly rapidly and still detect significant losses. In addition to audiometric screening, some school hearing conservation programs are utilizing impedance audiometry to identify the medically treatable otologic conditions (Brooks, 1969, Harker and Van Wagoner, 1974, and Walton, 1975).

The first set of nationally recommended guidelines for a pure-tone sweep frequency test were issued by the American Speech and Hearing Association (ASHA), in 1961 (Darley, 1961). The guidelines gave recommendations for test frequencies, intensity levels, failure criteria, testing conditions and equipment operation and maintenance. These guidelines were updated in 1975 to include the testing of young children (Wilson, 1975). In the "sweep frequency" test each child is screened individually. The child is instructed to make a visible response (such as a hand raise) when a test tone is heard. The frequencies recommended by the 1975 ASHA Committee of Identification Audiometry include 1000, 2000 at a 20 dB HL, and 4000 Hz at a level of 25 dB HL (ANSI-1969), (Wilson, 1975). Downs, (1975), suggested that if a quiet test environment such as a sound-treated booth is available then 500 Hz be included in the frequencies tested.

While the pure-tone sweep frequency test is a good screening test, more objective hearing tests may be required to test children who cannot or will not actively participate in a hearing test. Impedance audiometry offers an alternative to the school audiologist faced with testing children with short attention spans, limited mental or physical capabilities, etc (Northern and Downs, 1978). In addition, impedance audiometry has been demonstrated to be an effective method of further identifying medical conditions (Orchik, D.,

Herdman, S., and Brooks, 1974). In 1978, Feldman described the Guidelines for Acoustic Impedance Screening of Middle Ear Function issued by the American Speech and Hearing Association. It was recommended that tympanometry cover an air pressure range of +100 to -300 mm H₂O. In addition, it was recommended that a 1000 Hz signal be presented at 100 dB HL (ANSI-1969) for contralateral stimulation and 105 dB HL (ANSI-1969) for ipsilateral stimulation to elicit the acoustic reflex. The acoustic reflex should be elicited at maximum compliance, or at ambient pressure when a pressure peak cannot be obtained (Feldman, 1978).

Referral Procedures

A second, vital element of the school hearing conservation program is the referral procedure. Children found to have an educationally significant hearing loss are directed to a specialist who may diagnose and treat the problem (See Appendix A).

The hearing screening tests are designed to identify those children who have a hearing impairment significant enough to impair the learning process. Referrals are made for those children failing to meet the criteria for the audiometric test administered. The failure criteria suggested by ASHA (Wilson, 1975), is failure to respond at the 20 dB level at 1000 and 2000 Hz, and at 25 dB HL (ANSI-1969) for 4000 Hz. There are some questions that those criteria are not stringent enough. Downs, 1975, suggested

that a 15 dB hearing level be utilized for the frequencies of 1000, 2000, 4000, and 6000 Hz. A failure is considered as no response at 15 dB to either a 1000 or 2000 Hz stimuli or no response to both 4000 and 6000 Hz stimuli. A student who fails an initial screening test is given a second screening test, preferably on the same day. A child who fails the second screening is given a threshold test two weeks later. The threshold test identifies the threshold of hearing at each frequency tested and usually includes tests for air and bone conduction. Referrals are made when there is no response at the 20 dB level for frequencies below 4000 Hz and/or no response at 25 dB HL for 4000 Hz and above (ANSI, 1969). In addition the threshold test may include other tests such as test of speech reception threshold, test of speech discrimination, and test of middle ear admittance.

The pass/fail criteria for screening impedance audiometry are based on the pressure location of the compliance peak, its magnitude, amplitude and shape, and presence or absence of the acoustic reflex. According to Feldman, 1978, a compliance peak on the tympanogram either in the pressure range of -50 to +100 mm H₂O or the second range -200 to +100 mm H₂O and the presence of an acoustic reflex constitutes a "pass." A failure is considered as a pressure peak at less than -200 mm H₂O or greater than +100 mm H₂O, and absence of the acoustic reflex. A third category which Feldman, 1978, labeled "at risk" describes a pressure peak

which could be within the passing range but has no acoustic reflex present. Children who fail the initial screening are referred to a specialist for additional examination and/or treatment. Children who are found to be "at risk" are re-evaluated in three to five weeks.

Hearing Conservation Procedures in Kansas

Hearing screening was mandated as part of the hearing conservation program in Kansas with the K.S.A. 1969 Supplement 773-1204 Mandatory Hearing Screening Act (Supplement to School Laws of Kansas, 1969-1974). This law defines basic hearing screening as "a hearing testing program for each child conducted with a calibrated audiometer." In addition, Supplement 72-1205 indicates that the testing be free of charge, be administered at least every three years, and the results be reported to the parents or legal guardians.

During 1977, the Kansas Department of Education issued guidelines suggesting that each school district determine the grades to be screened. Each year kindergarten and several grades at the elementary level, one grade at the junior high level and usually two grades at the high school level are selected for screening. Children in special education classes are screened every year. Those children with known hearing losses as well as those referred by teachers and parents are screened every year along with all new students in each district (A sample of grades selected for screening might be k, 1, 2, 3, 5, 7, 9, & 11).

The guidelines suggest that a 1000 Hz tone be presented at 40 dB in order to acquaint the child to the kind of signal he will hear. A sweep frequency method is then employed by setting the audiometer at an intensity of 25 dB (ANSI-1969). Audiometric responses at an intensity of 25 dB are sought for the following sequence of frequencies: 1000, 2000, 4000, and 6000 Hz in the right ear and 6000, 4000, 2000, 1000, and 500 Hz in the left ear and then 500 Hz in the right ear. If a child fails to respond at the 25 dB HL for any single frequency in either ear, a second screening test is administered. If a child fails the second hearing screening, an air conduction threshold test is given. The frequencies tested are similar to those used in the sweep frequency screening test and preferably testing is conducted in a sound treated booth. If there is a difference greater than 30 dB between the results at 2000 and 4000 Hz then 3000 Hz should be tested (1977 Guidelines Kansas Hearing Screening).

Referrals are made if there is a loss of 30 dB HL at two frequencies or a loss of 35 dB or more at one frequency.

Currently, Kansas guidelines for the use of tympanometry comparable to those provided for pure-tone testing are not available. However, the following four recommendations are available (Programs Handbook for the Hearing Impaired, Kansas State Department of Education, 1977):

1. An academic/in-service training for all personnel assigned by the district/cooperative to do impedance testing.

2. A statement of local policy as to which students are tested.
3. Parental consent must be obtained if the test is not administered to all students as in a mass screening.
4. Referral procedures which include notification of parents regarding test results.

Referral Letter

If a child fails a threshold test then a referral letter is sent to the parents. A referral letter informs the children's parents or legal guardians that the results of the hearing test did not meet the established criteria. This should be done without stating the possible reasons for failure or the type of suspected problem. The parents should also be informed that their child could benefit from additional assessment, outside the school, relating to his hearing (Champaign Community Schools, 1964). The ASHA guidelines (Wilson, 1975) recommend that the word "fail" should not be used to report results to the parents. A copy of the results of the audiologic test is included with the referral letter. In addition, the Department of Education provides a standard form completed by the physician and/or audiologist who conducts the assessment (See Appendix B). Frequently, a phone call is used in addition to the

letter or when schedules coincide (or permit) a parent conference may be used to aid parent follow-up.

Follow-up Procedures

An essential element in the referral procedure is parent follow-up. It is the parent's obligation to make an appointment with a physician and/or audiologist for further assessment and follow any subsequent recommendations. Parent follow-up is the major problem area in any hearing conservation program. If parents fail to follow-up they risk possible mild to serious hearing problems in their children/and learning problems that accompany these losses (Downs, 1975).

The State Department of Education (1977) requires that the original copy of the referral form be retained in the school files and the parents present the remaining three copies of the form to the examiner of their choice. When the evaluation is completed the examiner retains one copy and returns the other two copies to the school along with any recommendations that he may have regarding that child's hearing. The school retains a copy for their files and one copy is sent to the State Department of Education.

Each school year individuals within a school district spend many hours in identifying children with hearing losses and referring them for further evaluations. Considerable time and money is expended by school districts whether or not the parents follow-up.

During a five year period from 1959-60 to 1963-64 school years the Champaign Illinois Schools reported that initially parent follow-up ranged from approximately 50% to 78% (Champaign, 1965). In Kansas, Gendel (1968) reported a referral form return rate of 73% for the five year period from 1963-1968. One reason for this high referral form rate may have been due to the availability of free diagnostic clinics upon a physicians referral. For the 1976-77 school year Hopkins, (1979), reported a referral form return rate of only 20%. It may be that a higher percentage of parents have followed-up but that the medical reports of examination were not always returned to the State Department of Education.

Parents give a variety of reasons why a child may not have been examined including cost of evaluation, traveling distance, and length of time required to see the examiner. Evidence of the low referral rate raises several concerns such as:

1. Parental satisfaction with the evaluations.
2. Parental follow-up of treatment and/or remediation recommendations.
3. Parental perception of changes in the child's school performance subsequent to treatment and/or remediation.

Concerns of this nature indicate the need for further investigation of questions relating to parental follow-up. The

purpose of this investigation was to study parental follow-up practices in Kansas. A questionnaire was developed to identify strengths and weaknesses of the referral system used in Kansas schools. Specific questions and procedures are discussed in the next section.

METHODS AND PROCEDURES

This study was developed to explore several aspects from the 1978-79 Kansas Hearing Conservation Program. The questionnaire surveyed referral information, parental follow-up procedures, specialists recommendations, and parental evaluation of their child's performance before and after follow-up (See Appendix C).

Data Collection

The questionnaire was sent to parents whose children did not meet the established test criteria of the hearing screening conducted during the 1978-79 school year. Parents were requested to return the questionnaire to the Kansas State Department of Education. The returned questionnaire formed the basis of the data used in this study.

Procedures for Data Collection

Each questionnaire consisted of 15 questions contained on one standard size (8 x 11 1/2) sheet of paper. In addition, a space was provided for additional comments a parent might make. It was requested that the questionnaires be returned within two weeks of the date received. Phone call follow-ups were made to the person receiving the questionnaire in which the response rate was zero. A tabulation code was placed at the bottom of each questionnaire

to allow identification of the following:

1. School District--school districts were identified by two digit numbers starting alphabetically with the rural schools.
2. Evaluator--personnel providing the evaluation were identified by letter code. A--designated a school audiologist and B--designated other school personnel.

A total of 400 questionnaires were mailed on May 29, 1980. Half of the questionnaires were mailed to urban education cooperatives and the other half were mailed to rural education cooperatives. Communities with populations greater than 45,000 were considered as Urban. Those communities within approximately 15 miles of an urban area were also classified as urban. All other communities were placed in the rural category. The special education cooperatives for both the urban and rural mailings were selected from the Listing of Cooperative Special Education Programs 1979-1980 provided by the Kansas State Department of Education.

Tables 1 and 2 provide a listing of the communities included in the urban and rural mailings.

In order to maintain confidentiality, the questionnaires were sent to the Directors or Coordinators of Special Education Services, or the School Superintendents. All

Table 1
Geographic Locations of Urban Mailings

North East	South East	North West	South West
Kansas City			Wichita
Turner			Derby
Piper			Haysville
Bonner Springs			Valley Center
Olatha			
Stanley			
Spring Hill			
Desota			
Gardner			
Shawnee Mission			
Topeka			
Seaman			
Shawnee Heights			
Washburn-Rural			
Manhattan			
Lawrence			

Note: There are no communities in southeast or Northwest Kansas that meet the definition of Urban as used in this study. Lawrence and Manhattan were included in the Urban category due to the large university enrollment.

Table 2
Geographic Locations of Rural Mailings

North East	South East	North West	South West
Atchison-Jefferson	El Dorado	Beloit	Coldwater
Baldwin City	Emporia	Great Bend	Dodge City
Clay Center	Howard	Hays	Garden City
Concordia	Hutchinson	Phillipsburg	Larned
Leavenworth	Independance	Northwest Ks. coop (Colby)	Pratt
Marysville	Iola		
New Strawn	McPherson		
Salina	Newton		
Wamego	Paola		
	Pittsburg		
	Wellington		
	Winfield		

Note: A greater number of special education cooperatives were selected from the eastern half of the state because of greater population density in Eastern Kansas (The State of the State Economic and Social Report of the Governor, January, 1980).

data were maintained at the State Department of Education. The rural areas received a minimum of six questionnaires while the urban areas received ten. Due to the classification of urban vs rural there were fewer urban communities so they required a greater number of questionnaires than did the rural communities.

A cover letter was sent to the appropriate administrators requesting that they review their 1978-79 files and select six to ten names of parents whose children were referred for additional evaluation. It was suggested in the cover letter that every other name be selected from the referrals until the desired number was reached. It was requested that each administrator receiving the initial packet was to insure that the parents received the mailing.

Follow-up

A follow-up phone call was made to each administrator within two days of the mailing to inform them about the mailing and answer any questions they might have. During the last week in August, 1980, the returned questionnaires were catalogued to determine the districts from which parents were responding. A check was made to determine which districts within the various cooperatives participated in the mailing. The cooperatives in which there was no district response were called a second time in an attempt to increase the questionnaire response rate. Any

questionnaires received after September 30, 1980 were not included in this study.

Recording of the Data

Computer cards were prepared for the State Department of Education for later use of the survey results. Responses from each questionnaire were recorded onto computer coding paper at the State Department of Education. Each response was assigned a card column. A code was developed with the numbers zero to ten to correspond with each response on the questionnaire. When coding was completed the numbers were transformed onto computer cards. The computer printout was then hand analyzed by counting the number of responses for each card column. Totals were computed into percentages.

Reliability Checks

A reliability check was conducted to check the transcription of data from the questionnaire to computer coding paper. The experimenter and one other person each recorded the data to computer coding paper. Ten percent of the items recorded were then compared to determine agreement. A second reliability check was done to determine inter-experimenter reliability for interpreting the data. For this second check the computer printout was analyzed for the first five and last five card columns to compare with the experimenters results.

The following specific procedures were used to score the parent survey.

1. Any time two ages were given the first age was recorded.
2. Whenever half years were given the age was scored as the lower age (5 1/2 scored as 5).
3. When a referral letter was cited from two sources the first source only was scored.
4. Months were scored as weeks.
5. In judging the correctness of responses to questions 10 and 12 the following guidelines were used:

Question 10 If question 9 on the survey was answered no, and the second half of question 10 was answered, it was not scored.

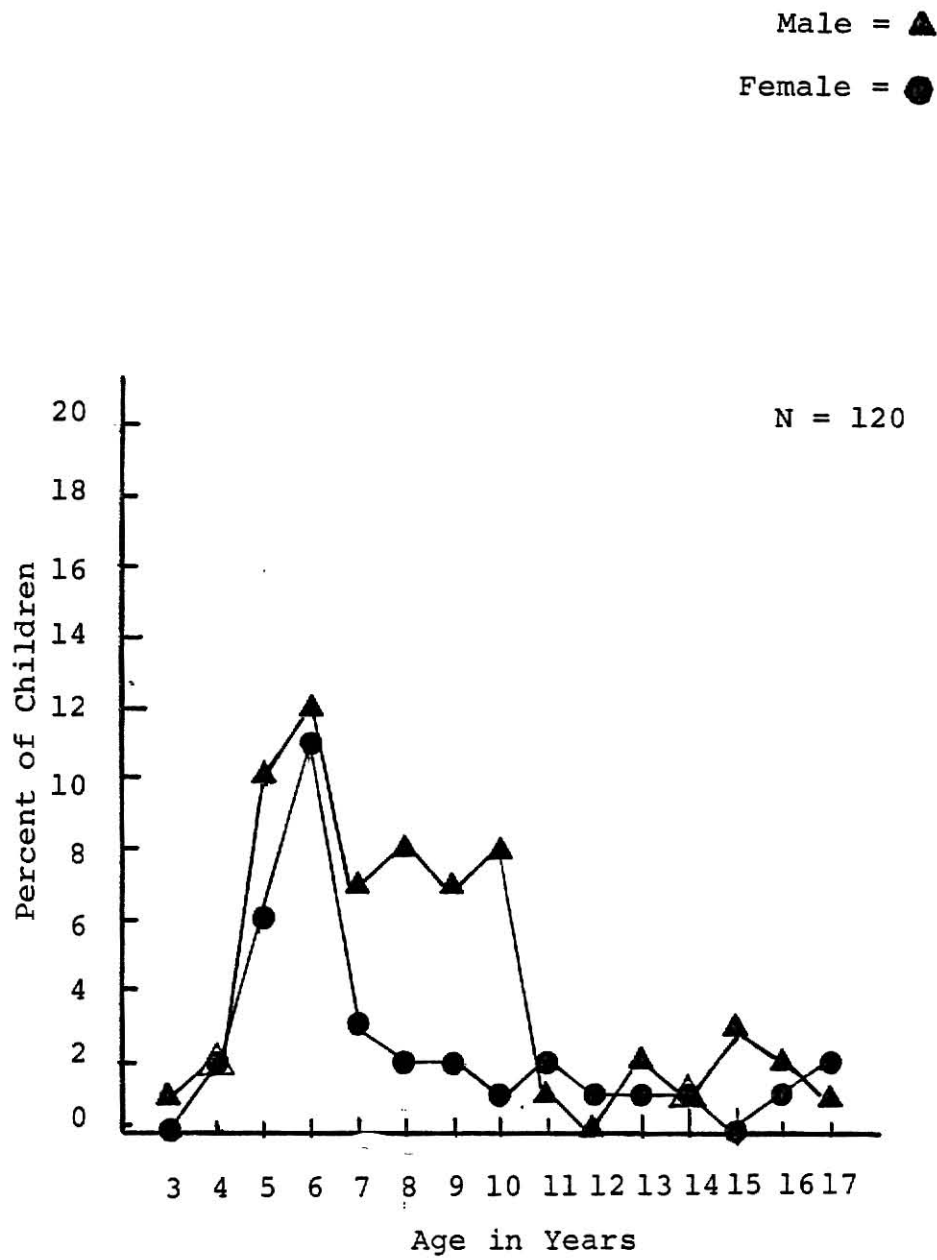
Question 12 If the first half of question 12 was answered no, and the second half of 12 was answered, it was not scored.

RESULTS AND DISCUSSION

This study reports the results of an analysis of 120 questionnaires answered by parents of children who were referred for additional hearing testing during the 1978-79 school year. The 120 completed questionnaires were obtained from a sample of 400 respondents. This represents an overall response rate of 30 percent.

Distribution of Children by Age and Sex

Figure 1 indicates that in this study, the largest percentage of returned questionnaires (23%) was in the six year age group. Sixteen percent (19) of the children were five years of age. Eight and nine year olds accounted for ten and nine percent (12 & 11) respectively. Three percent (4) of the parents failed to indicate their child's sex. More male than female children were referred for additional testing except in the four age groups of: four, eleven, fourteen, and seventeen years. The number of returned questionnaires declined for both males and females from the age of ten and above. This trend is consistent with the Gendel (1968) study who reported that boys in western Kansas had a higher incidence of hearing loss than did girls, and with the Hopkins (1979) study who reported that more males than females were referred for additional



Distribution of Children by Age and Sex

FIGURE 1

hearing testing in Kansas schools in 1977-78 and that the majority of children were six years of age.

Geographic Distribution of Surveys

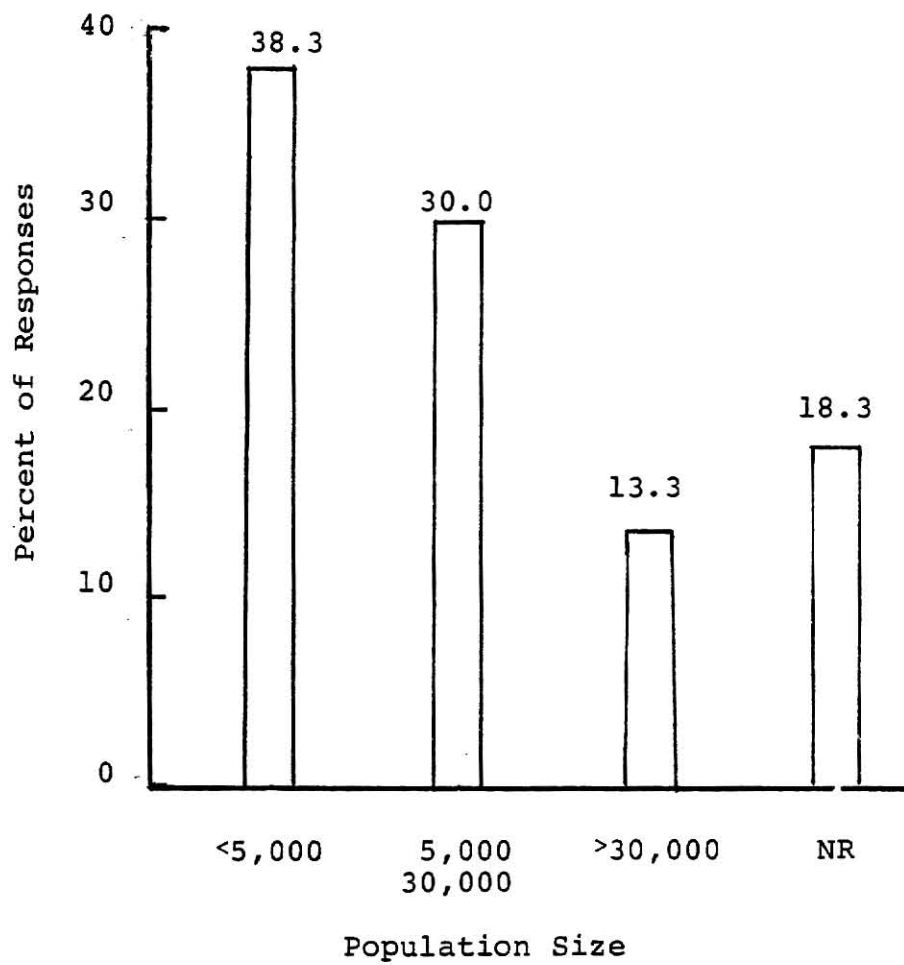
Seventy one percent (85) of the parents answering the survey indicated that their school district was located in a Special Education Cooperative. Eighteen percent (22) did not answer the question. This 18 percent raises the question that possibly a significant number of parents may not know if their school is served by a special education cooperative. These results are summarized in Table 3 below.

Table 3

Number and Percent of Parents Reporting School Districts
Located in Special Education Cooperatives

Question	Total	Percent
School District located in Sp. Ed. Coop.	85	71
School District <u>not</u> located in Sp. Ed. Coop.	13	11
No response	22	18

Figure 2 represents the percent of parents answering the survey by population size. Of those who responded, the majority, or 38 percent, indicated their population to be 5,000 or less. These figures correlate well with the tabulation code results by school districts which are found



Percentage of Parental Responses by Population Size

FIGURE 2

in Appendix D. Appendix D indicates the unified school districts which responded to the questionnaire. Sixty-five percent (78) of the responses were from rural communities while only 35 percent (42) were from urban communities.

Professional Status of Those Making Referrals and Those Making Examinations Following Referral

Table 4 shows the number and percent of referrals made by various school professionals. The majority of referrals were made most frequently by one of three professionals: the school nurse with 43 percent (52), the speech pathologist with 22 percent (26), and the audiologist with 21 percent (25). These results demonstrate that the Kansas Hearing Conservation Program involves a large variety of school professionals contributing to the referral process. In addition, a comparison of the number of referrals made by speech pathologists and audiologists reveals that in Kansas schools, they are utilized about equally.

Table 5 presents the number and percent of children who were examined by various professionals following the school referral. The three professionals most frequently seen for follow-up examinations were: Ear, Nose, and Throat Specialists seen by 65 percent (78), Audiologists seen by 41 percent (49), and General Practitioners seen by 35 percent (43). The table illustrates that children occasionally were examined by more than one professional.

The group of professionals who examined the referral children most frequently were the audiologist and E.N.T. Specialist who examined 14 percent (15), followed by the combination of Audiologist, Otologist, and E.N.T. Specialist who examined six percent (7).

Table 4
Number and Percent of Referrals
Made by School Professionals

Professionals	Number	Percent
Speech Pathologist	26	22
School Audiologist	25	21
School Nurse	52	43
School Psychologist	2	2
Teacher	1	1
Social Worker	0	0
No Referral	3	3
Other Professionals	4	3
Unknown	7	6

Table 5
Number and Percent of Children Examined
by Various Professionals

Professionals	Number	Percent
Audiologist	49	41
General Practitioner	43	35
Otologist	24	20
Ear, Nose & Throat Specialist	78	65
Child Not Examined	5	4
No Response	6	5

Note: Due to overlapping of professionals seen for examination the totals and percentages exceed 100.

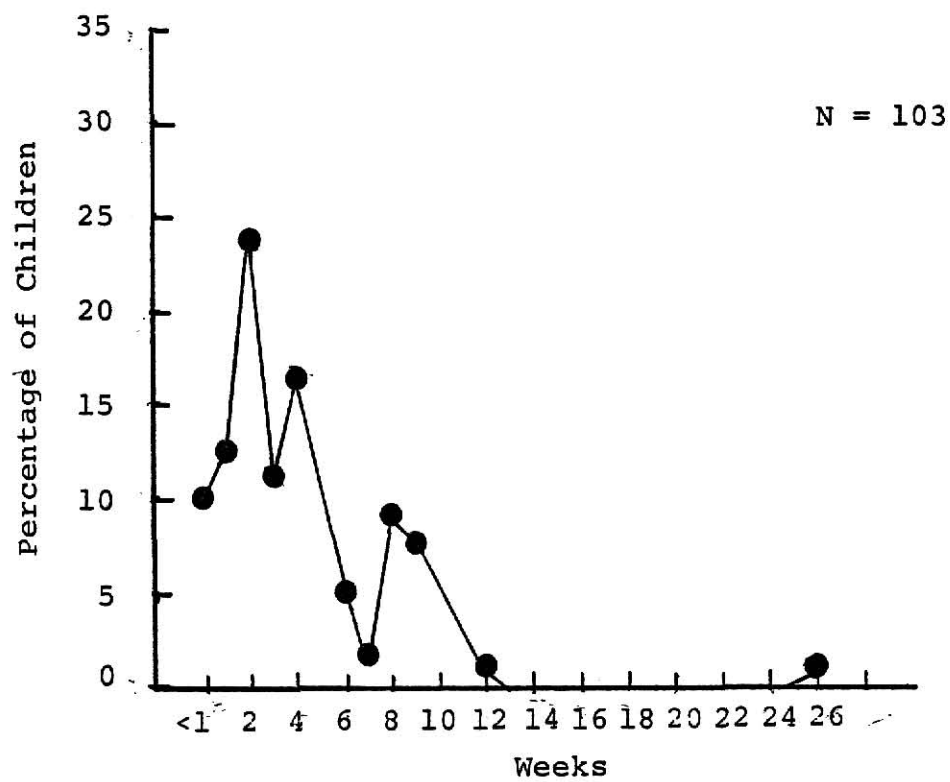
Barriers to Professional Examination

Only 5.8 percent (7) of the 120 parents who answered the questionnaire failed to follow-up the referral with another hearing examination given by a professional outside the school. Of this group, two parents indicated that the "condition resolved itself"; two parents indicated expense as a reason for not having their child examined; two parents felt the referral wasn't necessary; and one parent reported "difficulty in scheduling an examination at a University" as a reason for not having their child examined. None of the parents indicated distance to visit a specialist as a reason for not following-up. In a study conducted by

Hopkins (1979), only 20 percent of the school referrals made were returned to the State Department of Education. While the inferences that can be made are limited, the present study suggests that possibly a greater number of parents do follow-up than is suggested in the Hopkins study. One explanation for this might be that although children are examined by a physician, for one reason or another the referral form is not returned to the State Department. Due to the 30 percent overall response rate in this study, it can be speculated that parents who did not take their child for examination may not have answered the survey, or, for reasons unknown, the survey may not have been received by some parents.

Time-Lapse from Date of School Referral to Date Examined

Figure 3 illustrates the percent of children examined and the corresponding number of weeks to date of examination. It can be seen that a two week time-lapse occurred most frequently (24%) from the date the parents received the school referral till the child was examined. Seventy four percent (77) children were examined within four weeks of the date the parents received the school referral. These results suggest that for this survey the majority of children were examined promptly following the school referral.



Time-Lapse Between Referrals and Examination

FIGURE 3

Medical Aspects

Approximately half of the population surveyed indicated that medication was prescribed for their child following examination. Forty eight percent (57) of the 120 children received medication while 43 percent (52) of the children did not. Nine percent (11) failed to respond to the question.

Table 6 summarizes the length of time, in weeks, that medication was administered by number and percent. Medication was most frequently administered (18%) for two weeks. The range that medication was administered varied widely from 1 - 260 weeks. The median number of weeks that medication was administered was 22 weeks. In instances where medication was continued for a year or more, comments from parents suggested ongoing treatment for conditions such as allergies or congestion.

The results summarized in Table 7 reveal that 47.36 percent of the parents (27) felt that their child's condition improved following medication; 31.57 percent of the parents (18) felt their child's condition remained the same; 1.75 percent of the parents (1) felt that the condition actually worsened; 19.29 percent of the parents (11) reported that their child's condition reoccurred.

Surgical Aspects

Thirty eight percent (46) of the 120 parents surveyed, indicated that surgery was recommended for their

Table 6
Medication Administered in Weeks by Number and Percent

Weeks	Total	Percent
1	4	7
2	9	18
3	1	2
4	6	12
6	7	14
8	5	10
9	1	2
12	4	7
20	1	2
24	2	4
26	1	2
36	1	2
40	1	2
52	2	4
64	1	2
104	3	6
155	1	2
260	1	2

child. Fifty one percent (61) reported that surgery was not recommended for their child and 11 percent (13) failed to respond to the question.

Table 7
Child's Condition Following Medication
by Number and Percent

Child's Condition	Number	Percent
Improved	27	47.36
No Change	18	31.75
Worsened	1	1.75
Reoccurred	11	19.29

In response to the question of whether or not surgery was performed, 89 percent (41) of the parents said that surgery was performed, while 10 percent (5) parents decided their child would not have surgery.

The results summarized in Table 8 indicate that seventy eight percent (32) of the parents felt that their child's condition improved following surgery; twenty one percent (9) of the parents felt that their child's condition remained the same; and no parents reported that their child's condition worsened following surgery.

Table 8
Child's Condition Following Surgery
by Number and Percent

Child's Condition	Number	Percent
Improved	32	78.04
No Change	9	21.95
Worsened	0	0

Rehabilitation Aspects

Hearing Aids:

In response to questions concerning hearing aids, six percent (7) of the parents reported that their child had been fitted with a hearing aid prior to receiving the referral. Eighty four percent (101) parents indicated that their child did not wear a hearing aid before the school referral. Ten percent (12) of the parents failed to answer the question.

Of the 120 parents responding to the survey, 11 percent (13) said that a hearing aid was recommended for their child. Seventy four percent (89) parents indicated that a hearing aid was not recommended, and fifteen percent (18) parents did not respond to the question.

The results of the survey revealed that when a hearing aid was recommended, the majority, or 84.61 percent of the parents (11) obtained an aid for their child;

7.69 percent of the parents (1) did not; and 7.69 percent (1) did not respond. The one parent who did not obtain a hearing aid for their child stated that, "We plan to purchase a hearing aid later on."

Recommendations:

In response to a question concerning school recommendations, only 36 parents (30%) indicated that special services were recommended for their child. Seventy two parents (60%) said that no recommendations were made for special services. Another 12 parents (10%) failed to respond to the question. The 30 percent of children recommended to receive special services in the schools appears to be low when compared to the percent of children (48%) recommended to receive medication, the 38 percent recommended to have surgery, and the 11 percent recommended to obtain a hearing aid.

When children were recommended to receive special services in the schools, the most frequent recommendations made were as follows:

1. special seating
2. speech training
3. language training
4. hearing training
5. lip reading

Of the 120 parents answering the survey, only 13 percent (16) of the parents indicated that recommendations

were made for home training for their child. Again, this number seems low when compared to the number of children recommended to receive medication, surgery, and/or a hearing aid. Seventy six percent (91) said no recommendations were made, while 11 percent (13) of the parents gave no response. When asked to describe the recommendations made for home training, parents most frequently listed specific articulation training, or instructions to speak naturally with their child.

Parental Perception of Child's Progress

Following completion of the total referral process the parents were asked to evaluate their child's performance in the following three areas: Social adjustment, communication skills, and academic performance. It was the parent's task to determine whether their child's condition in each of the three areas had improved, remained the same, or worsened. The results from this question are summarized in Table 9. One hundred ten parents responded to the question concerning social adjustment. Of this group, 39.0 percent (43) felt their child's social adjustment had improved; 56.3 percent (62) felt social adjustment was unchanged; and 4.5 percent (5) felt their child's social adjustment had worsened. For the area of communication skills, 106 parents responded to the question. The majority, or 50.9 percent (54) felt their child's

communication skills improved after the referral process was completed, and 44.3 percent (47) said that communication skills had worsened. For the area of academic skills, 108 parents responded to the question. 51.8 percent (56) indicated that their child's academic skills had improved, 41.6 percent (45) indicated there was no change, and 6.4 percent (7) felt that the academic performance of their child had worsened upon completion of the total referral process.

Table 9
Parental Perception of Child's
Performance in Three Areas

Condition	Percent
Social Adjustment	
Improved	39.0
Same	56.3
Worsened	4.5
Communication Skills	
Improved	50.9
Same	44.3
Worsened	4.6
Academic Skills	
Improved	51.8
Same	41.6
Worsened	6.4

Reliability

Ten percent of the recorded questionnaire responses were compared to determine agreement. A point by point comparison yielded a score of 97 percent suggesting good

reliability. A point by point analysis of the first five and last five card columns of the computer print-out was made. A reliability score of 98.3 percent was determined.

In summary, the purpose of this investigation was to study parental follow-up practices in Kansas. A questionnaire was developed which was intended to identify strenghts and weaknesses of the referral system used in the Kansas schools. The results of this survey revealed the following strengths and weaknesses:

Strengths:

1. Many school professionals are involved in the school referral process. This is viewed as a strength because it shows that school professionals other than speech pathologists and audiologists are aware of the importance in detecting hearing losses in school-age children.

2. The majority of the children in this study were examined within four weeks of the date the parents received the school referral.

3. The majority of parents whose children were recommended to receive medication, surgery and/or amplification followed-up with the recommendations.

4. The majority of parents whose children received medication or surgery felt their child's condition improved following treatment.

Weaknesses:

1. The number of audiologists making referrals

in Kansas schools is low. This is viewed as a weakness because they have their primary training in detecting hearing losses and are not being utilized in a significant number of Kansas school districts.

2. The number of recommendations made for special services in the schools were low compared to the number of children referred for medication, surgery, and/or amplification.

3. The number of recommendations made for home training were low compared to the number of children referred for medication, surgery, and/or amplification.

RECOMMENDATIONS AND FUTURE RESEARCH

Several aspects of this study point to needs in the following areas of Kansas School Hearing Conservation Program:

1. Closer communication is needed between parents, school professionals, and the medical community regarding recommendations for the child in the classroom and the home upon completion of the referral process. This need is demonstrated in this study by the low number of recommendations made for special services in the schools and recommendations made for home training compared to the number of children who were recommended to receive medication, surgery, or a hearing aid.

2. A more visible reminder for specialists and school professionals is needed to prompt return of completed referral forms to the State Department of Education. Hopkins (1979), reported a referral form return rate of only 20 percent to the State Department of Education. While the overall response rate of the present study was just 30 percent, the majority of these parents, or 94.2 percent followed-up with the school referral. This suggests that possibly more parents do follow-up with the school referrals than is suggested by the Hopkins study and that possibly referral forms are not being returned to the State Department

for reasons other than the parent not following-up with the school recommendation.

3. A sample of school referral letters collected across the State of Kansas demonstrates the need for standardization (See Appendix E). Parents need to receive a carefully worded, concise referral letter that will motivate action. Such a letter could be drafted by a committee consisting of school audiologists, school nurses, and speech pathologists in conjunction with the State Department of Education. Additionally, in an effort to provide more information to the parents, a list of physicians and specialists located in each unified school district could be drafted and enclosed.

4. Workshops designed to help school professionals educate parents and community about the importance of hearing testing, and the importance of follow-up are needed. As early as 1959, Ling demonstrated that even slight losses in hearing could result in deficiencies in subjects such as arithmetic and English. In 1969, Holm and Kunze studied the effect of chronic otitis media and fluctuating hearing losses in children ages five to nine compared to a control group. The results indicated that the children with chronic otitis media were significantly delayed in all language skills requiring the receiving or processing of auditory stimuli or the production of verbal responses.

The authors conclude that,

The extent to which these deficiencies in language will have a dilatory effect on general learning rate might be considerable, since our educational system is heavily dependent upon language as a primary tool in teaching. (p. 836)

Brooks, (1969) stresses the need for early detection of hearing losses in school-age children and treatment, when warranted. This type of information could be presented at these workshops. Other information that could be presented might include ideas for setting up displays demonstrating such things as the hearing testing equipment used during screenings. These displays could be used during school events such as "open house," or parent/teacher conferences. The workshops could be set up in conjunction with the certification workshops that are presently conducted by the State Department of Education.

5. In an effort to provide each child with an optimal learning environment, it is recommended that children receive preferential seating at the same time the school referral is made. This study has shown a time-lapse ranging from <1 to 26 weeks between the date of the school referral and the date of examination. Early preferential seating could be beneficial during this waiting period.

Some recommendations for future study would include:

1. Long range research in Kansas concerning referral procedures and parental follow-up is needed in

order to determine trends, and acquire information pertaining to the type of referral procedures that are most effective, motivational factors that influence parental follow-up, etc.

2. Investigation of referral procedures and parent follow-up practices in states other than Kansas could be conducted and comparisons made in order to develop stronger school referral programs.

3. This study has also demonstrated the need for an investigation of communication between parents, school professionals, and the medical community regarding recommendations that are made for children in the classroom and the home. Research could be conducted to determine the number and types of recommendations made by various professionals. In turn, these could be assessed and compared with the parents understanding of the recommendations that were made.

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Wilson, W. R. and Walton, W. K. Identification Audiometry Accuracy: Evaluation of a Recommended Program for School-Age Children. Language Speech and Hearing Services in Schools, 5, 132-142, 1974.

APPENDICES

APPENDIX A

Audiologist - Master's Degree and certified by the American Speech and Hearing Association to conduct hearing testing as well as auditory habilitation and rehabilitation.

E.N.T. Specialist - A medical doctor whose practice is limited to treatments of disorders of the ear, nose, or throat.

General Practitioner - A medical doctor specializing in family practice.

Pediatrician - A medical doctor whose practice is limited to the treatment of children. Usually birth to 14 years.

Physician/Specialist - A medical doctor whose practice is limited to a specific field such as an internist, urologist, etc.

Otologist - A medical doctor whose practice is limited to diseases of the ear.

Specialists

Tabors Cyclopedic Medical Dictionary, Clarence Taber, 9th Ed., F. A. Davis Co., Philadelphia, 1963.

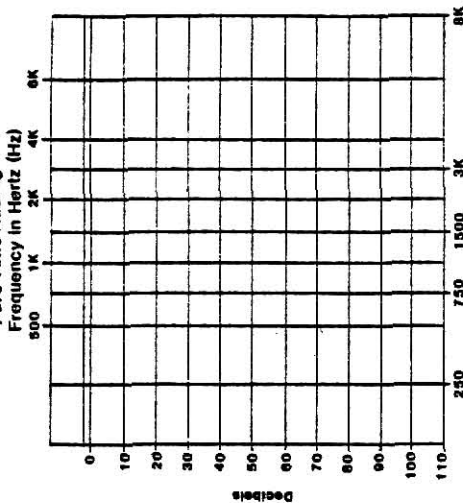
APPENDIX B

Form 137-70 Rev.

REPORT OF HEARING EXAMINATION - CLINICAL AND MEDICAL

Dist No.	Co.	Sex	Last		First		Initial		Birth		
			M	F					Mo	Day	Yr.

Pure Tone Audiogram



PERTINENT HISTORY:

DO NOT
WRITE IN
THIS SPACE
☐ ANSI ☐ ISO

Left	Key	Right
X	Air	O
□	Air Masked	Δ
>	Bone	<
□	Bone Masked	□
?	No Response	X
~		~

Did not Test
Could not Test
Play Audiometry
PA

Write Across Audiogram Taps used &
appropriate frequencies

Audiometric Test Environment

- ☐ Sound Proof Booth
☐ Quiet Environment
☐ Noisy Environment

RELEASE OF INFORMATION

I hereby authorize the release of the results and recommendations from this examination to school officials and state educational and health officials for their use in any educational, health or statistical studies that may be desired. It is understood that all information will be treated as confidential.

Parent or Guardian

Signature

Date

Address

Teacher

School Address

City

Zip Code

Date of Audiogram

Retain This Copy for School - Send Remaining Copies To Physician/Audiologist

Staple here copy of Tympanogram or other tests - if applicable.

REPORT OF HEARING EXAMINATION – CLINICAL AND MEDICAL

Form 137-70-Rev.

Dist. No.	Co.	Sex M F	Last	First	Name	Birth Mo Day Yr
-----------	-----	---------------	------	-------	------	--------------------------

Pure Tone Audiogram

Frequency in Hertz (Hz)

	500	1K	2K	4K	6K
0					
10					
20					
30					
40					
50					
60					
70					
80					
90					
100					
110					

<p>Left</p> <p>X □ > □ 9 3</p>	<p>Right</p> <p>O Δ < □ X 7</p>
<p>Key</p> <p>Air</p> <p>Air Masked</p> <p>Bone</p> <p>Bone Masked</p> <p>No Response</p>	
<p>DNT CMT PA</p> <p>Did not Test</p> <p>Could not Test</p> <p>Play Audiometry</p> <p>Write Across Audiogram Toys used & approximate frequency</p>	

Audiometric Test Environment

ANSI ☐ Sound Proof Booth ☐

ISO ☐ Quiet Environment ☐ Noisy Environment ☐

Findings & Recommendations

- Otitis Media
- Otitis Media
- Impacted Cerumen, Foreign Body
- Tinnitus - Acoustic
- Cold
- Earwax
- Noise exposure
- Malingering

Other information:

PERTINENT HISTORY:

RELEASE OF INFORMATION

we hereby authorize the release of the results and recommendations from this examination to school officials and state educational and health officials for their use in any educational, health or statistical studies that may be desired. It is understood that all information will be treated as confidential.

Name _____
Address _____
City _____
Date _____

Tester _____
School Address _____
City _____ **Zip Code** _____
Date of Audiotape _____

Retain This Copy for School After Referral Is Completed – Send Last Page To State Department of Education

Staple here copy of Tympanogram or other tests - if applicable.

APPENDIX C

May 30, 1980

Dear Parents,

In 1978-79 you received a referral letter from your school district regarding a suspected hearing loss in your child. The following questionnaire is based on the school referral letter. The purpose of this questionnaire is to identify strengths and weaknesses of the present referral system used in Kansas schools. Please indicate the appropriate answer by checking the correct answer or by completing the blanks. Return the completed form in the enclosed envelope to the State Department of Education. Please remember that these questions relate to the 1978-79 school year. Please be assured that all information will be confidential. Thank you in advance for your help.

1. Age of your child at the time of referral _____ years. Sex: M / F
2. Is your school district located in a special education cooperative. Yes / No
If your school district is in a cooperative, check the statement that applies:
 _____ Population of your town is less than 5,000
 _____ Population of your town is between 5,000 and 30,000
 _____ Population of your town is greater than 30,000

 Do you live within 15 miles of Wichita, Shawnee Mission, or Topeka? Yes / No
3. Was the school referral letter from a:
 _____ Speech Pathologist
 _____ School Audiologist
 _____ School Nurse
 _____ other (describe) _____
4. Was your child examined by: (Please check all that apply)
 _____ Audiologist (Nonmedical)
 _____ General Practitioner
 _____ Otolologist (Medical doctor specializing in ears only)
 _____ Ear, Nose & Throat Specialist (E.N.T.)
 _____ My child was not examined
5. If your child was not examined, check any of the following that apply:
 _____ The condition resolved itself
 _____ There were no nearby facilities
 _____ Lack of funds
 _____ Did not feel referral was required
 _____ Other (describe) _____
6. What was the approximate length of time between the date you received the school referral letter and the date the child was seen by the specialist? _____ weeks / _____ mo.
7. Was medication prescribed? Yes / No
8. If no, please check any that apply:
 _____ Did not feel medication was necessary
 _____ Medication was too expensive
 _____ Other (describe) _____

 If yes, what was the length of treatment? _____ weeks / _____ months
 Following medication, did the condition:
 _____ Improve / _____ Stay the same / _____ Worsen / _____ Reoccurred

(Over)

Parent Questionnaire

APPENDIX C (Continued)

9. Was surgery recommended? Yes / No
10. If yes, was surgery performed? Yes / No
- If no, please check any that apply:
- ☐ Did not feel surgery was necessary
- ☐ Surgery was too expensive
- ☐ Other (describe) _____
- If surgery was performed, did the condition:
- ☐ Improve / ☐ Stay the same / ☐ Worsen
11. Prior to the referral, did your child wear a hearing aid? Yes / No
12. Was a hearing aid recommended? Yes / No
- If yes, was a hearing aid obtained? Yes / No
- If no, please check any that apply:
- ☐ Did not feel a hearing aid was necessary
- ☐ Hearing aid was too expensive
- ☐ Other (describe) _____
- 13/ Were recommendations made for school special education services? Yes / No
- If yes, please check any of the following services that were recommended:
- ☐ Special seating
- ☐ Lip reading
- ☐ Hearing training
- ☐ Speech training
- ☐ Language training
14. Were specific recommendations made for training at home? Yes / No
- If yes, describe: _____
15. In comparison with your child's condition at the time of the diagnosis do you feel that your child's performance in the following areas have improved, remained the same, or worsened? (Please check each of the three areas)
- Social Adjustment: ☐ Improved / ☐ Remained the same / ☐ Worsened
- Communication Skills: ☐ Improved / ☐ Remained the same / ☐ Worsened
- Academic Performance: ☐ Improved / ☐ Remained the same / ☐ Worsened
- Please feel free to make any additional comments you feel are relevant.
- In order to be most helpful to us, please return this form by June 16, 1980. Thank you.
-
- Do not write below this line
- Tabulation Code _____

APPENDIX C (Continued)

For your information on completing the Questionnaire

You have been selected as one of 400 parents throughout the state of Kansas to receive this questionnaire. In order to protect your identity and the confidentiality of the information on the questionnaire, we have contacted your school district/cooperative and asked them to select parents in their district/s to complete the information. The enclosed stamped self-addressed envelope will enable you to complete and return the questionnaire directly to my office. In no way will your, or your child's, identity be indicated. In this way it will enable you to give us accurate information.

The questionnaire will take about five minutes of your time. Please return no later than June 16. Since this is a small survey, your cooperation in returning the questionnaire is important.

Thank you,

Melvin D. Bruntzel
Education Program Specialist
Language, Speech, and Hearing
Special Education Administration
Kansas State Department of Education
120 East Tenth Street
Topeka, Kansas
913-296-3866

Parent Information Concerning Questionnaire

*Kansas State Department of Education**Kansas State Education Building*

120 East 10th Street Topeka, Kansas 66612

May 28, 1980

Dear Directors and Coordinators of Special Education:

The State Department of Education, Special Education Administration is conducting a study with the goal of identifying strengths and weaknesses of the present hearing referral system used in Kansas schools. More specifically we are looking at referrals returned to the State Department during the 1978-79 school year. We are asking for your help in the following way. Please randomly select _____ parents in your district/cooperative whose children were referred for additional medical diagnosis in 1978-79 to receive the enclosed questionnaire. We suggest you select every other referral till you reach the number we are requesting. A self-addressed stamped envelope is enclosed for the return of the questionnaire.

To insure confidentiality, we ask that you select the parents, address the enclosed stamped envelopes and send them to the parents.

In order to expedite this process, we would like them mailed as soon as possible and returned by the parents. Their returns will be sent directly to my office.

Your assistance in this effort is greatly appreciated. Thank you for your time and help. If you have any questions, please contact:

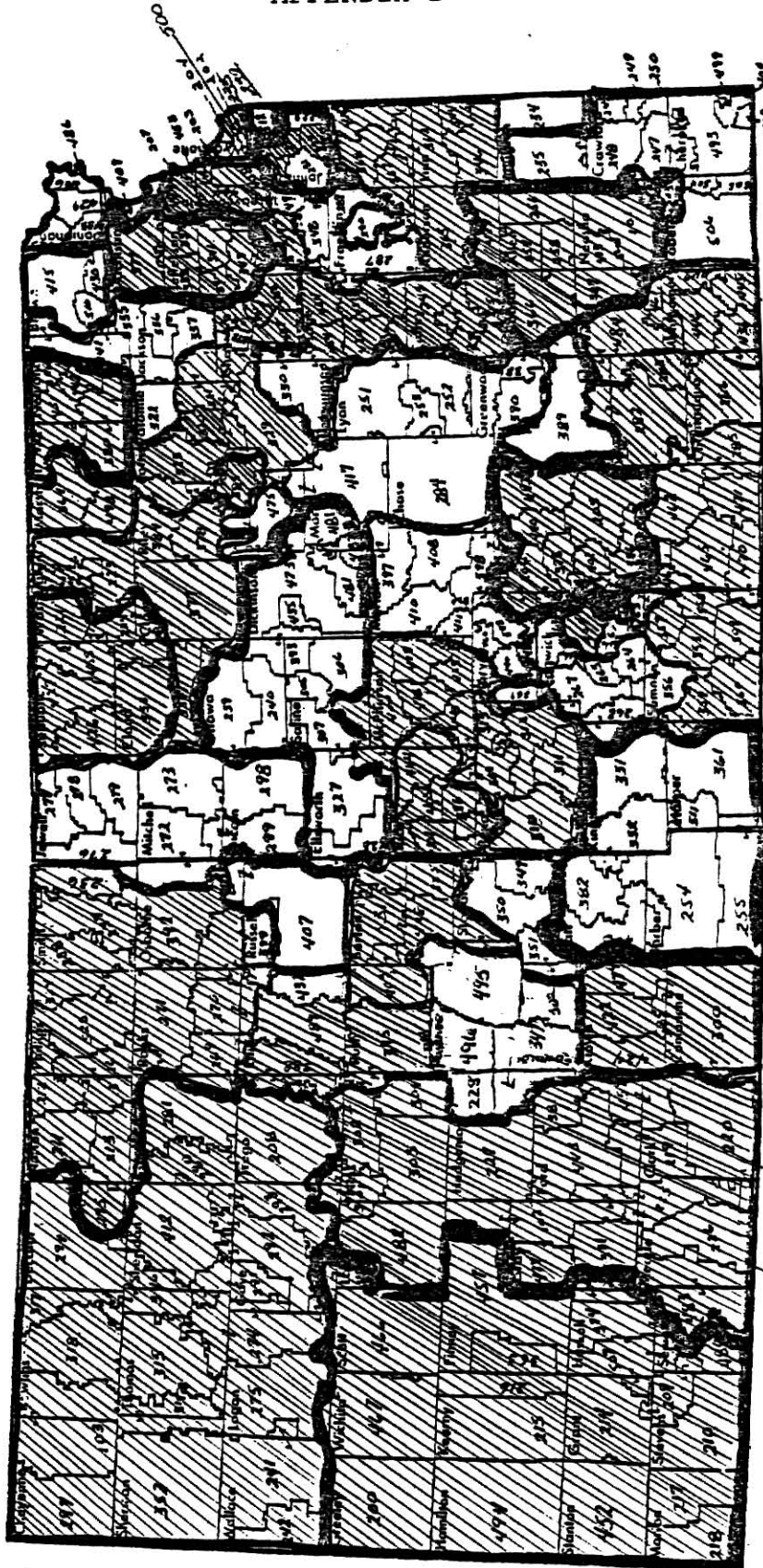
Melvin D. Bruntzel
Education Program Specialist
Language, Speech, and Hearing
Special Education Administration
913-296-4942

vs

Cover Letter to Directors and Coordinators

APPENDIX D

Kansas Unified School Districts — Effective July 1, 1978



Tab. Code Results by School District

HIGH PLAINS**Educational Cooperative****District 611**Steve Mosler
Director919 Zerr Road
Garden City, Kansas 67846
(316) 275-9681Richard Carlton
Assistant Director

In compliance with state and federal law, your child has received a hearing screening at his/her school. Results of this screening indicate that there may be some problem concerning his/her hearing at this time. A complete audiological evaluation should be done in order to accurately assess the possible extent of the problem. The High Plains Educational Cooperative provides audiological services for the schools at no cost to the parents. We encourage you to set up an appointment as soon as possible by calling (316) 275-9681 in Garden City or (316) 624-3426 in Liberal. Our facility is located at 919 Zerr Road in Garden City and at Lincoln Elementary School in Liberal. If you have any questions, please call and ask for the audiologist at the same number.

Sincerely,

Audiologist

Sample of School Referral Letters Used in Kansas Schools

USD	CITY
476	Copeland
216	Deerfield
218	Elkhart
457	Garden City
468	Healy
363	Holcomb
210	Hugoton
452	Johnson
215	Lakin
467	Leoti
480	Liberal
209	Moscow
217	Rolla
507	Satanta
466	Scott City
374	Sublette
494	Syracuse
200	Tribune
214	Ulysses

RENO COUNTY EDUCATION COOPERATIVE NO. 610

K. RAY FENLEY, DIRECTOR

SO. HALSTEAD and U.S. 50

ROUTE 4, Box 228 C

HUTCHINSON, KANSAS 67501

(316) 663-7178

DATE: _____

Dear Parent or Guardian:

Kansas Statutes 72-5205 and 72-1205 designate a mandatory hearing screening examination for every child entering the school system and a re-examination once every three years.

In an effort to protect individual rights and provide for excellent hearing health care for your child, _____, we are requiring that a parental signature be obtained before any follow-up (testing after the required screening) hearing testing can be provided by the RCEC Audiologist.

These follow-up tests are given to identify what hearing problem exists so that the appropriate referral, to you as a parent can be made. The follow-up tests may consist of pure tone threshold tests, tone decay, loudness balance, acoustic reflex, acoustic impedance, or calibrated speech tests.

Attached you will find a copy of Parental Rights in Special Education so that you may be informed as to your rights and the rights of your child as safeguarded by State and Federal statutes. We ask that you sign the statement of your preference and return this form to your child's school. Should you have any questions, please don't hesitate to call me at the number given above.

Sincerely,

☐ BEING AWARE OF MY RIGHTS I DO HEREBY GIVE MY PERMISSION TO THE RCEC AUDIOLOGIST TO PROVIDE FOLLOW-UP HEARING TESTS FOR MY CHILD. I UNDERSTAND THAT THIS SERVICE IS PROVIDED FOR THE PURPOSE OF MAKING THE APPROPRIATE RECOMMENDATIONS TO ME AS PARENT OR GUARDIAN.

SIGNATURE _____
(Parent or Guardian)

DATE _____

☐ BEING AWARE OF MY RIGHTS I DO NOT WISH FOLLOW-UP HEARING SERVICE TO BE PROVIDED FOR MY CHILD.

SIGNATURE _____
(Parent or Guardian)SIGNATURE _____
(Student)

DATE _____

RENO COUNTY EDUCATION COOPERATIVE NO. 610

K. RAY FENLEY, DIRECTOR

SO. HALSTEAD and U.S. 50

ROUTE 4, Box 228 C

HUTCHINSON, KANSAS 67501

(316) 663-7178

Date _____ 19 _____

Dear Parent of Guardian:

As part of the Reno County hearing conservation program, your school has recently completed the hearing screening for this year.

_____ was given a hearing test in school. From the results of these tests, it appears further testing in a sound treated test booth would be helpful in eliminating the possibility that a hearing or medical problem is present.

I have been unable to contact you by telephone to schedule an appointment for _____ at our hearing clinic located one mile east of the Big M Truck Stop (in the old Ijams School Building).

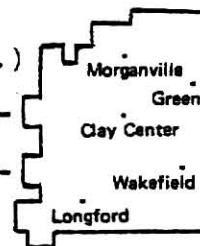
If you would please contact me by phone or letter at:

.....we can arrange an appointment.

Sincerely,

CLAY COUNTY UNIFIED SCHOOLS

807 Dexter Street - Clay Center, Kansas 67432 - 913-632-3176

Charles L. Stuart, Superintendent
Dean L. Oberhelman, Asst. Supt.

DISTRICT 379

Dear Parents,

During the hearing tests conducted recently, we discovered that your child appeared to have some difficulty with hearing. We recommend that you take your child to your physician soon for his diagnosis and recommendations.

Please take the enclosed papers with you when you go to the physician to have your child's hearing checked.

Would you please sign this letter and send it back to me? We are required by the State Department of Health to have a signed paper saying we have notified you of your child's hearing results.

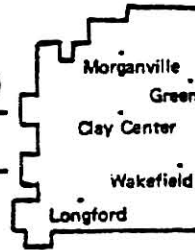
Thank you so much for your cooperation.

Sincerely,

Sign here _____

CLAY COUNTY UNIFIED SCHOOLS

807 Dexter Street • Clay Center, Kansas 67432 • 913-632-3176

Charles L. Stuart, Superintendent
Dean L. Oberhelman, Asst. Supt.

59

DISTRICT 379

Dear Parents,

Enclosed is a copy of the results of a hearing test which was done recently on your child. We are required to test him/her every year and inform you of the progress.

Please sign and return this to us as it becomes a part of the school health record. Also indicate the diagnosis and the treatment being done.

Thank you for cooperation and assistance.

Sincerely,

DH/nj

APPENDIX E (Continued)

CENTRAL KANSAS COOPERATIVE IN EDUCATION
111 Colorado
Salina, Kansas

Date: _____

Dear Parent,

Your child _____ has been given two hearing tests which indicated the possibility of a hearing loss. It is recommended that you take your child and the enclosed report to your doctor *or ear specialist*

Please have your doctor return this report to CKCIE after he has made his examination.

Sincerely,

School Audiologist

APPENDIX E (Continued)

CENTRAL KANSAS COOPERATIVE IN EDUCATION
3023 Canterbury Drive
Salina, Kansas 67401

#2
Date: _____

Dear Parent,

Your child _____ has been given a hearing test as part of your school district's hearing conservation program. The results of this hearing test indicate the possibility of a high frequency hearing loss. In compliance with the Kansas hearing screening law passed by the 1969 legislature, it is our responsibility to notify you of identified hearing problems. It is recommended that you take the enclosed report with you to your child's next doctor's appointment so that it can be entered in your child's permanent health record.

Hearing test results such as your child's are often consistent with excessive exposure to loud noise. Continued noise exposure without the use of some type of hearing protection may cause hearing to worsen. As a result, your child has been placed on an annual hearing recheck list to monitor the possibility of a progressive hearing loss. These annual hearing test results will be available to parents upon request. Parents will not be mailed hearing test results each year unless there is a significant worsening of hearing.

If you have any questions about your child's hearing test, or types of hearing protection please feel free to contact me.

Sincerely,

APPENDIX E (Continued)
OLATHE DISTRICT SCHOOLS
UNIFIED SCHOOL DISTRICT NO. 233
Box 2000 - 1005 Pitt Street
Olathe, Kansas 66061
913/782-0584

M.L. Winters, Superintendent

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December 2, 1980

We do not use a referral letter on hearing referrals.
We make contact with the parent usually by telephone so that
we can explain all of the test results and teacher observations.
We feel we have a better chance of getting a completed referral
with this method. If a letter is necessary it is written just
for that individual.

We use the State form as a referral form.

Sincerely,

Unified District 431

Barton County

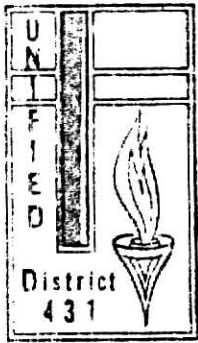
NORMAN L. REYNOLDS
Superintendent of Schools

104 North Allen Street
Horton, Kansas 67044
Telephone: 653-4114

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ATTENDANCE CENTERS

Horsington High
Horsington Jr. High
Lincoln Elementary
Roosevelt Elementary
Eisenhower Elementary



Dear Parent:

As a service of your school and in compliance with Kansas 1969 Supplement 72-1204-06, of the Hearing Screening Law, your child has been given a hearing test.

The test indicates the possibility of a problem, therefore we are sending a referral form to be taken to your doctor. Please sign the Release of Information section. Take the entire referral form to your doctor. After your doctor has seen your child and he has noted his findings on the referral form, return the pink and green copies to the school.

If you have any questions, please contact Betty Maier, Lincoln Elementary School or Call 653-2167 in the mornings.

Thank you for your cooperation.

Sincerely

EVALUATION OF THE 1978-79
KANSAS HEARING CONSERVATION PROGRAM--A PARENT SURVEY

by

IRENE KAY WAGNER

B.A., Kansas State University, 1974

AN ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF ARTS

Department of Speech

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1981

ABSTRACT

Two critical aspects of any comprehensive school hearing screening program are the identification of students with hearing losses and the referral procedure. An essential element in the referral procedure is parent follow-up. It is the parent's obligation to make an appointment with a physician and/or audiologist for further examination and to follow any subsequent recommendations. If parents fail to follow-up they risk possible hearing and related learning problems in their children. This study examined the responses of 120 parents to a survey which investigated parental follow-up practices in Kansas. The questionnaires were sent to parents whose children did not meet the established criteria of the hearing screening conducted during the 1978-79 school year. The survey addressed the following types of questions:

1. The age and sex of the children.
2. The population size of the child's community.
3. The professional status of those making the referrals and those giving follow-up examinations.
4. The time-lapse between school referrals and professional examination.
5. The parental follow-up of treatment and/or remediation recommendations.

6. The parental perception of the child's school performance following treatment and/or remediation.

The returned questionnaires served as the basis of the data. Analysis of the returned surveys showed that:

1. The largest percentage of children (23% or 27) were in the six year age group and that generally more male than female children were referred for additional testing.

2. Sixty five percent (78) of the returned questionnaires came from rural Kansas communities.

3. School referrals came most frequently from the school nurse (43% or 52). Children were examined most frequently by Ear, Nose and Throat Specialists (65% or 78).

4. Seventy four percent (77) of the children were examined within four weeks of the date the parents received the school referral. Twenty four percent (25) were seen within two weeks.

5. Only 5.8 percent (7) of the parents answering this survey indicated that they did not follow-up with the school referral. Forty eight percent (57) of the parents indicated their child received medication following professional examination. Thirty eight percent (46) of the parents replied that surgery was recommended and of this group, 84 percent (41) indicated their child had undergone surgery. Hearing aids were recommended for 11 percent (13) of the children and the majority (11), did

obtain an aid. Sixty percent (71) of the parents said that recommendations were not made for special services, in addition, 76 percent (91) of the parents indicated that no recommendations were made for home training.

6. Parents felt that in the areas of social adjustment, their child's condition most often remained the same but for the areas of communication skills and academic performance parents judged their child's performance most often improved following the school referral.

The results of this survey revealed several strengths and weaknesses in the Kansas School referral system:

Strengths:

1. Many school professionals are involved in the Kansas School referral process.
2. The majority of children were examined within a short time following the school referral.
3. The majority of parents followed-up when recommendations were made for medication, surgery and/or amplification.
4. The majority of parents felt their child's condition improved following treatment with medication and/or surgery.

Weaknesses:

1. The number of audiologists making referrals in Kansas Schools is low.

2. The number of recommendations made for special services in Kansas schools were low compared to the number of children referred for medication, surgery, and/or amplification.

3. The number of recommendations made for home training were low compared to children recommended for medication, surgery, and/or amplification.