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A comparative study of parents of children in day care for Haemophilus influenzae b disease and vaccine

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A COMPARATIVE STUDY OF PARENTS OF CHILDREN IN DAY CARE FOR HAEMOPHILUS INFLUENZAE B DISEASE AND VACCINE

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ABSTRACT

A COMPARATIVE STUDY OF PARENTS OF CHILDREN IN DAY CARE FOR HAEMOPHILUS INFLUENZAE B DISEASE AND VACCINE

by Peggy Todd

This comparative teaching strategy study used a quasi-experimental design to answer the question, "Do parents of children in day care learn more about Haemophillus influenzae b disease and vaccine by viewing a video or by reading a teaching brochure?" Ninety parents of children in five California day-care centers participated. Each participant took the same pre- and posttest. After taking the pretest, the independent variables (teaching brochure and video) were given to two of the groups followed by the posttest. The control group simply took the pre- and posttests. Results were based on difference of group mean gain scores. It was determined that the control group which received no teaching learned significantly less than the groups that received either the brochure or video teaching instruction. Results showed no difference in learning between the two groups exposed to either teaching strategy.

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To:

My husband Harry and our six children for their continued support and encouragement throughout this endeavor; my faculty advisor, Terry Miller, for keeping me on track; and special thanks to my friend and colleague, Kaki Moyce, for making this thesis a reality.

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INTRODUCTION

Haemophilus Influenzae b (Hib) disease is preventable in children 18 months and older because of the Hib vaccine. Hib disease strikes 1 in 200 children under the age of 5, and of these infected children, 51% will have meningitis; 5 to 10% of children with meningitis will die (Katz, 1986). Because of this high morbidity and mortality rate, and the fact that the disease is preventable, client education about Hib disease and vaccine is a high priority to our nation's health. This is especially important to working parents whose children attend day-care centers. These children are at a higher risk of developing Hib than children who do not attend day care (Chochi, Broome, & Hightower, 1985; Redmond & Pichichero, 1984).

Purpose

The purpose of this study is to determine which of two educational strategies is more effective in teaching parents of children in day care about Hib disease and vaccine. The strategies compared will be (a) the use of a video tape and (b) the use of a teaching brochure.

Statement of the problem

A problem exists for children who attend day-care centers in the United States because they are at a higher risk of contracting systemic Hib disease than children who

do not attend day care. Parents of these children need to be adequately informed about Hib disease and vaccine and its availability for their children at age 18 months. Public knowledge is lacking because of its relative newness.

Utilizing day-care centers to distribute information about Hib disease and vaccine to parents of children in day care may help to alleviate this problem. Parents may view a video tape or read a teaching brochure about Hib disease and vaccine while waiting to pickup or drop off their child at their day-care center.

Research Question

Which educational strategy is more effective in teaching parents of children in day care about Hib disease and vaccine (a) viewing a video tape or (b) reading a teaching brochure?

Hypothesis

Parents of children in day care who view a video tape about Hib disease and vaccine will score significantly higher on the posttest than those who read the teaching brochure. This hypothesis is based on literature reviews and studies about the efficacy and limitations on the use of video in client education. These reviews and studies conducted by Durbach and Nendick (1986); Gagliano (1988); Holm (1983); Minton (1983); Nielsen and Sheppard (1988); and Pace, Henske, Witfill, Andrews, Russell, Probstfield,

and Insull (1981) all agree that video presentation alone is as effective as any other presentation method and sometimes more effective than only written information.

Definition of Terms

For the purpose of this study, the following definitions apply:

1. Day-care center is a state licensed facility that provides daytime supervision, training, medical services, and the like, for children of preschool age.

2. Hib vaccine is a preparation containing microorganisms for producing immunity to Hib disease. This vaccine is a conjugate of Haemophilus influenzae type b capsular polysaccharide and diphtheria toxoid and is officially designated as Haemophilus b conjugate vaccine (diphtheria toxoid-conjugate) (Plotkin et al., 1988).

3. Patient educator is one who teaches patients about health matters.

4. Teaching brochure is a pamphlet about Hib disease and vaccine designed and written by this researcher (Appendix A).

5. Video tape viewing is watching a film about Hib disease and vaccine on a television screen that was written, produced, and directed by this researcher (Appendix B).

6. Well-baby visit is a periodic health visit in a health care facility for infants and children in order to

promote optimal physical, emotional, and intellectual growth and development (Mosby, 1983).

Assumptions

This research is based on the following assumptions:

1. That the role of educator is accepted as a function for nurses and physicians of Santa Cruz County, California.

2. That parents of children attending day-care centers want to learn about the prevention of Hib disease which can be potentially fatal to their children.

3. That the Santa Cruz County Health Department and Santa Cruz pediatricians are interested in the results of this research in order to ensure effective client education.

4. That the video tape and teaching brochure would be of interest, relevant, and informative to parents of children utilizing day-care centers.

Limitations

A limitation to this research study was the sample size and restriction to the number of day-care centers in one northern California county. Also, only a convenience sample of parents of children attending day-care centers that use English as their dominant language was obtained. The non-English speaking population was not addressed.

Significance of the Study

The data gathered from this research project will

provide more information about the effectiveness of teaching strategies in informing parents of children in day care about Hib disease and vaccine. The Santa Cruz County Health Department and Santa Cruz pediatricians are interested in the results of this research so they can implement their parent teaching programs accordingly. Presently, video tape viewing is not utilized as a teaching strategy by the Santa Cruz County Health Department or by Santa Cruz pediatricians, only informational brochures are used.

Santa Cruz County's incidence and prevalence rates of Hib disease are lower than the nation's average which is 1 child in 200 under the age of 5 (Granoff, 1980). According to Jeri Martinez, R.N., Public Health Investigator for Santa Cruz County, there were five cases of Hib disease reported in 1988 and two in 1989 for the county (J. Martinez, personal communication, February 14, 1990). County records did not indicate if these children attended day care, and Martinez could not be sure that all Hib invasive disease cases were reported. In 1989 there were approximately 1800 children 2 years old or older, and 72 children under the age of 2 attending day-care centers in Santa Cruz County. Lowering the incidence and prevalence rates of Hib disease for children attending day-care centers in Santa Cruz County is a possibility if the day-care parents who participated in this study vaccinate

their children against Hib, if they have not done so previously.

Chapter 2

LITERATURE REVIEW, CONCEPTUAL FRAMEWORK, AND LEARNING THEORIES

Review of the Literature

In the population of all American children in the first 5 years of life 1 child in 200 will be infected by Haemophilus influenzae type b (Hib) bacteria (Granoff, 1980). This pathogen is the cause of many systemic bacterial diseases, such as meningitis, epiglottitis, pericarditis, septic arthritis, pneumonia, cellulitis, and osteomyelitis (Davis & Bull, 1986). According to 1987-1988's Committee on Infectious Diseases of the American Academy of Pediatrics, about 30% of these serious diseases occur in children 18 months of age and older (Plotkin et al., 1988). Fifty-one percent of contracted Hib disease have resulted in meningitis (Katz, 1986). Katz reported that, "despite early diagnosis and proper therapy, 5 to 10% of children with this form of meningitis will die; permanent neurological damage is reported in up to 45% of survivors" (p. 4).

A polysaccharide Hib vaccine was licensed for use in the United States in April of 1985 (Centers for Disease Control [CDC], 1988). Recommendations for use were based primarily on the results of clinical trials done in Finland, in which 98,272 children were immunized in a

double-blind study (Davis & Bull, 1986). This polysaccharide vaccine was immunogenic (as measured by antibody production) in children 18 to 23 months old, but less so than it was in older children (Cochi, Broome, & Hightower, 1985). This data led the American Academy of Pediatrics Committee on Infectious Diseases to recommend immunization with polysaccharide Hib vaccine for all children at 24 months of age. Robbins (1986) has reported that studies at Rockefeller University demonstrated that the immunogenicity of a polysaccharide could be increased by its covalent attachment to carrier proteins.

On December 22, 1987, the first conjugate vaccine was licensed by the FDA for the prevention of infections due to Haemophilus influenzae type b. This vaccine, which continues to be used today, is a conjugate of Haemophilus influenzae type b capsular polysaccharide and diphtheria toxoid and is officially designated as Haemophilus b conjugate vaccine (diphtheria-toxoid-conjugate) (Plotkin et al., 1988). Conjugate vaccine was developed with the ultimate goal of providing an effective vaccine for infants and younger children (Robbins, 1986). The Immunization Practices Advisory Committee (ACIP) for the CDC recommends that children receive conjugate vaccine at 18 months of age (CDC, 1988).

Studies over the last decade have suggested that the risk of acquiring Hib disease for children under 5 years of

age appears to be greater for those who attend day-care centers than those who do not (Cochi et al., 1985; Redmond & Pichichero, 1984). Redmond and Pichichero's study examined the incidence and risk factors of Hib disease both in the general population and in day-care attendees in Monroe County, New York, for 1982 and 1983. To ensure collection of all cases, the Monroe County Disease Control Unit used an active telephone surveillance system whereby all medical care providers, hospitals, schools, and medical diagnostic laboratories in the county were contacted weekly for reportable diseases. The study involved 44,289 children in the general population and 10,048 children in day-care center settings. The relative risk for day-care attendees was found to be much greater than that of the general population (Redmond & Pichichero, 1984).

Cochi et al. (1985) conducted a population-based case-control study of risk factors for primary invasive Hib disease in metropolitan Atlanta from July 1, 1983 through June 30, 1984. Active surveillance identified 102 cases in children < 5 years of age. Fifty percent of all invasive Hib disease that occurred during the data collection period was attributable to exposure to day care; the attributable risk for household crowding was 18% (p. 887).

There is little debate about the increased risk for primary invasive Hib disease in association with day-care center attendance. Estimates of the increased risk, based

on studies by Cochi et al. (1985) as well as Redmond and Pichichero (1984) can be summarized by age group as follows: (a) age < 12 months, 12-fold increase in risk; (b) age 12-23 months, 5 to 7-fold; (c) age 24-35 months, 2.7 to 3.8-fold; and (d) age 36-59 months, 1.4 to 2.3-fold. While immunization is not currently available for children under age 18 months, children age 18 months and older who enroll in day-care centers clearly should be immunized against Hib infection (State of California - Health and Welfare Agency, 1988).

In 1988 the Committee on Infectious Diseases for the American Academy of Pediatrics reported that no increased incidence of Hib disease during the first 2 weeks postimmunization with Hib vaccine had been demonstrated. However, Hib vaccine cannot be expected to be protective during the first 1 to 2 weeks after immunization until antibody formation occurs (Plotkin et al., 1988). More than 120,000 doses of Hib vaccine were administered to more than 30,000 individuals 2 months of age or older, the majority of whom were Finnish. Subsequently, no serious adverse reactions have been observed other than those attributable to simultaneous administration of diphtheria-tetanus-pertussis (DTP) vaccine (Plotkin et al., 1988, p. 908). Studies conducted by Berkowitz (cited in Campion & Casto, 1988) in the United States in 1987 showed that when Hib vaccine was given alone to more than 1000

infants and children, no serious adverse reactions were observed.

Conceptual Framework

Orem's conceptual framework of self-care was used as a guide for this comparative teaching strategy study. Orem's model focuses on each individual's ability to perform self-care, defined as "the practice of activities that individuals initiate and perform on their behalf in maintaining life, health, and well-being" (Orem, 1985, p. 35). The goal of nursing, according to Orem, is to help people meet their therapeutic self-care demands. Orem's supportive-educative nursing system is of particular importance because the nurse assists the client in making decisions and acquiring skills and knowledge (Orem, 1985).

The client in this research study is the parent of the child in day care. Orem (1985) states that the supportive-educative system is for situations where the client is able to perform, or can and should learn to perform, required measures of externally or internally oriented therapeutic self-care, but cannot do so without assistance. It is the only system where a client's requirements for help are confined to decision making, behavior control, and acquiring knowledge and skills (Orem, 1985, p. 156).

Based on Orem's supportive-educative system, nurses have the responsibility of teaching their clients about

preventable contagious diseases. Due to Hib's high morbidity and mortality, and the recent development of a conjugate vaccine to prevent Hib disease, education directed at parents is necessary to encourage vaccination of their children. Parents informed about Hib disease and vaccine, hopefully will make the decision to vaccinate their children against Hib and prevent its spread.

Health educators, which included all health professionals referred to in this study's literature review, did not state if they used Orem's theoretical framework in the course of their research. For this study, Orem's supportive-educative system framework was particularly relevant because the long-term goal of this research was to educate clients to promote behavioral changes.

Learning Theories

Patient awareness is gaining momentum, which should lead to even more patient demands for information regarding health care (Glen, 1980). Glen states that the problem to be solved is one of educating and transferring knowledge in an acceptable and efficient manner.

The nurse educator should assess which learning domain will be utilized when developing a teaching plan to be implemented. With this assessment, learning objectives are developed from the three learning domains: cognitive, psychomotor, and affective. The cognitive domain deals

with what a student knows, understands, or comprehends (Merrill & Goodman, 1972). The psychomotor domain is concerned with how a student moves or controls his body; and affective domain considers how a student feels intellectually and/or emotionally.

In this study, the cognitive domain applied to the transfer of information from nurse to client. Stanton (1985) stated that nurses, as the largest group of health providers, are in a unique position to "sell" good health habits to consumers. However, with current medical costs cutbacks, nursing in the 90s may not allow the time for client teaching as it did in the past. The luxury of long teaching sessions has disappeared (Ruzicki, 1987). Forgay (cited in Nielsen & Sheppard, 1988) has stated that as the work load increases and the average length of office visit decreases, the more labor intensive methods of one-to-one teaching presentations are no longer possible. The rising costs of health care mandates that program developers must carefully allocate the resources that they have in the most efficient manner to clients and community, as well as to the organization (Stanton, 1985). Increased productivity and decreased costs are as applicable to client education as they are to any business venture (Foster, 1986).

Client education has been facilitated in many ways. In particular, guidelines established by Durand and Counts (1986) have proven to be useful for developing programs for

client education. As such, the following guidelines were used:

1. The language should not exceed fifth grade level, except for technical terms that a client would routinely hear.

2. No program should exceed 10 minutes in length.

3. The content should be current, factual, and appropriate to the educational level of the audience.

4. Each program format should help to capture the audience's interest.

5. The concepts of each program should be reinforced with written material (p. 158).

A video tape is a useful and innovative tool to incorporate these guidelines. Video tapes can decrease costs for long-term programs. On the other hand, written information may shorten and enhance the use of personnel time, and is less expensive to produce (Foster, 1986). Therefore, both tools were used and compared in this study.

The task of the nurse as client-educator can be augmented by the use of video tapes. Nurses would be relieved of this often tedious and repetitive task, which would free them to individualize instruction and perform other duties. Video technology offers flexibility, and warrants thorough investigation. Durbach and Nendick (1986) reported that for some clients a picture is worth many words: "on busy days the nurses can assemble groups

of clients and then show the appropriate tapes while they do other nursing duties, returning to answer questions" (p. 23).

Video tape offers an economical and entertaining mode of audiovisual education (Gagliano, 1988). After a modest initial investment (less than $2,000 can buy a videorecorder, television monitor, and five 15-minute tapes), the cost of an ongoing patient education program is negligible (Gagliano, 1988, p. 785). Based on a literature review on video and occupational therapy, Holm (1983) suggested that video be incorporated as a medium in occupational therapy to restore, reinforce, and enhance patient performance (p. 531). Holm believed that video has the capability of being the preferred "medium" in many situations because of its familiarity, believability, intimacy, immediacy, cost-effectiveness, availability for home use, ability to portray motion, and its proven effectiveness (p. 534). Use of video program assures a standard level of teaching and a consistent core of information not subject to the varying abilities or opinions of different educators. Siegel and Meluhan (1973) stated that material which requires significant demonstrations would tend to educate students more effectively in a visual medium rather than the auditory or printed material approaches (p. 68).

In order to define the efficacy and limitations of

video, Gagliano (1988) reviewed 25 methodological-sound studies on the use of video in client education.

> Through video it is possible to reach a larger audience and perhaps even to have greater individual impact than through traditional reading--or lecture-oriented methods of patient education. Because of the high rate of functional illiteracy in the United States, client education may be fruitless. Even among the literate, United States society is more and more oriented toward viewing than toward reading, as evidenced by the many hours the average family spends watching television, the tremendous investment in visual advertising, and the popularity of music videos. (Gagliano, 1988, p. 786)

The auditory and visual messages in a video tape can be repeated for one client, for different clients, or for a series of group classes, greatly enhancing the teaching effectiveness of a single presentation (Pace et al., 1981). The standardization of information on video tapes also assures that the same information is being presented. Video tapes have the advantage of disseminating information more efficiently in less time than lectures (Minton, 1983). The absence of interruptions from the audience contributes to this advantage.

Limitations of video technology were addressed by Chu and Schramm (1967). Although video technology has

significantly improved since their critique, two limitations still remain. Teaching via the screen is essentially a one-way communication. Also, because the instructor is talking to a camera, instead of directly to students, the opportunity for audience feedback and interaction is lost. However, Bracken, Bracken, and Landry (1977) have suggested that personal contact with the teacher may be desirable but not essential to educational objectives. As an attempt to resolve the interaction issue, Minton (1983) conducted a study to determine which of two educational methods was more effective in teaching bowel and bladder management to patients with traumatic spinal cord injuries. The methods compared were (a) the use of video tapes followed by discussion and (b) the use of lecture and visual aids followed by discussion. Fourteen spinal cord patients participated in the study, seven in each group. Minton's findings showed that, in general, no significant differences were found when video tape instruction was compared with face-to-face, live instruction (p. 16).

Gaglilano's (1988) literature review on the efficacy of video in client education concluded that video is as good as and often more effective than traditional methods of patient education in increasing short-term knowledge. Gaglilano further stated that video offers no advantage, however, in improving long-term retention of knowledge or

in promoting compliance with medical regimens. An earlier study by Moldofsky, Broder, Davies, and Leznoff (1979) supported Gagliano's conclusion, "Video education is no better and no worse than other methods in promoting long-term retention" (p. 671). They compared learning between two groups of adults with asthma, one showed a video and one receiving usual outpatient instruction. The video group learned more. However, when these same asthma patients were tested 16 months after seeing the video, the patients' knowledge scores had fallen to those of the control group.

Nielsen and Sheppard (1988) reviewed 33 studies published in the decade 1975-1985 on the use of television as a patient-education process. All but one of the studies reported achieving their objective of knowledge gain, skill training, or behavior change. Nielsen and Sheppard concluded that video presentation alone was as effective as any other presentation method and was more effective than only written information (p. 3).

In summary, client education is as important as always. Nurses and physicians need to incorporate client teaching in their everyday practices. To accomplish this educational endeavor, they must consider what teaching strategy is the most affordable, and at the same time effective, for their clients. The pros and cons of learning from video tape viewing versus reading material

have been presented in this literature review. Perhaps this research study will enable health care professionals to utilize the most effective teaching strategy for parents of children in day-care centers about Hib disease and vaccine.

Chapter 3

METHODS

The sample, design, variables, and collection techniques are described in relation to the question, "Do parents of children in day care learn more about Hib disease and vaccine by viewing a video tape or by reading a teaching brochure?"

Hypothesis

Parents of children in day care who view a video tape about Hib disease and vaccine will score significantly higher on the posttest than those who read the teaching brochure.

Method

Parents were divided into three random groups:

1. Control group - completed the pre- and posttest only (Appendix E).

2. Teaching brochure group - completed the pretest, read the teaching brochure, and completed the posttest.

3. Video group - completed the pretest, viewed the video tape, and completed the posttest.

The entire procedure took approximately 10 minutes. The pre- and posttests were identical and consisted of 10 true/false questions. The data consisted of correct answers versus incorrect answers about Hib disease and vaccine from the pre- and posttests derived from material

in the teaching brochure and video tape. The possible range of scores on the pre- and posttest was 0-10.

The parents who participated in the study were instructed at the top of the tests not to put their name on the exams to insure participant confidentiality. Each pre- and posttest was assigned a coded number to identify that both tests belonged to the same parent and to ensure confidentiality. The setting for this study was three public and two private day-care centers in Santa Cruz County, California. Age, education, sex, ethnicity, marital status, and occupation did not exclude parents from participating in this study; however, since all the elements of the study were in English, non-speaking English parents were not able to participate.

Sample

The convenience sample consisted of 90 parents of children who attend day-care centers in Santa Cruz County. Ninety parents were used because of a suggestion by LoBiondo-Wood and Haber (1986) that (a) the larger the sample, the more representative of the population it is likely to be; smaller samples produce less accurate results, and (b) it is generally recommended that a sample size of 30 be selected for each subset of the data, or cell of the design. Parents were approached by the researcher while they were at their child's day care. The parents were asked if they wanted to participate in the study; if

they said yes they were assigned to a group, if they declined they were not assigned to a group. Group assignment was divided as evenly as possible between the 5 day-care centers.

There were very few risks, if any, in the study. To minimize risks, each parent in the study received a copy of the Bill of Rights for Experimental Subjects (Appendix F) as well as a copy of the informed consent (Appendix D) prior to participating in the study. The informed consent explained that parents would remain anonymous throughout the study, that no compensation would be given for participating and that parents could refuse to participate and may withdraw at anytime, without prejudice to their relations with San Jose State University or the day-care center their child was attending.

Some of the participants tested while they were attending an evening parent/teacher meeting, but most parents tested at their child's day care while it was in session. After completing the pre- and posttest, the parents in the control group were given the teaching brochure and the opportunity to watch the video at that time. A possible inconvenience to the parents who participated in the study was trying to simultaneously read the teaching brochure or view the video while tending their child. A potential benefit to these parents was the increased knowledge gained about Hib disease and vaccine

derived from either viewing the video or reading the teaching brochure.

Design

The design was quasi-experimental because it had a control group, a pre- and posttest, independent variables, and showed a cause-effect relationship. Random sampling, also a criterion for quasi-experimental designs, was limited by the convenience sampling approach to the study. The design was chosen because it fit the problem to be studied.

Variables

The independent variable was the teaching strategy used; that is, video tape viewing versus a teaching brochure (Appendixes A and B). The dependent variable was the compiled pre- and posttest results of the three groups. Control of the independent variables was accomplished by using the same video tape and the same teaching brochure for all subjects being tested.

Collection Techniques

Written consent was obtained by the researcher from participating day-care centers (Appendix C) and parents (Appendix D) before the study was initiated. The pretest was administered to determine the parents' knowledge base regarding Hib disease and vaccine. The posttest was administered to measure the effectiveness of the teaching strategy used. Identical pre- and posttests were given to

subjects regardless of group assignment. The two tests for this study were pretested with six registered nurses (holding Associate Degrees in Nursing), who were also parents of children in day care, to determine whether the pre- and posttests were an acceptable and valid instrument of measure.

Both content and face validity were considered by the colleagues taking the tests. Content validity logically concludes whether or not the test content comprises an adequate definition of what it claims to measure (Isaac & Michael, 1983). Face validity is used to indicate whether the instrument, on the face of it, appears to measure what it claims to measure (Isaac & Michael, 1983, p. 119). Prior to taking the posttest, half the reviewers read the teaching brochure and the other half read the Hib video tape script, since the Hib video had not yet been produced. These nurses agreed that the test was an effective tool to measure information about Hib disease and vaccine that was presented in the teaching brochure and video tape.

Chapter 4

ANALYSIS AND INTERPRETATION OF DATA

This study addressed the question of which teaching strategy would be more effective in teaching parents of children in day care about Hib disease and vaccine: reading a teaching brochure or viewing a video? A quasi-experimental design using pre- and posttesting was used to test the stated hypothesis.

Parents consenting to the study were assigned to one of three groups tested: the video group (n = 30), the teaching brochure group (n = 30), and the control group (n = 30). Table 1 shows pre- and posttests' mean and gain scores of the three groups. The pretest mean scores disclosed a narrow range, from 7.6 to 7.9. The posttests' mean gain scores revealed that both the teaching brochure and video group scored higher than the control group.

Table 1

Mean Scores of Control, Brochure, and Video Groups

		Pretest		Posttest		Gain	
Group	n	M	SD	M	SD	M	SD
Control	30	7.6	1.7	7.7	1.7	.2	1.0
Brochure	30	7.6	1.6	9.6	.8	2.0	1.7
Video	30	7.9	1.5	9.7	.5	1.7	1.5

Next, the mean gain scores of the three groups were analyzed utilizing ANOVA as shown in Table 2. The F ratio was found to be 14 with $p < .05$. Thus, significant differences between group mean gain scores existed.

The Scheffé multiple comparison procedure was used to find significant differences among group mean gain scores. It was determined that the group which received no teaching (control) learned significantly less that the groups that received either the brochure or video teaching strategies. Results showed no difference in learning between the two groups exposed to either teaching strategy.

Table 2

ANOVA Summary Table of Gain Scores for Control, Brochure, and Video Groups

Source	df	SS	MS	F
Between	2	57.48	28.74	14*
Within	87	179.00	2.05	
Total	89	236.48		

*$p < 0.05$

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Finding ways to educate clients is a challenge in today's health industry. Two teaching strategies were compared in this study with the purpose of finding out which strategy was more effective in teaching parents of children in day care about Hib disease and vaccine: viewing a video or reading a teaching brochure.

Summary

Ninety parents from five day-care centers in Santa Cruz County participated in this study. Parents took the pretest and depending upon which group they were in, watched the video, read the brochure, or received no information, then took the posttest. After completing the pre- and posttest, parents who were in the control group were given the brochure and given the opportunity at that time to watch the video, so they also benefited from their participation in the study.

Conclusions

The Scheffé multiple comparison procedure was used to test the following hypothesis: Parents of children in day care who view a video about Hib disease and vaccine will score significantly higher on the posttest than those who read the teaching brochure. There was no significant difference in learning between the two teaching strategies,

therefore the hypothesis was not supported. There was a significant difference between the control group and the teaching strategy groups. This study did support that video tape viewing is comparable to reading a teaching brochure.

Recommendations

There are three recommendations that are applicable for future researchers. They are: (a) five additional questions testing at a higher cognitive level (e.g., application of knowledge and analysis of data) might be added to the pre- and posttests, thus improving content validity; (b) the sample population might consist of parents of firstborns who have no previous knowledge of Hib disease and vaccine to improve face validity of the pre- and posttests; and (c) parents under the stress of dropping off or picking up their child at day care might be excluded from the sample. In order to reach this target population, parents could receive the Hib information and be tested while registering their child for the day-care center or while attending a parent/teacher meeting of the day-care center. Testing parents without their child present would ensure a more relaxed environment.

Since both teaching strategies are equal, the Santa Cruz County Health Department and Santa Cruz pediatricians can choose which strategy best fits their needs and their clients' needs. The ideal would be to offer both

strategies in order that the clients' learning preference is addressed and met.

REFERENCES

References

Bracken, M. B., Bracken, M., & Landry, A. (1977). Patient education by video tape after myocardial infarction: An empirical evaluation. Archives of Physical and Medical Rehabilitation, 58, 213-229.

Campion, J. J., & Casto, D. T. (1988). Haemophilus influenzae type b--conjugate vaccine. Journal of Pediatric Health Care, 2(4), 215-217.

Centers for Disease Control (1988). Update: Prevention of Haemophilus influenzae type b disease. Morbidity and Mortality Weekly Report, 37, 13-16.

Chu, G. C., & Schramm, W. (1967). Learning from television: What the research says. Palo Alto, CA: Stanford University.

Cochi, S. L., Broome, C. V., & Hightower, A. W. (1985). Immunizations of U.S. children with Haemophilus influenzae type b polysaccharide vaccine. Journal of the American Medical Association, 253, 521-529.

Cochi, S. L., Fleming, D. W., Hightower, A. W., Limpakarnjanarat, K., Facklam, R. R., Smith, J. D., Sikes, R. K., & Broome, C. V. (1985). Primary invasive Haemophilus influenzae type b disease: A population-based assessment of risk factors. Journal of Pediatrics, 108(6), 887-896.

Davis, A., & Bull, G. (1986). Haemophilus influenzae type b vaccine. Physician Assistant, 10, 16-28.

Durbach, E., & Nendick, P. (1986, April). No frills patient education. Canadian Nurse, pp. 21-23.

Durrand, R. P., & Counts, C. S. (1986). Developing audio-visual programs for patient education. Journal of American Nephrology Nurses Association, 13(2), 158-159.

Foster, S. D. (1986). Patient education: Implementation. Maternal Child Nursing, 11, 201.

Gagliano, M. E. (1988). A literature review on the efficacy of video in patient education. Journal of Medical Education, 63, 785-791.

Glen, V. H. (1980). Patient involvement utilizing video cassettes. Ontario Dentist, 57(8), 20-21.

Granoff, D. M. (1980). Spread of Haemophilus influenzae type b: Recent epidemiologic and therapeutic consideration. Journal of Pediatrics, 97, 854-860.

Holm, M. B. (1983). Video as a medium in occupational therapy. American Journal of Occupational Therapy, 37, 531-534.

Isaac, S., & Michael, W. B. (1983). Handbook in research and evaluation. San Diego: Edits.

Katz, S. L. (1986). A public health breakthrough (An Overview). Durham, NC: Clinical Monograph.

LoBiondo-Wood, G. & Haber, J. (1986). Nursing research. St. Louis: Mosby.

Minton, P. N. (1983). Video tape instruction: An effective way to learn. Rehabilitation Nursing, 8, 15-17.

Merrill, D. M., & Goodman, R. I. (1972). Selecting instructional strategies and media: A place to begin. Salt Lake City: Brigham Young University.

Moldofsky, H., Broder, I., Davies, G., & Leznoff, A. (1979). Videotape educational program for people with asthma. Canadian Medical Association Journal, 120, 669-672.

Mosby, C. V. (1983). Mosby's medical and nursing dictionary. St. Louis: Author.

Nielsen, E., & Sheppard, M. A. (1988). Television as a patient education tool: A review of its effectiveness. Patient Education and Counseling, 11, 3-16.

Orem, D. E. (1985). Nursing: Concepts of practice. New York: McGraw Hill.

Pace, P. W., Henske, J. C., Whitfill, B. J., Andrews, S., Russell, M. L., Probstfield, J. L., & Insull, W. (1981). Producing video cassette programs for diet instruction. Perspective in Practice, 79, 689-692.

Plotkin, S. A., Daum, R. S., Giebink, G. S., Hall, C. B., Lepow, M., Marcuse, E. K., McCracken, G. H., Phillips, C. F., Scott, G. B., & Wright, H. T. (1988). Haemophilus influenzae type b conjugate vaccine. Pediatrics, 81(6), 908-911.

Redmond, S. R., & Pichichero, M. E. (1984). Haemophilus influenzae type b disease: An epidemiologic study with special reference to day-care centers. Journal of the American Medical Association, 252, 2581-2584.

Robbins, J. B. (1986). Newer vaccines. Infections in Medicine Supplement, 12-16.

Ruzicki, D. A. (1987). Taking patient education out of the textbook and into the realm of possibility. Promoting Health, 8(6), 8-9.

Siegel, L. J., & Meluhan, H. B. (1973). Mass media and education. Journal of Experimental Technology, 41, 68-70.

Stanton, M. P. (1985). Patient and health education: Lessons from the marketplace. Nursing Management, 16(4), 26-30.

State of California - Health and Welfare Agency. (1988). Invasive Haemophilus influenzae type b infection: Another perspective on the use of rifampin in day-care centers (DHS 8266). California Morbidity, #30.

APPENDIX A

Hib Teaching Brochure

HAEMOPHILUS INFLUENZAE b

IS YOUR CHILD UNDER FIVE YEARS OF AGE?

DOES YOUR CHILD ATTEND DAY CARE?

HAS YOUR CHILD RECEIVED THE

HAEMOPHILUS INFLUENZAE b VACCINE?

Public Health Information

Provided by

Peggy Todd, PHN

Santa Cruz, California

June, 1989

Haemophilus influenzae b (Hib) is not a flu virus. It is a bacterial infection that is the leading cause of bacterial meningitis in children under five years of age. Meningitis is an infection and inflammation of the covering of the brain and spinal cord. Hib can also cause other serious diseases, such as:

Epiglottitis - a very severe swelling of the lower throat that can cause obstruction of breathing and may require hospitalization and even surgery.

Pericarditis - an infection and inflammation of the lining of the heart.

Septic arthritis - painful, inflamed, and infected joints.

Pneumonia - an inflammation and infection of the lungs, making breathing difficult.

Cellulitis - an infection and swelling of the skin which can spread to all parts of the body.

1 in 200 children in the first five years of life develop Hib disease.

More than half develop meningitis and of these children, **5% die.**

Neurologic impairment, such as hearing loss, sight impairment, speech disorders, and decreased thinking capabilities, are observed in **25-35%** of Hib meningitis survivors.

Children attending **day-care centers** are at high risk for Hib.

Recommended to be given at **18 months of age**, at present there is no effective vaccine for children under age 18 months.

Possible side effects from the vaccine: With the Hib vaccine, some children may develop some local swelling and redness for generally no more than 24 hours. Temperatures of 101^0 F have occurred in up to 13% of vaccinated children 24 hours after vaccination.

Warnings: Some children should not take the Hib vaccine without checking with a doctor.*

*Anyone who is sick right now with something more serious than a cold.

*Those with cancer, leukemia or lymphoma.

*Those with diseases that lower the body's resistance to infection.

*Those taking drugs that lower the body's resistance to infection, such as cortisone, or other steroids.

For more information about Hib disease and vaccine, call your family physician, pediatrician, or the Santa Cruz County Health Department's Immunization Clinic.

APPENDIX B

Hib Video Tape Script

HIB VIDEO TAPE SCRIPT

by

Peggy Todd, PHN

Kaki: Hello, I'm Kaki Moyce and with me today on CHILDREN'S HEALTH is Peggy Todd who is a public health nurse who specializes in immunizations for childhood diseases. Our focus today is the Haemophilus influenzae b vaccine, commonly called the Hib vaccine. Peggy, before you tell us about the Hib vaccine, maybe you could tell us about the disease --Haemophilus influenzae - it sounds like the flu.

Peggy: That's what many parents think. It's easy to confuse, because of its' name, but is is not the flu, the common flu is a virus and Haemophilus influenzae b is a bacterial infection. Haemophilus influenzae b causes many serious bacterial diseases in young children. In fact, it is the most common cause of bacterial meningitis (about 12,000 cases a year) and it can also cause epiglottitis, cellulitis, septic arthritis, pericarditis, and pneumonia. Let me briefly describe what these other serious diseases are:

Epiglottitis is a very severe swelling of the lower throat that can cause obstruction of breathing and may require hospitalization and

even surgery.

Pericarditis is an infection and inflammation of the lining of the heart

Meningitis is an infection and inflammation of the covering of brain and spinal cord.

Sepsis arthritis is painful inflamed and infected joints.

Pneumonia is an inflammation and infection of the lungs making breathing difficult.

Cellulitis is an infection and swelling of the skin which can spread to all parts of the body.

All of these diseases can lead to death.

Kaki: How many of our toddlers and pre-schoolers will come down with the Hib disease?

Peggy: During the first five years of life, every American child has a 1 in 200 chance of developing systemic Hib disease. About 60% of these children have meningitis and 40% have one of the other serious diseases.

Kaki: Is there a possibility that infants and toddlers die from Hib disease?

Peggy: Yes, the mortality from meningitis is 5% and permanent neurological impairments are observed in 25-35% of survivors.

Kaki: What do you mean by a neurological impairment?

Peggy: This could mean many things, but some common neurological impairments are hearing loss, sight impairment, speech disorders, and decrease in thinking capabilities.

Kaki: Which children are at the greatest risk for getting this disease?

Peggy: Children attending day-care centers significantly increase the risk of developing the Hib disease.

Kaki: Well, it sounds like the Hib vaccine is a good vaccine for our kids. How long has it been available?

Peggy: The Hib vaccine has been in the testing stages for about 12 years and is now approved for use in the United States. It is recommended to be given at age 18 months.

Kaki: Where can we get this vaccine?

Peggy: You can get it at any pediatricians office or family physicians office or at your local County Health Department's immunization clinic.

Kaki: Are there any side effects from the vaccine?

Peggy: With the Hib vaccine some children may develop some local swelling and redness for generally no more than 24 hours. Temperatures of 101 degrees F have occurred in up to 13% of vaccinated children 24 hours

after vaccination.

Kaki: Are there some children who should not get the Hib vaccine?

Peggy: Yes, some children should not take Hib vaccine without checking with a doctor. Examples are children who are sick right now with something more serious than a cold. Children with cancer or leukemia or lymphoma. Children with diseases that lower the body's resistance to infection; and children taking drugs that lower the body's resistance to infection, such as cortisone, or other steroids.

Kaki: Peggy, thank you for sharing this important information with us today.

Peggy: Thank you for having me, I hope this information has been helpful to the parents of infants and toddlers.

APPENDIX C

Day-Care Center Consent Form

AGREEMENT TO PARTICIPATE IN RESEARCH AT SAN JOSE STATE UNIVERSITY

Responsible Investigator: Peggy Todd, PHN

TEACHING METHODOLOGY STUDY

Peggy Todd has permission to conduct research at:

_____

to answer the question: Do parents of children in day care learn more information about routine immunizations by use of video tape viewing or by use of teaching brochure? The results of this study should further our understanding of the most effective teaching methodology to use for instructing parents about vaccinations. The researcher will implement the study and absorb all costs of the study. It will not require additional staff time of this facility. The study will be conducted over the next 10 months, February - November 1989.

_____

_____,1989

APPENDIX D

Participant Consent Form

AGREEMENT TO PARTICIPATE IN RESEARCH AT SAN JOSE STATE UNIVERSITY

Responsible Investigator: Peggy Todd, PHN

TEACHING METHODOLOGY STUDY

I have been asked to participate in a research study that is investigating the question: Do parents of children in day care learn more information about routine immunizations by use of video tape viewing or by use of a teaching brochure? The results of this study should further our understanding of the most effective teaching methodology to use for instructing parents about vaccinations.

I understand that:

1) I may be asked to complete an anonymous pre- and posttest to be returned in a sealed envelope to the researcher. I may also be asked to view a video or read a teaching brochure. Total time for my participation should be less than 10 minutes.

2) A possible inconvenience that might be expected is trying to read the brochure or view the video while tending my child.

3) A possible benefit of this study to me is receiving more information about children's diseases and vaccines.

4) The results from this study may be published, but my identity will remain anonymous throughout this study and in no way will affect my privacy or my family's privacy.

5) I will receive no compensation for my participation in this study.

6) Any questions about my participation in this study will be answered by Peggy Todd (408)476-9180. Complaints about the procedures may be presented to Terry Miller, graduate advisor(408)924-3171, or Dr. Bobbye

Gorenberg, graduate coordinator (408)924-3175. For questions or complaints about research subject's rights, or in the event of research-related injury, contact Serena Stanford, Ph.D. (Associate Academic Vice President for Graduate Studies) at (408)924-2480.

7) My consent is given voluntarily without being coerced; I may refuse to participate in this study or in any part of this study, and I may withdraw at any
time, without prejudice to my relations with San Jose State University or the day-care center my child is attending.

8) I have received a copy of this consent form for my file.

I HAVE MADE A DECISION WHETHER OR NOT TO PARTICIPATE. MY SIGNATURE INDICATES THAT I HAVE READ THE INFORMATION PROVIDED ABOVE AND THAT I HAVE DECIDED TO PARTICIPATE.

_____ _____

DATE SUBJECT'S SIGNATURE

_____

INVESTIGATOR'S SIGNATURE

APPENDIX E

Hib Pre- and Posttests

V-Pretest-00

Do not write your name on this paper. When you are finished with the test, please place it in the box labeled Pretest.

Circle T for true or F for false, for each statement about the Haemophilus influenzae b (Hib) disease and vaccine.

1. T F Hib vaccine is a vaccine against the flu.

2. T F Hib is a bacterial infection that can cause bacterial meningitis and several other serious diseases.

3. T F Meningitis is an infection and inflammation of the covering of the brain and spinal cord.

4. T F Hib is the most common cause of bacterial meningitis.

5. T F During the first 5 years of life, every American child has a 1 in 200 chance of developing systemic Hib disease.

6. T F Children do not die from the Hib disease.

7. T F Neurological impairments, such as hearing loss, sight impairments, and speech disorders, are observed in 25-35% of Hib meningitis survivors.

8. T F Children attending day-care centers significantly increase the risk of developing the Hib disease.

9. T F There is a Hib vaccine for children under the age of 18 months.

10. T F If your child is attending day care, it is recommended that the Hib vaccine be given at 18 months of age.

V-Posttest-00

Do not write your name on this paper. When you are finished with the test, please place it in the box labeled Posttest.

Circle T for true or F for false, for each statement about the Haemophilus influenzae b (Hib) disease and vaccine.

1. T F Hib vaccine is a vaccine against the flu.

2. T F Hib is a bacterial infection that can cause bacterial meningitis and several other serious diseases.

3. T F Meningitis is an infection and inflammation of the covering of the brain and spinal cord.

4. T F Hib is the most common cause of bacterial meningitis.

5. T F During the first 5 years of life, every American child has a 1 in 200 chance of developing systemic Hib disease.

6. T F Children do not die from the Hib disease.

7. T F Neurological impairments, such as hearing loss, sight impairments, and speech disorders, are observed in 25-35% of Hib meningitis survivors.

8. T F Children attending day-care centers significantly increase the risk of developing the Hib disease.

9. T F There is a Hib vaccine for children under the age of 18 months.

10. T F If your child is attending day care, it is recommended that the Hib vaccine be given at 18 months of age.

APPENDIX F

Experimental Subjects Bill of Rights

EXPERIMENTAL SUBJECTS

BILL OF RIGHTS

The rights below are the rights of every person who is asked to be in a research study. As an experimental subject I have the following rights:

1) To be told what the study is trying to find out,

2) To be told what will happen to me and whether any of the procedures, drugs, or devices is different from what would be used in standard practice,

3) To be told about the frequent and/or important risks, side effects, or discomforts of the things that will happen to me for research purposes,

4) To be told if I can expect any benefit from participating and, if so, what the benefit might be,

5) To be told the other choices I have and how they may be better or worse than being in the study,

6) To be allowed to ask any questions concerning the study both before agreeing to be involved and during the course of the study,

7) To be told what sort of medical treatment is available if any complications arise,

8) To refuse to participate at all or to change my mind about participation after the study is started. This decision will not affect my right to receive the care I would receive if I were not in the study,

9) To receive a copy of the signed and dated consent form,

10) To be free of pressure when considering whether I wish to agree to be in the study.

If I have other questions I should ask the researcher. In addition, I may contact the Human Subjects Institutional Review Board, which is concerned with protection of volunteers in research projects. I may reach the committee by calling: (408) 924-1435 from 8:00 AM to 5:00 PM Monday through Friday, or by writing to the Human Subjects Institutional Review Board, San Jose State University Foundation, One Washington Square, San Jose, CA 95192-0139.

(Adopted from Committee on Human Research, UCSF) 5/14/86