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Date November '85

UTILIZATION OF AND SATISFACTION
WITH A PEDIATRIC TELEPHONE
MANAGEMENT PROGRAM

A Thesis

Presented for the
Master of Science in Nursing
Degree

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Helen Elizabeth Hoffmann Overton

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I would like to thank the Robert Wood Johnson Foundation for providing the opportunity for me to study at the University of Rochester, Rochester, New York, during 1981-82. The nurse faculty fellowship in primary care was designed by the foundation to promote teachers as clinical practitioners and investigators as well as educators. It was during this time that I gained skills as a pediatric practitioner and became interested in the problems of pediatric telephone management.

ABSTRACT

This study provided an analysis of telephone calls made to an urban, northeastern pediatric out-patient department. A descriptive analysis of 1 year's telephone data was undertaken to provide information regarding the reasons for telephone calls, age and sex of the child, time of call, season of the year, and disposition. Caretaker satisfaction with the pediatric practitioners' handling of the telephone calls was evaluated by means of a telephone questionnaire. This data can be used by nurse educators in planning curricular content related to telephone management for advanced pediatric nursing programs.

The child's age was the most discriminating factor in caretaker utilization of the telephone service. The most frequent calls were made during the child's first month of life and especially during the first week. Therefore knowledge of the newborn is imperative. The second week of life brought with it a fourfold increase in the number of well child questions and the need for anticipatory guidance regarding normal growth and development. Most calls were related to questions about well child guidance and respiratory, gastrointestinal, and dermatological problems. Providing anticipatory guidance, reassurance, and treatment at home accounted for the disposition of almost one half of the telephone calls. Most caretakers utilized the telephone service because their children were symptomatic and they perceived the situation as serious. Caretakers indicated high degrees of satisfaction with the practitioners' concern, empathy, and interest.

The results of the study supported the concept that telephone management is an integral part of any pediatric practice and requires a

combination of medical knowledge, interviewing skills, and patient education skills which should be included in advanced pediatric nursing programs.

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CHAPTER I

INTRODUCTION

From the time Alexander Graham Bell invented the telephone and expressed a need for help in his first message to Mr. Watson, this instrument has been used to convey needs and provide help. It has become a standard piece of equipment in the provision of comprehensive health care, but in the race for more sophisticated technology it is often taken for granted and its value overlooked.

During the last 20 years, the role of telephone management in the health care delivery system has been a subject of much discussion with a relatively small amount of research devoted to the topic. It is recognized that a significant part of any physician's day (and night) is spent in providing services via the telephone. This phenomenon is especially true for pediatricians. It is estimated that pediatricians spend 12.5% of their office time and 27% of their total practice time in telephone management (Perrin & Goodman, 1978). The pediatrician's willingness to accept phone calls has been found to be an important factor in pediatrician selection by parents (Fosarelli, 1983). Since most parents perceive evenings, nights, and weekends as a difficult time to obtain medical attention, pediatrician availability via the telephone is seen as their link to help if needed. Koffman and Merritt (1978) noted that "reassurance over the telephone often helps the problem wait until morning" (p. 1185). If a need is present during office hours it is assumed by parents that the acceptable and expected response is to call the office.

Pediatricians have devised various schemes to deal with the volume of their telephone calls. Some have special times set aside each day for nothing but telephone call management. Charging for calls has been tried. This scheme decreases the number of calls but it also decreases the number of clients in the practice (Heagarty, 1978). Others have "trained" a variety of personnel from experienced mothers known as pediatric health assistants to pediatric nurse practitioners to assume some of the responsibility (Katz, Pozan, & Mushlin, 1978; Strain & Miller, 1971; Thayer, 1984). This third option seems to work the best. In the study by Katz, et al. (1978), phone calls that the physician was required to handle personally decreased from an average of 25 to 3 calls per day. The rest of the calls were managed safely and with client satisfaction by pediatric health assistants (PHAs). The PHAs were trained by the pediatricians to perform telephone triage and give personal home care advice. In a typical day, the PHA gave home care advice to 30% of the callers, made appointments for same day care at the office for 45%, and referred 18% to talk directly with the pediatric nurse practitioner (PNP) or pediatrician. The time saved in having others answer common questions and manage minor illnesses frees the physician from interruptions while seeing patients and allows for more patients to be seen.

Even though paraprofessionals who receive training from physicians may be able to handle a certain number of phone calls, they do not have the educational background and experience needed to provide anticipatory guidance and health promotion. Clinical nurse specialists and PNPs are uniquely qualified to provide these services. These nurses provide

health education and support for parents in addition to management of common medical problems, thereby promoting self-care of the clients and cost-effective measures in the office (Thayer, 1984).

The pediatric clinical specialist or pediatric nurse practitioner has additional knowledge in physical assessment, pathophysiology, behavioral dynamics, nursing theory, and advanced clinical skills. However, in most advanced nursing programs there is little if any content offered in regard to telephone management (Goodman & Perrin, 1978; Heagarty, 1978; Katz, et al., 1978; Strasser, Levy, Lamb, & Rosekrans, 1979). These practitioners leave the educational setting and enter the real world of practice only to find that a major portion of practice will be done via the telephone and skills in this area have not been honed or even acquired. It is assumed that the practitioner will pick this skill up "on the job." There are a variety of books available that offer techniques in triaging telephone calls, and individualized protocols are produced by the practitioners in some settings.

These tools assist the practitioner in providing the technical phase of the telephone call which involves synthesizing information, making a diagnosis, providing practical advice regarding care, and making recommendations for follow-up. Few books discuss strategies for managing the expressive phase of the call. Perrin and Goodman (1978) refer to the expressive phase as the communication of warmth, empathy and interest in order to gain the patient's cooperation in the provision of his/her own care.

Information regarding the nature of telephone calls received from pediatric caretakers can be useful in identifying content which should

be included in educational programs for advanced practice in pediatric nursing. What are the most common health problems presented by parents over the phone? Do parents want to know about growth and development? How many calls are for anticipatory guidance or health promotion? What are the demographics of the children for whom calls are made? How are telephone calls managed? What types of dispositions are made? What is the level of caretaker satisfaction with telephone service? These questions form the basis of this study which describes: (1) the reasons for caretakers' telephone calls to pediatric health care providers, (2) the providers' responses to those calls, and (3) the caretakers' satisfaction with the responses.

With appropriate telephone management skills the nurse should be able to provide the client with a means of expressing a need or needs, and thereby enable the client to obtain the help requested. Ideally the client will utilize information attained to develop confidence in self-care and health promotion for transfer to similar future experiences.

Purpose of the Study

The purpose of the study was to provide a descriptive analysis of the telephone calls received in an urban hospital pediatric clinic over a 1-year period of time in order to determine: (1) the types of complaints (reasons for call) and the frequency of each complaint, (2) the disposition of the calls, (3) whether the relative frequency of complaints varied according to the age and sex of the child or the season of the year, and (4) the degree of caretaker satisfaction with

the health care providers' responses to the calls. This combined information provided data which can be used by faculty in advanced pediatric nursing programs to identify curriculum content related to telephone management.

Definition of Terms

Telephone management - The decision made by a pediatric practitioner to treat the child at home, see the child in the out-patient clinic, or send the child to the emergency department.

Pediatric practitioner - The pediatric resident, private pediatrician, pediatric nurse practitioner, nurse clinical specialist, medical or nursing fellow, and medical or graduate nursing student working in the pediatric outpatient clinic.

Telephone call - includes any call to the pediatric clinic made by a child's caretaker.

Technical phase of the telephone call - The part of the telephone conversation during which the pediatric practitioner synthesizes the information obtained, diagnoses the problem, and determines the disposition.

Expressive phase of the telephone call - The part of the phone call which involves the pediatric practitioner conveying warmth, empathy and interest to the caller in order to gain his/her cooperation in care management. This phase would traverse throughout the technical phase of the telephone call.

Caretaker - The person who assumes responsibility for the physical and mental health of a child.

Theoretical Framework

Disease prevention and health promotion are the ultimate goals of pediatric practitioners. Through the provision of a 24-hour telephone service for clients, pediatric practitioners are able to work toward both of these goals. The Health Belief Model (HBM) provides a theoretical framework for explaining the likelihood of an individual caretaker utilizing a telephone service which can lead to health promotion or disease prevention activities. The framework was developed in the early 1950s by a group of social psychologists. One of these men, I. M. Rosenstock (1966) proposed that whether or not an individual will undertake a recommended health action is dependent upon that individual's perceptions of: (1) the level of personal susceptibility to the particular condition, (2) the severity of the consequences if the condition is manifested, (3) the health action's benefits in terms of decreasing the susceptibility and/or severity of the threats, and (4) the barriers or costs related to starting or continuing the suggested health behavior. The resulting model (Figure 1) has been supported by the results of a variety of research efforts aimed at explaining and predicting individuals' health-related behaviors. At least nineteen studies using one or more of the HBM variables of perceived susceptibility, severity, benefits, or barriers have been summarized by Becker and Rosenstock (1984). There is a significant correlation between these variables and health-related behaviors.

In addition to the four main variables of the HBM, there are modifying factors that affect an individual's health-related behaviors. There must be a cue to action to trigger the behavioral response.

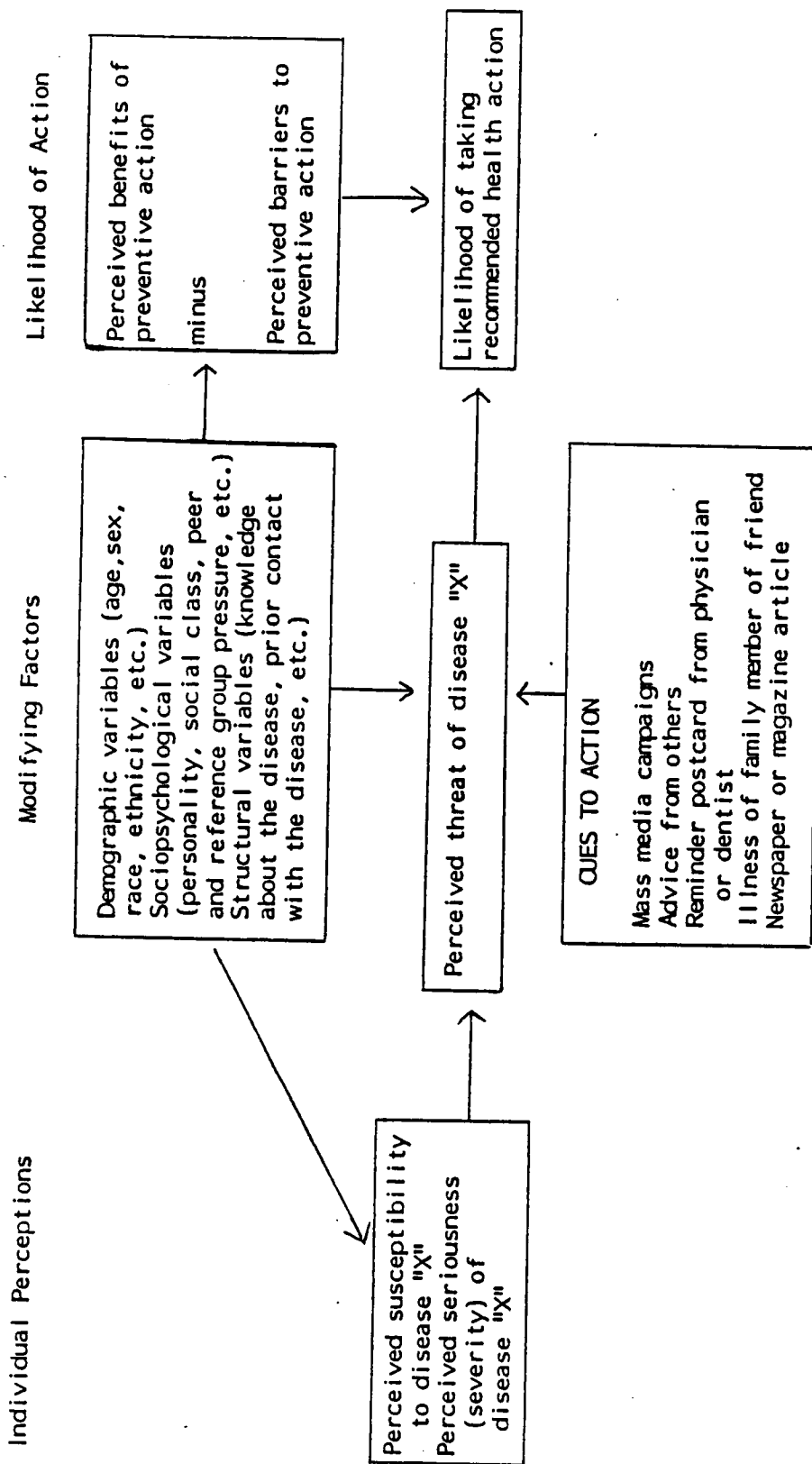


Figure 1. The Health Belief Model

Becker, M. H. & Rosenstock, I. M. (1984). Compliance with medical advice. In A. Steptoe & A. Mathews (Eds.), Health care and human behavior (p. 181). London: Academic Press.

This stimulus may be internal or external. An example of an internal stimulus is the presence of symptoms. External stimuli may come from the media, previous experiences, advice from others, or some other form of a reminder. While demographic, sociopsychological, and structural factors may affect behaviors, these modifying factors are not considered to be direct causes of the resultant health action (Beckner & Rosenstock, 1984).

The HBM can be adapted to explain factors which influence caretakers' utilization of a pediatric telephone service. Utilization of such a service can be viewed as a health behavior which has the potential to prevent disease as well as to promote health in the child. The cue to a caretaker's action to call will usually be an external stimulus represented by the child's internal stimulus displayed as symptoms such as fever and congestion, diarrhea, a trauma, and so forth. Other external cues may occur such as an article in the newspaper regarding the discovery of a new vaccine, or a relative suggesting that the call be made.

Regardless of the cue, the caretaker then weighs the four main variables of the HBM. Perceived susceptibility may be affected by how often the child becomes ill or whether there has been a recent exposure to a particular condition. The perceived severity is affected by the caretaker's assessment of the seriousness of the situation and likely effects of the situation on the child's future health status. These perceptions of susceptibility and severity plus the cue to action and some modifying factors such as demographic, sociopsychological, and structural variables all influence the perceived threat of the condition.

The caretaker then evaluates the perceived benefits of a telephone call in decreasing the perceived threat. These benefits might include control over the outcome of the condition, prevention of increased severity of the condition, a savings in money by obviating an office or emergency room visit, or the opportunity to disclose some other problems that may be occurring simultaneously in the home.

The caretaker then notes the possible barriers and compares them with the potential benefits. Some barriers might include the unavailability of a telephone, a language difference, or lack of communication skills. There may be a fear of failure to be able to follow directions, the home situation may be in chaos with other problems of greater magnitude, or there may be a poor relationship between the caretaker/child and pediatric practitioner. Taking these barriers into account, the caretaker then decides whether to call the pediatric practitioner. The call, if made, may result in disease prevention or health promotion through directions for self-care, an early diagnosis, a treatment plan, or suggestions for a rehabilitation program (Figure 2).

A goal of nursing is to assist clients in reaching their optimum level of functioning. Society expects adults to be responsible for their own well-being and to provide for their own self-care and the care of their dependents. The HBM provides a framework for understanding why caretakers utilize a telephone service and initiate a request for assistance in self-care. Dorothea Orem's self-care nursing model helps explain the factors necessary for a caretaker to initiate a request for assistance in self-care activities on behalf of the dependent child.

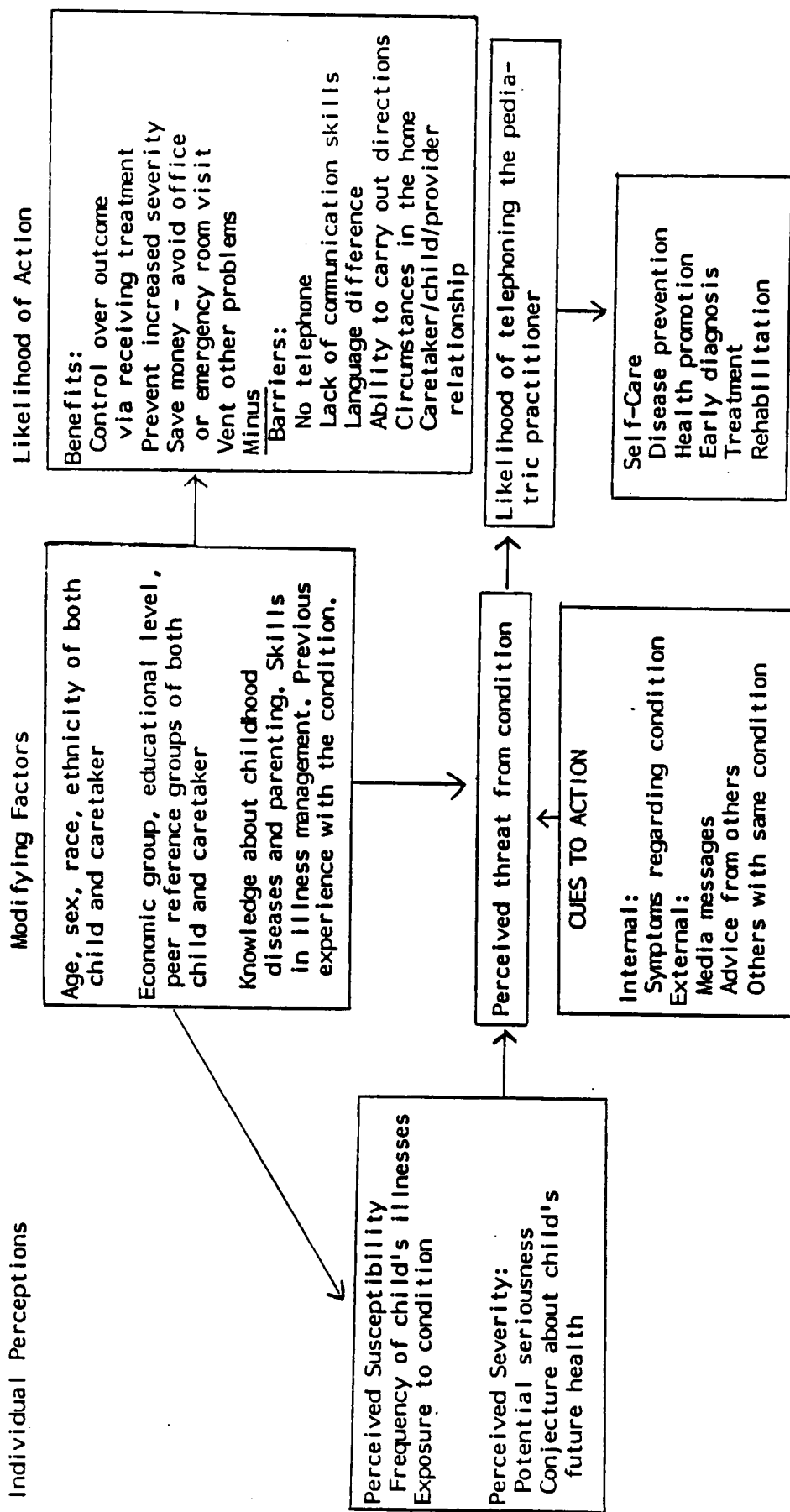


Figure 2. Adaptation of the Health Belief Model to Explain Caretakers' Decisions About Using a Pediatric Telephone Service and Initiating Self-Care Activities.
 Becker, M. H. & Rosenstock, I. M. (1984). Compliance with medical advice.
 In A. Steptoe & A. Mathews (Eds.), Health care and human behavior (p. 181).
 London: Academic Press.

Orem (1971) stated that "nursing has as its special concern man's need for self-care action and the provision and management of it on a continuous basis in order to sustain life and health, recover from disease and injury, and cope with their effects" (p. 1-2). Therefore the pediatric practitioner receiving a phone call from a caretaker is responsible for helping meet the client's requirements of self-care on behalf of a child. The client calls as a result of an inability to meet the child's therapeutic self-care demands due to inadequate self-care agency which results in a self-care deficit. According to Orem (1971) there are two kinds of self-care demands. Universal self-care demands include the need for air, water, food, care of excrements, balance of activity and rest, balance of solitude and interaction, prevention of hazards, and being normal. Health deviation self-care demands result from illness, injury, or disease. Self-care agency is the person's capability of performing in response to these self-care demands. When the self-care demands exceed the person's self-care agency then a self-care deficit results. The nurse then provides assistance utilizing a choice of three approaches or what Orem refers to as nursing agencies. The first approach, the wholly compensatory nursing agency, occurs when the client has no active role in the performance of care. The partly compensatory agency occurs when both the client and nurse perform care measures or other actions. The supportive-educative agency takes place when the client is able and should learn to perform the required self-care but cannot do it without some assistance (Riehl & Roy, 1980).

Caretakers utilized a telephone service because there was an actual or potential deficit in their ability to care for their dependent child. The pediatric practitioner uses the supportive-educative nursing agency in providing assistance since direct hands-on care cannot be performed over the phone. Support, guidance, and teaching are the methods of helping utilized by the nurse within this system. If partly or wholly compensatory nursing is required, the nurse will refer the caretaker to the clinic or emergency room.

Self-care assistance may lead to therapeutic outcomes such as the promotion of the child's normal functioning; the maintenance of normal growth, development, and maturation; the prevention, control, and cure of disease processes and injuries; and the prevention of or compensation for disability (Orem, 1971).

Orem (1971) described two phases of her nursing process which can be compared to the two phases of the telephone call in this study. She described the intellectual phase of her process in two steps: (1) data collection which includes determining the need for nursing care or diagnosis and (2) the design of care. The second phase or practical phase involves the actual implementation and evaluation of care. In comparison, the technical phase of the telephone call encompasses both of Orem's phases and therefore includes assessment, diagnosis, disposition, and plans for evaluation. Due to the limited amount of time available during a telephone call and the inability to see and touch the patient, the expressive phase of the telephone call then would traverse throughout the technical phase of the telephone call and through both of Orem's phases. The expressive phase of the

telephone call is the actual art of conveying empathy and interest which aids in collecting appropriate data, reaching an accurate nursing diagnosis, and developing a workable plan with the caretaker. If utilized skillfully the expressive phase will allow the practitioner to guide the caretaker toward the desired outcome and provide for feedback from the client for evaluation purposes.

Assumptions

In pursuing this study the following assumptions were made:

1. Telephone consultation for pediatric clients is a legitimate approach to the provision of comprehensive health services.
2. All pediatric practitioners providing telephone management in this study utilized the technical and expressive phases of a telephone call to provide health care or well child guidance.
3. The caretakers answered the questions on the follow-up questionnaire honestly.

CHAPTER II

REVIEW OF THE LITERATURE

A concensus seems to exist that the telephone is an important tool for health care providers. Responsible usage by both health providers and parents is imperative in providing comprehensive health care. The literature that relates to telephone management can be divided into five broad categories including (1) the role of the telephone in the provision of health care, (2) personnel responsible for telephone management, (3) preparation for telephone management, (4) after-hours telephone calls, and (5) innovative telephone programs.

The Role of the Telephone in the Provision of Health Care

Heagarty (1978) noted that, "in many ways, the telephone call has replaced the almost extinct house call of long ago" (p. 14). By the mid 1950s, few house calls were being made by physicians as it became obvious that more people could receive medical services if the physician remained in one locale. The telephone became the means of expressing need and receiving help from the physician. Studies in the 1960s recognized that physicians, and pediatricians in particular were spending a large percentage of their time in telephone management (Bergman, Dassel, & Wedgewood, 1966; Hessel & Haggerty, 1968). The British noticed the same phenomenon and in particular were concerned about the seriousness of the after-hours or night calls (Clyne, 1961; Webster, Ritchie, & Morrell, 1965).

In 1971, Pope, Yoshioka, and Greenlick presented a preliminary report of a study identifying the use of the telephone for reporting symptoms. The participants in this pilot project were members of the Oregon Region of the Kaiser Foundation Health Plan. The commonly encountered economic deterrent in seeking medical care was minimized by studying those in this prepaid group. The study determined that 80% of this group's patient-initiated phone calls were to report symptoms of new illness, but only 34% of their office visits were made concerning new symptoms. A follow-up study was conducted to determine the characteristics of people likely to utilize the telephone rather than an office visit for medical care. The hypothesis of the study that those higher in education, occupation, income, and social class were more likely to use the telephone for reporting symptoms was supported. The medical variables of dependency in illness and disease knowledge appeared to have an independent effect that became more marked when combined with the socio-demographic variables. The more dependent and less knowledgeable had a greater tendency to utilize the telephone and walk-in facilities. The sample size of this pilot project was relatively small, including a subgroup of only 100 families from a total of 1,425 families. The socio-demographic variables (of education, occupation, income, and social class) were dichotomized and simply characterized as high or low, which did not show the complexity and interaction of these variables. Another limitation of this study was the researchers' failure to describe how the variables "dependency in illness" and "disease knowledge" were measured.

Heagarty (1968) reported that persons of a lower socioeconomic class were initially less likely to use the telephone for medical care because of inexperience in doing so. However, after being offered a service similar to that found in private practices, the lower-income clients used the phone in the same way as did clients with higher socioeconomic status.

A subsequent study done with the Kaiser group in Oregon added some new findings to the literature on determinants of medical care utilization. It was found that about 50% of all phone calls were related to symptoms and about 40% concerned questions about laboratory results or prescriptions. The hypothesis that the probability of a patient being advised to see the physician after discussing a symptom over the telephone would vary inversely with the physician's certainty of diagnosis and directly with the physician's perception of its seriousness was supported (Greenlick, Freeborn, Gambill, & Pope, 1973). The tendency in physician management to see patients with severe symptoms and treat those with sure diagnoses over the phone was not strong enough to predict dispositions to be used as models due to the tremendous individual variation among physicians. However, these results suggested that triage or management protocols could be developed by each physician for that individual practice setting.

Comprehensive ambulatory care programs of the 1970s fostered health promotion, decreased hospitalizations, and altered attitudes about health care. These programs served a large number of walk-in clients (clients seen without a scheduled appointment), although there is a controversy about the appropriateness of walk-in health care services.

Several studies have suggested that walk-in services are associated with poor utilization, incomplete immunizations, and consecutive appointment breaking (McKinlay, 1972; Richardson, 1970). It is interesting to note that walking-in may be an alternative to calling-in and if those walking-in have no telephone, then a walk-in visit may be appropriate seeking of medical care. Utilizing the telephone prior to "walking-in" for treatment of an acute illness is considered appropriate in the private sector and is not correlated with poor utilization (Lane, 1974).

In 1979 several studies were completed that revealed the composition and disposition of telephone calls. Fischer and Smith (1979) surveyed four family practice settings and found that 80% of the telephone complaints fell into 25 categories and 95% of the complaints could be represented in 50 categories. They found little difference in the patient presentation of complaints to either the physician or receptionist. The differences came in disposition. Physicians were more likely to use the telephone for home care treatment and the receptionist was more likely to schedule the patient for an office visit. Katz et al. (1979) found that in their pediatric practice, 62% of the total complaints could be categorized under the three broad headings of respiratory complaints, gastrointestinal complaints, and dermatologic complaints. By adding seven more complaint categories including trauma, fever, eye, musculoskeletal, genitourinary, headache, and emotional, the total was elevated to 72% of all complaints.

Two questions frequently asked concern the value of telephone service. Does a specialized telephone service decrease unscheduled or drop-in visits to care sites and does it provide improved satisfaction

with care? These questions were researched in a prospective study at a large Veterans Administration Hospital. A clerk trained in hospital services and telephone triage provided the telephone contacts for subjects in the experimental group. The sample consisted of 561 people who were selected randomly over a 2 year period from approximately 7,500 patients who came into the hospital's outpatient department without an appointment. The subjects completed two satisfaction-with-care scales and were randomly assigned to an experimental group (those eligible to use the telephone service) or a control group (handled in the usual way with no telephone service available). Data were collected from their records regarding diagnosis, number of drop-in visits, scheduled visits, and hospitalizations during the prior 6 months. Six months later the subjects were re-tested on the same satisfaction scales and the same information was gathered from their medical records describing visits and hospitalizations. An additional record follow-up was done 12 months later. The hypothesis that telephone service would improve satisfaction was supported. The hypothesis that a telephone service could reduce the number of drop-in visits was proven after 6 months but not at 12 months. The researchers suggested that over a longer time period, the control group utilized the hospital more than the phone group and therefore did not utilize the out-patient department as often. The investigators suggested that in the long term, the provision of telephone service might reduce hospitalization for clients (Stirewalt, Linn, Godoy, Knopka, & Linn, 1982).

The results of the above studies suggested that the telephone brings more clients into contact with physicians and increases client

satisfaction with care. The question remains however as to whether this is an appropriate use of the physician's time. The following sections describe studies which have evaluated the effectiveness of personnel other than physicians in the provision of telephone management.

Personnel Responsible for Telephone Management

Strain and Miller (1971) trained a baccalaureate-prepared nurse to counsel mothers and give medical advice. This nurse was then able to manage 92% of the telephone calls in their pediatric practice.

Several studies have been undertaken to examine the telephone management skills of practicing pediatricians, pediatric house officers, and pediatric health associates (allied health professionals). Brown and Eberle (1974) found that pediatric house staff had difficulty in taking an adequate telephone history. There was no significant difference between interns and residents indicating that increased time in training did not improve history taking. Researchers in another study found that both pediatric house officers and child health associates tended to obtain insufficient data during telephone contacts and consequently made errors in management of problems. It was also discovered that a number of these providers had difficulty in clearly communicating with the caretaker (Ott, Bellaire, Machotka, & Moon, 1974). Greitzer, Stapleton, Wright and Wedgewood (1976) presented forty practicing pediatricians with simulated complaints regarding cough, vomiting, diarrhea, and rash. Twenty of these physicians had been in practice for less than 5 years and 20 had been in practice for more than 5 years. The American Academy of Pediatrics' guidelines for telephone communication were utilized as criteria to determine the appropriateness

of the physicians' telephone management of the simulated complaints. The histories obtained by these practicing pediatricians were unexpectedly deficient. No practitioner with greater than 5 years experience asked about hydration during the calls regarding diarrhea. In response to the complaint of vomiting, none inquired about the possible ingestion of poison, and one pediatrician asked no questions before prescribing therapy. Pediatricians in practice for less than 5 years asked more questions and spent more time on the phone, but they also failed to ask crucial questions more than 50% of the time.

An outcome study was undertaken by the Columbia Medical Plan to evaluate the management of telephone calls by paraprofessional pediatric health assistants (PHAs). A baseline study was completed on all calls (2,520) over a 4-week period to determine the numbers and types of calls being handled by the PHAs. Advice in home management was given by the PHAs in 422 cases. Quality of care was evaluated for these cases by means of a 7-day follow-up interview with the parents by an independent interviewing agency. Telephone accessibility, parental satisfaction, residual symptoms, and the need for further care were evaluated. Accessibility was measured by the number of attempts required before obtaining telephone care. A degree of satisfaction index was utilized to measure (1) parental satisfaction with the decision to treat at home, (2) parental perceptions of the quality of the advice, (3) parental perceptions of whether their concerns were understood, (4) parental perceptions of whether their questions were answered, and (5) parental perceptions of the degree of interest shown by the PHA. Outcome was measured by determining the presence of residual symptoms and whether

further medical care was required after the initial telephone call. Of the parents calling, 90% were satisfied and 92% indicated that the problems had resolved. These results indicated that these trained assistants could advise parents on home management of minor problems (Katz et al., 1979).

Perrin and Goodman (1978) compared the telephone management skills of 5 pediatric nurse practitioners, 28 house officers, and 23 practicing pediatricians. A nonprofessional woman was trained to represent a mother and make unidentified calls to the practitioners during the evening hours regarding five common acute pediatric problems (fever, diarrhea, croup, minor head trauma, and vomiting). Each practitioner was called from three to five times during the study. The calls were tape recorded and scored using a rating system developed by a panel of 11 physicians, none of whom had participated in the study. The rating system resembled the American Academy of Pediatrics' (AAP) guidelines for telephone management. For each health problem, the rating system identified key questions that were to be asked. A history-taking score was assigned based on the percentage of these key questions which were asked by the health care providers. A disposition score was assigned based on the appropriateness of the management of the call. The transcript of each taped encounter was scored twice using this rating system, once by a pediatric nurse practitioner, and again by a pediatrician. Inter-rater reliability was 86%. In history-taking, the average score for the nurse practitioners was 79.6%; for the house officers 69.1%; and for the pediatricians, 52.6%. For disposition, the mean score for the nurse practitioners was 71.1%, the mean for the house officers was 60.1%, and

the mean for the pediatricians was 58.9%. The pediatric nurse practitioners also had significantly higher scores on a scale measuring interviewing skills (Perrin & Goodman, 1978).

The studies cited in this section of the literature review suggest that a variety of personnel may be utilized to provide telephone management safely and with client satisfaction. Pediatric nurse practitioners are able to provide this service with no additional training period and do it as well and in some cases better than practicing pediatricians.

Preparation for Telephone Management

A number of researchers have identified the need for improved educational programs for pediatric practitioners related to telephone management. Both medical and nursing schools have been cited for failure to include a formalized telephone management course in the pediatric curriculum (Brown & Eberle, 1974; Greitzer, et al., 1976; Ott, et al., 1974; Perrin & Goodman, 1978).

It is often assumed that once a subject is taught in a curriculum, the desired outcome is achieved. Curry and Schwartz (1978) found that providing an innovative teaching program in telephone management did not enhance the telephone management skills of participating house officers (residents). Ten pediatric residents participated in this study while on duty in the emergency room. The residents were presented with four simulated case histories by telephone. Questions asked by the residents were compared with specific questions suggested by the AAP guidelines for telephone management. A percentage grade reflecting the number of

standard questions included in the telephone exchange with the parent simulator was recorded for each resident. After this initial assessment was completed, training sessions were initiated that included an active discussion group, some faculty guidance, and the provision of content regarding telephone interviewing skills. One half of the residents in the study participated in the sessions and the other half served as the control group. Curry and Schwartz (1978) did not describe how the group assignments were made. At approximately 10 days, 6 weeks, and 28 weeks after the training session, the simulated situations were presented again. There was no difference in the percentage of acceptable responses for any of the simulated cases between the residents participating in the study and those serving as controls. The investigators concluded that effective teaching must be accompanied by repeated practice sessions and re-evaluation.

Levy, Rosekrans, Lamb, Friedman, Kaplan, and Strasser (1979) developed a set of 28 protocols to deal with the 25 most common complaints presented by telephone. These protocols or guidelines for common pediatric complaints were utilized by trained health assistants and tested for safety and acceptability. A chart review, auditory peer review, a pediatric practice field test, and an emergency room field test were the four strategies used in evaluating the system of protocols. The chart review utilized the records of seriously ill hospitalized children. Indications were that few if any of these seriously ill children's cases would have been mismanaged if the initial contact had been made by phone and the protocols followed. Tape recorded calls utilizing 19 different protocols were reviewed by 12

pediatricians. For the protocol to pass review, 4 out of 7 reviewers had to be able to make a disposition from the material gathered by the health assistants utilizing protocols. The reviewers and health assistants agreed in 66% of the cases. The physicians would have treated 28% more cases at home and they would have seen 6% in the office that the health assistants advised to stay at home. In a field test using an HMO and private group practice, the usual provider's disposition was compared with that which would have been mandated by the protocol criteria. Agreement was reached in 73% of the calls. Once again protocol usage would have brought more people into the physician's office. The emergency room field test showed 84% agreement between the health assistants utilizing protocols and the project physicians. This multileveled evaluation strategy measured both process and the outcome of care. These results suggested that this approach to telephone management is both valid and reliable.

In a follow-up paper, Strasser, Levy, Lamb, and Rosekrans (1979) presented the results of a controlled clinical trial of the protocol system in the emergency room (ER). The experimental or protocol system was compared to the existing system of handling telephone calls without protocols. The trial was conducted for 29 weeks. Incoming calls were assigned to either the protocol group or the control group in alternate weeks. The providers in the ER were unaware of the weeks of the experiment since all incoming calls were answered by the research staff and then assigned. Calls answered by the regular providers were listened to by the researchers with permission from the callers. The

calls taken by the health assistants using protocols were tape recorded with permission. The daily log of the ER was reviewed to identify any callers who came into the facility within 2 days of the original call. Between 1 and 3 days after the index call, a research assistant telephoned half of the callers in each group to determine the parent's satisfaction with the call, the action taken by the parent, and the child's condition. This interview was done without the interviewer's knowledge of the group assignment of the caller. The study demonstrated parental satisfaction with the protocol system. However, more patients in the protocol group were advised to see a health provider (60%) than patients in the control system (44%); and parents in the protocol group were slightly less likely (10% difference) to comply with the recommendations they received on the telephone.

Building upon the previous two studies, Levy, Strasser, Lamb, Rosekrans, Freidman, Kaplan, and Sanofsky (1980) surveyed telephone encounters in three different pediatric practice sites. The purpose of this study was to determine if the same set of 28 protocols administered by a paraprofessional could be utilized by practitioners within structurally different pediatric settings and with different population subgroups. The survey was designed to determine the types of calls received at each site and the outcome or disposition of the encounters. The three sites included an emergency room, a private suburban pediatric group practice, and a large prepaid group practice. At each site, all calls received during specific time intervals were monitored and transcribed with the consent of the 3,265 callers. Survey periods included three seasons of the year to note any variations. The results

of the study showed that most complaints could be grouped under the headings of respiratory problems, fever, gastrointestinal complaints, dermatological problems, infectious disease, and trauma. With some minor variations, the frequency and proportion of complaints were the same in all settings. Aside from more respiratory complaints in the winter, other complaints remained about constant throughout the year. As a result of these findings, the researchers suggested that the use of structured protocols would provide a more organized and possibly safer system of handling telephone calls than the existing systems which did not utilize protocols. Guidelines were developed by this group that include (1) basic data to be collected for each chief complaint category, (2) a range of appropriate dispositions, and (3) advice for home management. Levy et al. (1980) suggested that these guidelines could be utilized in medical and nursing educational curriculums.

Heagarty (1979) warned, however, that before a national system of telephone management by protocol is instituted, further scientific investigation is warranted. She asserted that young physicians do not have the interactional skills required for the practice of medicine and that they need to learn to relate to parents and children. Protocols are not a substitute for these skills.

In addition to protocols there are several manuals available to help the novice in acquiring the appropriate information from a caller and in making a disposition (Brown, 1980; Katz, 1982; & Schmitt, 1980). A concise article on telephone management including some strategies on interviewing has been written by a pediatric nurse practitioner (Thayer, 1984). Holm (1979) offered some telephone technique tips for managing

pediatric emergencies, and emphasized the questions to ask to differentiate routine calls from emergency situations requiring immediate care. No studies were found, however, which evaluated the effectiveness of these strategies in preparing practitioners for telephone management.

As noted in previous studies there is no organized consistent approach in preparing pediatric practitioners for telephone management. The above studies attempted to provide solutions in the form of devising strategies that would aid the practitioner in providing telephone management but the issue of curricular inclusion of this material in the health professional's course of study in pediatrics was not addressed. The practitioner is still faced with learning how to provide this important aspect of care "on-the-job".

After-Hours Telephone Calls

The dilemma of being available to patients and yet wishing not to be interrupted at home is difficult for some health care providers to reconcile. The results of numerous studies indicate that patients want and almost expect their health care providers to be available at any time.

A study in a rural Ontario family practice found that if weekend telephone and/or office hours were available, they were used (Koffman & Merritt, 1978). An extension of this Ontario clinic's hours for emergency contacts provided the opportunity to study both the patients' behaviors after hours and the physicians' responses. The purpose of this study was to determine whether the number of after-hours telephone

calls and amount of work involved was reduced after the institution of evening and weekend office hours. Before the extended office hours were instituted, data were collected for a control period of 3 weeks. The change in hours was publicized and data gathered for the subsequent 3 weeks. An encounter sheet was completed for each contact made during the new hours. The physician recorded the reason for the encounter and rated the necessity for a visit on a 5-point scale. Following the institution of the extended hours there were no reductions in night calls. The results suggested that the physician's decision about whether to see a patient after a telephone call was related to the time of call, a high necessity rating, presence of trauma, caller at the limit of tolerance of symptoms, and the race of the caller. Clients with low or moderate necessity ratings were less likely to be seen if they were Indian than if they were Caucasian. The researchers suggested that one reason for this unexpected finding was that the Indian clients lived further away from the office. The numbers in this study were small, including only 83 calls over a 6-week period of time (Koffman & Merritt, 1978).

Indigent clients often have no place to turn for after-hours care except to the emergency room of a hospital. Many health departments are the primary care providers for indigent clients, but they are closed on evenings, nights, and weekends. Kramer and Leach (1979) described a demonstration pediatric hot line which was set up for health department patients in Cincinnati, Ohio. Of the emergency room admissions in that city, 46% were for patients 19 years old and younger who were clients of the health department. The 6-month pilot program was set up to

determine if a 24-hour telephone service for the health department's pediatric caseload would decrease the use of emergency room services for non-emergency needs.

The resulting after-hours telephone service was basically a nurse intervention program with pediatrician back-up. Reports of usage indicated that 50% of the calls were for children under 1 year of age and 17% of the calls were for children between the ages of 1 and 2 years. The major complaints were in the respiratory and gastrointestinal categories with problems concerning fever, diarrhea, vomiting, irritability, loss of appetite, coughs, and earpulling as the most frequent. It was found that the nurse handled 90% of the calls with the other 10% needing physician consultation. Approximately 10% of the patients were referred to the emergency room. Unfortunately, a cross-check reporting system was not developed with the hospitals in the city. The only data available regarding decreased inappropriate use of the emergency rooms was the knowledge that of the 608 calls received in the program, only 7 patients went to the emergency room without a referral. Kramer and Leach (1979) noted that the value of the telephone service in promoting continuity of care and attitudinal changes of the client from a crisis-oriented approach to a health-promotion approach remains unmeasured.

Munroe and Natale (1982) studied a 24-hour telephone service provided by primary care nurse practitioners. An 18-month retrospective record audit of the after-hours calls to this service, which had a primarily female clientele, revealed that 115 of the total 306 calls were attributable to pain. Interventions other than medications were

used 80% of the time. These interventions included suggestions for the provision of comfort, supportive measures, reassurance, health teaching, and status checks. Realizing that after-hours calls are considered an essential part of primary care provision, the nurse practitioners demonstrated that they could provide this service for their clientele and manage it with minimal physician consultation. During the 18-month period, only 5 calls were made to the consulting physician and a total of 24 referrals were made to the emergency room. According to the investigators, this after-hours call service provided an accessible method of reducing fragmentation of care and enhanced the utilization of nursing interventions.

Villarreal, Berman, Groothuis, Strange, and Schmitt (1983) analyzed data regarding after-hours calls for 2 years in a university-based pediatric group practice. A total of 2,386 after-hours calls were received with 49% of the calls concerning fever, vomiting and/or diarrhea, upper respiratory infection, earache, and rash. On the average, 4 calls per day were received during weekday evenings, 1 call was received between 10:00 PM and 6:00 AM on weekdays, and 6 calls per day were received on Saturday, Sunday, and holidays. It was noted that 34 frequent users of the service made almost 25% of the calls. This finding suggested the presence of stress and hidden agendas in this group of callers. The study also demonstrated the feasibility of providing after-hours coverage by residents with faculty back-up.

These studies demonstrated that physicians may seek relief from the responsibility of providing 24-hour telephone service by utilizing other health providers such as public health nurses, nurse practitioners, and

residents to fulfill this role. The types of calls received after-hours are similar to those received during regular office hours.

Innovative Telephone Programs

The telephone has been used successfully in many areas as an intervention tool. Hotlines have proven useful in providing help and support to those in crisis. Most of these services are designed for adults but a few are directly related to pediatrics. Although a number of writers have described such services, no studies were found evaluating their effectiveness.

Smith, Mumford, and Hammer (1975) described a hotline developed in Texas for indigent teenage mothers. The hotline provided "an added dimension to the adolescent's limited repertoire of coping skills." A similar program was developed in California, except that this one was designed for all postpartum mothers delivering in one hospital. A telephone call was made by a nurse to the new mother during her first week at home. Assessment, referral to resources, and reinforcement of health education was provided (Donaldson, 1977). One of the latest and most innovative uses of the telephone occurred in an army ambulatory pediatric clinic in Georgia. Traditionally ambulatory pediatric care in this clinic was given either on a first-come first-served basis or by appointment. In either case, priority care was not provided and clients were faced with long waits in crowded waiting rooms. Disease exposure was increased, parental anxiety was high, and physician morale was low. A 24-hour telephone triage system was introduced and provided the following advantages: (1) simple medical advice could be obtained

without an appointment, (2) the parent gained confidence in care of minor illnesses, (3) ill patients were seen quickly, (4) waiting time was minimal, (5) no-shows were almost eliminated, (6) waiting rooms were sparsely occupied, (7) disease exposure was minimal, (8) parental anxiety was decreased, and (9) physician job satisfaction was increased (Yeatman, 1981).

In the Province of Nova Scotia, the majority of the population is widely dispersed and of low income. Based on the need for access to high quality health care, a special telephone service called "telepede" was instituted so that personnel in the field would have a toll-free emergency number to call for access to the expertise of specialists at the main hospital (Hanson, 1979). A rural area in Canada was faced with similar problems. Due to demographics, new mothers had no routine medical care until 6 weeks postpartum. Six community health nurses were responsible for this large geographic area and held the belief that for knowledge to be most useful, it must be available before needed. Telephone calls were made to new mothers within the first week of delivery and home visits were made if necessary (Freeman, 1980). Beech (1981) described a telephone link which was made available for the weekend period in a British health district and suggested that relief from a crying baby may prevent aggressive behavior toward the infant and an act of violence.

The above studies provide descriptive accounts of a variety of innovative approaches in telephone utilization. However, there is a paucity of research available to evaluate the effectiveness of these and other telephone programs.

CHAPTER III

METHODOLOGY

The first part of this study was a retrospective descriptive analysis of 1 year's telephone data from the pediatric clinic of a comprehensive teaching hospital in a large northeastern city. The clients of the clinic consisted of predominantly young, low-income families with a few middle to upper-middle income clients that were faculty members' families or house physicians' private pay patients. The clinic was a part of the outpatient department and utilized an interdisciplinary team approach in providing primary care. There were three teams (the "green", "yellow", and "orange" teams) each composed of several pediatric residents, a pediatric nurse practitioner, and a secretary. The teams shared the services of several registered nurses, a social worker, and other ancillary personnel. Each team was led by the pediatric nurse practitioner who served as the patient care coordinator and team manager. Approximately 2500 patients were served by each team. The patients had 24-hour, 7-day-a-week accessibility to the clinic through a single phone number. During the day, the pediatric nurse practitioners managed the medical telephone calls and the team secretaries managed the administrative telephone calls. The after-hours calls were managed by members of the Pediatric Associates Call Team (PACT) on a rotating basis. PACT members included about 30 house staff, 3 private pediatricians, 4 pediatric nurse practitioners, and 7 medical fellows.

The second phase of this study evaluated caretaker satisfaction with the expressive phase of the telephoning system. During this phase, telephone interviews were conducted with a selected sample of clients to determine their level of satisfaction with the telephone service.

Data Collection and Coding for the Descriptive Analysis

Records were kept routinely by the pediatric practitioners of all medical telephone encounters with the clients from the pediatric continuity clinic. During the day this information was recorded on a log sheet entitled "Daily Telephone Calls from Patients" (See Appendix A). Data recorded on these logs included: date and time of call, team assignment, the child's name and age, telephone number for return call, usual physician's name, chief complaint, name of person managing the call, their impression, disposition, follow-up recommendations, and any other comments. The evening, night, weekend, and holiday calls were recorded on "Telephone Call" pads by the PACT member on call (See Appendix B). Data recorded on this sheet included: date and time of call, usual physician, the child's name, telephone number, problem, disposition, and the provider's signature. No attempts were made to evaluate the validity and reliability of these data collection tools.

Due to the large volume of medical calls to the pediatric continuity clinic, records of every third call made between January 1, 1981 through December 31, 1981, were analyzed by the researcher. These calls were categorized according to team assignment by month, age and sex of the child, chief complaint, and disposition. A total of 2,081 telephone calls were coded for computer analysis.

Since the desired outcome for this study was to identify information required to manage pediatric telephone calls, the category of chief complaint was left large. In this way sub-categories could later be identified after collapsing the complaint data into broad categories. The result would be the emergence of main topics and sub-topics which could be used as a curriculum outline.

All 78 complaints listed on the log and PACT sheets were tabulated as to frequency and relative frequency. These 78 complaints were categorized under broad category headings based on the findings of descriptive studies in the literature (Fischer & Smith, 1979; Katz, et al., 1978; Levy, Strasser, Lamb, Rosekrans, Friedman, Kaplan, & Sanofsky, 1980; Villarreal, et al., 1983). Of the 12 broad categories chosen to represent the reasons for the telephone calls, 11 were found in the literature (respiratory, gastrointestinal, dermatological, fever, trauma, communicable disease, eye, genitourinary, neurological, miscellaneous, and requests for prescriptions or laboratory results). The twelfth category of well child guidance was added by this investigator to determine the number of calls received regarding anticipatory guidance, reassurance, and growth and development.

The 15 disposition categories were selected by this investigator as they represented each disposition mentioned by a pediatric practitioner on the daily log or PACT sheet. The investigator was the sole coder of the information from the daily logs and PACT sheets. No attempt was made to assess the validity or reliability of the coding system.

Data Collection For Evaluation of the Expressive and Technical Phases of the Telephone Call

Information regarding caretaker satisfaction with the expressive and technical phases of the telephone calls was obtained by interviews with the caretakers who utilized the service. While developing a comprehensive quality assurance program, Zimney, McClain, Batalden, and O'Conner (1980) found that structured telephone interviews yielded more information about a specific medical care encounter than asking for written comments. These researchers reported that patients were reluctant to write meaningful comments and when they did write, the numbers of comments were too few to provide useful information. Therefore a structured telephone interview utilizing a questionnaire was employed in this study. The University of Rochester School of Nursing Committee for Review of Human Subjects and the University Committee on Investigations Involving Human Subjects approved the study, and administrative permission from the clinic director was obtained.

The questionnaire was developed with the assistance of Dr. Harriet Kitzman with additional input from the pediatric practitioners and clinic director of the outpatient clinic. At the request of the clinic personnel, more questions were included than required for the study. This additional data was to be utilized by these practitioners in further studies. Neither the validity or reliability of the questionnaire was assessed.

The questionnaire (See Appendix C) contained 28 questions and took approximately 15 minutes to complete. The interview call was made within 2 to 3 days of the caretaker's call to the clinic. The

investigator introduced herself as a nurse researcher studying the telephone service of the pediatric continuity clinic. It was explained that the caretakers' participation in this study would not affect the medical care they received from the clinic. There was no risk to the participants and there was a possibility that they might benefit from improved telephone services as a result of the study. The caretakers were all adults or emancipated minors. Written informed consent was not obtained as response to the telephone interview was considered as permission. Assurance of confidentiality was made to the caretakers. All identifying information remained on the telephone log sheets and codes were applied to the questionnaires.

Telephone interviews are quite time consuming. It has been found that given a relatively homogeneous population, small sample sizes produce the same results as large ones (Zimney et al., 1980). Therefore the telephone calls during a 1-week period during the day and after-hours were chosen as a representative sample. This number proved to be too large, and thus every other call made to the clinic during the week was included in the study. A total of 71 telephone interviews were attempted during the week of April 10, 1982 through April 16, 1982.

The introductory questions 1 through 7 were designed to show why caretakers called and were based on the health belief model in assessing the cues to action, susceptibility, and severity components in relation to the perceived threat. Questions 8 through 14 provided the extra data requested by the clinic personnel. Questions 15 through 23, 25, 27, and 28 were designed to determine the level of caretaker satisfaction with the pediatric practitioners' performance of the expressive and technical phases of the telephone calls.

CHAPTER IV

RESULTS

The four questions which guided the study were as follows:

(1) What were the types of complaints (reasons for call) and the frequency of each complaint? (2) What dispositions were made for the calls? (3) Did the relative frequency of the complaints vary with the age and sex of the child or the season of the year? and (4) What was the degree of caretaker satisfaction with the health care providers' responses to the calls?

A total of 2,081 telephone calls (both day and after-hours) were coded and analyzed. The time frame was from January 1, 1981 through December 31, 1981. Of these calls, 670 (32.2%) were received by the green team, 626 (30.1%) by the yellow team, and 785 (37.7%) by the orange team. The adjusted frequency rate showed that 1,126 calls or 55.3% related to male children and 909 or 44.7% to female children. A total of 44.0% of the calls were made by caretakers of children under 1 year of age and 72.9% of the calls were made by caretakers of children under age 3 (Table 1).

Chief Complaints

Table 2 depicts the absolute frequencies and relative frequencies (in percentages) of the 78 complaints or different reasons for caretaker calls as noted by the person answering the phone. The data in Table 2 addresses the first two study questions which were related to the reasons for the telephone calls and the frequency of calls in various categories. These reasons or complaints were categorized under 12 chief

complaint headings which then provided a set of main pediatric complaints with sub-categories. The 78 complaints were crosstabulated by teams and there was an even distribution of types of calls among the three teams.

Table 1. Numbers of telephone calls by ages of the children.

Ages of Children	Absolute Frequency	Relative Frequency (Percent)	Cumulative Frequency (Percent)
Less than 1 month	198	9.5	9.5
1 - 3 months	248	11.9	21.4
4 - 6 months	198	9.5	30.9
7 - 9 months	182	8.8	39.7
10 - 12 months	90	4.3	44.0
1 - 3 years	602	28.9	72.9
4 - 6 years	220	10.6	83.5
7 - 12 years	221	10.6	94.1
13 - 21 years	<u>122</u>	<u>5.9</u>	100.0
TOTAL	2081	100.0	

Table 2. Chief complaints with sub-categories.

COMPLAINT	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (Percent)
Respiratory (Ear, Nose, and Throat Complaints)		
Upper respiratory infection	256	12.30
Earache	120	5.77
Upper respiratory infection with gastrointestinal symptoms	63	3.03
Sore throat	61	2.93
Trouble breathing	58	2.79
Cough	46	2.21
Swollen glands	9	.43
Tonsils	4	.19
Nosebleeds	2	.09
Chest pain	1	.05
	620	29.79
Gastrointestinal		
Diarrhea	137	6.58
Vomiting	89	4.28
Vomiting and diarrhea	50	2.40
Constipation	41	1.97
Side or abdominal pain	16	.77
Bloody stool	10	.48
Decreased appetite	8	.38

Table 2 (Continued)

COMPLAINT	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (Percent)
Worms	6	.29
Dehydration	3	.14
Hemorrhoids	3	.14
Hernia	2	.10
Diabetes	1	.05
Obesity	1	.05
	367	17.63
Well Child Anticipatory Guidance		
Formula questions or problems	52	2.50
Immunization reactions	29	1.39
Medication questions	29	1.39
Breast feeding	21	1.01
Teething	12	.58
Umbilical cord	11	.53
Crying	10	.48
Circumcision	7	.34
Cradle cap	4	.19
Vitamins	3	.14
Miscellaneous questions	35	1.68
	213	10.23

Table 2 (Continued)

COMPLAINT	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (Percent)
Dermatological		
Rash	151	7.26
Lumps	24	1.15
Impetigo	14	.67
Boils	8	.38
Poison Ivy	5	.24
Insect bites	4	.19
Infected fingers	3	.14
Athlete's foot	1	.05
Hives	1	.05
Sunburn	1	.05
	212	10.18
Fever (with no other symptoms)		
	195	9.37
Trauma		
	138	6.63
Communicable Disease		
Chickenpox	33	1.58
Ringworm	17	.82
Exposure questions	15	.72

Table 2 (Continued)

COMPLAINT	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (Percent)
Pediculosis	13	.62
Thrush	12	.58
Herpes I	6	.29
Venereal Disease	4	.19
Scabies	4	.19
Roseola	2	.10
Meningitis	1	.05
	107	5.14
Eye		
Conjunctivitis	86	4.13
Prescription/Laboratory Results		
Prescription requests	38	1.83
Laboratory result requests	33	1.58
	71	3.41
Genitourinary		
Urinary tract infection	18	.86
Menstrual problems	4	.19
Back pain	3	.14
Pregnancy	1	.05
	26	1.24

Table 2 (Continued)

COMPLAINT	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (Percent)
Neurological		
Seizures	8	.38
Emotional problems	4	.19
Stiff neck	3	.14
Overactive	3	.14
Falling all the time	2	.10
Speech problems	1	.05
Hallucinations	1	.05
Fainting	1	.05
	23	1.10
Miscellaneous		
Headache	9	.43
Progress reports	6	.28
Removal of Nasogastric tube	3	.14
Leg cramps	2	.10
Shunt problems	2	.10
Torticollis	1	.05
	23	1.10
TOTAL	2,081	100.00

Disposition

The third study question was related to the disposition of the phone calls. The dispositions were divided into 15 categories:

(1) provision of anticipatory guidance, (2) provision of reassurance, (3) recommendation for home treatment, (4) recommendation to wait for already scheduled appointment, (5) recommendation to see staff nurse, (6) recommendation to see regular doctor, (7) directions to call for an appointment, (8) recommendation to see the float physician, (9) recommendation to go to the emergency room, (10) directions for obtaining a prescription, (11) provision of laboratory results, (12) recommendation for parent to call back, (13) provision of counseling, (14) referral to hospital ombudsman, and (15) referral to a specialist. Table 3 depicts the number of dispositions in each chief complaint category.

In this study, of the 15 possible dispositions, the pediatric practitioner or specialist spent a major part of telephone practice time in providing anticipatory guidance, reassurance, and treatment at home. These three types of dispositions were made for 1,016 (or 49%) of the 2,081 total calls. Table 4 shows how many of these three dispositions were made for each major complaint category according to the age group of the children. Anticipatory guidance was given most often during the first month of life and tapered to almost no requests for it during the adolescent years. Reassurance was given most often between the ages of 1 to 3 months and peaked again between 1 and 3 years. Treatment at home began to increase for the 1 to 3 month age group, and peaked again between the ages of 1 and 3 years.

Table 3. Disposition of calls by complaint category.

	Respiratory	Gastrointestinal	Dermatological	Fever	Trauma	Communicable Disease	Eye	Prescription or Lab Results	Genitourinary	Neurological	Miscellaneous	Well Child Guidance
Well Child Guidance	^a 1(1) ^b	13(3.6)	3(1.4)	1(.5)	0(0)	23(22.1)	0(0)	0(0)	0(0)	1(4.3)	2(9.0)	118(55.3)
Reassurance	11(1.8)	12(3.3)	2(1.0)	3(1.6)	11(8.0)	6(5.8)	1(1.2)	5(7.1)	1(4.0)	0(0)	4(18.1)	27(12.6)
Treat at Home	266(43.8)	227(62.8)	72(35.0)	101(53.4)	49(36.0)	25(24.0)	29(33.7)	1(1.4)	3(12.0)	5(21.7)	2(9.0)	42(19.7)
Wait for Scheduled Appointment	3(.4)	0(0)	6(2.8)	0(0)	2(1.5)	1(1.0)	0(0)	1(1.4)	0(0)	0(0)	1(4.5)	1(.5)
See Staff Nurse	22(3.6)	0(0)	0(0)	2(1.0)	2(1.5)	0(0)	0(0)	1(1.4)	0(0)	0(0)	0(0)	1(.5)
See Regular Physician	12(1.9)	8(2.2)	5(2.4)	5(2.6)	1(.7)	0(0)	0(0)	0(0)	0(0)	2(8.7)	1(4.5)	1(.5)
Make Appointment	13(2.1)	8(2.2)	14(6.8)	0(0)	3(2.2)	3(2.9)	3(3.5)	1(1.4)	2(8.0)	6(26.0)	1(4.5)	3(1.4)
See Float	194(32)	57(15.7)	71(34.2)	43(22.8)	39(28.7)	20(19.2)	42(48.9)	2(2.8)	14(56.0)	5(21.7)	4(18.1)	6(2.8)

^a Absolute Frequency

^b Adjusted Relative Frequency (percentage)

Table 3. (Continued)

	Respiratory	Gastrointestinal	Dermatological	Fever	Trauma	Communicable Disease	Eye	Prescription or Lab Results	Genitourinary	Neurological	Miscellaneous	Well Child Guidance
Emergency Room	77 ^a (12.7) ^b	32(8.8)	12(5.8)	33(17.4)	27(19.9)	5(4.9)	6(7.0)	0(0)	4(16.0)	2(8.7)	6(27.2)	2(.9)
Call for Prescription	7(1.1)	3(.8)	21(10.1)	1(.5)	0(0)	21(20.1)	4(4.7)	52(74.2)	1(4.0)	0(0)	1(4.5)	11(5.1)
Call for Lab Results	0(0)	0(0)	1(.5)	0(0)	0(0)	0(0)	0(0)	6(8.6)	0(0)	0(0)	0(0)	0(0)
Parent Call Back	0(0)	1(1.2)	0(0)	0(0)	0(0)	0(0)	0(0)	1(1.4)	0(0)	0(0)	0(0)	0(0)
Refer to Counseling	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	1(4.3)	0(0)	0(0)
See Ombudsman	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	1(.5)
Refer to Specialist	0(0)	0(0)	0(0)	0(0)	2(1.5)	0(0)	1(1.2)	0(0)	0(0)	1(4.3)	0(0)	0(0)

^a Absolute Frequency^b Adjusted Relative Frequency (percentage)

Table 4. Numbers of dispositions regarding anticipatory guidance, reassurance, and treatment at home in each major complaint category by age group.

	0-1 months			1-3 months			4-6 months			7-9 months			10-12 months			1-3 years			4-6 years			7-12 years			13-21 years		
	A	R	T	A	R	T	A	R	T	A	R	T	A	R	T	A	R	T	A	R	T	A	R	T	A	R	T
Respiratory	0	0	7	1	3	46	0	0	37	0	2	26	0	1	4	0	2	86	0	1	32	0	1	17	0	1	7
Gastrointestinal	6	3	19	5	5	48	0	0	35	0	0	21	0	0	4	1	4	67	0	0	16	0	0	10	0	0	3
Dermatological	2	0	8	1	0	5	0	0	15	0	1	6	0	0	3	0	1	16	0	0	6	0	0	7	0	0	1
Fever	1	0	1	0	0	9	0	2	8	0	1	10	0	0	3	0	0	48	0	0	13	0	0	6	0	0	1
Trauma	0	0	0	0	1	4	0	0	2	0	0	6	0	0	0	0	7	21	0	1	7	0	2	5	0	0	3
Communicable Disease	0	0	1	2	1	1	0	0	1	1	0	2	0	0	1	7	2	9	0	1	3	0	1	3	0	0	2
Eye	0	0	7	0	1	3	0	0	2	0	0	2	0	0	0	0	0	8	0	0	1	0	0	3	0	0	0
Prescription/Lab res.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	1	0	0	0	1
Genitourinary	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
Neurological	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	1	0	0	1	0	0	0
Miscellaneous	0	0	0	0	2	0	0	0	2	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Well child guidance	45	10	7	28	5	12	16	1	6	11	1	1	2	0	1	6	3	7	2	2	1	2	0	2	1	0	2
TOTAL	54	13	50	37	18	128	16	3	108	12	6	74	2	2	16	15	22	266	3	5	81	2	5	54	1	2	21

A = Anticipatory guidance, R = Reassurance, T = Treatment at home

Relationship Between Type of Complaint and Child's Age, Sex, and Season of the Year

Table 5 depicts the 12 main pediatric complaints crosstabulated with the ages of the children. The first month of life was subdivided into weeks for a more detailed analysis of this time period. The greatest number of telephone calls was made during the first week of life. The calls covered all complaint groups and 16% of them were for well child guidance. During the second week of life the complaint calls were dramatically decreased but requests for well-child guidance accounted for 71% of the calls. The remaining 2 weeks of the first month revealed about the same numbers of complaint calls and the well-child guidance calls were reduced to 40% and 24% respectively. The next peak in calls occurred during the 1 to 3 year time period with a tapering off in the numbers of calls related to adolescents.

When the 12 complaint categories were crosstabulated with the children's sex (Table 6), there were five categories (respiratory, dermatological, communicable disease, eye, and prescription/laboratory results) which showed less than a 10% difference in incidence between males and females. In five categories (gastrointestinal, well child anticipatory guidance, fever, neurological, and miscellaneous), there was a difference of between 10% to 16% in which males displayed the higher rates in each of the categories. The remaining two categories exhibited a difference between the sexes of greater than 30%. Males had a higher incidence of trauma (67%) than females (33%), and females evidenced more cases of genitourinary problems (77%) than males (23%).

Table 5. Ages of children by complaint category.

	0-1	1-2	2-3	3-4	4-6	7-9	10-12	1-3	4-6	7-12	13-21	All
	week	week	week	week	months	months	months	months	months	years	years	years
Respiratory	18 ^a (22)	1 (2.2)	4 (8.9)	5 (20.0)	67 (27.0)	61 (30.8)	64 (35.1)	31 (34.4)	193 (32.0)	84 (38.1)	59 (26.6)	620 (29.8)
Gastrointestinal	7 (8.4)	6 (13.3)	11 (24.4)	8 (32.0)	72 (29.0)	46 (23.2)	37 (20.3)	19 (21.2)	99 (16.4)	22 (10.0)	22 (9.9)	367 (17.6)
Dermatological	9 (10.8)	2 (4.4)	6 (13.3)	4 (16.0)	16 (6.5)	25 (12.6)	20 (10.9)	8 (8.9)	54 (8.9)	25 (11.3)	30 (13.5)	212 (10.2)
Fever	5 (6.0)	0	0	1 (4.0)	15 (6.0)	18 (9.0)	20 (10.9)	14 (15.5)	85 (14.1)	25 (11.3)	9 (4.0)	195 (9.4)
Trauma	6 (7.2)	0	1 (2.2)	0	7 (2.8)	3 (1.5)	8 (4.3)	2 (2.2)	51 (8.4)	13 (5.9)	28 (12.6)	138 (6.6)
Communicable Disease	6 (7.2)	0	1 (2.2)	0	9 (3.6)	6 (3.0)	1 (.5)	3 (3.3)	32 (5.3)	18 (8.1)	23 (10.4)	107 (5.1)
Eye	4 (4.8)	4 (8.9)	4 (8.9)	1 (4.0)	9 (3.6)	6 (3.0)	6 (3.2)	2 (2.2)	32 (5.3)	6 (2.7)	10 (4.5)	86 (4.1)
Prescription/Lab results	12 (14.4)	0	0	0	1 (0.4)	1 (.5)	2 (1.0)	3 (3.3)	15 (2.4)	9 (4.0)	20 (9.0)	71 (3.4)
Genitourinary	2 (2.4)	0	0	0	0	0	0	0	6 (.9)	5 (2.2)	5 (2.2)	26 (1.2)
Neurological	1 (1.2)	0	0	0	0	0	1 (.5)	0	12 (1.9)	4 (1.8)	3 (1.3)	23 (1.1)
Miscellaneous complaints	0 (0)	0	0	0	2 (0.8)	4 (2.0)	3 (1.6)	0	3 (.4)	2 (.9)	6 (2.7)	23 (1.1)
Well child guidance	13 (15.6)	32 (71.1)	18 (40)	6 (24)	50 (20.1)	28 (14.1)	20 (10.9)	8 (8.9)	20 (3.3)	7 (3.1)	6 (2.7)	213 (10.2)
TOTAL	83 (4.0)	45 (2.2)	45 (2.2)	25 (1.2)	248 (11.9)	198 (9.5)	182 (8.7)	90 (4.3)	602 (28.9)	220 (10.5)	221 (10.6)	2,081 (5.8)

^a Absolute Frequency ^b Adjusted Relative Frequency (percentage)

Table 6. Sex of children by complaint category.

Complaint	Absolute Frequency	Adjusted Relative Frequency (Percentage)
Respiratory		
Males	331	54
Females	277	46
Gastrointestinal		
Males	210	58
Females	150	42
Well Child Anticipatory Guidance		
Males	117	58
Females	84	42
Dermatological		
Males	109	52
Females	101	48
Fever		
Males	104	55
Females	85	45
Trauma		
Males	89	67
Females	43	33
Communicable Disease		
Males	57	54
Females	49	46

Table 6. (Continued)

Complaint		Absolute Frequency	Adjusted Relative Frequency (Percentage)
Eye			
	Males	41	48
	Females	45	52
Prescriptions/Laboratory Results			
	Males	36	51
	Females	34	49
Genitourinary			
	Males	6	23
	Females	20	77
Neurological			
	Males	13	57
	Females	10	43
Miscellaneous			
	Males	13	57
	Females	10	43

As would be expected, the number of complaints in certain categories was related to the season of the year. During the winter months (December, January and February) there were more calls regarding upper respiratory infections, fever, sore throat, trouble with breathing, nosebleeds, vomiting, urinary tract infections, scabies, and pediculosis. These complaints were also reflected in the larger number of prescription calls during this time. The spring months (March, April, and May) revealed increased calls for vomiting and diarrhea, chickenpox, swollen glands, and boils. In June, July, and August (the summer months) there were more calls regarding ringworm, boils, seizures, poison ivy, insect bites, and sunburn. The fall season (September, October, and November) had no particular increase in the numbers of any one complaint, but did have the least number of calls regarding diarrhea of any season. With the exception of these variations, the rest of the telephone encounters for the other complaints were spread fairly evenly across the seasons of the year.

Caretaker Satisfaction With the Calls

Of the 71 telephone interviews attempted, 55 were completed. Nine caretakers did not answer the phone after three attempts by the investigator, two of the numbers had been changed to unlisted numbers, three of the numbers were disconnected, and in two cases the caretaker was too busy and refused the interview. In 50 (91%) of the interviews the caretaker was the mother, in 1 (2%) the father, and in 4 (7%) the grandmother. There were 30 (55%) telephone interviews to caretakers of

male children and 25 (45%) to caretakers of female children. Table 7 shows the ages of the children about whom calls were made. Calls were received related to all complaint categories except complaints for the categories of prescription/laboratory results, neurological, and miscellaneous (Table 8). The telephone interviews were divided fairly evenly among the three teams in the clinic. The green team managed 18 (32.7%) of the interviews, the yellow team 20 (36.4%), and the orange team 17 (30.9%).

Table 7. Ages of children in telephone interview study.

Age (in years)	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (Percent)
Less than 1	26	47.3
1	4	7.3
2	5	9.1
3	4	7.3
4	2	3.6
5	5	9.1
8	2	3.6
10	2	3.6
11	2	3.6
12	2	3.6
13	1	1.9
	TOTAL 55	100.0

Table 8. Caretakers' complaints in telephone interview study.

COMPLAINT	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (Percent)
Respiratory		
Upper respiratory infection	3	5.5
Earache	4	7.3
Cough	3	5.5
Trouble breathing	3	5.5
	13	23.8
Gastrointestinal		
Diarrhea	3	5.5
Vomiting	4	7.3
Constipation	1	1.8
Side or abdominal pain	1	1.8
	9	16.4
Well Child Anticipatory Guidance		
Formula questions or problems	3	5.5
Breast feeding	1	1.8
Umbilical cord	2	3.6
Crying	1	1.8
	7	12.7

Table 8. (Continued)

COMPLAINT	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (Percent)
Dermatological		
Rash	7	12.7
Lumps	1	1.8
	—	—
	8	14.5
Fever (with no other symptoms)	10	18.1
Trauma	3	5.5
Communicable Disease		
Exposure questions	1	1.8
Thrush	1	1.8
	—	—
	2	3.6
Eye		
Conjunctivitis	2	3.6
Genitourinary		
Urinary tract infection	1	1.8
	—	—
TOTAL	55	100.0

Table 9 illustrates the caretakers' responses to the questions inquiring about the concern, empathy, and interest demonstrated by the pediatric practitioners (questions 15 through 19 and 23). The percentages of favorable responses were above 92% for all six questions. Two of these questions asked about the opportunity for the caretakers to relay their information or questions to the practitioner. In question 16, caretakers were asked if they could tell the practitioner everything they wanted and 100% responded yes. Yet later in question 23, 7.3% indicated that they had additional questions they would have liked to ask. Questions 20-22, and 25 illustrate the caretakers' responses to aspects of the technical phase of the call. Almost 11% of the caretakers indicated that they took measures beyond what was suggested by the practitioner during the telephone call (question 25).

The caretakers were asked to rate the pediatric telephone service on a scale of 1 to 10, with 1 being low and 10 high (Table 10). The responses to this item suggested some dissatisfaction with the telephone service but did not identify whether the reason for the dissatisfaction was related to the technical or expressive phase of the telephone call.

Table 9. Caretakers' responses to questions regarding the expressive and technical phases of the telephone call.

QUESTIONS	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (Percent)
15. Did the practitioner seem concerned about your problem?		
Yes	53	96.4
No	2	3.6
16. Were you able to tell the practitioner everything you wanted?		
Yes	55	100.0
No	0	0
17. Did the practitioner answer your questions?		
Yes	54	98.2
No	1	1.8
18. Did the practitioner seem to have time to help you?		
Yes	53	96.4
No	2	3.6
19. Did you understand the directions?		
Yes	54	98.2
No	1	1.8
20. Could you do what was recommended for your child?		
Yes	52	94.5
No	3	5.5

Table 9. (Cont inued)

QUESTIONS		ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (Percent)
21. Did this treatment seem right to you?			
	Yes	53	96.4
	No	2	3.6
22. Was there anyone around home who had a different idea about how to take care of the problem?			
	Yes	1	1.8
	No	54	98.2
23. Were there any other questions you would have liked to ask?			
	Yes	4	7.3
	No	51	92.7
25. Did you need to do anything else other than what was suggested on the phone?			
	Yes	6	10.9
	No	49	89.1

Table 10. Caretakers' rating of telephone service.

Rating of telephone service	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (Percent)	ADJUSTED FREQUENCY (Percent)
1 (low)	0	0.0	0.0
2	0	0.0	0.0
3	0	0.0	0.0
4	2	3.6	3.9
5	1	1.8	2.0
6	1	1.8	2.0
7	1	1.8	2.0
8	6	10.9	11.8
9	14	25.5	27.5
10 (high)	26	47.3	51.0
Missing	4	7.3	Missing
	—	—	—
TOTAL	55	100.0	100.0

An opportunity for the caretakers to make suggestions for improvement of the telephone service was offered. Only 12 of the 55 had any ideas. Seven of the 12 respondents suggested that the phone calls be returned in a shorter period of time. Three suggested that more telephone lines be added to the service because the existing lines were constantly busy. One person felt that they were frequently put on hold for too long a period of time by inconsiderate secretaries. Utilizing only pediatric nurse practitioners was suggested by one caretaker "since nurses care the most and give the best help."

CHAPTER V

DISCUSSION OF RESULTS

The purpose of this study was to determine the reasons for caretakers' telephone calls to pediatric health care providers, the providers' responses to the calls, and the caretakers' satisfaction with the responses. The information generated by answering these questions can be utilized in developing curriculum content for telephone management in advanced pediatric nursing programs.

Descriptive Analysis

The population of this study was homogeneous in that it was made up of young families from the lower to upper lower socioeconomic strata with a few in the middle class category. Race or ethnic information was not asked of callers by clinic personnel. However, Bice, Eichorn, and Fox (1972) found that perceived symptoms and not cultural or social factors were the primary variable in explaining utilization of health services.

There was an almost even division of calls between the sexes with the major complaints being shared by both males and females. Age was the most discriminating factor in the utilization of the telephone service. The majority (72.9%) of calls were for children under the age of 3 and of those, 44% were for those under the age of 1.

This study was unique in crosstabulating the age of children with main complaint categories. Many other studies (Katz, et al., 1979; Levy, et al., 1980; Strain & Miller, 1971; Strasser, et al., 1979;

Tripp, 1971; and Villarreal, et al., 1983) delineated the main complaint categories of pediatric telephone calls but did not correlate them with age. Likewise no other study was found which sub-divided the calls received during the first month of life into weekly time periods. Only Strain and Miller (1971) identified well-child guidance as a main call category and they limited this category to discussion of feeding problems. This investigation included well-child guidance as a main complaint or call category with sub-topics including but not limited to feeding problems.

It was found that the most frequent calls were made during the first month of life and in particular during the first week of life. Curriculum content should therefore focus on the attributes of the normal newborn as well as the deviations from normal. New mothers often see each blanket-fuzz sneeze as a respiratory problem or an unformed stool as diarrhea. It was interesting to note that during the first week of life, calls crossed all complaint categories as new mothers apparently felt the need to report each perceived threat to the infant's well-being. During this time the practitioner needs to convey empathy and interest combined with well-child guidance regarding the newborn. The second week of life brought a reduction in complaint calls but more than quadruple the number of calls for well-child guidance in the form of seeking knowledge and reassurance from the practitioner. Calls tapered off during the last 2 weeks of the first month of life suggesting that new mothers may become less anxious and have most of their early well-child guidance questions answered by this time. At no other time across the age groups were the calls for well-child guidance

as frequent as during the first month of life. This finding suggests that curriculum content needs to emphasize the provision of anticipatory guidance during the first month of life when the caretakers are most receptive to this information. According to Roghmann and Haggerty (1973) times of family crises are opportune ones for medical intervention and the birth of a child is a time of family crisis.

After the first month of life, calls focused on specific symptoms and illnesses. Practitioners need knowledge about the most common pediatric problems and illnesses in order to manage these types of calls appropriately. This study revealed a total of 78 different complaint calls or problems which could be categorized into 12 main groupings. These main complaint categories and sub-groupings provided an identifiable outline of topics that could be included in the curriculum content of advanced pediatric nursing programs. The greatest emphasis should be placed on the respiratory, gastrointestinal, well-child guidance, and dermatological categories as the most calls concerned these areas. These results differed from those in the literature only in the area of well-child guidance. This category was usually noted as miscellaneous in other studies. Fever, trauma, and communicable diseases were the next most frequent complaint categories in this investigator's study. Trauma should have been sub-divided for an accounting of the types of injuries the practitioner encountered and a listing of sub-groupings for the curriculum content in this area.

Of the 15 dispositions utilized by the pediatric practitioners in managing telephone calls, the three utilized most frequently were (1) providing anticipatory guidance, (2) reassurance, and (3) treatment at

home. Quite by accident the initials utilized to represent these three dispositions in Table 5 spell the word ART and indeed competence in providing these functions is the art or essence of telephone management. The literature (Katz, et al., 1979; Murphy & Dineen, 1975; & Thayer, 1984) suggested that 50% of pediatric complaints may be handled over the telephone. This investigator's study revealed that 1,016 calls out of 2,081 (49%) were managed by ART.

During the first month of life, anticipatory guidance was the most frequent (46%) disposition utilized. Reassurance accounted for 11% of the dispositions, and treatment at home, 43%. In contrast, between the ages of 1 and 3 months, only 20% of the dispositions were for anticipatory guidance, 10% for reassurance, and 70% for treatment at home. Once again the data suggested that the optimum time for intervention aimed at promoting child health and preventing illness is during the first month of a child's life. After age 3 months, the category of treating at home ranged from 80% to 91% of the three main dispositions.

Anticipatory guidance and reassurance have long been recognized as nursing functions. Possibly these skills that are acquired in the nurse's basic educational background provide an advantage in history-taking as nurses are accustomed to probing for the unexpressed clues to needs. Treatment at home dispositions have been utilized by community health and clinic nurses to a degree, but now the nurse specialist or pediatric nurse practitioner should be expected to have the additional knowledge regarding management of minor pediatric

illnesses and some prescriptive privileges for providing this aspect of telephone management.

Questionnaire

As suggested by Zimney, et al. (1980) utilization of a smaller sample size for a telephone questionnaire should yield similar results when compared to a larger sample. This investigator found that the demographic information regarding the questionnaire population (55 interviews) was almost identical to that of the larger retrospective study of 2,081 telephone calls. There was an almost even number of calls for males and females. The age distribution represented in the questionnaire study was 26% for those less than 1 year of age and 71% under the age of 3, as compared to 44% and 73% in the larger study. The caretakers' complaints or reasons for the calls were similar.

Respiratory, gastrointestinal, well-child anticipatory guidance, and dermatological complaints were the most frequent complaints and were noted in almost identical percentages as those in the larger study.

Hoekelman (1975) noted that most individuals responding to questions regarding their medical care indicate a high degree of satisfaction. The results usually indicate 75% to 95% satisfaction, making interpretation of the results difficult. He suggested that levels of satisfaction should be measured. In determining the respondent's satisfaction in relation to the pediatric practitioner's concern, empathy, and interest, this investigator encountered this very problem. The satisfaction responses were all at 92% or higher. A satisfaction index or rating scale for each question in this section

would have been more valuable in verifying levels of satisfaction and in providing a better indication of the practitioner's skills in performing the expressive phase of the telephone call.

A satisfaction scale was used to determine the caretakers' overall satisfaction with the telephone service. It was difficult to explain a rating scale to some of the clients and an analogy with Bo Derek as the perfect 10 was finally employed with some success. There were 4 caretakers who could not understand the concept of a rating scale and therefore did not respond. Two respondents rated the service a 4 indicating some dissatisfaction. Unfortunately it is not known whether this dissatisfaction was related to the technical or expressive phases of the telephone call. The average rating for the telephone service was 9.01 out of 10.0.

Twelve caretakers had suggestions to offer for improving the telephone service. There were 11 ratings of 8 or less on the satisfaction scale. Of these 11 lower ratings, 8 of the respondents had suggestions to offer. The suggestions included returning calls sooner and offering more telephone lines to the clinic. Seven caretakers felt their calls were not returned soon enough which could be interpreted as a lack of concern or interest on the part of the pediatric practitioners. The one suggestion calling for an all nurse practitioner answering service could be interpreted as being due to the excellent telephonic skills of the nurses, but 1 response out of 55 is hardly indicative of such expertise.

Limitations

The limitations of this study included:

1. Retrospective coding of recorded data. While the investigator alone coded the data, many different persons had written the original complaints, thus the validity/reliability of the data may be questionable.
2. Incomplete data, especially in regards to disposition of the telephone call.
3. The reliability and validity of the questionnaire as a measure of caretaker satisfaction with the expressive and technical phase of the call was not determined.
4. The utilization of an analogy in explaining the rating scale to only those interviewees having difficulty with the concept. The inconsistent administration of this question could pose a threat to the comparability of the results.
5. Because the study was conducted in only one setting, the generalizability of the results is limited.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Summary

Although telephone management in pediatric practice accounts for almost one third of the practitioner's time, little is known about the nature of telephone calls. As noted in the literature review, both medical and nursing schools have failed to include instruction in telephone management as a part of the primary care curriculum. It has been assumed erroneously that pediatric practitioners will inherently acquire the skill of good telephone management on the job.

This study examined the telephone log data from a large northeastern pediatric outpatient department over a 1-year's period of time. The nature of the telephone calls revealed information that suggested appropriate curriculum content for advanced pediatric nursing programs. A total of 12 broad categories of required knowledge with sub-topics were defined. Knowledge regarding respiratory, gastrointestinal, well-child guidance, and dermatological areas should be emphasized as nearly 80% of the calls concerned these categories. Understanding the attributes of the normal newborn and deviations from normal are necessary because most calls for well-child guidance and reassurance occurred during the first 2 weeks of life. A general knowledge of growth and development should be required in order to provide a basis for answering the requests for information in the other age categories.

Results from the telephone questionnaire demonstrated that most caretakers utilized the telephone in response to concerns regarding symptomatic children. They perceived that the practitioners evidenced concern, empathy, and interest in their problems. A telephone management curriculum must therefore include a section on interviewing skills. The expressive phase of the telephone call or the ability to listen, monitor cues, validate perceptions, support, and nurture must be stressed. The practitioners must learn to use the caller's senses of sight, smell, hearing, and touch in lieu of their own. The unique needs of each family must be recognized and respected.

Conclusions

Based on the results of this study, the following can be concluded.

1. Respiratory, gastrointestinal, well-child guidance, and dermatological complaints constituted the most frequent reasons for telephone calls.
2. Most calls for well-child guidance and reassurance occurred during the first month of a child's life.
3. Of the 15 dispositions utilized by the pediatric practitioners, anticipatory guidance, reassurance, and treatment at home were the most frequent, comprising 49% of the calls.
4. The caretakers' level of satisfaction with the practitioners' concern, empathy, interest, and disposition was high.
5. The most frequently mentioned suggestions for improvement of the telephone service were increased number of telephone lines to the clinic and faster return of calls.

Implications for Nursing Practice

While various studies have indicated that pediatric practitioners in general have serious deficiencies in providing telephone management, the nurse, or pediatric nurse practitioner in particular, is more capable than most (Perrin & Goodman, 1978; Strain & Miller, 1971). Communication skills appear to be the discriminating factor. Nurses have historically been the eyes, ears, and voice for both the client and the physician. Nurses are taught in their basic educations to listen, observe, and be sensitive to what is said as well as to what is not being said. They are taught to respond to the client's agenda and to recognize the need for providing support, anticipatory guidance, and reassurance. Basic nursing curriculums must continue to provide nurses with these invaluable skills. Utilization of these good communication techniques has prompted the nurse to question specifically and therefore obtain accurate histories. To these basic skills, the advanced practitioner learning telephone management must add the ability to evaluate without the benefit of the senses of smell, sight, touch, and hearing. Furthermore, the conversation is carried on through an intermediary - the caretaker. The difficult task of learning to detect anxiety, uncertainty, and fear and project warmth, concern, and understanding without face to face contact or the observance of non-verbal communication must be taught.

Even though Goodman and Perrin (1978) found that pediatric nurse practitioners (PNPs) were as competent or more competent than some physicians in providing dispositions, this investigator believes that

the weakest part of the nurse's management skills may be in providing dispositions. Recommending dispositions for health problems is a relatively new skill for most PNPs. While nurses seem to obtain pertinent assessment data from caretakers without the aid of protocols, it is possible that a system of protocols would be advantageous in guiding decision-making regarding dispositions. The use of protocols in the learning situation would avoid the missing of any steps in the decision-making process. The protocols utilized should be based on the data obtained regarding the most frequent complaint call categories. Confidence in the nurse's ability to manage would certainly be increased if she/he were aware of and knowledgeable about expected calls and probable dispositions. A series of taped vignettes or computer simulations with branching could be provided in the curriculum for practice in managing complaints in each major area prior to assigning the student to a telephone management service in a field practicum. Computer simulations would have the advantage of consistent and immediate feedback. Students learn from mistakes that will not be made in the clinical area. Preceptors should then monitor the students' telephone calls and critique their management skills in the clinical setting.

The health care delivery system in the United States in 1985 has reached a point in which drastic changes must be made. No longer can health care costs continue to escalate at the present rate nor may it be feasible for everyone to receive the ultimate in health care. Appropriate and responsible use of the telephone as a tool to provide health services must be considered as an alternative to office or emergency room visits. Several studies have shown that a 24-hour

pediatric telephone service in urban health departments or large hospital emergency departments has reduced cost, conserved manpower, and provided continuity of care (Caplan, Orr, Skulstad, & Charney, 1983; Kramer & Leach, 1979; Villarreal, et al., 1983; Yeatman, 1981). In these cases, the nurse is the primary care provider with pediatrician back-up. The nurse must therefore be prepared for this role.

When caretakers display health promotion and disease prevention behaviors by utilizing a telephone service, an extension of these behaviors may be surmised. Anticipatory guidance, reassurance, or suggestions for treatment at home can be transferred to self-care activities in the future. It can be argued that in this time of health care delivery crisis the populace needs to be more involved in self-care. Self-care skills can accrue, be assimilated, and passed on to others (Levin, Katz, & Holst, 1976). The nursing theorist, Dorothea Orem, provides the schema for both the nurse's and client's role in self-care and in this case the utilization of the telephone service in attaining this self-care. There is a need for research to evaluate whether health attitudes can be changed by organized efforts and lead to altered health behavior.

Treatment is never as effective as prevention, therefore early recognition and intervention techniques are as important as the detection of actual physical problems. Nurses must continue to maintain their excellence in communication skills and refine their skills in making dispositions as the role of telephone management will increasingly be delegated. Nurses must demonstrate that their telephone management is unique and a necessary part of the health care delivery

system. Otherwise, nurses may find that a cold, non-feeling machine is answering the caretaker's telephone call with a pre-recorded disposition message.

Implications for Nursing Research

The findings of this study regarding the major complaint categories of telephone calls are similar to those reported by other researchers (Fischer & Smith, 1979; Katz, et al., 1979; Levy, Strasser, Lamb, Rosekrans, Friedman, Kaplan, & Sanofsky, 1980; Villarreal, et al., 1983). Research now should be focused on how to provide the expressive phase of the telephone call. There appears to be enough data regarding the types of calls received, but no studies were found with data on the relative effectiveness of various techniques for providing telephone management. There is a need for research to define and measure the components of interviewing by telephone. An extension of this investigator's study of caretaker satisfaction with the responsiveness of pediatric providers needs to be undertaken. A more sophisticated tool to evaluate caretaker satisfaction should be designed.

A system of protocols may be the instrument to utilize in preparing practitioners in telephone management. As recommended by Heagarty (1979), more scientific validation of this tool is required. If the protocol system is valid, then computerized simulations with branching should be developed and tested as a method of teaching the skill of making accurate dispositions.

LIST OF REFERENCES

LIST OF REFERENCES

- Beckner, M. H. & Rosenstock, I. M. (1984). Compliance with medical advice. In A. Steptoe & A. Mathews (Eds.), Health care and human behavior (pp. 175-208). London: Academic Press.
- Beech, C. P. (1981). A new service for parents with crying babies. Nursing Times, 77 (6), 245-246.
- Bergman, A. B., Dassel, S. W., & Wedgewood, R. J. (1966). Time-motion study of practicing pediatricians. Pediatrics, 38, 254-263.
- Bice, T. W., Eichhorn, R., and Fox, P. D. (1972). Socioeconomic status and use of physician services: A reconsideration. Medical Care, 10, 261.
- Brown, J. L. (1980). A practical guide to pediatric telephone advice. St. Louis: C. V. Mosby.
- Brown, S. B., & Eberle, B. J. (1974). Use of the telephone by pediatric house staff: A technique for pediatric care not taught. The Journal of Pediatrics, 84, 117-119.
- Caplan, S. E., Orr, S. T., Skulstad, J. R., & Charney, E. (1983). After-hours telephone use in urban pediatric primary care centers. American Journal of Diseases in Children, 137, 879-882.
- Clyne, M. B. (1961) Night calls - a study in general practice. London: Tavistock.
- Curry, T. A., & Schwartz, M. W. (1978). Telephone assessment of illness: What is being taught and learned? Pediatrics, 62, 603-605.
- Donaldson, N. E. (1977). Fourth trimester follow-up. American Journal of Nursing, 77, 1176-1178.
- Fischer, P. M., & Smith, S. R. (1979). The nature and management of telephone utilization in a family practice setting. The Journal of Family Practice, 8, 321-327.
- Fosarelli, P. D. (1983). The telephone in pediatric medicine. Clinical Pediatrics, 22, 293-296.
- Freeman, K. (1980). A postpartum program that really works. The Canadian Nurse, 76, 40-42.
- Greenlick, M. R., Freeborn, D. K., Gambill, G. L., & Pope, C. R. (1973). Determinants of medical care utilization: The role of the telephone in total medical care. Medical Care, 11, 121-134.

- Greitzer, L., Stapleton, F. B., Wright, L., & Wedgewood, R. J. (1976). Telephone assessment of illness by practicing pediatricians. The Journal of Pediatrics, 88, 880-882.
- Hanson, T. (1979). Outreach program in paediatrics. Dimensions in Health Service, 56 (5), 54, 56-58.
- Heagarty, M. C. (1968). Use of the telephone by low-income families. Journal of Pediatrics, 73, 740-744.
- Heagarty, M. C. (1978). From house calls to telephone calls. American Journal of Public Health, 68, 14-15.
- Heagarty, M. C. (1979). The telephone syndrome. Pediatrics, 64, 696-697.
- Hessel, S. J. & Haggerty, R. J. (1968). General pediatrics: A study of practice in the mid 60's. Journal of Pediatrics, 73, 271-279.
- Hoekelman, R. A. (1975). What constitutes adequate well-baby care? Pediatrics, 55, 313-326.
- Holm, R. S. (1979). Good telephone technique aids in pediatric emergencies. Michigan Medicine, 78 (8), 124.
- Katz, H. P. (1982). Telephone manual of pediatric care. New York: John Wiley & Sons.
- Katz, H. P., Pozen, J., & Mushlin, A. I. (1979). Quality assessment of a telephone care system utilizing non-physician personnel. American Journal of Public Health, 68, 31-37.
- Koffman, B. D. & Merritt, K. (1978). Analysis of after-hours calls and visits in a family practice. The Journal of Family Practice, 7, 1185-1190.
- Kramer, F. E., & Leach, R. C. (1979). Pediatric hot line: A model for after hours coverage. Urban Health, 8 (7), 45-48.
- Levin, L. S., Katz, A. H., & Holst, E. (1976). Self-care: Lay initiatives in health. New York: Prodist.
- Levy, J. C., Rosekrans, J., Lamb, G. A., Friedman, M., Kaplan, D., & Strasser, P. (1979). Development and field testing of protocols for the management of pediatric telephone calls: Protocols for pediatric telephone calls. Pediatrics, 64, 558-563.
- Levy, J. C., Strasser, P., Lamb, G. A., Rosekrans, J., Friedman, M., Kaplan, D., & Sanofsky, P. (1980). Public Health Reports, 95, 324-328.

- McKinlay, J. B. (1972). Some approaches and problems in the study of the use of services: An overview. Journal of Health and Social Behavior, 13, 115-152.
- Murphy, D., & Dineen, E. (1975) Nursing by telephone. American Journal of Nursing, 75, 1137-1139.
- Orem, D. E. (1971). Nursing: Concepts of practice. New York: McGraw-Hill.
- Perrin, E. C., & Goodman, H. C. (1978). Telephone management of acute pediatric illnesses. The New England Journal of Medicine, 298 (3), 130-135.
- Pope, C. R., Yoshioka, S. S., & Greenlick, M. R. (1971). Determinants of medical care utilization: The use of the telephone for reporting symptoms. Journal of Health and Social Behavior, 12, 155-162.
- Richardson, W. C. (1970). Measuring the urban poor's use of physicians. Medical Care, 3, 136-142.
- Riehl, J. P. & Roy, C. (1980). Conceptual models for nursing practice (2nd ed.). New York: Appleton-Century-Crofts.
- Roghmann, K. J., & Haggerty, R. J. (1973). Daily stress, illness, and use of health services in young families. Pediatric Research, 7, 520-526.
- Rosenstock, I. M. (1966). Why people use health services. Millbank Memorial Fund Quarterly, 44, 74-127.
- Schmitt, B. D. (1980). Pediatric telephone advice. Boston: Little, Brown & Company.
- Silver, H., Ford, L., & Day, L. (1968). The pediatric nurse practitioner program. Journal of the American Medical Association, 204 (4), 88-92.
- Smith, P. B., Mumford, D. M., & Hammer, E. (1975). Hotline for teen-age mothers. American Journal of Nursing, 75, 1504.
- Stirewalt, C. F., Linn, M. W., Godoy, G., Knopka, F., & Linn, B. S. (1982). Effectiveness of an ambulatory care telephone service in reducing drop-in visits and improving satisfaction with care. Medical Care, 20, 739-748.
- Strain, J. E., & Miller, J. D. (1971). The preparation, utilization, and evaluation of a registered nurse trained to give telephone advice in a private pediatric office. Pediatrics, 47, 1051-1055.

- Strasser, P. H., Levy, J. C., Lamb, G. A., & Rosekrans, J. (1979).
Controlled clinical trial of pediatric telephone protocols.
Pediatrics, 64, 553-557.
- Thayer, M. B. (1984). Telephone management. Pediatric Nursing, 10 (2),
121-122, 154.
- Villarreal, S. F., Berman, S., Groothuis, J. R., Strange, V. & Schmitt,
B. D. (1983). Telephone encounters in a university pediatric
group practice. Clinical Pediatrics, 23, 456-458.
- Webster, G. L., Ritchie, A. F., & Morrell, J. A. (1965). Night calls
in general practice. British Medical Journal, 1, 369.
- Yeatman, G. (1981). Twenty-four hour telephone triage: an expedient
to ambulatory child care. Military Medicine, 146, 249-253.
- Zimney, L., McClain, M. P., Batalden, P. B., & O'Connor, J. P. (1980).
Patient telephone interviews. Journal of Community Health, 6,
35-42.

APPENDIXES

APPENDIX A

TEAM	1	2	3 (Circle One)
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TEAM	1	2	3	(Circle One)
1				
2				
3				

[illegible]

APPENDIX B

CONTINUITY PROGRAM

Telephone Call

Date: Time: A.M.
P.M.

Usual MD:

Patient's
Name

Telephone #:

Problem:

Disposition:

Call taken by:

APPENDIX C

PHONE SERVICE QUESTIONNAIRE

Code Number:
Category of Caretaker:
Phone Number:
Chief Complaint:

1. To begin with, let's talk a little bit about the problem you called in for. When you called, what was your main concern or problem with (child's name)?

CHIEF COMPLAINT _____

2. Has (child's name) ever had a problem like this before?

NO 1
YES 2

3. Was there anything different or unusual happening that made you call when you did:

NO 1
YES 2

3a) What was happening?

4. How worried were you? A little bit, quite a bit, or very worried?

LITTLE BIT 1
QUITE A BIT 2
VERY 3

5. When problems like this occur, do you usually have someone around that you can talk to?

NO 1
YES 2

5a) Who is available?

6. Were the others worried too?

NO 1
YES 2

7. Did you have some idea of what to do about the problem?

NO 1
YES 2

7a) What did you think ought to be done?

8. I would now like to ask you a few questions about your use of the clinic and the phone service. How long have you been coming to the Pediatric Continuity Clinic?

9. Do you ever take (child's name) to other places for care?

NO 1
YES 2

9a) Where else?

10. How did you learn about the phone service?

11. How often do you use the phone service?

12. Looking back at the call you made several days ago, what would you have done if the phone service had not been available?

13. Do you remember what time of day or night you called?

NO 1
YES 2

13a) When?

14. Did you hear or remember the name of the person with whom you talked?

NO 1
YES 2

14a) What was the name?

15. I am wondering what it was like for you when you called the phone service. Did the (doctor/nurse) seem concerned about your problem?

NO 1
YES 2

16. Were you able to tell the (doctor/nurse) everything you wanted to about (child) and his/her problem?

NO 1
YES 2

17. Did the (doctor/nurse) answer your questions?

NO 1
YES 2

18. Did the (doctor/nurse) seem to have time to help you?

NO 1
YES 2

19. Did you understand the directions for (child's) care?

NO 1
YES 2

20. Could you do what was recommended for your child?

NO 1
YES 2

21. Did this treatment seem right to you?

NO 1
YES 2

22. Was there anyone around home who had a different idea about how to take care of the problem?

NO 1
YES 2

22a) Who was this person?

23. Were there any other questions you would have liked to ask?

NO 1
YES 2

23a) What kept you from asking?

24. The last questions have to do with what happened after you called the phone service. How did things go after you called?

25. Did you need to do anything else other than what was suggested on the phone?

NO 1
YES 2

25a) What did you do?

26. When did (child's name) start feeling better?

27. On a scale of 1 to 10, with one being low and 10 high, how good did you feel about the service you received over the telephone?

28. Do you have anything to suggest that you think would make the phone service better from a (caretaker's) point of view.

29. Disposition noted by provider.

VITA

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