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The major purpose of this study was to develop an Adaptation Model for emergency departments in urban and suburban Health Maintenance Organizations. Questions explored which provided data for the Model were: 1) are there significant differences in the demographic, sociologic, and decision-making characteristics of clients seeking services in emergency rooms and after-hour clinics?, and 2) are there significant differences in perceptions of access-related problems and stated preferences for personal physicians among clients seeking such services? A pilot study was completed, critiqued, and analyzed. Final research instruments were developed for adults and children. Questionnaires were completed by 1,031 clients in an urban and suburban facility of the Kaiser-Permanente Medical Care Program in Portland, Oregon. Data analysis was completed using the Statistical Package for the Social Sciences sub-program FREQUENCIES, CROSSTABULATION, AND DISCRIMINANT. Major findings of this study were: 1) no significant differences existed in the

demographic and sociologic characteristics of clients, 2) significant differences were found in perceived problems of access, in decision-making characteristics, and in preferences for personal physicians. Significant items were: 1) convenience of the facility location, 2) immediacy and availability of care, 3) contact prior to arrival, 4) instruction by "nurse" to seek care, 5) clients reporting they did not have a personal physician, and 6) repeated use of the emergency department during the previous year. Different profiles of decision-making characteristics of urban and suburban clients resulted from the analyses. The overall pattern of care for children varied less between urban and suburban settings than did the pattern of care for adults. Findings were discussed in terms of the traditional model of emergency department care. Conflicts arising from system "controls" provided the basis for suggesting changes incorporated into the Adaptation Model. The basic premise for the Adaptation Model advances the point at which triage occurs, eliminates conflicts of control, and thus modifies both consumer behavior and the emergency department system.

THE DEVELOPMENT OF AN ADAPTATION MODEL FOR EMERGENCY DEPARTMENTS IN URBAN AND SUBURBAN HEALTH MAINTENANCE ORGANIZATIONS

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This work is dedicated to my fathers, Alexander and Frank.

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CHAPTER I

THE DEVELOPMENT OF AN ADAPTATION MODEL FOR EMERGENCY DEPARTMENTS IN URBAN AND SUBURBAN HEALTH MAINTENANCE ORGANIZATIONS

Introduction

The delivery of medical care services in the United States has changed dramatically during the last eighty years. In 1900, most health problems were attended to by the individual family unit, their immediate community support network, and/or a local general practitioner. Today, health consumers can call upon an abundance of providers, service modalities, and institutions to treat the most specific, or complicated, medical problem. Current medical technology--unimagined in 1900--is now commonly available to large portions of the population of the United States.

Hospitals, likewise, have changed dramatically during this period of time. Until the early 1950's hospitals were largely an urban phenomenon that provided "a place" for physicians to practice their trade. Historically, hospitals were not centers of health care, but sites in which such health services occurred when treatment in the home or the doctor's office had failed.

Since 1950, a variety of factors have contributed to the emergence of hospitals as centers for health care. Among these factors are the increased specialization of health care professions,

the dramatic increase of the population base, the mobility of population in general, and the explosion in medical technology, diagnosis, and treatment forms. As one might expect, physicians as well as consumers have increasingly come to rely upon the facilities and the services of hospitals.

Paralleling the emergence of hospitals as health care centers was the change in the utilization of hospital emergency rooms and after-hours clinics. Between the years of 1954 and 1974, patient utilization rates for these facilities increased three hundred and eighty percent (Gibson, 1973). Since 1974, the trend has continued until today when over eighty million emergency department visits will occur in the calendar year 1981 (Schroeder, 1979).

Prior to 1970, little national attention was directed toward the increased use of emergency rooms or after-hours clinics. More disturbing, however, was the equally small attention given to the disproportionate rate of increase in the use of emergency departments for non-urgent medical conditions. (Shortliffe, 1958; Skudder, McCarrol and Wade, 1961; Terrens, 1970; Walker, 1975).

Current literature contains a variety of hypotheses on how health care facilities might address the problem of non-emergency utilization of emergency department facilities. Most suggestions have been developed by the providers of care. Operational factors based on consumer use and consumer preference have not been integrated into emergency department systems. The inherent incentive for Health Maintenance Organizations (HMO's) to provide appropriate health care services in the most cost effective way makes this study of

great importance.

Origin of the Problem

This study was conducted using the Oregon Region of the Kaiser-Permanente Medical Care Program. The Oregon Region of Kaiser-Permanente (Portland, Oregon and Vancouver, Washington) is a prepaid group practice type of Health Maintenance Organization providing medical care to approximately 249,000 Health Plan Members.

Present facilities include two acute care general hospitals and nine satellite clinics. Both hospitals (Bess Kaiser Medical Center and Kaiser Sunnyside Medical Center) have emergency rooms and after-hours clinics. The nine clinics, organized for sub-specialty and primary care, operate on a scheduled appointment basis, and are not open for urgent or emergent care in the evenings or on the weekends. Members who are in need of care during the evening or night hours, or on weekends, are directed to the two hospitals' emergency departments.

Reports generated monthly confirm that the Oregon Region of Kaiser-Permanente typifies national trends of other HMO's and community hospitals. The tendency of consumers to use emergency departments of HMO's and community hospitals for non-urgent reasons is a well documented national trend. The Oregon Region has thus experienced rapid growth in the utilization of their emergency departments.

In May 1979, an administrative audit identified a trend toward

increased occupancy and patient days at Kaiser Sunnyside Medical Center. Subsequently, the Department of Planning and Medical Economics (DPME), a research unit of the Oregon Region, was requested to undertake a study of admissions-by-service areas for this hospital. This study confirmed that the increased admission rate was a result of the trend of increased visits to the emergency room and the after-hours clinic. Specifically, these utilization rates had grown from 375 visits per 1,000 members in 1977, to 474 visits per 1,000 members in 1979.

Further substantiation of the emergency department utilization problem is that both acute care hospitals have recently expanded their emergency departments because of increased demand. Bess Kaiser increased its facilities as part of an overall remodeling project. Kaiser Sunnyside increased its facilities after a Certificate of Need approval was based, in part, on the projection of 405 visits per 1,000 members for the year 1979. As mentioned previously, retrospective studies indicated that the actual figures for the year of 1979 were 474 visits per 1,000 members.

In summary, interest in this study is a direct result of identifying a trend, substantiating the impact of the trend on the delivery of health care services, and the lack of data and models from which planning could effectively and efficiently proceed.

Need for the Study

Current literature describes an increasing utilization of emergency departments and subsequent attempts at appropriate and effective responses to these trends. Cause and effect remain speculative, and most authors offer little more than hypothetical or subjective opinion on the subject (Shortliffe, 1958; Looney, 1978; and Steinmetz, 1978). Complicating attempts at identifying specific models has been the tendency to use the term "emergency department" as if all such departments are similar, and that a single model would apply to all situations.

This study addresses two current problems associated with planning for emergency departments in HMO's. The first is the lack of data concerning characteristics of people who utilize such services. Specifically, there is a need to develop practical data which describes where people come from to get emergency department services, why they choose a particular site, and how the decisions are made to elect emergency services. Secondly, there are no functional models for the organization of services which really address the population being served.

Specific questions that have not been addressed:

1) Are there elements in an HMO system that encourage consumer utilization of emergency facilities?
2) Are there common characteristics of persons selecting non-essential emergency services in terms of:

a) Convenience and driving time to the facility

b) Age groups

c) Education

d) Importance of having a personal physician

e) Access related problems associated with securing services at other times

3) Can information be gathered about emergency rooms and after-hours clinics that leads to the development of an Adaptation Model based on consumer preference, consumer decision-making, and provider availability?

Incentives for evaluation of emergency department systems comes from the tremendous scrutiny which is presently leveled at the health care industry by state regulatory agencies, government, and by consumers themselves. Hospitals seem more interested, or perhaps more compelled to explain themselves to legislators, regulators, and the public (VOICE, 1979). The variety of national health insurance proposals currently being reviewed in Washington, D.C. approaches the health needs of a general population in a variety of ways. Market forces and competition in medical care can be viewed as both positive and negative. Several of the current legislative proposals define specific parameters which will affect consumer choice and consumer decision-making in accessing health care services. If the government, through its legislators, is to make better informed decisions regarding the efficacy of alternative health care delivery systems, improved and expanded research studies

concerning health maintenance organizations will be a necessity.

Since emergency rooms and after-hours clinics provide care for a tremendous number of HMO members, it seems important to establish models to enhance the unique contribution that such a system can provide. This study is the first step in providing important data to create such a model.

Statement of the Problem

The major purpose of this study was to develop an Adaptation Model for emergency departments (emergency rooms and after-hours clinics) in urban and suburban Health Maintenance Organizations.

Two types of clients were studied: 1) consumers seeking access in behalf of themselves; and, 2) consumers seeking access in behalf of children. Both of these groups were studied in two different settings: 1) a suburban HMO facility and 2) an urban HMO facility. The research questions were developed to determine differences between, and among, these two client groups as they sought care in these two different medical care settings.

Questions which were explored to provide data for the Model were:

Question 1 Are there significant differences in the demographic characteristics of clients seeking service?

Question 2 Are there significant differences in the sociologic characteristics of clients seeking service?

Question 3 Are there significant differences in perceptions of access problems related by clients seeking services?

Question 4 Are there significant differences in the decision-making characteristics of clients seeking services?

Question 5 Are there significant differences in preferences for personal physicians of clients seeking services?

Question 6 Do the answers to the questions listed above provide

sufficient data to create an Adaptation Model for either or both settings?

Summary of Methodology

The methods used to approach the questions included the development and testing of the research instruments, and the collection and analysis of the data. Two survey instruments were developed, one for adults, and another for adults in behalf of pediatric clients. A pilot study was conducted on the first instruments, and the results were critiqued and analyzed. The second instruments were developed and a clarity determination was made.

The final research instruments were completed by clients accessing the emergency department of both an urban and suburban HMO. Data analysis was completed and significant discriminating characteristics of the clients provided the input into an Adaptation Model for emergency departments of HMO's.

Limitations of this Study

1) This study is limited to the extent that it represents urban and suburban clients accessing the emergency department of only the Oregon Region of the Kaiser-Permanente Medical Care Program.
2) The selection of the weeks/months of the year in which the survey was conducted may represent a limitation in terms of extenuating factors. Such factors might include times during the year where an unusually high or unusually low

incidence of morbidity occurs specifically as related to certain age groups.

3) This study is limited by first respondent bias.

4) The degree to which clients agreed to complete the survey questions accurately and honestly could be considered a limitation of this study.

5) Usual limitations as applied to the development of conceptual models would be appropriate in this study. Some limitations can be assumed since models are simplifications and abstractions of concrete events, and not absolutes.

Assumptions of this Study

1) This study assumes that the current model of patient care in use by the two studied emergency departments needs confirmation or modification based on current use by clients. This study also assumes that the emergency department's model of care at these two sites could vary, if there are significant and discriminating differences in the two populations.

2) An assumption of this study is that the expert panels used to develop the survey questionnaire can accurately identify with the clients who use emergency departments in terms of selecting appropriate items which reflect access-related problems, and decision-making behaviors.

3) No coercion of clients is assumed other than that inherent in the situation/environment of the hospital setting.

4) Responses by clients to the survey questionnaire are stated preferences and perceptions. This study assumes validity of the responses.

Definition of Terms

1) Adaptation Model - Primarily a systems model which, conceptually should bring about an adapted state through assessment and intervention.

2) Certificate of Need - Federal Regulations which require the documentation and substantiation of need or cost effectiveness for the construction, establishment, or development of a new health care facility, or the expenditure of a health care facility or health maintenance organization in excess of $150,000. Additionally, Certificate of Need covers a substantial change in the bed capacity of a health care facility or health maintenance organization, which increases the total number of beds by more than ten (10) beds or more than ten percent of total bed capacity.

3) Decision Triage - A sorting of patients which occurs as a result of defining various alternatives in getting appropriate medical care, and allowing the patient to make the selection after consideration of each alternative offered.

4) Emergency Departments - Departments which include both emergency rooms and after-hours clinics.

5) Emergent - The severely ill or injured, requiring immediate attention to combat danger to life or limb and in whom delay of only a few hours would result in deterioration.

6) Fee-For-Service - Another term for the "traditional" medical practice in a community. Fee-for-service medicine is characterized by physicians practicing in individual offices who charge a specific fee for each service rendered.

7) Health Maintenance Organization (HMO) - The legal definition is that of an organized health care delivery system as defined by the HMO Act of 1973, Public Law 96-222. "Health Maintenance Organization" means a public or private organization which:

   a) Provides or otherwise makes available to enrolled participants health care services, including at least the following basic health care services: Usual physician services, hospitalization, laboratory, x-ray, emergency and preventive services, and out-of-area coverage;

   b) Is compensated, except for co-payments, for the provision of the basic health care services listed in paragraph a) of this subsection to enrolled participants on a pre-determined periodic rate basis; and

c) Provides physicians' services primarily:

1) Directly through physicians who are either employees or partners of such an organization or

2) Through arrangements with individual physicians or one or more groups of physicians organized in a group practice or individual practice basis. (ORS 442.015)

8) Health Systems Agency (HSA) - Locally, the Health Systems Agency means an Oregon Corporation designated to serve as a reviewing and planning body as stipulated in the Federal Act.

9) Kaiser-Permanente Medical Care Program - The largest pre-paid group practice model health maintenance organization in the United States, serving more than 3,700,000 enrolled members in California, Colorado, Hawaii, Ohio, Oregon, and Washington.

10) Medical Triage - A method of sorting patients based on their need for immediate medical attention. This system was established by the armed forces during World War II and has been used extensively in the community health care setting since that time.

11) Non-Urgent - A patient to whom a delay of 24-hours would make no appreciable difference in the clinical condition.

12) Pediatric - 14 years of age or under.

13) Physician Extender - Health professionals such as physician assistants and nurse practitioners which supplement, augment,

and expand the practice of medicine.

14) Prepaid Group Practice - The medical group aspect of HMO's who are retained by the Health Plan or marketing component, to provide medical care services on a predetermined salaried basis as stipulated by a contract.

15) SPSS - Statistical Package for the Social Sciences.

16) Urgent - Illness or injury requiring attention within a few hours but that delay poses no threat to life or limb; patient is not in severe pain and does not pose any danger to himself or others.

CHAPTER II

REVIEW OF LITERATURE

Introduction

During the twenty years between 1954 and 1974, the number of hospitals increased by fourteen percent, the number of hospital beds by fifty-six percent, the hospital admissions by sixty percent, and the inpatient days by forty-one percent. These facts must be contrasted to the staggering figure of a three hundred and eighty percent increase in visits to emergency departments during those same years (Gibson, 1973). Confirming Gibson's work was an independent study done by the American Hospital Association in 1972. Extending the trend through 1977, emergency department visits in the United States rose from eighteen million in 1958, to forty-four million in 1968 and to seventy-seven million in 1977 (Schroeder, 1979).

Few insights concerning the trend in the use of emergency departments will be gained from the literature available for review. The reports of Shortliffe in 1958, and Skudder, McCarroll, and Wade in 1961, all focus specifically on the trend toward non-urgent use of emergency departments. Paralleling this changing pattern of use is the increased emphasis of the medical profession on sub-specialty training leading to certification of physicians in emergency medicine. In effect, this period of time witnessed increased provider skill in treating emergency conditions contrasted with the tendency of consumers to use such areas for non-urgent reasons.

Clearly, these two trends are in direct opposition to each other.

A review of literature for this study included the acquisition of material from many areas and perspectives. For the purpose of clarity, this literature review is organized into the following areas: 1) reasons for use of emergency departments; 2) consumer views of the emergency departments; 3) solutions to emergency departments' problems; and 4) literature relating to models.

Reasons for the Use of Emergency Departments

Most authors, admittedly, have no definitive answers to the increasing use of emergency departments. Although the trend seems to parallel the increasing supply of physicians during the past two decades, more recent literature would tend to refute a direct relationship and look at other rationales. Many writers have determined that the cause-and-effect relationship is very complex, and have confined their contributions to treatises regarding the "good and bad", or "right or wrong" aspects of emergency department use (Schroeder, 1979; Schechter, 1973; Wolcott, 1979). The primary argument against the advisability of emergency department use provided by these various authors included: 1) poor quality care because of lack of systematic follow-up, 2) costs and, 3) hostile reactions from the emergency department providers trained in highly skilled life-saving techniques. Wolcott (1979) has extended the hostility concept of emergency department providers to offer the supposition that such staff-patient-society conflicts are probably

the largest single cause of iatrogenic conditions, patient complaints, and political difficulties.

Several authors have attempted to describe the trend as a reflection of changes in public thinking and consumer demand (Shortliffe, 1958; Davidson, 1978; Schroeder, 1979; Walker, 1975; Elliott, 1978; Looney, 1978; Steinmetz, 1978, Hurtado, 1974). The convenience of 24-hour health care access availability in emergency departments is seen by many as a public demand for instant gratification and convenience medicine. The theoretical assumption and correlation between the consumer view of the "Department of Available Medicine" and the "Department of Emergency Medicine" is both prominent and substantial in the literature. Most authors have developed their "available medicine premise" from subjective assessments over a period of the last five years.

Increased mobility of consumers has been attributed as a causative factor in the increase in the use of emergency departments. Few authors think such mobility is a significant factor, and none view it as an isolated cause in the overall trend (Elliott, 1978; Schroeder, 1979; Shaw, 1977; Gibson, 1973).

Consumer response to problems in health care accessibility and availability is given as a major component in the trend of increasing use of emergency departments. The total number of <u>available physicians</u> cannot be construed as synonymous with the total number of <u>accessible physicians</u>, either in terms of location (urban versus suburban) or hours. Davidson (1978) identifies accessibility problems in the inner city as associated with older age groups and

lack of primary care physicians. Problems associated with low income age groups is pointed out as a more obvious accessibility problem in the urban versus the suburban area. Davidson views the concentration of middle and higher income populations in the suburbs, with accompanying differences in the consumer view of health care systems, as a major dichotomy in the synchronization of the two trends; i.e., increase in population and increase in physicians.

Physicians seemingly prefer to work regular hours and this factor, plus the trend in the increasing numbers of specialists versus the number of primary care physicians, obviously impacts the consumer decision regarding health care access. The increase in physician specialization has also resulted in patients not knowing which specialists to call, office hours by appointment only, and in some unwillingness to accept responsibility for patient care problems outside their areas of specialization (Gibson, 1973). Steinmetz (1978) has suggested that even though there has been an increasing number of physicians, and an increase in the number of physician visits per person in the United States, there still seems to be an overall increase in the use of emergency departments. One is left with fewer substantive rationales to explain the trend.

Apparent reluctance of physicians to be on-call outside of regular office hours might prompt a consumer advocate to question why anyone should suggest that the public receive their health care anywhere else besides the emergency department. A legitimate thought? Availability, accessibility to personal physicians, increase in physician specialization, along with the wide range of

services offered and immediately available through hospital emergency departments is identified as a major reason why consumers choose that particular alternative for care (Schroeder, 1979).

Reimbursement practices and policies regarding health insurance plans is cited by many authors as a contributing factor in encouraging the consumer to use emergency department services (Gibson, 1973; Steinmetz, 1978; Elliott, 1978; Davidson, 1978). The increase in use of the emergency department by clients in the Medicare and Medicaid groups has been substantiated in both Canada and the United States. Reimbursement policies of some health insurance plans may cover treatment in emergency departments, but not if the same treatment was rendered during an office visit (Gibson, 1973).

One could argue that even though third-party payors cover most emergency department bills, the higher cost of health care services generally is returned to the consumer in increased premiums and taxes. The relationship of insurance reimbursement to emergency department use is virtually non-existent in the literature.

The consumer may well be a victim of circumstances, some of which are beyond his control; such as physician availability, physician accessibility, insurance coverage, and the organization of physicians in a given area. Non-urgent use of the emergency department is obvious, but the literature leaves the question unanswered as to how this growth can best be explained.

Consumer Views of the Emergency Department

In order to better understand the present pattern in consumer use of emergency department services, a review of the literature and studies surrounding the client decision-making process is important. Usually, only one small facet surrounding consumer attitudes and subsequent behavior has been explored in each research article. Suppositions and conclusions gleaned from the literature seem rather remarkable in light of the sparse data and small study populations.

A survey done by the American Hospital Association (1977) indicates that two out of three Americans regard the emergency department as "interchangeable" with the physician office for general treatment capabilities. Walker (1975) tested the assumption that these attitudes and usage had a direct correlation. In his study, he used the term "traditional" as one which would encompass a close doctor-patient relationship. Walker's results indicated that consumers who use emergency departments for non-urgent reasons had the same "traditional" attitude as did those who use such services for urgent or emergent reasons. An extrapolation of this correlation should result in a "contemporary" versus a "traditional" attitude among consumers who use the emergency department for non-urgent reasons. Ingram's study (1978) substantiated this same phenomenon in Toronto. Such studies obviously raise the question: If such a conflict exists between attitudes and action, is the consumer using the emergency department because other accessibility problems prevent traditional methods of entry into the health care system?

Several authors have investigated the relationship of distance to the decision to seek health care services from emergency departments for non-urgent conditions (Glass, 1977; Hilker, 1978; Ingram, 1978; Shannon, 1969). Glass (1977) discovered that 90 percent of the patients seen at the Mt. Sinai Hospital lived within the same zip code as the facility. Hilker (1978) tested the hypothesis that the majority of parents travel less than 15 minutes to seek services for their children for non-urgent problems. The results of these studies seem to coincide with conventional geographic theory. Spatial interaction declines with distance, usually in a negative exponential fashion.

Selected researchers have investigated the attitude, and the subsequent action process of decision-making of clients by having both providers and consumers determine the urgent, emergent, and non-urgent nature of the visit (Hilker, 1978; Ingram, 1978; VOICE, 1979; Davidson, 1978; Jacobs, 1971). The results of such investigations, performed by providers, indicated a range of between fifty to sixty-five percent of emergency department visits which, by triage standards, did not need the services of a hospital emergency department. All of the studies reviewed indicated that the determination of the need to seek services was made by various health care professionals <u>after</u> they have had the benefit of examination, laboratory and radiology studies, and a subsequent working diagnosis. An unexplored question is "would the need to access emergency department care change if viewed by providers prior to extensive treatment and/or diagnostic procedures?"

Numerous other reasons are given for the consumer behavior related to non-urgent use of emergency departments. Such reasons as: 1) referred or directed by physicians or other health care personnel (Hilker, 1978; Ingram, 1978; Davidson, 1978); 2) frustration in making appointments (Hilker, 1978; Walker, 1975; Davidson, 1978; Stratmann, 1975; Hurtado, 1974); 3) influence of family and friends (Jacobs, 1971; Ingram, 1978), and 4) consideration for personal physician time (Kleman, 1967) were given. In summary, no definitive answer or answers, are available to the nexus between consumer attitudes and health care seeking behavior.

Literature Relating to Solutions

Studies which describe solutions to the problem in excessive emergency department use are very sparse indeed. Triage is viewed as a positive alternative by several researchers (Schroeder, 1979; Terrens, 1970; Ingram, 1978; Gibson, 1973; Kleman, 1976; Davidson, 1978). However, this procedure is effective in meeting the hospital and emergency department providers' priorities, rather than addressing consumer attitudes and subsequent behavior. Such "sorting" of patients allows the providers latitude in preserving the urgent and emergent aspects of the emergency department, while still accommodating the consumer with non-emergent health needs. The triage process is often arranged in a setting with direct proximity to the emergency department rather than within the emergency service area. In these instances, such areas are often called ambulatory care clinics or walk-in clinics.

Triage areas have been widely used by many of the large group practice hospitals and health maintenance organizations. The triage concept is far from new or novel, having been used extensively in the armed services for many years. There appears to be nothing in the current literature that should make one assume that the institution of triage systems changes anything of importance to the consumer; although, when separate from emergency departments it has offered an option of lower cost services.

Education of both consumers and providers is viewed as a panacea by some authors (Wolcott, 1979; Shaw, 1977). HMO's have taken an active position in attempting to educate people to use the emergency department services in a manner cost effective to its hospitals and physicians. It appears this has had little effect on the consumers. Likewise, educating providers regarding the emergency departments' role in primary care seems an onerous task, getting virtually no support from the medical community. The extent to which hostile reactions to patients with non-life threatening conditions interfere, or produce dangerous errors in medical management, has only been theorized and not substantiated (Wolcott, 1979). Hospitals could not conceivably take a position of refusing to provide necessary care for ethical, economic, and legal reasons.

Researchers have rarely approached the present consumer misuse of emergency departments as a "fact of life". Most view the problem as one of "consumer behavior" not as a problem needing modification of the "system" itself. The need for further research

and more definitive studies regarding the cause and effect of system misuse are mentioned by all of the authors reviewed. Insights into patterns of local utilization could provide more successful community-specific solutions. As emergency departments become more acknowledged and accepted points of entry for health care, models should be developed to first legitimate, then integrate emergency department services with other elements of the health care system.

Literature Relating to Models

Models have been used throughout history to describe the relationships among concepts that exist in theory. As an analogy, a model can assist in visualizing and understanding something that cannot be directly observed. Lippitt (1973) states that models will allow for planned changes since their use affords greater understanding of behavior in the complex environment of the health care setting. Certainly, the utility of using models in problem solving cannot be underestimated. Since models are selective representations of the empirical world, they simplify areas of concern and assist in grasping key elements and the relationships between those elements. Numerous types of models exist in health care literature, and some have been used extensively in medical diagnosis (Chin, 1961). Researchers in health care have concentrated mainly on three types of models: systems, interaction, and developmental (Riehl, 1980; Hardy, 1974; and Roy, 1970).

Among the first to write extensively on systems theory was

Bertalanffy (1968). Such key terms as "adaptation", "adjustment", and "models" predominate his writings. He describes the systems model as either open or closed; descriptive or explanatory. This model assists in guiding the selection of points of intervention that may serve a valuable function, such as in medical diagnosis. The client can be diagnosed by being conceptualized as a system of variables, where everything in an orderly way, depends on everything else. The advantages of the systems model in diagnosis is that providers can avoid the error of simple cause and effect thinking, as well as predict what will happen if no new force is applied. This model has the disadvantage of losing the autonomy of the components, or the direct interactional consequences for the separate components of the system.

A comparison of the systems model to the intersystem or interaction model allows the identification of more relational issues which are valuable in problem solving. Such models have been used primarily in solving problems related to leadership, power, and conflict. These models have been applied extensively in describing and predicting human behavior. The value of these models is that of examining interdependent dynamics of interaction, both within and between units.

Developmental models center around growth and directional change. Such models assume noticeable differences between the states of a system at different times: 1) the succession of these states implies the system is going somewhere, and 2) there is an orderly process that explains this sequence. Such terms as "stages", "levels", "phases",

or "periods", could be applied to the various elements of this process and have been used primarily by psychologists throughout the years. The greatest disadvantage of developmental models is the varying assumptions about potentialities of the system for growth and change. Change could be conceived as constant with a general decay of the system over time.

A model for change is a more recent creation, where the elements of analyses from systems models are used with ideas from the developmental models. The idea of changing through adaptation began with a physiologic psychologist Harry Helson, and has been used to develop frameworks for nursing practice, research, and education (Roy, 1970). Roy studied the work of Helson, and in 1964 developed the Adaptation Model.

The Roy Adaptation Model is primarily a systems model and is based on the following assumptions:

1) The person is a bio-psycho-social being.
2) The person is in constant interaction with the changing environment.
3) The person uses both innate and acquired mechanisms, which are biologic, psychologic, and social in origin to cope with the changing world.
4) The person must adapt to respond positively to environmental changes.
5) The person's adaptation is a function of the stimulus he is exposed to at his adaptation level.

6) The person's adaptation level is such that it comprises a zone indicating the range of stimulation that will lead to a positive response.

7) The person is conceptualized as having four modes of adaptation: psychologic needs, self-concept, role function, and interdependence relations.

8) The person's life contains the inevitable dimension of health and illness.

The four modes of adaptation can be further examined. According to this theory, the client would respond to the stimuli present because of his position on the health-illness continuum. Therefore, the goal would be to bring about an adapted state in which the client frees himself to respond to other stimuli that may be present. Two major factors that promote such adaptation are assessment and intervention. Unlike the three previously mentioned types of models, an adaptive model considers the interaction of the person with the system and the system with the person.

Summary

In summary, the review of literature yielded the following general conclusions:

1) There is a lack of significant sample sizes, appropriate research design, and statistical applications regarding the dynamics of emergency department misuse.

2) There is a need for the development and use of models to begin solving problems of misuse.

3) The Adaptation Model appears to offer the greatest potential for closing the gap between consumer demand and provider capability.

CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

The major project activities included: 1) preparation and testing of the research instrument, 2) collection of data, and 3) analysis of data.

Preparation and Testing of the Research Instruments

Two research instruments were developed for the study: an Adult Questionnaire and a Pediatric Questionnaire. Consistent with the intent of the study, questions for the instruments were developed in four broad (categorized) areas, as follows:

1) Questions concerning client demographic characteristics
2) Questions concerning client sociologic characteristics
3) Questions concerning problems of access to care
4) Questions concerning the decision-making process clients used prior to seeking care

A fifth category of questions were subsequently developed at the request of the participating institution's management. The category dealt with the client's preference for a personal physician.

Research instruments were developed and tested in two distinct phases. The first phase included the convening of a panel of experts consisting of emergency department physicians and emergency room and after-hours clinic staff at Kaiser Sunnyside. Meetings

were held and attended by 20 persons. Participants were asked to list, in their opinion, the most frequent reasons given for going to the Emergency Department at Kaiser Sunnyside. When the entire list had been completed, participants were asked to rank each item from "most often given response" to "least often given response." Through this process, and through a series of other consensus seeking meetings, a final list of 16 access-related items were identified. These items were edited for clarity and became the basis for the access portion of the questionnaire. Additional questions were developed to address the other aspects of the study; such as client demographic characteristics, client sociologic characteristics, and client decision-making processes. Questions concerning the preference for a personal physician were added later.

Because the initial 16 access questions were considered tentative, space was provided on the initial questionnaire for open-ended response from clients. The questionnaire was designed to assure client anonymity. Adults were asked to circle the responses they felt most appropriately described their reasons for being at the emergency department on that particular day. Twelve of the original questions were "forced choice", necessitating the client to circle a single column answer from all of those presented. Four questions called for open-ended responses. Two different forms were distributed, one to adults seeking care, and one to adults representing pediatric clients.

After completion of instruments, institutional approval was obtained for a pilot study using the Kaiser Sunnyside facility. The purpose of the pilot study was to gather information appropriate to refining the access section of the instruments, and to test the clarity of the other portion of the instruments.

Emergency department receptionists at Kaiser Sunnyside were asked to distribute the questionnaires for completion during the month of August, 1979. Personnel performing the emergency department reception function were requested to elicit responses from those persons who appeared to be in no obvious pain or distress, excluding all ambulance cases.

During the initial pilot study, 342 adult and 289 pediatric questionnaires were completed for a total of 631 respondents. In this study, no attempt was made to insure a random sample, nor to contact all clients seeking service. This was based upon the intent of the pilot study and the restriction of available staff time for this testing process. This initial pilot study provided the following information that contributed to the actual data gathering procedure:

1) Slightly over one-half of those seeking treatment during weekdays identified three access related problems as the reason for seeking emergency room care. Those reasons were: a) convenience, b) clinic referral, and c) transportation/child care conflicts.

2) One-third of all responding clients indicated they phoned prior to arrival at the emergency department.

3) One-third of the respondents indicated that they had been "told to come in by various personnel in the health care system."

4) "Clinic problems" were cited by one-third of all respondents as their reason for choosing the emergency department.

5) Slightly less than one-half of all client visits occurred on weekends.

The results of the August, 1979 study were analyzed and presented to the Chiefs of Service, at a meeting held at Kaiser Sunnyside in October, 1979. Physicians, comprising the Chiefs of Service, critiqued the results and made suggestions to clarify questions and/or solicit additional data. Responses received at this meeting were incorporated into a revised questionnaire. Emergency department staff and physicians at Bess Kaiser Medical Center were involved in the analysis and offered suggestions for questions to be included in the second survey instrument.

The Kaiser-Permanente "Management Forum" met in late October, 1979, when an additional presentation of the August survey was made. Approximately ninety managers and key physicians participated in the Forum. Discussions and presentations during this meeting centered primarily around the client's perceived access problems, and several constructive items were suggested for inclusion in the revised questionnaire.

A synthesis of the remarks and suggestions made by the various expert groups assisted in the development of the revised questionnaires. Items included in the revised instruments were the result of priority responses. As in the August study, final adult (Appendix A) and pediatric (Appendix B) questionnaires were developed.

In summary, expert panels were utilized to develop and critique the original questionnaire used in August, 1979. Additional health management and physician managers reviewed and critiqued the results and established priorities which resulted in a slightly revised second questionnaire.

At this stage in the questionnaire development process a second pilot test was conducted.

The second pilot study was done to determine the clarity of the revised survey instruments. A nine-person sample of convenience was drawn from the students, faculty, and staff of a Portland area college. This sample of people reflects the clientele of the HMO. People identified for the pilot study all had an emergency room experience within the six month period preceding their completion of the study instrument.

Each participant was given the following instructions:

> Imagine that your recent emergency room visit had taken place at a local Kaiser-Permanente Hospital. Further imagine that you are in the emergency room waiting area and someone hands you this questionnaire to complete. As you read and complete the form circle any words or items

that are confusing. Additionally, make any notes on the questionnaire that help clarify the question for you. When you have completed the form please return it to me.

After completion of the instrument each participant was interviewed as to the clarity of the instrument, and his/her general response to completing the instrument.

No specific pattern of problem questions, words, or phrases were identified. Selected individuals had problems based upon the idiosyncratic nature of the reasons for their visit to the emergency room. No individual problem was deemed severe enough to warrant revision of the instrument. A review of the staff training procedure was done to insure that personnel helping participants in the full study would be aware of potential problem areas.

Approval of Questionnaire

Prior to application, both questionnaires were reviewed and approved by the two Committees for the Protection of Human Subjects of Oregon State University and the Oregon Region of Kaiser-Permanente, respectively.

As a result of the committees' review, minor changes were made to the instruments. These changes were:

1) A revision of the introductory paragraph to constitute an informed consent statement.
2) The assurance that there would be no undue pressure to gain a 100 percent sample of persons accessing the

emergency departments.

Note: This stipulation was requested to insure that those clients who were too ill, in pain, or incapacitated would not be disrupted while receiving urgently needed care.

3) The assurance of confidentiality was made by omitting names and/or chart numbers from all questionnaires.

The final questionnaires contain items that were grouped into the following categories:

1) Demographic characteristics
2) Sociologic characteristics
3) Decision-making factors
4) Physician preference
5) Access-related factors

Figures 1a-1e identify the questions in each of these categories.

Data Collection

Five personnel working in part-time positions as receptionists or unit secretaries at Kaiser Sunnyside were used to assist clients in completing the survey instrument at both hospitals. The number of personnel used varied according to the time of the day, and by day of the week to more closely approximate the volume of visits. Consistency in collecting data was maintained by having the same personnel assisting at each participating hospital.

NUMBER OF QUESTIONS ON SURVEY	QUESTIONS
	SITE
	DATE
	TIME
	ADULT VS. PEDIATRIC QUESTIONNAIRE
1	Check one of the following that applies to you: ___ I am a Kaiser-Permanente member. If checked, how long have you been a member? ___Years ___Months ___ I used to be a Kaiser-Permanente Member. If checked, how long ago were you a member?_____ ___ I have never been a Kaiser-Permanente member.
2.	I came here from ___Home ___Work ___School ___Other (Specify)_____.
3.	I came here with ___Parent ___Spouse ___Neighbor ___Other (Specify)_____. My relationship to this child is ___Mother ___Father ___Grandparent ___Babysitter ___Other (Specify)_____.
4.	The driving time here was approximately ___Less than 10 min. ___10-15 min. ___15-20 min. ___20 min. or more
5.	What is the street address of your home residence? (Zip Code only)_____.
16.	How many days were missed from work or usual activities during the past four weeks because of personal illness (your own illness)?_____.
17.	In general, how would you rate your health? ___Excellent ___Good ___Fair ___Poor

Figure 1a. Questions/responses referring to Demographic Characteristics on both the Adult and Pediatric Survey.

NUMBER OF QUESTIONS ON SURVEY	QUESTIONS
18.	How many children do you have?_____
19.	Are you ___Male ___Female
20.	In which of the following age categories are you? ___Less than 20 ___20-30 ___30-45 ___45-65 ___ Over 65
	In which of the following age categories is the child? ___Less than 1 year ___1-3 years ___3-5 years ___5-8 years ___8-11 years ___11-14 years
21.	How long have you lived in the Portland/Vancouver area? ___Less than 1 year ___1-2 years ___2-5 years ___5-10 years ___Over 10 years
22.	Education: Check highest level completed. ___Grades 0-8 ___Grades 9-11 ___High School __Some College ___College Graduate ___Post-College Work
23.	What is (or was, if retired), your specific occupation?_____.

Figure 1b. Questions/responses referring to Sociologic Characteristics on both the Adult and Pediatric Survey.

NUMBER OF QUESTIONS ON SURVEY	QUESTIONS
6.	Before arriving, which of the following did you do (if any)? (a) Telephoned the hospital switchboard . . . . . ___ (b) Telephoned a physician's office. . . . . ___ (c) Telephoned a clinic. . . . . ___ Which one?_____ (d) Telephoned the Emergency Room . . . . . ___ (e) None of the above. . . . . ___
7.	If you contacted Kaiser-Permanente personnel prior to coming here, were you told to come in? . . . . . ___Yes ___No If yes: By Whom?_____
10.	Besides this visit, have you used the Emergency Room/After Hours Services within the past year?. . . . . ___Yes ___No If yes: How many visits were made?_____
11.	Besides Emergency Room/After Hours Visits, have you gone to a doctor or visited a clinic within the past year? . . . . . ___Yes ___No If yes: How many visits were made?_____ What was the date of your last visit to a doctor or clinic for medical services?_____
12.	Was your last visit to your usual physician? . . . . . ___Yes ___No

Figure 1c. Questions referring to the Decision-Making Characteristics on both the Adult and Pediatric Survey.

NUMBER OF QUESTIONS ON SURVEY	QUESTIONS
13.	Within Kaiser-Permanente, are you encouraged to have a personal physician? ___Yes ___No ___Do Not Know
14.	Is it important to you to have a personal physician? ___Yes ___No
15.	Do you have a personal physician?. . . . . .___Yes ___No

Figure 1d. Questions referring to Personal Physician Preference on both the Adult & Pediatric Survey.

NUMBER OF QUESTIONS ON SURVEY	QUESTIONS
9.	Were any of the following also important in your decision to come in at this time? (Check as many as apply.)

(a) It's too difficult to obtain an appointment.. . . . . ___Yes ___No
(b) I work all day and this is a convenient time for me. . . . . ___Yes ___No
(c) I like the confidentiality of being seen in the Emergency Room . . . . . ___Yes ___No
(d) I had difficulty in making telephone contact to a clinic . . . . . ___Yes ___No
Which clinic?_____
(e) The location of this facility was convenient for me. . . . . ___Yes ___No
(f) I like being seen in the Emergency Room/After Hours Clinic because I get more immediate information and treatment for my problem . . . . . ___Yes ___No
(g) I could not get an appointment to be seen today, and I did want to be seen today . . . . . ___Yes ___No
(h) I have no babysitter during the day, so I would rather wait until this time to be seen. . . . . ___Yes ___No
(i) I feel that I cannot leave work to get medical care. . . . . ___Yes ___No
(j) I have someone to drive and/or assist me at this time of day but not at other times. . . . . ___Yes ___No

Figure 13. Question referring to Perceptions of Access on both the Adult and Pediatric Survey.

An orientation session was held by the researcher with the assistants to briefly review the goals of the study and to explain their role in survey completion. Each survey question was reviewed with the assistants, and explanations were offered based on their questions. A review of problems encountered during the pilot study was also discussed.

Assistants were asked not to collect data from those clients who appeared too ill, in pain, or incapacitated. Additionally, any clients who the triage nurse, physicians, or emergency room staff felt should not be requested to complete a survey would receive no pressure from the assistants to do so. Hours for assistants to cover the emergency department waiting rooms were as follows:

Monday - Thursday	5:30 p.m. to 10:30 p.m.
Friday	5:30 p.m. to 11:30 p.m.
Saturday and Sunday	11:00 a.m. to 11:00 p.m.

The survey was completed at Kaiser Sunnyside March 9, through March 15, 1981, at Bess Kaiser from March 23, through March 29, 1981. The week of March 16, was not used to collect data since that week was the spring vacation time in the Portland metropolitan school districts. Data collection times, and days of the week were selected for the following reasons:

1) This insured an adequate sample of visits for each of the seven days of the week.
2) The times selected reflect the historical experience in terms of the greatest number of visits.

3) After-hours clinics function only when the medical offices are closed.

Survey assistants wore street clothes covered by a white laboratory coat and name pins to identify themselves to clients in the emergency department waiting rooms.

The personnel assisting with survey completion were given a short script to be used in approaching persons in the two hospitals' waiting rooms. The script included the following:

1) The survey assistants introduced themselves, by name.
2) Each assistant briefly described the purpose of the survey, emphasizing the goal of improving service to the clients.
3) Clients were assured that participation was voluntary.
4) Confidentiality was mentioned to clients since no identifying information was requested on the questionnaire. Additionally, information gathered was not placed in the client's chart, and therefore would have no influence on the care received.
5) Assistants encouraged the clients to complete as many of the questions as they wished to respond to.
6) Survey personnel offered to assist clients by providing a pencil, and/or actually checking the questionnaire for the client, if requested.

7) Clients requesting assistance were offered clarification and interpretation of the questions.

8) The survey assistant added the time of day to each completed survey tool as they were returned.

9) All clients were thanked for their assistance with the project.

Completed surveys were transported daily to a secure storage area in an office at Kaiser Sunnyside.

Analysis of Data

Data obtained from the Adult and Pediatric Questionnaires were analyzed at the Oregon State University Computer Center. Several statistical procedures of the Statistical Package for the Social Sciences (SPSS) were used for the analysis (Nie, 1975).

Subprogram FREQUENCIES was used to determine the basic distributional characteristics of each of the variables which were used in the statistical analysis. FREQUENCIES produced tables for all the variables listed on the questionnaire. Each table contained the value label, absolute frequencies, relative frequencies with missing values included in the percentages, adjusted frequencies with missing values excluded from the percentages, and cumulative adjusted frequencies based on existing values.

The subprogram CROSSTABS was used to compute and display two-way crosstabulation tables for the discrete numeric variables. The number of dimensions in the tables (2x2 form) was determined by the

fact that two sites (urban and suburban) were compared. The resulting joint frequency distributions were statistically analyzed using the Chi-square statistic at the .05 level of significance. This analysis determines whether or not the variables are statistically related, or independent.

Those variables identified as statistically significant were further analyzed using the SPSS subprogram DISCRIMINANT. This subprogram provides several statistics which assist not only in identifying the variables that "best" distinguish one group from another, but in identifying which combination of variables provide the "best" variable group.

Variables identified as describing the client population accessing the urban and suburban emergency departments were used as the basis for developing the Adaptation Model.

CHAPTER IV

MAJOR FINDINGS AND ANALYSIS

Introduction

As a basis for the development of the Adaptation Model, significant discriminating characteristics of clients accessing emergency departments in urban and suburban HMO's were determined. The population consisted of adults and children in an urban and suburban HMO in metropolitan Portland, Oregon. A random sample of male and female adults and children were assumed to access the two hospital emergency departments in March, 1981. Data collection was completed by a direct contact survey methodology.

Description of the Sample

A total of 1,031 clients comprised the sample for this study. This group consisted of 616 adults; 294 at Bess Kaiser Medical Center, (hereafter called urban) and 322 at Kaiser Sunnyside, (hereafter called suburban). Pediatric clients (14 years of age and under) totaled 415; 185 at the urban location and 230 at the suburban setting. Table 1 displays the number of adult and pediatric questions completed by site.

TABLE 1. TOTAL NUMBER OF ADULT AND PEDIATRIC QUESTIONNAIRES COMPLETED BY SITE

Site	Adult	Pediatric	Total
Bess Kaiser (urban)	294	185	479
Kaiser Sunnyside (suburban)	322	230	552
Total	616	415	1,031

Most of the clients surveyed in both settings accessed the emergency departments on Saturday and Sunday (n=237; n=241). The number of persons completing the questionnaire Monday through Friday, totaled 553; 122 on Wednesday, 116 on Friday, 113 on Thursday, 108 on Monday, and, 94 on Tuesday. Figure 2 displays the number of clients surveyed, by day of the week.

Demographic Characteristics

The majority of the adults (65.6%) completing the questionnaire were in the age range of 20 to 45 years. Table 2 displays the percentages and numbers of adults in each of five age categories. Fifty-five (55) adults completing this survey did not mark the age range question. Table 3 displays the number and percentages of children in each of six age categories. A greater percentage of children in the three to five year age range (23.4%) were seen in the two emergency departments during the time the survey was completed. Forty-three (43) adults responding for children seeking care did not complete this item.

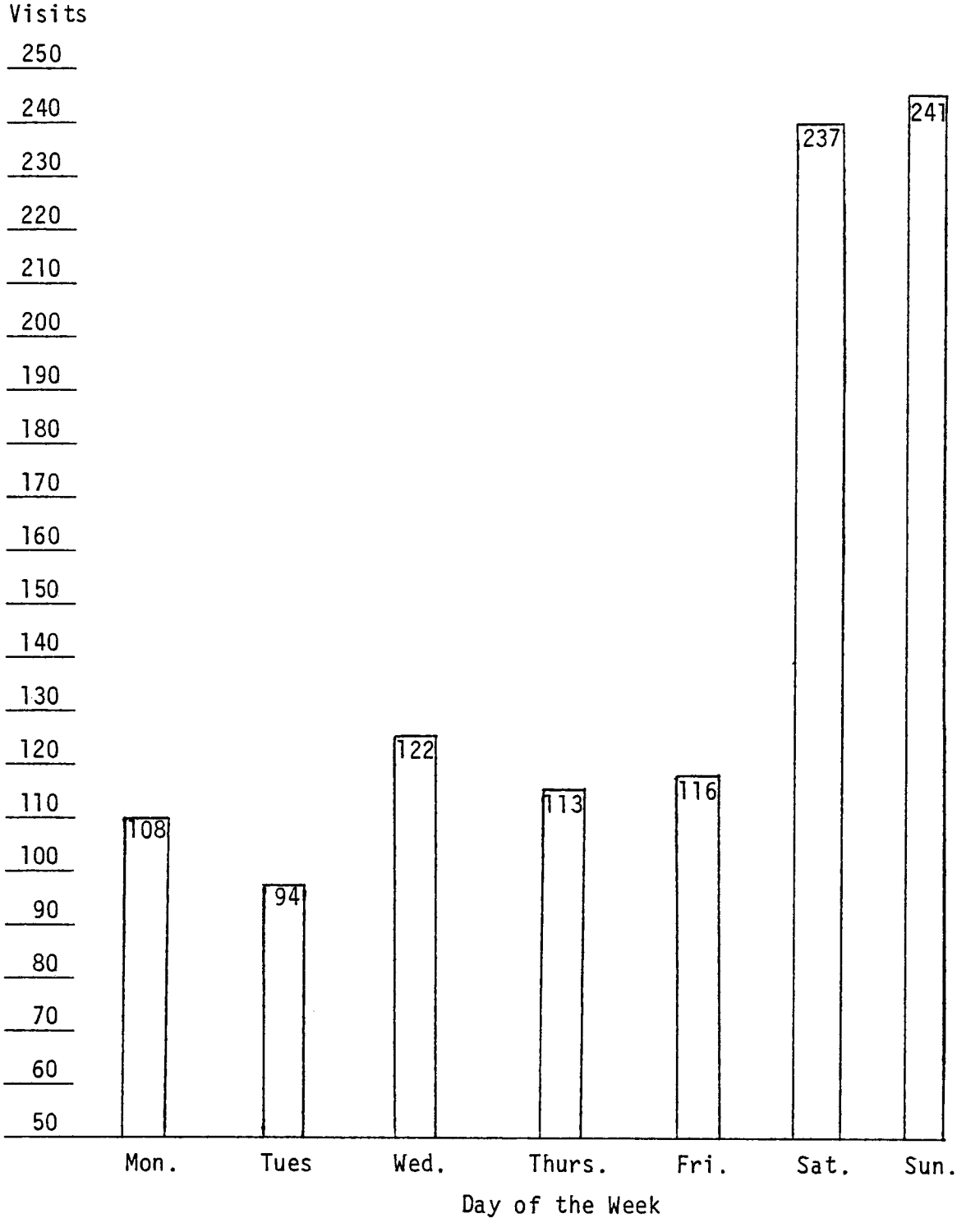

Figure 2. Total number of questionnaires collected by day of the week.

TABLE 2. ADULT POPULATION BY AGE DISTRIBUTION

Age Categories	n	%	Percentage of Total responses
Less than 20 years	67	(10.9)	11.3
20-30 years	182	(29.5)	32.4
30-45 years	186	(30.2)	33.2
45-65 years	93	(15.1)	16.2
Over 65 years	33	(5.4)	5.9

TABLE 3. PEDIATRIC POPULATION BY AGE DISTRIBUTION

Age Categories	n	%	Percentage of Total responses
Less than 1 year	43	(10.1)	11.3
1-3 years	79	(19.0)	21.2
3-5 years	87	(21.0)	23.4
5-8 years	54	(13.0)	14.5
8-11 years	50	(12.0)	13.4
11-14 years	60	(14.5)	16.2

Slightly more females (n=493) than males (n=436) sought care in the emergency departments during the time the survey was conducted. Table 4 displays the distribution of males and females within the adult and pediatric groups. A greater percentage of female adults (52.6%) sought treatment during this period of time, although a larger percentage of male children (48.7%) were seen in the emergency departments. Missing data occurred in 102 of the survey forms.

TABLE 4. RESPONDENT POPULATION DISTRIBUTION BY SEX

	Male		Female	
	n	%	n	%
Adults	234	38.0	324	52.6
Pediatric	202	48.7	169	40.7

Sociologic Characteristics

Respondents were asked to indicate the level of education which they had completed. Parents of children brought to the emergency departments were to complete this item, regarding their own educational level. Table 5 displays the results of this question. The greatest percentage of both adults and parents in behalf of children fall into the category of "some college" (27.6%). High school graduation was indicated in 150 adults, and 80 adults bringing children for care (22.3%). A total of 119 persons (11.5%) indicated that they had completed post college work. Those persons with less than a high school education made up less than 17 percent of the entire

group. Eleven and one-half percent (11.5%) of the total surveyed did not complete this item.

TABLE 5. EDUCATIONAL LEVEL COMPLETED BY POPULATION

Educational Level	Adult n	Adult %	Pediatric n	Pediatric %	Percentage of Total responses[a)]
Grades 0-8	39	(6.3)	49	(11.8)	8.5
Grades 9-11	65	(10.6)	22	(5.3)	8.4
High School	150	(24.4)	80	(19.3)	22.3
Some College	178	(28.9)	107	(25.8)	27.6
College Grad.	57	(9.3)	36	(8.7)	9.0
Post College Wrk.	58	(9.4)	61	(14.7)	11.5

a) Does not equal 100% due to missing data

Survey participants were asked to indicate their occupations, describing what their job was in their own terminology. Adults responding to the questionnaire were asked to indicate their occupations prior to retirement, if no longer working.

The classifications for occupations used in the survey were the occupational codings developed by the Kaiser-Permanente Health Services Research Center in their Work Force Study, Membership Survey, and Termination Survey (Health Services Research Center, 1979). Table 6 displays the results of these findings. Slightly over one-fifth (20.4%) of respondents indicated that they were not in the work force. A disproportionate number of "not in the work force" responses came from the pediatric questionnaire. Concomitantly, most children

were accompanied by their mothers. Certainly, the 103 adults (16.7%) stating they were not in the work force can only be explained through conjecture. Possibly this category includes mothers of young children, housewives, students, unemployed, and/or disabled persons.

Excluding the "not in the work force" and "unknown" groups, the majority of the respondents were in the clerical/sales occupational category. This was followed by the professional/technical category.

TABLE 6. OCCUPATION OF THE POPULATION

Occupation Category	Adult n	Adult %	Pediatric n	Pediatric %	Percentage of Total Responses
Professional/Technical	60	(9.7)	54	(13.0)	11.1
Manager/Proprietor	30	(4.9)	31	(7.5)	5.9
Clerical/Sales	78	(12.7)	76	(18.3)	14.9
Craftsman/Skilled Worker	60	(9.7)	23	(5.5)	8.1
Semi-Skilled Worker	50	(8.1)	30	(7.2)	7.8
Service Worker	53	(8.6)	32	(7.7)	8.2
Laborer	30	(4.9)	6	(1.4)	3.5
Not in work force	103	(16.7)	107	(25.8)	20.4
Unknown	152	(24.7)	56	(13.5)	20.2

Sixty-nine (69) adults and 39 persons completing the survey for pediatric clients failed to complete the question regarding "length of time in area" (10.5% of the total population). Table 7 displays the length of time survey participants stated they had lived in the metropolitan Portland, Oregon/Vancouver, Washington area. An interesting comparison can be made of the pediatric age distribution (Table 3) to the length of time children were in the area (Table 7), as reported by adults accompanying them. It appears that the majority of the children seen had lived their entire life in the study area.

Adults living over ten years in the area constitute over one-half of all responding adults. The next largest percentages were in the two to five year residents, followed by the five to ten year group. Less than 20 percent of all respondents lived in the area two or less years.

TABLE 7. RESPONDENT LENGTH OF TIME IN AREA

Time in Area	Adult n	Adult %	Pediatric n	Pediatric %	Percentage of Total Reponses
Less than 1 year	18	(2.9)	45	(10.8)	6.1
1-2 years	20	(3.2)	73	(17.6)	9.0
2-5 years	61	(9.9)	121	(29.2)	17.7
5-10 years	82	(13.3)	78	(18.8)	15.5
Over 10 years	366	(59.4)	59	(14.2)	41.2

All clients surveyed responded to the question concerning the number of children in their family. Adults completing the questionnaire in behalf of pediatric clients were asked to indicate this number in addition to the child seeking emergency department care at that time. Over thirty percent (30.6%, n=127) of the adults seeking care had no children. One child was indicated by 37.8 percent (n=157) of the adults, followed by 17.1 percent (n=71) with two children. Table 8 displays the results of this question for both the adult and pediatric responses.

Since all adults completing the pediatric survey brought a child for treatment, the number of additional children would be greater than one. Over one-third (38.5%, n=237) stated that the child that was with them was, in fact, their only child. The percentage of pediatric responses indicating both one and two children are similar. More adults bringing children for treatment indicated three or more children, than did the adult group.

Of the total sample, 94.8 percent reported that they were currently members of the HMO studied. The remaining 5.2 percent were either past members of the HMO or reported that they were never members. No particular differences were found between the adults reporting membership (94.9%) and pediatric members (94.6%).

TABLE 8. NUMBER OF CHILDREN IN THE FAMILY

Number of Children	Adult n	Adult %	Pediatric n	Pediatric %	Percentage of Total Number
0	127	(30.6)	0	0	12.3
1	157	(37.8)	237	(38.5)	38.2
2	71	(17.1)	103	(16.7)	16.9
3	36	(8.7)	113	(18.3)	14.5
4	14	(3.4)	80	(13.0)	9.1
5	5	(1.2)	47	(7.6)	5.0
6	3	(.7)	17	(2.8)	1.0
7 or more	2	(.4)	19	(3.1)	2.0

Adults were asked to indicate the number of days within the past four weeks that illness prevented them from working. All adults completing the survey responded to this question. Slightly more than three-fourths (n=465) of the adults had missed no days of work because of illness. Seventy respondents (11.3%) indicated they had missed one or two days and 54 respondents (8.8%, n=54) missed between three to five days of work during the last month.

A similar question was included in the pediatric questionnaire asking for the number of days the child had missed school within the past four weeks. Again, all persons responding for children seeking care in the emergency department completed this question. Two

hundred and ninety-seven (71.6%) children had missed no school within the past four weeks. Sixty (14.5%) had missed one or two days, and forty-three (10.3%) were ill three to five days. The remaining 3.6 percent of the children had missed six or more days of school.

Both survey questionnaires contained an item asking the client to rate the health of the person seeking care in the emergency department. Table 9 displays the results of this question for both adult and pediatric clients. Sixty-one adults and twenty-seven adults responding for children did not complete this particular question. A majority of adult respondents (69.7%) indicated that they considered their health to be good or excellent. Likewise, 82.4% of the pediatric responses reported good to excellent health. One hundred and twenty-six (20.5%) of the adults and forty-six (11.1%) of the children surveyed indicated fair to poor health.

TABLE 9. RESPONDENT HEALTH RATINGS

	Excellent		Good		Fair		Poor	
	n	%	n	%	n	%	n	%
Adults	150	24.4	279	45.3	101	16.4	25	4.1
Pediatric	189	45.5	153	36.9	41	9.9	5	1.2

Access Related Characteristics

In order to discern patterns of use, clients were asked three questions relating to use of medical care services. The first requested responses were to indicate whether or not the client had a previous visit to a physician or clinic within the past year. Additionally, clients who answered "yes" were instructed to indicate the number of such visits. Table 10 displays the results of this question. Of the total responses, 267 adults and 144 pediatric clients either omitted the question or indicated that they had no other visit during the past year. Of the remaining respondents, more adults than adults in behalf of children, indicated they had visited a physician or clinic within the past year; 349 versus 271. However, the percentage of pediatric respondents (65.3%) was higher than adult respondents (56.6%). More respondents (13.5%) had two visits during the past year than did respondents with only one additional visit (11.7%). Of all of those responding to the "number of visits" question, 40.7 percent indicated four or less visits to a physician and/or clinic within the past year.

The second question requested information regarding the last visit made to the HMO. Specifically, the number and percentage of clients who last visited their "usual" physician was determined. Adults responded "yes" in 255 of the cases (41.4%) and this same response occurred in 268 pediatric clients (64.4%). These responses indicated that more children than adults had a previous visit with

TABLE 10. VISITS TO PHYSICIAN OR CLINIC WITHIN LAST YEAR

Number of visits within last year	Adult n	Adult %	Pediatric n	Pediatric %	Percentage of total visits
1	72	(11.7)	49	(11.8)	11.7
2	74	(12.0)	65	(15.7)	13.5
3	44	(7.1)	49	(11.8)	9.0
4	45	(7.3)	22	(5.3)	6.5
5	38	(6.2)	34	(8.2)	7.0
6	17	(2.8)	16	(3.9)	3.2
7	4	(.6)	3	(.7)	a)
8	5	(.8)	5	(1.2)	1.0
9 or more	50	(8.1	28	(6.7)	7.6
Blank or no visits	267	(43.3)	144	(34.7)	39.9

their usual physician. Conversely, 238 adults (38.6%) and 102 children (24.6%) had not seen their "usual" physician on their last visit. No answer was marked for this item in 168 completed questionnaires.

The third and final question regarding patterns of use asked the client to indicate other visits made to the emergency department within the past year. A "yes" answer to this question would mean that at least one, in addition to the current visit, was made by the client. Clients were also asked to indicate the number of these

additional visits. Table 11 presents the number of previous visits made to the emergency department for all respondents.

Almost two-thirds (60.6%) of the adults and 52.2 percent of clients completing the pediatric questionnaire indicated that they had made no additional visits to the emergency department within the past year. Of the remaining percentage responding "yes" to additional visits, 20.1 percent indicated one additional visit; 8.7 percent two visits; 6.3 percent three visits; 3.2 percent four visits; and 1.7 percent five visits. Respondents indicating six, seven or eight additional visits was less than one percent of the total. A small percentage (1.7%) of the total respondents indicated nine or more visits.

TABLE 11. PREVIOUS VISITS TO EMERGENCY DEPARTMENT

Number of visits within last year [a]	Adult n	Adult %	Pediatric n	Pediatric %	Percentage of Total
1	109	(17.7)	98	(23.6)	20.1
2	54	(8.8)	36	(8.7)	8.7
3	34	(5.5)	31	(7.5)	6.3
4	19	(3.1)	15	(3.6)	3.2
5	11	(1.8)	7	(1.7)	1.7
6	4	(.6)	2	(.5)	b)
7	2	(.3)	0	(0)	b)
8	0	(.0)	2	(.5)	b)
9 or more	11	(1.8)	7	(1.7)	1.7
Blank or no visits	372	(60.6)	217	(52.2)	57.1

a) Visits in addition to current visit to seek care in the emergency department
b) Less than 1%

Respondents were requested to indicate phone contacts made to various departments and facilities within the HMO, prior to arriving at the emergency department. Table 12 shows the various phone contacts made by clients prior to their visit. Fifty-four (54%) of the total respondents had made phone contacts with the HMO prior to their arrival. Adults telephoned the hospital in 29.4 percent (n=181) of the visits and adults accompanying pediatric clients telephoned in 30.8 percent (n=128) of the cases. Twenty-four of the adult clients and eleven of the pediatric visits were preceded by a phone call to a physician. Clinic phone calls were made by 13.1 percent (n=81) of the adults and 6.7 percent (n=28) of the pediatric visits. Clients phoned the emergency department in 15.7 percent (n=97) of the adults and 18.3 percent (n=76) of the pediatric visits.

TABLE 12. ACTION(S) TAKEN PRIOR TO EMERGENCY DEPARTMENT VISIT

Action Taken	Adult n	Adult %	Pediatric n	Pediatric %	Percent of Total Sample a)
Telephoned Hospital	181	(29.4)	128	(30.8)	29.9
Telephoned Physician	24	(3.9)	11	(2.7)	3.3
Telephoned Clinic	81	(13.1)	28	(6.7)	10.5
Telephoned Emergency Department	97	(15.7)	76	(18.3)	16.7
None	288	(46.8)	187	(45.1)	46.1

a) Does not equal 100%, due to duplicate answers

Respondents were asked if someone employed by the HMO had told them to come to the emergency department. A total of 452 respondents indicated that someone had told them to "come in". When asked to specify "with whom they had talked?", respondents (n=386) overwhelmingly identified nurses (56.7%). Nurses were followed by receptionists (12.9%), phone operators (6.4%), and physicians (2.5%). Eighty-two (82) people, (21.2%) indicated their contact as "other".

When asked who had accompanied them to the facility, adult respondents most often indicated a "spouse" (39.9%). Of the additional categories of possible responses, "parents" were indicated as the next frequent companion (13.8%), followed by "neighbor" (2.6%). One hundred and seventy-one respondents (34.8%) indicated "other" to this question. Conjecture might indicate that "other" is associated with those persons who came alone. The person most often accompanying children to the emergency department was "mother" (75.7%). "Father" was the second most often received response (20.9%), with "grandparents", "babysitters", and "other" accounting for the remaining responses.

Responses from adults regarding point of origin indicated that 87.4 percent (n=445) came to the emergency department from home. Less than 10 percent (7.3%, n=37) came to the facility from work, and 5.1 percent, (n=26) came from school and other locations. Adults bringing children to the emergency department identified "home" as their point of origin in 92 percent (n=379) of the cases.

Table 13 displays the percentage of respondents, by area, who accessed the emergency departments of the urban and suburban settings during the time of the survey. This table also displays how these percentages compare to the study population as a whole, and the HMO membership generally.

TABLE 13. COMPARISON OF HMO MEMBERSHIP BY RESIDENCE AREA, STUDY PERCENTAGE, AND SITE

Residence Area	% of HMO Membership	Study Percentage	% of Respondents in Urban Setting	% of Respondents in Suburban Setting
Central	14.0	12.9	(8.8)	(16.5)
North	14.3	14.5	(30.0)	(.9)
West	16.0	8.3	(15.8)	(1.8)
Southwest	3.2	2.9	(2.5)	(3.2)
Southeast	16.4	22.4	(1.9)	(40.2)
East	11.0	11.9	(2.7)	(19.8)
Clark	17.1	9.1	(19.5)	(.2)
Other Portland	4.9	17.7	(18.7)	(17.0)
Salem	3.0	.3	(.2)	(.4)

Appendix C contains a map of these areas, by name and number, as well as an area/subarea zip code table. Also, included in Appendix C is the number of members in each area (current April 30, 1981) and the percent of membership, by area, in the HMO.

Driving time for all adults, and adults bringing children to the emergency department, was similar for all time frames surveyed. In 47.1 percent of the adult responses, driving time was 15 minutes or less from their geographical starting point to the emergency department. Pediatric responses for the same distance was 42.8 percent. Twenty-three percent of the adults, and 25.8 percent of the pediatric clients had a driving time between 15 and 20 minutes. Thirty percent and 31.4 percent respectively of adults and pediatric patients drove, or were driven, over 20 minutes to obtain care.

Decision-making Characteristics

A series of ten questions were included in the survey to elicit responses concerning the decision-making process used by the study participants, prior to accessing the emergency department. The clients were instructed to mark any of them that they felt were important, or impacted their decision, to seek care in either of the emergency departments. Nine of the questions were identical, one being different on each of the adult and pediatric survey forms. A question regarding referral by "school authorities" was included on the pediatric questionnaire. The adult survey form contained a question asking if the client particularly liked the "confidentiality" of being seen in the emergency department.

Overall responses by the total population surveyed, indicated that an average of 50 to 60 people did not respond to each question included in the ten decision-making items. Table 14 displays

responses to the nine decision-making questions.

TABLE 14. DECISION-MAKING FACTORS OF CLIENTS ACCESSING EMERGENCY DEPARTMENTS

Reason	Percentage of Affirmative Responses Adult	Pediatric
Difficult to obtain appointment	34.6	16.0
Convenient time because of work	38.8	28.3
Difficult to make telephone contact to clinic	12.7	8.0
Convenient location	61.4	56.7
Immediate information and treatment	26.8	22.3
No appointment available today	41.4	33.3
No babysitter during the day	7.6	8.3
Cannot leave work to get care	20.6	17.5
Drive and assistance available only at this time	26.8	14.0

A majority of all clients, 61.4 percent of the adults and 56.7 percent of those responding for children, indicated that the convenience of the location of the facility was important in their decision to seek care. Of the ten items, this question (location, convenience) had the most frequent and affirmative responses.

The availability of immediate information and treatment in the emergency department was important to 84 (26.8%) of the adults who responded to this item. This same availability was less important to clients completing this portion of the survey tool for

children (22.3%). A large percentage of those completing the questionnaire (86%) did not mark this item on the survey form.

A total of 231 (55.7%) of adults completing this item for children indicated no difficulty in making phone contacts to the HMO's clinics. Adults responding to this item also indicated no problem in phone access in 262 (42.5%) of the completed surveys.

Affirmative responses to the item regarding general difficulty in making appointments occurred in 34.6 percent (n=123) of the adult responses. Many adults (n=260) did not mark this item, and another group of adults (n=233) responded that making appointments was not a problem for them. More adults appear to have problems making appointments, than adults seeking appointments for children (34.6% versus 16%). No difficulty in making appointments was marked in 210 pediatric questionnaires. The combination of unmarked and responses indicating no difficulty making appointments totaled 84 percent (n=375) in completed pediatric responses.

Respondents were asked to indicate if the unavailability of an appointment <u>on that date</u>, plus the feeling that the client did wish to be seen on that date, was important in their decision to seek care in the emergency department. Of those completing this question, 41.4 percent of the adults, and 33.3 percent of those completing pediatric questionnaires indicated that this factor was important. This response assumes that the emergency department is the second contact made by/for 145 adults and 88 pediatric clients represented in the sample. One-third (33.3%) of the adults, and 42.4 percent of

the respondents for pediatric clients indicated that appointment availability on the day of the emergency department visit did not influence their decision to seek care.

Clients were asked to indicate if the reason for their visit to the emergency department at that specific time, was associated with feelings that they should not or could not leave work to get medical care. Of those responding to the question, 64 adults (10.4%) and 48 pediatric surveys (11.6%) indicated that this was important in their decision-making. A total of 247 adults (40.1%) and 227 adults accompanying children (54.7%) indicated that leaving work had no influence on their decision to seek care. Of the total completing both questionnaires, 49.5 percent of the adults, and 33.7 percent of those people with children, did not complete this item on the survey.

Another of the decision-making questions asked for responses concerning the time convenience of the visit, as related to daily work schedules. More adults seeking care for themselves (38.8%), than adults with children (28.3%) indicated that time convenience influenced their decision to obtain care. A larger number of adults (41.4%) left this item unmarked, than did adults completing the pediatric questionnaire. Slightly less than fifty percent (48.9%) indicated that this item was not of major importance in their decision-making process.

The majority of adult respondents (92.4%) indicated that the availability of a baby-sitter had no influence on their decision

to seek care in the emergency department. Responses to this same question on the pediatric survey indicated much the same reply (91.7%). A somewhat related question to that concerning the availability of a babysitter was the question of the availability of someone to drive or assist the care-seeker. About one-quarter (26.8%) of the adults (n=88) indicated that it was important that they had assistance, while only 14 percent (n=36) of the responses on the pediatric questionnaire indicated assistance was important in their decision.

Physician Preference Characteristics

A series of three questions were designed to elicit reaction and responses to the importance of a doctor-patient relationship. A specific question was designed to determine if the members "knew" they were encouraged to have a personal physician within the HMO. Possible responses could be "yes", "no", or "don't know". Many adults (n=242 or 39.3%) and 198 responses for children (47.7%) indicated that they were aware that they were "expected" to have a personal physician. A smaller number of adults (15.1%) and 38 pediatric questionnaire respondents (9.2%) indicated that they did not think they were "expected" to have a personal physician. Responses received indicating "don't know" were rather large, by comparison. A total of 173 (28.5%) of those completing adult surveys, and 110 (26.5%) responding for children indicated that they were unaware they were "expected" to establish themselves with a physician. Missing cases for both groups totaled 153 out of 1,031 persons completing the survey.

The second in this series of questions asked if it was "important" for the respondent to have a personal physician. More persons responded to this question, than to the previous one. Adults indicated that it was important for them to have a personal physician in 68.5 percent (n=422) of the cases. A higher percentage of adults responding for children indicated the importance of having the physician/adult/child relationship. Of those adults completing the pediatric questionnaire, 79 percent (n=328) felt this need. Conversely, 16.6 percent (n=102) adults, and 10.8 percent (n=45) of those completing the pediatric questionnaire felt that the doctor/patient relationship was not important to them.

The final question in this series asked specifically if the respondent actually "did have" a personal physician. Only 242 (39.3%) of the responding adults contrasted to 297 (71.6%) of the children seeking care had a personal physician. As one might expect, a greater number of adults than children, (262, 42.5%, versus 65, 15.7%) indicated that they did not have a personal physician.

Chi-square Analysis

Introduction

Chi-square Analysis was completed on each questionnaire item using the Statistical Package for the Social Sciences CROSSTABS Program. The purpose of this procedure was to select appropriate items for later discriminant analysis. Chi-square values were derived for each question comparing all respondents at each site, and comparing adults <u>only</u> and children <u>only</u> at each site.

In the section that follows, a brief description of items deemed statistically significant through Chi-square testing is presented. For clarity, this section is organized: 1) by differences between sites; 2) by differences between adults responding at two sites; and 3) by pediatric respondents at the two sites. Included in this section are items that did not conform to traditional levels of significance (e.g., .01, .05) but were retained for discriminant analysis based on the fact that their interaction would "improve" when considered in concert with other variables. All questions not included in this section were found, upon analysis, to not be statistically significant, and were deleted from further analysis.

Comparison of Urban Versus Suburban Responses

Nine questions were found to produce statistically significant Chi-square values when sites were compared. The questions listed below are by questionnaire item number. They are as follows:

1) Question 6A (before arriving I . . .) telephoned the hospital switchboard

Of the two sites, 30 percent (n=309) of respondents indicated that they had contacted the switchboard prior to accessing the facility. At the urban emergency department, 34.9 percent (n=167) had contacted the switchboard, while at the suburban hospital, 25.7 percent (n=142) had made similar contacts. Table 15 displays the CROSSTABS result for Question 6A analysis.

TABLE 15. Q6A BEFORE ARRIVING I . . . TELEPHONED THE HOSPITAL SWITCHBOARD

Count Row Pct	No	Yes	Row Total
Urban	n=312 65.1%	n=167 34.9%	n=479 46.5%
Suburban	n=410 74.3%	n=142 25.7%	n=552 53.5%
Column Total	722 70.0%	309 30.0%	

Corrected Chi-square Value = 9.77618 with 1 Degree of Freedom.
Significance = .0018

2) Question 6C (Before arriving I . . .) telephoned a clinic

Of those responding to Question 6C, 10.6 percent (n=109) had contacted a clinic prior to access. As with Question 6A, more individuals accessing the urban site made phone contact prior to accessing service (10.7%) than did those at the suburban site (8.7%). Overall, 10.6 percent (n=109) contacted a clinic prior to obtaining care. Table 16 shows the values of analysis for Question 6C.

TABLE 16. Q6C BEFORE ARRIVING I . . . TELEPHONED A CLINIC

Count Row Pct	No	Yes	Row Total
Urban	418 87.3%	61 12.7%	479 46.5%
Suburban	504 91.3%	48 8.7%	552 53.5%
Column Total	992 89.4%	109 10.6%	

Corrected Chi-square Value = 4.00866 with 1 Degree of Freedom.
Significance = .0453

3) Question 7 (If you contacted Kaiser-Permanente Personnel prior to coming to the Emergency Department) . . . were you told to come in?

In total, 452 persons responded "yes" to Question 7. Of these respondents, 48.7 percent (n=220) used the urban setting, while 51.3 percent (n=235) went to the suburban setting. When considered as a percent of total question respondents, 46.4 percent of those responding "yes" were from the urban setting, while 53.6 percent were from the suburban area. This particular finding yielded the strongest Chi-square values at the .01 level. Table 17 contains the CROSSTABS and Chi-square values for Question 7.

TABLE 17. Q7 IF YOU CONTACTED KAISER-PERMANENTE PERSONNEL PRIOR TO COMING TO THE EMERGENCY DEPARTMENT, WERE YOU TOLD TO COME IN?

Count Row Pct	No	Yes	Row Total
Urban	220 75.9%	70 24.1%	290 50.9%
Suburban	232 82.9%	48 17.1%	280 49.1%
Column Total	452 71.3%	118 20.7%	

Corrected Chi-square Value = 3.83073 with 1 Degree of Freedom.
Significance = .0503

As a follow-up to Question 7, those respondents indicating that they had been instructed to come to the facility were asked "who told you to come in?". Each response was categorized into one of the five following categories:

4) Question 7 Whom? Who told you to come in?

   1) Nurse

   2) Physician

   3) Telephone Operator

   4) Receptionist

   5) Other

Results of this question yielded two significant findings. First, that significantly more respondents had been instructed to "come in" at the suburban site, than at the urban site. Secondly, in both the urban and suburban setting, the person most often

instructing the client was identified as a "nurse". This proved equally true when further analysis was done comparing "nurses" alone, to "all others".

The single most interesting finding from this analysis was that of 219 respondents indicating "nurse", 61.6 percent were from the suburban setting, while only 38.4 percent were from the urban setting. Table 18 presents the CROSSTABS findings for Question 7 Whom?.

TABLE 18. Q7 WHOM? WHO TOLD YOU TO COME IN?

Count Row Pct	Nurse	All Others	Row Total
Urban	84 44.9%	103 55.1%	187 48.4%
Suburban	135 67.8%	64 32.2%	199 51.6%
Column Total	219 56.7%	167 43.3%	

Raw Chi-square Value = 36.30069 with 4 Degrees of Freedom.
Significance = .0000

5) Question 9D (I sought this type of care, in part, because . . .) I had difficulty making telephone contact to a clinic.

A total of 551 persons responded to this question. Of this total, 89.5 percent (n=493) indicated that "difficulty making telephone contact with a clinic" was not important in their

decision to seek care through the emergency department. Of the 10.5 percent who responded "yes" (n=58) they were disproportionately distributed between the urban site (n=36, or 14.0% of urban respondents) and the suburban site (n=22, or 7.5% of suburban respondents). Although this is a small overall total of respondents citing this reason, the differences between sites was significant at the .0203 level. Table 19 contains the crosstabulation and Chi-square values for Question 9D.

TABLE 19. Q9D DIFFICULTY MAKING PHONE CONTACT TO CLINIC

Count Row Pct	Yes	No	Row Total
Urban	36 14.0%	222 86.0%	258 46.8%
Suburban	22 7.5%	271 92.5%	293 53.2%
Column Total	58 10.5%	493 89.5%	

Corrected Chi-square Value = 5.38572 with 1 Degree of Freedom.
Significance = .0203

6) Question 9E (I sought this type of care, in part, because . . .) the location of this facility is convenient for me.

Of all questions regarding factors affecting the decision to seek care at the emergency department, the responses regarding "convenience" yielded the largest number of affirmative responses.

A total of 387 respondents indicated that convenient location of the facility was a factor in deciding to seek care. With respect to variance between sites, 71.0 percent of the suburban responses (n=247) answered affirmative to this question, while 45.9 percent (n=140) of the urban clients responded in this manner. The Chi-square significance was less than .0001. Table 20 shows the cross-tabulation for Question 9E.

TABLE 20. Q9E CONVENIENT LOCATION

Count Row Pct	Yes	No	Row Total
Urban	140 45.9%	165 54.1%	305 46.7%
Suburban	247 71.0%	101 29.0%	348 53.3%
Column Total	387 59.3%	266 40.7%	

Corrected Chi-square value = 4.30219 with 1 Degree of Freedom.
Significance = .0000

7) Question 9F (I sought this form of care, in part, because . . .) I get more immediate information and treatment for my problem.

Of the total respondents to this question (n=569), 24.8 percent (n=141) indicated that "immediate information and treatment" were factors in seeking care through the emergency department. A larger percentage of urban respondents (29.9%) than suburban respondents (20.5%) indicated this reason.

The Chi-square of comparisons between sites was significant at the .01 level. Table 21 contains the crosstabulation for Question 9F.

TABLE 21. Q9F IMMEDIATE INFORMATION AND TREATMENT

Count Row Pct	Yes	No	Row Total
Urban	79 29.7%	187 70.3%	266 46.7%
Suburban	62 20.5%	241 29.5%	303 53.3%
Column Total	141 24.8%	428 75.2%	

Corrected Chi-square Value = 5.99807 with 1 Degree of Freedom.
Significance = .0143

8) Question 9G (I sought this form of care, in part, because . . .) I could not get an appointment today, and I did want to be seen today.

After Question 9E (location convenience), this question was answered most often in the affirmative. In total, 37.9 percent (n=233) of those responding indicated that the inability to be able to get an appointment, coupled with a desire to be seen that day, was a significant factor in seeking care through the emergency department. Unlike the responses to Question 9E (convenient location), more urban respondents responded affirmatively (42.7%, n=123) than did suburban respondents (33.7%, n=110). Table 22 presents the crosstabulation values for Question 9G.

TABLE 22. Q9G COULD NOT GET AN APPOINTMENT TODAY, AND I WANT TO BE SEEN TODAY

Count Row Pct	Yes	No	Row Total
Urban	123 42.7%	165 57.3%	288 46.9%
Suburban	110 33.7%	216 66.3%	326 53.1%
Column Total	233 37.9%	381 62.1%	

Corrected Chi-square Value = 4.84648 with 1 Degree of Freedom.
Significance = .0277

9) Question 10 (Besides this visit, have you used the emergency room, after-hours clinic services within the last year?

Affirmative responses to this question were among the highest of any items on the questionnaire (n=480). The Chi-square significant level between sites was marginal (sig.=.1174) with affirmative responses accounting for 50.0 percent of all respondents at the urban site (n=214) and 55.0 percent at the suburban site (n=266). When only affirmative responses were considered, a somewhat more definitive pattern emerged. Of the affirmative responses, 44.6 percent (n=214) were at the urban site, with the remaining 55.4 percent (n=266) at the suburban site. Table 23 shows the cross-tabulation values for Question 10.

TABLE 23. Q10 BESIDES THIS VISIT, HAVE YOU USED THE EMERGENCY ROOM/AFTER-HOURS CLINICS WITHIN THE LAST YEAR?

Count Col. Pct	Yes	No	Row Total
Urban	214 44.6%	214 50.0%	428 47.1%
Suburban	266 55.4%	214 50.0%	480 52.9%
Column Total	480 52.9%	428 47.1%	

Corrected Chi-square Value = 2.45115 with 1 Degree of Freedom.
Significance = .1174

Comparison of Adult Urban Versus Adult Suburban Responses

Ten questions were found to produce significant Chi-square values when responses of adults from the urban setting were compared with adult responses from the suburban setting. In general, those questions that were found to differentiate one site from another were also found to equally differentiate between adults at each site. Additionally, the apparent variables between sites, as measured by mean affirmative responses, were in the "same direction" for comparable adult questions. Table 24 contains a listing of questions providing significant Chi-square values between sites, and between adults at each site. Also, included is the percent of affirmative responses for all site respondents and for adult only respondents.

TABLE 24. COMPARISON OF CHI-SQUARE SIGNIFICANT QUESTIONS: ADULT ONLY COMPARED TO ALL RESPONDENTS

Questions Producing Significant Chi-square Values	Percentage of Affirmative Responses (all Respondents)	X_2 Signif. Level	Percentage of Affirmative Responses Adults Only	X_2 Signif. Level
Q6A. "called hosp. switchboard"	30.0% n=309	s=.001	29.4% n=181	s=.10
Q6C "phoned a clinic"	10.6% n=109	s=.04	13.1% n=81	s=.01
Q7 "told to come in"	79.3% n=452	s=.05	79.6% n=266	s=.13
Q7 Whom? "told to come in by..."				
Q9D "difficult to make phone contact to clinic"	10.5% n=58	s=.02	12.7% n=38	s=.04
Q9E "facility location convenient"	59.3% n=387	s=.01	26.8% n=221	s=.01
Q9F "immediate information and treatment"	24.8% n=141	s=.01	26.8% n=84	s=.01
Q9G "no appt. and want seen today"	37.9% n=233	s=.02	41.4% n=145	s=.04
Q10 "used emerg. dept. during past year"	52.9% n=480	s=.11	49.7% n=265	s=.09
Q12 "last visit to usual physician"	60.6% n=523	s=.47	51.7% n=255	s=.12

Review of Table 24 illustrates that the only major variation in the adults, when compared to all site respondents, occurs in Question 12. This question is "was your last visit to your usual physician?" When all respondents were considered (n=863), 60.6 percent (n=523) had last seen their own physician. Considering only the adults, those responding affirmatively were in greater proportion at the urban site (55.5%, n=131) than at the suburban site (48.2%, n=124). No information was available to explain this difference.

One additional question differentiated the adult from all respondents. Question 19 (sex of the client) was statistically significant (s=.069) between adult groups. This was not so when urban respondents were compared to all suburban respondents. The specific variation was a larger proportion of females accessing the suburban facility (62.1%, n=169) than in the urban facility (52.2%, n=155). When these data were compared to information collected on all respondents, the variance between the entire sample analysis, and adult analysis was found to be the result of a comparatively disproportionate number of adult females, and male children, being seen at both facilities. No additional information could clarify this phenomenon.

Comparison of Pediatric Urban Versus Pediatric Suburban Responses

Only four questions were found to produce statistically significant Chi-square values when responses of pediatric clients at the urban site were compared to those of suburban site respondents. As reported earlier, nine questions differentiated all respondents

at the two sites, and ten questions differentiated the adults at each site. This suggests that the primary site-to-site variations are a result of the patterns established by adults and although contribution of pediatric visits may enhance a particular characteristic at one site, the overall difference between sites for pediatric visits is less diverse than for adult visits. Quite simply, it appears that the pattern of care for children is more universal than the pattern of care for adults. This is further supported by earlier reported findings that children more often have a private physician than do adults, and that more children had last visited their personal physician than had adults.

The questions that differentiated pediatric visits at the two sites were:

1) Question 4 The driving time here was approximately . . .

For the purposes of this question, respondents were given a choice of four different time intervals; 10 minutes or less; 10 to 15 minutes; 15 to 20 minutes and 20 or more minutes. Overall, more than two-thirds of the respondents (68.6%) indicated driving time of 20 minutes or less.

Noticeable variations between sites were found in the "10 to 15 minute" range and the "20 minute or more" range. A larger percentage of suburban respondents (28.4%) than urban respondents (17.3%) indicated access time between 10 and 15 minutes. Conversely, a larger percentage of urban respondents (36.2%) than suburban respondents (27.5%) reported spending more than 20 minutes in transit

to the facility. Table 25 contains data for crosstabulation of Q4.

TABLE 25. Q4 DRIVING TIME TO THE EMERGENCY DEPARTMENT WAS APPROXIMATELY?

Count Col. Pct.	10 min.	10-15 min.	15-20 min.	20 min.	Row Total
Urban	36 45.0%	32 33.0%	50 46.7%	67 51.5%	185 44.7%
Suburban	44 55.0%	65 67.0%	57 53.3%	63 48.5%	229 55.3%
Raw Col. Total	80 19.3%	97 23.4%	107 25.8%	130 31.4%	

Raw Chi-square value = 8.02211 with 3 Degrees of Freedom.
Significance = .0456

2) Question 6A (Before arriving I . . .) telephoned the hospital switchboard.

With respect to Question 6A, the comparison of pediatric responses yielded a similar pattern to that of adult responses. Nearly one-third (30.8%) had contacted the switchboard prior to seeking care. At the urban facility, 38.4% (n=71) had made prior contact of this type. At this suburban facility only 24.8% (n=57) had done so. Table 26 presents the crosstabulation results for Question 6A.

TABLE 26. Q6A BEFORE ARRIVING I . . . TELEPHONED THE HOSPITAL SWITCHBOARD

Count Col. Pct	Yes	No	Row Total
Urban	71 55.5%	114 39.7%	185 44.6%
Suburban	57 24.8%	173 60.3%	230 55.4%
Column Total	128 30.8%	287 69.2%	

Corrected Chi-square Value = 8.25916 with 1 Degree of Freedom.
Significance = .0041

3) Question 7 Whom? I was told to come in by the . . .

As a follow-up to Question 7, those respondents indicating that they had been instructed to access the facility were asked: "Who told you to come in?" Each response was categorized into one of the five following categories: 1) nurse, 2) physician, 3) telephone operator, 4) receptionist, 5) other.

Unlike the analysis of adult responses, there was no significant difference in respondents instructed to "come in", between the urban and suburban sites. At the urban site, 89 respondents (75.4%) reported being told to come in, while 97 respondents (89.2%) did so at the suburban site. There was, however, a significant difference between sites with respect to the person identified as instructing the client to access the facility. At the suburban site, 75.3% (n=64) of the respondents identified a "nurse" as providing

instruction. At the urban site, only 40.8% (n=31) identified the contact as a "nurse". At the urban site, the "receptionist" (32.9%), and "other" (23.7%) were often cited. Table 27 shows crosstabulation values for Q7 Whom?.

TABLE 27. Q7 WHOM? I WAS TOLD TO COME IN BY THE . . .

Count Row Pct	Nurse	All Other	Row Total
Urban	31 32.6%	45 67.4%	76 47.2%
Suburban	64 67.4%	21 32.6%	85 52.8%
Column Total	95 59.0%	66 41.0%	161 100%

Raw Chi-square Value = 29.12463 with 4 Degrees of Freedom
Significance = .0000

4) Question 9C I sought this type of care, in part, because . . . the location of this facility is convenient for me.

As with the adult responses, "convenience" of location was identified as a formidable reason for seeking care. Of a total of 293 responses, a majority (56.7%) identified "convenience" as a contributing factor in accessing the particular facility. With respect to variance between sites, 70.7% of the suburban responses (n=116) answered affirmative to this question, while only 38.8% of the urban respondents (n=50) did so. The Chi-square significance was less than .0000. Table 28 displays crosstabulation values for Q9C.

TABLE 28. Q9C CONVENIENT LOCATION OF FACILITY

Count Col. Pct.	Yes	No	Row Total
Urban	50 30.1%	79 62.2%	129 44.0%
Suburban	116 69.9%	48 37.8%	164 56.0%
Column Total	116 56.7%	127 43.3%	

Corrected Chi-square Value = 28.76803 with 1 Degree of Freedom.
Significance = .0000

Discriminant Analysis

Introduction

Discriminant analysis was completed on each questionnaire item determined statistically significant by Chi-square analysis. SPSS subprogram DISCRIMINANT was used to statistically distinguish between all clients utilizing the urban and suburban settings, as well as adults and pediatric respondents at both sites.

The stepwise selection method was used which allowed independent variables to be selected for entry into analysis on the basis of their discriminating power. The process begins by selecting the variable with the largest F ratio value, pairing it with other variables, one at a time, until all variables are selected, or no additional variables provide a minimum level of improvement (more than 1.0). As variables are selected for inclusion, some previously

selected variables may lose their discriminating power (less than 1.0).

Standardized canonical discriminant function coefficients result from the step-wise procedure, and a coefficient is printed for each variable. This function represents the relative contribution (either positive or negative) that variables make to the group (Nie, 1975).

Comparison of Urban Versus Suburban Responses

Ten variables determined statistically significant through previous analysis were included in discriminant analysis. The stepwise variable selection criteria were as follows:

Selection Rule - Minimize Wilks' lambda

Maximum Number of steps..... 20

Minimum Tolerance Level..... .00100

Minimum F to Enter..... 1.0000

Maximum F to Remove..... 1.0000

Step 1 of this procedure adds the most significant variable to the analysis. Succeeding steps add the next most significant variable, keeping all variables already added to the stepwise process. Each step, with the new combination of variables, will automatically drop those that do not remain significant. In the displays of data that follow, four statistics are provided for each discriminant analysis that was run. The four include: tolerance; minimum tolerance; F to enter; and Wilks' lambda.

Tolerance refers to that aspect of the variable checking which determines the degree of difficulty the subprogram would have inverting a covariance matrix which included the variable. Large rounding errors may occur in computing the discriminant coefficients, if variables with very low tolerance are used. Faulty estimates and inaccurate classifications would result, if such were the case. In order to enure that this does not occur, a minimum tolerance level is established at .0001 (Nie, 1975).

Wilks' lambda is an inverse measure of the discriminating power in the original variables which has not yet been removed by the discriminant function. The larger the lambda, the less information remaining. Since the tolerance Wilks' lambda, and F all perform much the same function, the researcher selected the F value, in exclusion of the other measures available, to determine discriminant power.

Questions included by questionnaire item number along with the criteria display are included in Table 29.

Six stepwise procedures were completed until there were no additional partial F values greater than 1.0 Table 30 displays all the variables in analysis after Step 6.

The partial F, tolerance, and Wilks' lambda all indicated that no further stepwise computation was necessary.

The final computation of subprogram DISCRIMINANT, as seen in Table 32, produces standardized canonical coefficients. Variables included in this Table are those which best discriminate one group from another, by site.

TABLE 29. VARIABLES INCLUDED IN DISCRIMINANT, STEPWISE ANALYSIS, URBAN VERSUS SUBURBAN

Variable	Tolerance	Minimum Tolerance	F to Enter	Wilks' lambda
Q3. "came here with"	1.0000000	1.0000000	3.2476	.98723
Q6A. "called hospital switchboard"	1.0000000	1.0000000	.0973	.99961
Q6C. "telephoned a clinic"	1.0000000	1.0000000	.4562	.99819
Q7. "told to come in"	1.0000000	1.0000000	.9595	.99619
Q7 Whom "told to come in by"	1.0000000	1.0000000	9.7414	.96264
Q9D. "difficult to make phone contact to clinic"	1.0000000	1.0000000	3.0435	.98802
Q9E. "facility location convenient"	1.0000000	1.0000000	25.8288	.90670
Q9F. "immediate info. and treatment"	1.0000000	1.0000000	3.5883	.98591
Q9G. "no appt. & want seen today"	1.0000000	1.0000000	4.5455	.98221
Q10. "used emerg. dept. within past year"	1.0000000	1.0000000	1.1465	.99545

TABLE 30. VARIABLES IN ANALYSIS AFTER STEP 6, URBAN VERSUS SUBURBAN

Variable	Tolerance	F to Remove	Wilks' lambda
Q3. "came here with"	.9885415	3.4988	.80738
Q6A. "called hospital switchboard"	.9404676	2.2676	.80340
Q7 Whom? "told to come in by"	.9523158	14.1395	.84181
Q9E. "facility location convenient"	.9139179	37.0592	.91598
Q9F. "immediate info. and treatment"	.9373237	6.3560	.81163
Q9G. "no appt. and want seen today"	.9339484	8.1988	.82259

Variables not in analysis after Step 6 are listed in Table 31.

TABLE 31. VARIABLES NOT IN ANALYSIS AFTER STEP 6, URBAN VERSUS SUBURBAN

Variable	Tolerance	Minimum Tolerance	F to Enter	Wilks' lambda
Q6C. "telephoned a clinic"	.8558418	.8558418	.0143	.79601
Q7. "told to come in"	.7033183	.7033183	.3793	.79483
Q9D. "difficult to make phone contact to clinic"	.9831273	.9134991	.9852	.79287
Q10. "used emerg. dept. within past year"	.9418660	.8973852	.1186	.79567

TABLE 32. STANDARDIZED CANONICAL DISCRIMINANT FUNCTION COEFFICIENTS, URBAN VERSUS SUBURBAN

Variable	Function 1
Q3. "came here with"	-.26374
Q6A. "called hospital switchboard"	+.21822
Q7 Whom? "told to come in by"	+.52902
Q9E. "facility location convenient"	+.83812
Q9F. "immediate information and treatment"	-.36299
Q9G. "no appointment and want to be seen today."	-.41151

Comparison of Pediatric Urban Versus Pediatric Suburban Responses

The stepwise variable selection process was used to determine variable inclusion for the pediatric urban and suburban responses. As a result, nine variables were included in the discriminant analysis function. Table 33 displays the variables selected.

Five stepwise analyses were completed for the pediatric urban and suburban variables selected for inclusion. The stepwise analysis concluded after Step 5 due to lack of partial F "to enter" having a value of 1.0, or more. Variables in the analysis after Step 5 are listed on Table 34.

Variables not remaining in analysis, due to lack of significance throughout the stepwise process are included in Table 35.

TABLE 33. VARIABLES INCLUDED IN DISCRIMINANT, STEPWISE ANALYSIS, PEDIATRIC URBAN VERSUS PEDIATRIC SUBURBAN

Variable	Tolerance	Minimum Tolerance	F to Enter	Wilks' lamba
Q6A. "called hospital switchboard"	1.0000000	1.0000000	.2094	.99895
Q6C. "phoned a clinic"	1.0000000	1.0000000	4.9819	.97558
Q3. "relation to child"	1.0000000	1.0000000	1.2818	.99360
Q9B. "convenient time"	1.0000000	1.0000000	.3008	.99849
Q9D. "difficult to make phone contact to clinic"	1.0000000	1.0000000	3.8672	.98094
Q9E. "facility location conven."	1.0000000	1.0000000	13.0391	.93851
Q9F. "immediate info. and treatment"	1.0000000	1.0000000	4.4895	.97794
Q9G. "no appt. and want seen today"	1.0000000	1.0000000	4.3844	.97884
Q19. "sex of child"	1.0000000	1.0000000	4.9113	.97591

TABLE 34. VARIABLES IN THE ANALYSIS AFTER STEP 5, PEDIATRIC URBAN VERSUS PEDIATRIC SUBURBAN

Variable	Tolerance	F to Remove	Wilks' lambda
Q9D. "difficult to make phone contact to clinic"	.9586249	1.1747	.85545
Q9E. "facility location convenient"	.9254760	17.7412	.92769
Q9F. "immediate info. and treatment"	.9619629	5.9008	.87606
Q9G. "no appt. and want seen today"	.9398956	4.8529	.87149
Q19. "sex of child"	.9859744	4.7323	.87096

TABLE 35. VARIABLES NOT IN THE ANALYSIS AFTER STEP 5, PEDIATRIC URBAN VERSUS PEDIATRIC SUBURBAN

Variable	Tolerance	Minimum Tolerance	F to Enter	Wilks' lambda
Q6A. "called hospital switchboard"	.9709549	.9194394	.2488	.84924
Q6C. "phoned a clinic	.8773794	.8547490	.1007	.84988
Q3. "relation to child"	.9944347	.9243282	.7905	.84688
Q9B. "convenient time"	.8618159	.8569016	.0214	.84023

Standardized canonical discriminant coefficients were developed for the variables still in the analysis after Step 5. Table 36 displays the results of this final discriminant function.

TABLE 36. STANDARDIZED CANONICAL DISCRIMINANT FUNCTION COEFFICIENTS, PEDIATRIC URBAN VERSUS PEDIATRIC SUBURBAN

Variable	Function 1
Q9D. "difficult to make phone contact to clinic"	-.20429
Q9E. "facility location convenient"	+.77591
Q9F. "immediate information and treatment"	-.45166
Q19. "sex of child"	+.40069

Comparison of Adult Urban Versus Adult Suburban Responses

Four variables were included in the discriminant analysis comparing adult urban to adult suburban responses. The selection of these variables was a result of previous analysis, and stepwise selection. Variables included in the stepwise procedure are listed in Table 37.

Question 9E "facility location convenience" was the first question included in the stepwise analysis based on its high F value. Three subsequent stepwise procedures included all of the other variables listed in Table 37, based on the strength of the partial F value following previous analysis.

TABLE 37. VARIABLES INCLUDED IN DISCRIMINANT, STEPWISE ANALYSIS, ADULT URBAN VERSUS ADULT SUBURBAN

Variable	Tolerance	Minimum Tolerance	F to Enter	Wilks' lambda
Q4. "driving time was"	1.0000000	1.0000000	2.0496	.99301
Q6A. "called hospital switchboard"	1.0000000	1.0000000	4.8421	.98363
Q7 Whom? "told to come in by"	1.0000000	1.0000000	4.6985	.98411
Q9E. "facility location convenient"	1.0000000	1.0000000	33.2628	.89742

Partial F levels were insufficient after three stepwise analytical functions to proceed with further computation. Tables 38 and 39 display the variables in and out of analysis after Step 3.

TABLE 38. VARIABLES IN THE ANALYSIS AFTER STEP 3, ADULT URBAN VERSUS ADULT SUBURBAN

Variable	Tolerance	F to Remove	Wilks' lambda
Q6A. "called hospital switchboard"	.9226177	7.8038	.87898
Q7 Whom? "told to come in by"	.9174845	9.7852	.88484
Q9E. "facility location convenient"	.9942048	34.0044	.95657

TABLE 39. VARIABLES NOT IN THE ANALYSIS AFTER STEP 3, ADULT URBAN VERSUS ADULT SUBURBAN

Variable	Tolerance	Minimum Tolerance	F to Enter	Wilks' lambda
Q4. "driving time was"	.8780003	.8765082	.1780	.85534

Standardized canonical discriminant coefficients were developed as the final computation of subprogram DISCRIMINANT, for the adult urban and suburban responses. Table 40 is a display of those results.

TABLE 40. STANDARDIZED CANONICAL DISCRIMINANT FUNCTION COEFFICIENTS, ADULT URBAN VERSUS ADULT SUBURBAN

Variable	Function 1
Q6A. "called hospital switchboard"	+.44466
Q7 Whom? "told to come in by"	+.49765
Q9E. "facility location convenient"	+.85712

Variables included in the standardized canonical discriminant coefficients for all groups of clients included in this study will be discussed and interpreted in the following chapter. Current systems and models of care for urban and suburban emergency departments will be described, along with modifications deemed significant

through the statistical analysis of this study. The Adaptation Model suggested will form the conceptual framework for a contemporary approach to emergency department care in urban and suburban HMO's.

CHAPTER V

DEVELOPMENT OF THE ADAPTATION MODEL

Introduction

The findings of this study suggest that the Traditional Model for providing emergency and after-hours clinic services in an HMO needs review and possible modification.

Through a combination of historical precedent and actual implementation of services, a model of emergency department services for HMOs has evolved. The Model has three major elements. The first emphasizes the characteristics of the client population, and the type of decisions they make prior to seeking emergency department care. The second major elements are those facilities and activities which constitute the delivery of care within the emergency department. The third elements are those relationships which exist between the emergency department and other aspects of the total medical care system. Figure 3 provides a schematic representation of the traditional HMO emergency department model including important components of each of the three elements described.

In the section that follows each of the elements of the Traditional Model will be discussed in terms of this study. Additionally, the final section of this chapter proposes appropriate adaptations to the model, as currently developed.

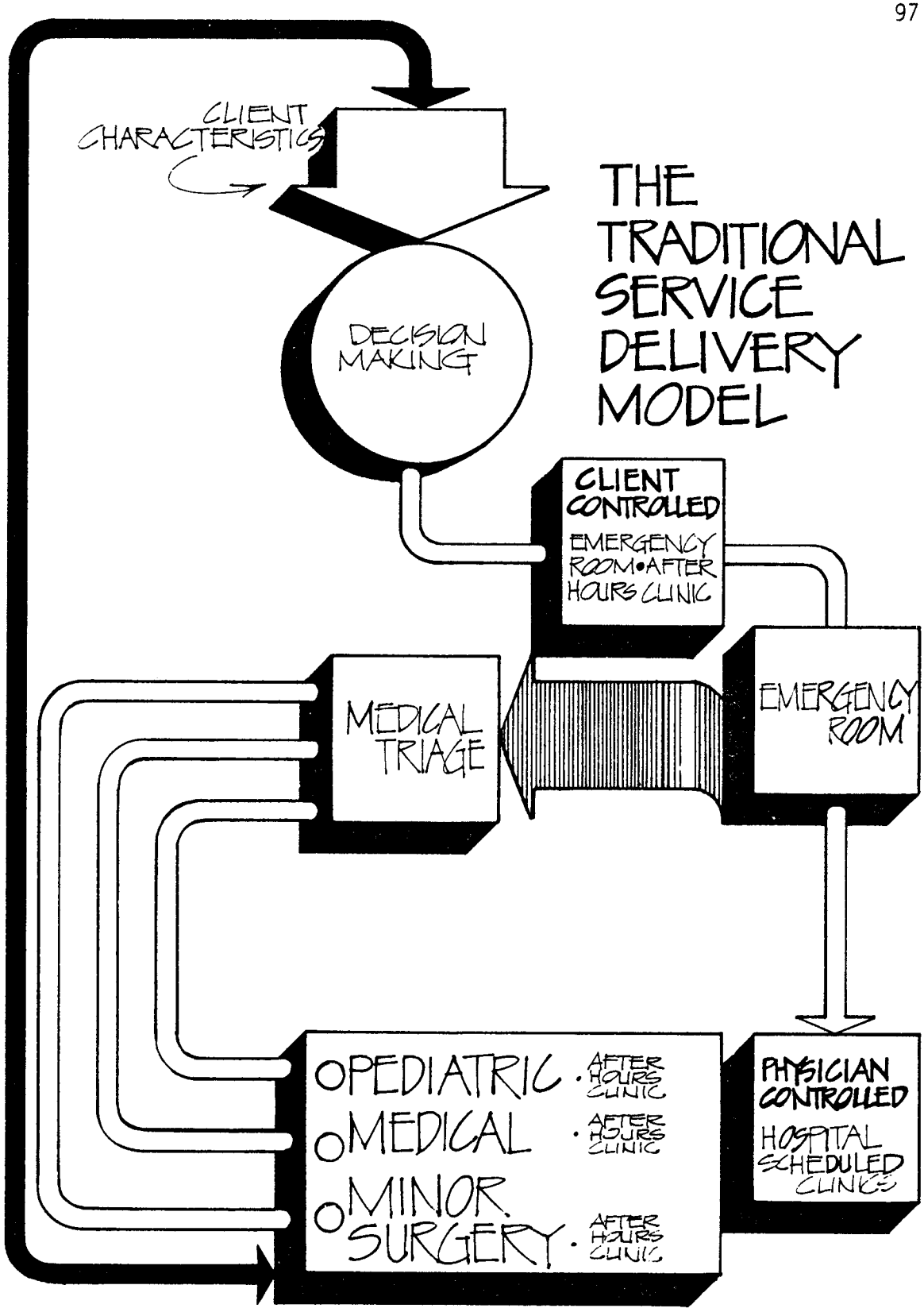

Figure 3. The Traditional Service Delivery Model.

Discussion

In the Traditional Model of emergency room and after-hours clinics, a series of assumptions about the client pool have shaped the nature and scope of service delivery. A historic assumption has been that clients using the emergency department are those with acute, or life-threatening conditions; and whose onset of illness requires access at unusual times of the day. Further, such departments need services to accommodate the most extensive trauma cases and/or unusual presenting medical problems. Implied in these assumptions is the conclusion that clients utilizing these facilities are, in fact, an atypical consumer drawn from "normal" patterns of care by trauma or extreme illness.

Several findings of the study suggest that the sole characteristic that differentiates the study consumers from other HMO members is the mode of care they choose. Specifically, with respect to age, sex, location of residence, education and other demographic characteristics, the study group is unusual only in the fact that it so closely represents the membership as a whole. No single demographic or sociologic characteristic studied differentiated these clients' pattern of health care use. This was true of consumer use in general, and specifically in terms of the urban site versus suburban site.

However, three particular findings of the study merit attention with respect to the rationale explaining emergency department use. First, the most often cited reason for accessing this type of care

was convenience. Clearly, the convenient location of the facility and possibly the expedience of "no appointment, drop in" care is an important factor for people choosing emergency room/after-hours clinic services. As mentioned in Chapter II, the concept of "The Department of Available Medicine", may in fact, provide a binding thread for this group. Substantiating this hypothesis is a separate finding that less than a third of those seeking emergency department care make prior contact with the facility. In effect, those who sought care did so primarily by their own initiative and without seeking a more traditional, or formal access mode.

A second supportive finding was that more than one-third of all respondents indicated that the inability to be able to get an appointment, coupled with a desire to be seen "today" was a significant factor in seeking care through the emergency room/after-hours clinics. This was more evident in the urban setting (42.7%) than the suburban setting (33.7%) but represents an unusual trend worth further investigation. A particularly interesting study might include use of locus-of-control measurement on paired groups, using traditional access (e.g., scheduled appointments) versus after-hours services for the same medical condition. The underlying assumption being that a more assertive client would be one who would approach the system from a point where they, themselves, control their access to service.

The last finding of particular interest is the prior use of emergency department services coupled with the identification of a personal physician. In brief, both groups studied indicated a high

rate of usage of emergency department services over the one year period preceding the study. Approximately half of all clients were repeat users of the system within the last year. Of that group, nearly 50 percent had used the facility two or more times, including the present visit. In a small number of cases (1% of total respondents) the incidence of service use was in excess of nine times during the previous twelve months. Apparently there is a sizable group of clients who use this form of health care in the way some consumers use the services of a personal physician. This idea is further supported by the findings that almost 70 percent of adults, and 79 percent of adults responding for children, thought it was "important" to have a personal physician; while more than 40 percent of the adults (and 15% of children) indicated that they had no "personal physician" at the present time.

Findings from the study suggest that using the person who seeks care in the emergency room/after-hours clinics as an atypical, possibly trauma-afflicted consumer, does not present a clear picture. Quite possibly the present client is more likely a convenience-oriented individual who chooses access into a system at a point where the consumer controls such entry.

A variety of other findings suggest interesting differences between clients in urban and suburban settings. As mentioned in Chapter IV, there appears to be a more universal pattern of care for children than for adults. With respect to the use of a private physician, the mode of initial contact with the health care system,

the need for immediacy of care and other factors, little difference existed between consumers in urban and suburban settings.

On the contrary, the patterns of care usage by adults at the urban and suburban sites varied in many ways. In brief, an urban adult client, when compared to a suburban adult client, is more likely to:

1) contact the hospital prior to seeking care
2) cite problems with utilizing other modes of care as a contributing factor for use of the emergency department.
3) cite the personal preference "to be seen today" as a contributing factor to decision-making.

Conversely, suburban adult clients were more likely to:

1) cite convenience as a contributing factor to seeking care.
2) indicate that they had been "instructed" to seek care in the facility.
3) report repeated use of the emergency room/after-hours clinics.

Almost endless hypotheses can be given for why these differentiations were found. To a large extent, it appears that characteristics of the health care system studied (e.g., site location, telephone usage patterns, etc.) can be identified as contributing to such differences. The only non-system-oriented conclusion which seems viable is that <u>some</u> difference exists in the level of use based on convenience between the urban and suburban sites. No conclusive evidence was obtained through the study to determine the precise reasons for this difference.

Relating the study findings to the client-oriented aspect of the Traditional Model is a somewhat more difficult task. As mentioned earlier, no significant differences could be identified which separate the study group from the general HMO membership. However, even if such differences occurred, it is unlikely that effective means of "changing" the client pool could be instituted as a means of improving service to the emergency department clients in general. A more likely approach to revision of the model is one that focuses on impacting the decision-making process of the consumer, coupled with changes in the procedures by which care is delivered.

Possibly the most important decision-making processes include:

1) the time when the client contacts the system prior to seeking care, and
2) how the client views the system, vis-a-vis convenience and immediacy of care.

Fundamental to revisions which improve system/client communication and prompt, convenient care, is a more fundamental change in provider's attitudes about consumers. Particularly intriguing is the idea that change in the system itself be constituted around those clients as a group, rather than as individuals who misuse certain aspects of the medical care program. It seems evident from this study, and others, that the emergency room/after-hours clinics will increasingly be called upon to re-examine their approach to clients. More precise discussion of this possibility is included later within this Chapter.

Possibly the most crucial moment for the functioning of any health care system is when the client and system make contact. As we see in the Traditional Model, two basic types of access are generally available. The first is that which is controlled access (e.g., physician admits patient to the hospital, patient and provider agree on a scheduled visit). The focus of this study was the second form of access which is uncontrolled access.

HMO's have traditionally established emergency rooms as a means of taking responsibility for 24-hour urgent and emergency medical care services. After-hours clinics later emerged to remove much of the growing work-load associated with the appearance of clients seeking care in emergency rooms for non-urgent conditions. Such clinics were established as physical facilities adjacent to, or contiguous to, the emergency room in order to provide the most efficient use of space, equipment, and personnel. Services needed to support these clinics were generally available from the emergency room, or within the hospital, 24 hours every day. This type of spatial and work relationship also created economies of space, personnel, equipment, and time. Location of the after-hours clinic is an important consideration, as confirmed by this study.

No definitive attempt has been made to control emergency room, or after-hours clinic access. Instead, many facilities instituted a triage system that worked primarily to "sort" patients to the most appropriate level of care (e.g., ambulatory versus non-ambulatory) and by the client's presenting problem. Given the results of this study, a triage system coupled with different levels of care seems

an appropriate mechanism for the client-seeking convenient, "drop-in" medical assistance. Triage only works, however, when the consumer's medical need and the mix of medical personnel and services are in balance. This is often not the case.

Emergency department physicians include emergency room specialists, internists, family practitioners, pediatricians, and residents (both in primary care and in surgical subspecialties). A unique factor about the emergency department is having such diverse groups of physicians providing care for a wide variety of presenting conditions and complaints to a broadly disparate age group. Physicians generally rotate through the after-hours clinic, and limitations in providing care may well be a function of differences in professional capabilities. Certainly this creates a work setting for support staff unlike any other area within the HMO. Working with a different physician each evening or weekend creates great demands of flexibility from the supporting staff. Likewise, a patient presenting a specific problem would hope that the staff available at that particular time have both interest and expertise to treat their specific condition.

On a practical basis, there is often neither control over who seeks care, nor who is available to treat the client. Control, therefore, is a necessary element of the efficient, cost-effective operation of this uncontrolled access area of the medical care system. For example, this study confirms the dilemma created when physician control of scheduled clinic services confronts the client who wishes to be seen on the same day. Ultimately, it is the client who

exercises control by accessing emergency department services, where physicians have no control over decisions to seek care. "Who's in charge" becomes virtually a phenomenon of time and location.

Two problems originate from this conflict of control. The first is that client-controlled access for health care via the emergency room is also the most costly way to deliver health care for non-urgent conditions. High costs are a result and function of overhead, types of providers, support staff requirements, as well as equipment and supplies used. Certainly, the use of the emergency room for non-urgent conditions when the after-hours clinics are not functioning contains a dimension of cost rarely analyzed.

A second major problem is a concern regarding the over-specialization of professional staff. For example, the highly trained specialist emergency room physician is expected to adapt to a change in client population, based on the hour of the day, and the day of the week. Such transitions for professionals appears quite difficult and problematic. The trend of extending education for emergency room physicians to a higher specialty level must be viewed as a "mixed blessing". "To be trained for what?" some ask.

Compounding these problems, attention is always given to the chief complaint as the focus of treatment in the emergency department. Cursory attention is given to the potential for follow-up care, self care, or information concerning other health care alternatives with the HMO. This study identifies a somewhat divergent mixture of client values; e.g., a strong positive feeling about doctor-patient

relationship, and yet little action on the part of the client to pursue and establish such liaisons. Possibly the study "forced" a response which has been strongly supported by the medical community for many years. It appears from this study that the medical profession feels this need more than the consumers of health care services. Emergency department physicians specifically may represent the only group of specialty physicians who have chosen not to function in a setting which encourages, or expects a doctor-patient relationship. Resident physicians may also have little information concerning the HMO generally, and be unable to suggest appropropriate alternatives and followup. Perceptions of clients concerning the "quality" or "adequacy" of health care may be a direct result of seeking services from physicians who have diverse values in terms of the need to establish doctor-patient relationships.

The previous discussion is not a definitive description of the many complexities inherent in the service element of the Traditional Model. The discussion is meant to highlight two characteristics of the present model which can be modified to improve this form of health care delivery. The first is some change in the present emergency room/after-hours clinic system to more adequately provide services for a changing client population. The second is to institute controls which best serve the clients and to direct them (or divert them) to appropriate alternatives for care.

To date, no major attempt has been made at either identifying the characteristics of clients using emergency department services, or identifying ways to impact upon such utilization. It is often tempting to suggest that global changes can be made to the client pool to stop "those people" from using the system "incorrectly". Such an approach assumes that effective means exist to contact all consumers and in some way "correct them"; ultimately causing a change in their behavior.

It would seem much more prudent to assume that the utilization of emergency department services is not aberrant, but a real phenomenon which adequately serves the needs of a defined client group. Given this new assumption, the logical question is how can this group be impacted to insure efficient, cost effective health care services, given their choice of access. Changes in the Traditional Service Delivery Model will be necessary to bring about an Adaptation Model which not only creates more efficiencies and economies, but also has a greater positive influence on the behavior of clients seeking emergency department services.

The conflict of system "control" has been mentioned previously, and this seems an important framework and a basic position from which to develop the Adaptation Model. The confrontation created by the current "controlled" system is as follows:

Access	Physician Control	Client Control
Hospital	Yes	No
Scheduled Clinics	Yes	Yes
Emergency Room	Yes	Yes
After-Hours Clinics	No	Yes

Figure 4 Controls, Traditional Service Delivery Model

Findings from this study strongly suggest that many clients feel prevented from using scheduled clinics, and therefore seek services through alternative systems. Reasons which may be attached to the lack of clients receiving care through scheduled clinics are:

1) Not enough same-day appointments available.
2) Not enough providers available.
3) Insufficient medical advice concerning self-care.
4) Ineffective triage systems.
5) Lack of sufficient communication systems to allow immediate phone access.
6) Clinics open only Monday through Friday; 8:30 a.m. - 5:00 p.m.

This study confirms that clients indicate a lack of appointment availability "that day" as a major reason for emergency department use. Scheduled clinics must seriously consider modifying their current allocation of same-day versus scheduled appointments in order to impact consumer decision-making in seeking non-scheduled access. Review of control over the number of providers available is necessary

so that the scheduled clinics maintain a certain number of appointments every day. Consistency in provider scheduling will be important in order for HMO clients to have a continuity of expectations regarding appointment availability.

Medical advice systems need to be reviewed in order to determine consistency and adequacy of communication with clients. Standardized protocols delivered by a proficient nursing staff should be an expectation of an effective advice system. Concurrently, the need for preventive and self-care information should be incorporated into this advice system. Such advice messages can be monitored to insure appropriate and high quality communication. Medical advice should remain somewhat "constant" throughout the various locations utilizing such personnel. Physician extenders should also be considered in the area of medical advice.

The concept of triage needs expansion and enhancement. Triage should be viewed as an important and influential aspect of client decision-making, and therefore should take place prior to access. This modification can greatly influence client behavior toward more appropriate and efficient systems for medical care.

Communication systems should provide clients with acceptable alternatives in their decision-making process. Although this study did not indicate a significant suburban client group phoned prior to access, it was a discriminating factor in the urban population studied. Creating a system which encourages consumers to phone prior to access can allow the triage system to influence clients to a much greater extent. Merely extending the current phone

communication system will probably accomplish little in terms of modifying current client behavior.

The availability of after-hours clinics in different locations should be considered. An analysis should be accomplished using the following elements:

1) facility overhead costs
2) personnel and equipment costs
3) client population using zip code studies and driving time determinations
4) consumer satisfaction
5) provider satisfaction

The Adaptation Model

Adaptations of the current service delivery model suggest two major themes:

1) creating change to influence consumer decision-making; and,
2) creating change to establish more efficiency, effectiveness, and more "control" in the system.

As alluded to earlier in this Chapter, impacting the decision-making may mean giving more control to the consumer through a more flexible mixture of same-day appointments. The use of physician extenders should be considered to see those clients with less complicated medical conditions. Allowing for some scheduling of appointments within the framework of the after-hours clinics is another consideration. The key point is to build upon the convenience of care rather than attempting to discourage it.

Within the Adaptation Model, the concept of triage expands and becomes an integral part of decision-making. (Figure 5). "Decision" triage should conceivably occur prior to seeking care. The ability to "sort" clients prior to their arrival at the facility holds great promise for influencing both the decision of the client and the readiness of the facility and staff.

An equally interesting program would be one that placed greater emphasis on the information clients receive either during, or after, contact with the system. As mentioned previously, an extremely weak relationship exists between the emergency department services and the controlled access points within the HMO system. A stronger, more effective program in information and referral of clients may do much to insure both quality of care and effective use of services by the returning client. Although the above-mentioned possibilities remain conjecture, it is clear that influencing consumer decisions, as well as advancing the point at which triage occurs, are two important steps in insuring both appropriate consumer behavior and effective use of the medical care system.

The phrase, Adaptation Model, is used in this study to suggest that modification of the existing model is preferrable to the introduction of a totally new form of emergency room, after-hours clinic service delivery. Based on study findings, it is clear that the "adaptation" is not solely a function of "changing" consumer behavior, nor is it solely a function of "changing" the service delivery system. Both consumer behavior and service delivery patterns must be effected to insure efficient, cost-effective client treatment.

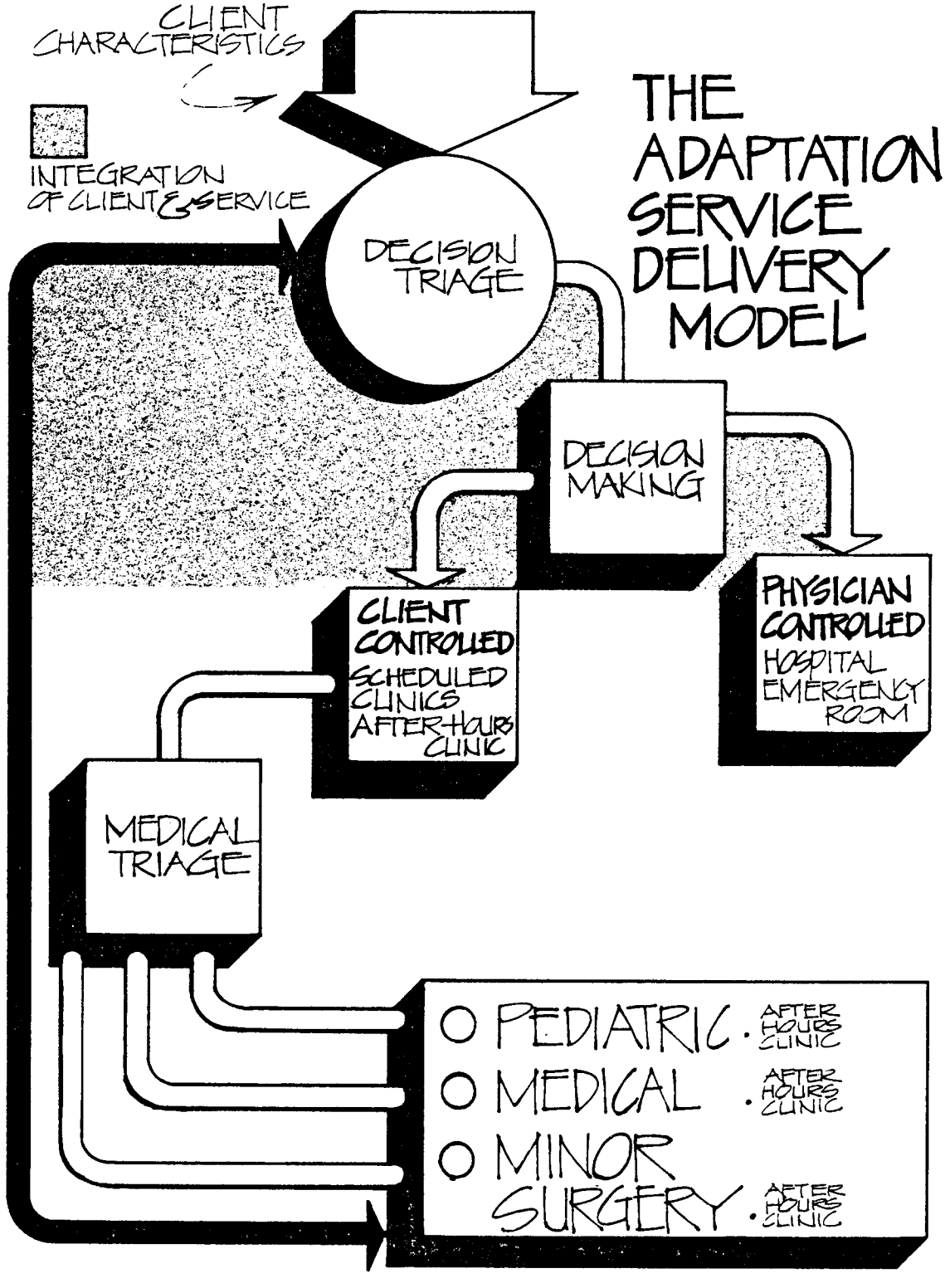

Figure 5. The Adaptation Service Delivery Model.

The suggested adaptations modify the system "controls" as follows:

Access	Physician Control	Client Control
Hospital	Yes	No
Scheduled Clinics	No	Yes
Emergency Room	Yes	No
After-hours Clinics	No	Yes

Figure 6. Controls, Adaptation Model

The system modifications incorporated into the Adaptation Model, and supported in this study, eliminate the conflicts of control currently seen in the Traditional Model and re-direct the decision-making process. Changes in "control" can substantially influence the access to care and diminish the confrontations between the providers of medical services and the clients seeking care. A major effort must be advanced so that providers and consumers become more familiar with the rationale for these changes, and that both feel more assured with the quality of services which result through such adaptations.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The major purpose of this study was to develop an Adaptation Model for emergency rooms and after-hours clinics in an urban and a suburban HMO.

Two types of clients were studied: 1) consumers seeking care for themselves; and 2) consumers seeking access on behalf of children. Both of these groups were studied in an urban and a suburban setting.

Questions explored which provided data for the Adaptation Model were:

1) Are there significant differences in the demographic characteristics of clients seeking service?
2) Are there significant differences in the sociologic characteristics of clients seeking service?
3) Are there significant differences in perceptions of access problems related by clients seeking services?
4) Are there significant differences in the decision-making characteristics of clients seeking services?
5) Are there significant differences in preferences for personal physicians of clients seeking services?

The methods used to approach the questions included the development and testing of the research instruments (one for adults, and another for adults on behalf of pediatric clients). A pilot study was completed, critiqued, and analyzed. The final research instruments were completed by 1,031 clients, which represents 51 percent of all clients seen in both locations during the weeks the survey was given.

Data analysis was accomplished, and significant discriminating characteristics of the clients provided the framework to create an Adaptation Model for emergency rooms/after-hours clinics of the HMO.

Conclusions

Major findings of this study were:

1) There are no significant differences in the demographic characteristics of clients seeking service in an urban HMO setting versus a suburban HMO setting.
2) There are no significant differences in the sociologic characteristics of clients seeking service in the urban versus suburban facilities of an HMO.
3) There were significant differences in the perceived problems of access between clients seeking service in the urban versus suburban facilities of an HMO.
4) There were significant differences in the decision-making characteristics of clients seeking services in the urban versus suburban facilities of an HMO.

5) There were significant differences in preferences for personal physicians between clients seeking service in the urban versus suburban facilities of an HMO.

6) Significant elements in consumer decision-making towards seeking emergency department care included:

   a) Convenience of the facility location

   b) Immediacy of care and information

   c) Availability of care

7) A significant number of clients made contact with the HMO prior to arriving at the emergency department and were instructed by representatives of the HMO to seek care.

8) A large difference exists between the stated preference for a personal physician and clients reporting that they have a personal physician. This is more often the case with adult clients than with children as clients.

9) Clients accessing the emergency department in the majority of cases, had done so on more than one other occasion during the previous calendar year.

10) The predominant modes of contact with the HMO prior to seeking care in the emergency department are:

   a) Calling the hospital switchboard

   b) Calling the emergency department directly

   c) Telephoning an ancillary clinic

11) An urban adult client when compared to a suburban adult client is more likely to:

a) Contact the hospital prior to seeking care

b) Cite problems with utilizing other modes of care as a contributing factor for use of the emergency department

c) Cite the personal preference "to be seen today" as a contributing factor to decision-making

12) A suburban adult client when compared to an urban adult client is likely to:

a) Cite convenience as a contributing factor for seeking care

b) Indicate they had been "instructed" to seek care in the facility

c) Report repeated use of the emergency rooms/after-hours clinics

13) The overall pattern of care for children varies less between urban and suburban settings than the pattern of care for adults.

Recommendations for Further Research

This study was one of the first to measure consumer attitudes and behavior in clients using emergency rooms and after-hours clinics in an urban and suburban HMO. The findings suggest avenues for future research. Major areas where research seems appropriate are discussed in this section.

The findings of this study lead to the recommendation that the tenets of the Adaptation Model be instituted and further explored. Such studies should be directed towards how the Adaptation Model might maximize service availability and impact client behavior. Long-term studies of "repeat users" of emergency department services may be of particular interest in terms of the effects of service modifications on consumer utilization.

It is also strongly suggested that a replication of this study be undertaken. During such a study attention should be given to:

1) A more detailed study of special sub-populations within the HMO membership (e.g., elderly, handicapped, etc.) and their use of emergency department services.
2) Developing more precise means of measuring the decision-making process of consumers.
3) A review of emergency service utilization in different locations of the country.
4) A study or series of studies conducted on particular aspects of the emergency department (e.g., triage) to better illustrate the effect each sub-system has on consumer/system interaction.
5) A cohort study comparing the overall health status of clients who repeatedly use emergency rooms/after-hours clinics, to those clients generally using the scheduled clinic aspect of the medical care program.
6) A continued attempt at verification of the research tool.

In general, this study touches upon the paucity of research or models regarding specialty service configurations in HMO's. Some interesting questions include:

1) What service or services best meet the needs of the HMO population?
2) Which particular existing departments (e.g., Home Health, Social Work, etc.) presently serve a valuable function to the emergency department client?
3) Could the resources mentioned above, or other resources, be more effectively directed towards the consumer group utilizing emergency department services?
4) What constitutes the most effective staffing pattern for the HMO emergency department in terms of number of personnel, training, and specialty area?

Lastly, the concepts of "control" and "access" to the HMO services could be the most intriguing area of study uncovered by this work. Little attention has been given to the lifestyle of contemporary clients and how they choose to obtain health care services. It is fair to hypothesize that one system has been developed to serve what may be two distinctly different populations: first the group who choose controlled use of the health care system; and second the group choosing uncontrolled use. There are no current estimates as to the number in each group. The latter group may well constitute a new and growing number of consumers destined to influence the nature of health care for years to come.

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APPENDIX A

ADULT QUESTIONNAIRE

FACILITY_____ ___After Hours Clinic

DATE:_____ ___Emergency Room

TIME:_____

Adult: (over 14 years)
EMERGENCY ROOM/AFTER HOURS CLINIC QUESTIONNAIRE

This survey is being conducted to gain more and better information regarding our Emergency Room/After Hours Clinic. Your agreement to complete this questionnaire is strictly voluntary, and you will not be requested to identify yourself by name or chart number. You may refuse to answer any of the questions that you wish, and this questionnaire will not become part of your Kaiser-Permanente record. All responses will be treated in a strictly confidential way.

If you feel too ill, or in too much pain to complete this survey, you are under no pressure to do so. Your responses will not influence the care you receive during your visit.

Someone is available to help you with the meaning of the questions, and can also assist you in marking the questionnaire if you so desire. Your assistance will be valuable as we plan for, and improve, our services.

1. Check one of the following that applies to you:

   ___ I am a Kaiser-Permanente member.

   If checked, how long have you been a member? ___Years ___Months

   ___ I used to be a Kaiser-Permanente member.

   If checked, how long ago were you a member?_____.

   ___ I have never been a Kaiser-Permanente member.

2. I came here from ___ Home ___ Work ___ School ___ Other (Specify)_____

3. I came here with ___ Parent ___Spouse ___Neighbor ___ Other (Specify)_____

4. The driving time here was approximately

   ___ Less than 10 min. ___10-15 min. ___15-20 min. ___20 min. or more.

5. What is the street address of your home residence?_____
   _____Zip Code_____

6. Before arriving, which of the following did you do (if any)?

   (a) Telephoned the hospital switchboard . . . . . ___
   (b) Telephoned a physician's office . . . . . ___
   What is the physician's name?_____
   (c) Telephoned a clinic . . . . . ___
   Which one?_____
   (d) Telephoned the Emergency Room . . . . . ___
   (e) None of the above . . . . . ___

7. If you contacted Kaiser-Permanente personnel prior to coming here, were you told to come in? . . . . . ___Yes ___ No
   If yes: By whom? _____

8. Please give a brief description of why you are here for this visit:_____

9. Were any of the following also important in your decision to come in at this time? (Check as many as apply.)

   (a) It's too difficult to obtain an appointment . . . ___Yes ___No
   (b) I work all day and this is a convenient time for me . . . . . ___Yes ___No
   (c) I like the confidentality of being seen in the Emergency Room . . . . . ___Yes ___NO
   (d) I had difficulty in making telephone contact to a clinic. . . . . ___Yes ___No
   Which clinic?_____
   (e) The location of this facility was convenient for me . . . . . ___Yes ___No
   (f) I like being seen in the Emergency Room/After Hours Clinics because I get more immediate information and treatment for my problem . . . . . ___Yes ___No
   (g) I could not get an appointment to be seen today, and I did want to be seen today . . . . . ___Yes ___No
   (h) I have no babysitter during the day, so I would rather wait until this time to be seen . . . . . ___Yes ___No
   (i) I feel that I cannot leave work to get medical care . . . . . ___Yes ___No
   (j) I have someone to drive and/or assist me at this time of day but not at other times . . . . . ___Yes ___No

10. Besides this visit, have you used the Emergency Room/ After Hours services within the past year? . . . . . ___Yes ___No

11. Besides Emergency Room/After Hours visits, have you gone to a doctor or visited a clinic within the past year? . . . . . ___Yes ___No

    If yes: How many visits were made?_____
    What was the date of your last visit to a doctor or clinic for medical services?_____

12. Was your last visit to your usual physician?. . . . . ___Yes___No
13. Within Kaiser-Permanente, are you encouraged to have a personal physician? ___Yes___No
___Do not know

14. Is it important to you to have a personal physician?..___Yes___No
15. Do you have a personal physician? . . . . . .___Yes___No
16. How many days were missed from work or usual activities during the past four weeks because of personal illness (your own illness)?_____
17. In general, how would you rate your health?
___Excellent ___ Good ___Fair ___Poor
18. How many children do you have?_____
19. Are you ___Male ___Female
20. In which of the following age categories are you?
___Less than 20 ___20-30 ___30-45 ___45-65 ___Over 65
21. How long have you lived in the Portland/Vancouver area?
___Less than 1 year ___1-2 years ___2-5 years ___5-10 years
___over 10 years
22. Education: Check highest level completed.

___Grade 0-8 ___Grades 9-11
___High School ___Some College
___College Graduate ___Post-College Work

23. What is (or was, if retired), your specific occupation?
_____

THANK YOU FOR ASSISTING US!

APPENDIX B

PEDIATRIC QUESTIONNAIRE

FACILITY:_____ ___After Hours Clinic
DATE:_____ ___Emergency Room
TIME:_____

Pediatrics: (14 years or under)
EMERGENCY ROOM/AFTER HOURS CLINIC QUESTIONNAIRE

This survey is being conducted to gain more and better information regarding our Emergency Room/After Hours Clinic. Your agreement to complete this questionnaire is strictly voluntary, and you will not be requested to identify yourself or the child by name or chart number. You may refuse to answer any of the questions that you wish, and this questionnaire will not become part of any Kaiser-Permanente record. All responses will be treated in a strictly confidential way.

If you feel the child is too ill, or in too much pain to allow you the time to complete this survey, you are under no pressure to do so. Your responses will not influence the care your child receives during this visit.

Somone is available to help you with the meaning of the questions, and can also assist you in marking the questionnaire if you so desire. Your assistance will be valuable as we plan for, and improve, our services.

TO BE COMPLETED BY PARENT OR OTHER ADULT ACCOMPANYING CHILD.

1. Check one of the following that applies to the child being seen:

   ___The child is a Kaiser-Permanente member.
   If checked, how long has the child been a member? ___Years ___Months
   ___The child used to be a Kaiser-Permanente member.
   If checked, how long ago?_____
   ___The child is not a Kaiser-Permanente member.

2. I came here from ___Home ___Work ___School ___Other (Specify)_____

3. My relationship to this child is ___Mother ___Father ___Grandparent ___Babysitter ___Other (Specify)_____

4. The driving time here was approximately ___Less than 10 min. ___10-15 Min. ___15-20 Min. ___20 min. or more

5. What is the street address of your home residence?_____
   _____Zip Code_____

6. Before arriving, which of the following did you do (if any)?
   (a) Telephoned the hospital switchboard . . . . . ___
   (b) Telephoned a physician's office. . . . . ___
   What is the physician's name?_____
   (c) Telephoned a clinic . . . . . ___
   Which one?_____
   (d) Telephoned the Emergency Room . . . . . ___
   (e) None of the above . . . . . ___

7. If you contacted Kaiser-Permanente personnel prior to coming here, were you told to come in? . . . . . ___Yes ___No
   If yes: By whom?_____

8. Please give a brief description of <u>why</u> the child is here for this visit?_____

9. Were any of the following <u>also</u> important in your decision to come in at this time? (Check as many as apply.)
   (a) I work all day and this is a convenient time for me . . . . . ___Yes ___No
   (b) I feel that I cannot leave work to get medical care during the hours I am employed . . . . . ___Yes ___No
   (c) The location of this facility was convenient for me . . . . . ___Yes ___No
   (d) I could not get an appointment to have the child seen today, and I did want the child seen today . . . . . ___Yes ___No
   (e) I like having the child seen in the Emergency Room/After Hours Clinic because I get more immediate information and treatment for the child. . . . . ___Yes ___No
   (f) I was contacted by school authorities and advised to have the child seen . . . . . ___Yes ___No
   (g) I had difficulty in making telephone contact to a clinic . . . . . ___Yes ___No
   If yes, which clinic?_____
   (h) It's too difficult to obtain an appointment . .. ___Yes ___No
   (i) I have no babysitter for the other children during the day, so I would rather wait until this time to have the child seen . . . . . ___Yes ___No
   (j) I have someone to drive and/or assist me with the child at this time of day but not at other times . . . . . ___Yes ___No

10. Besides this visit, have you brought the child to the Emergency Room/After Hours services within the last year? . . . . . ___Yes ___No
   If yes: How many visits were made?_____

11. Besides Emergency Room/After Hours visits, have you taken the child to a doctor or clinic within the past year? . . . . . ___Yes___No
    If yes: How many visits were made?_____
    What was the date of the child's last visit to a doctor or clinic for medical care?_____

12. Was the last visit of this child to the pediatrician who usually provides the child's care? . . . . . ___Yes___No

13. Within Kaiser-Permanente, are you expected to have a pediatrician for the child? . . . ___Yes ___No ___Do not know

14. Is it important to you to have a personal pediatrician for the child? . . . . . ___Yes___No

15. Does the child have a pediatrician?. . . . . ___Yes___No
    If yes: What is the pediatrician's name?_____

16. How many days has the child missed school or usual activities during the past four weeks because of illness?_____

17. In general, how would you rate the child's health?
    ___Excellent ___Good ___Fair ___Poor

18. How many other children do you have? (Complete only if you are the parent of the child being treated.) _____

19. Is the child ___Male ___Female

20. In which of the following age categories is the child?
    ___Less than 1 year ___1-3 years
    ___3-5 years ___5-8 years
    ___8-11 years ___11-14 years

21. How long has the child lived in the Portland/Vancouver area?
    ___Less than 1 year ___1-2 years ___2-5 years ___5-10 years
    ___over 10 years

22. Education: Check highest level you have completed. (Complete only if you are the parent of child being treated.)
    ___Grades 0-8 ___Grades 9-11
    ___High School ___Some College
    ___College Graduate ___Post-College Work

23. What is your specific occupation?_____

APPENDIX C

RESIDENCE AREA MAP

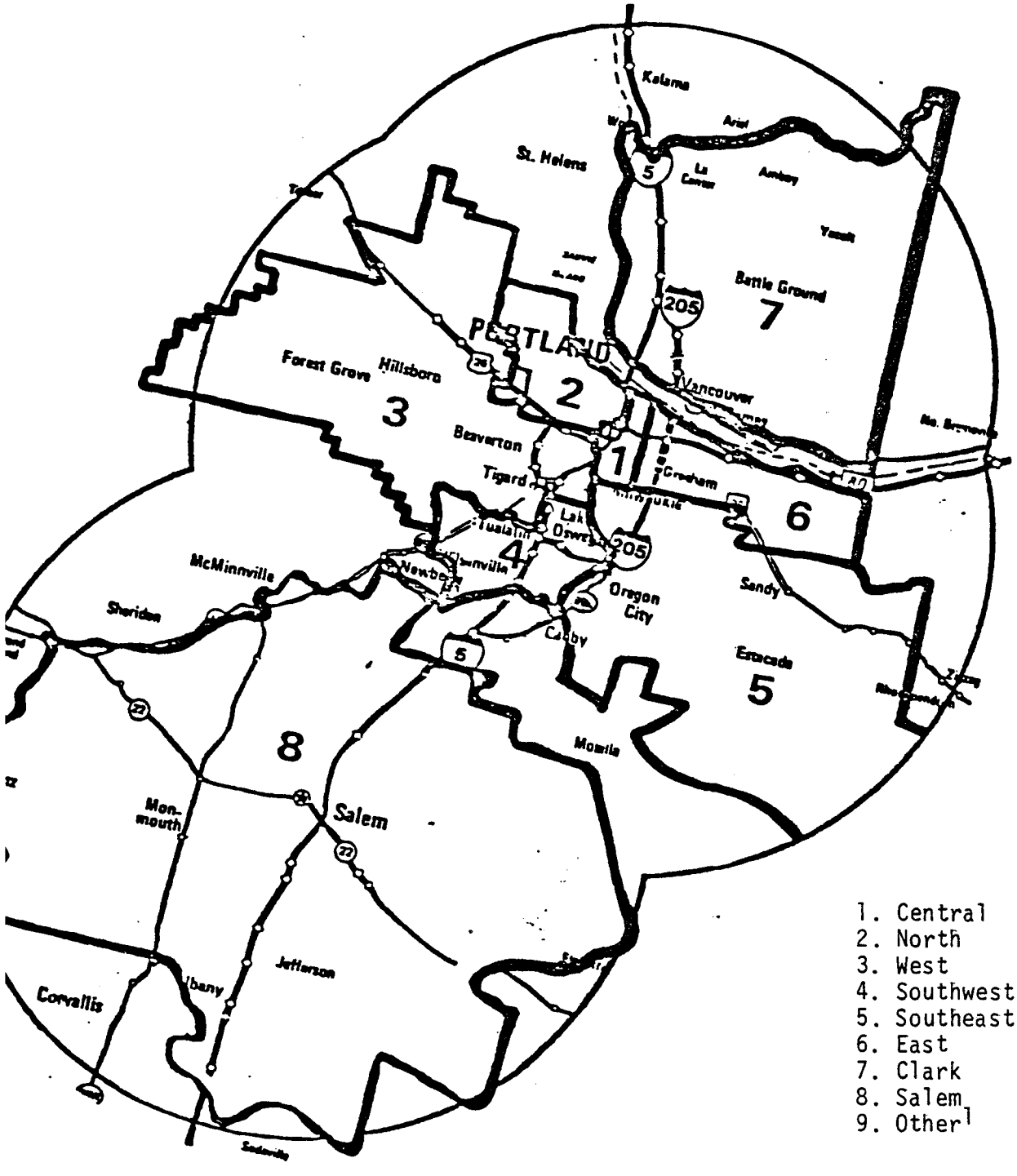
OREGON REGION

KAISER-PERMANENTE

RESIDENCE AREA

ZIP CODE TABLE

RESIDENCE AREAS



[1]"Other" includes all membership not in the previous 8 areas.

RESIDENCE AREA/SUBAREA ZIP CODE TABLE

AREA	SUBAREA	ZIPCODES				
Central	1	97213	97214	97218	97232	
	2	97202	97206	97215		
North	1	97203	97211	97212	97217	97227
	2	97204	97205	97209	97210	97229
	2 (cont.)	97231	97240			
West	1	97201	97219	97221		
	2	97005	97006	97007	97223	97225
	3	97106	97113	97116	97117	97119
	3 (cont.)	97123	97125	97133	97109	97120
	3 (cont.)	97144				
Southwest	1	97003	97034	97035	97036	97068
	1 (cont.)	97070				
	2	97062	97140			
Southeast	1	97015	97222	97236	97266	
	2	97009	97013	97017	97022	97023
	2 (cont.)	97027	97045	97055	97011	97067
	2 (cont.)	97073	97049	97028	97042	97004
	2 (cont.)	97038	97375			
East	1	97216	97220	97230	97233	
	2	97019	97024	97030	97060	97010
	2 (cont.)	97008				
Clark	1	98642	98660	98661	98663	98665
	1 (cont.)	98674				
	2	98607	98662	98664	98671	98666
	2 (cont.)	98668				
	3	98601	98603	98604	98606	98629
	3 (cont.)	98675				
Salem	1	97301	97302	97303	97304	97305
	1 (cont.)	97306	97303	97308	97309	97310
	1 (cont.)	97311	97312	97314	97392	
	2	97026	97071	97072	97101	97114
	2 (cont.)	97137	97321	97325	97335	97338
	2 (cont.)	97344	97351	97352	97358	97359
	2 (cont.)	97361	97362	97371	97374	97378
	2 (cont.)	97381	97383	97385	97396	