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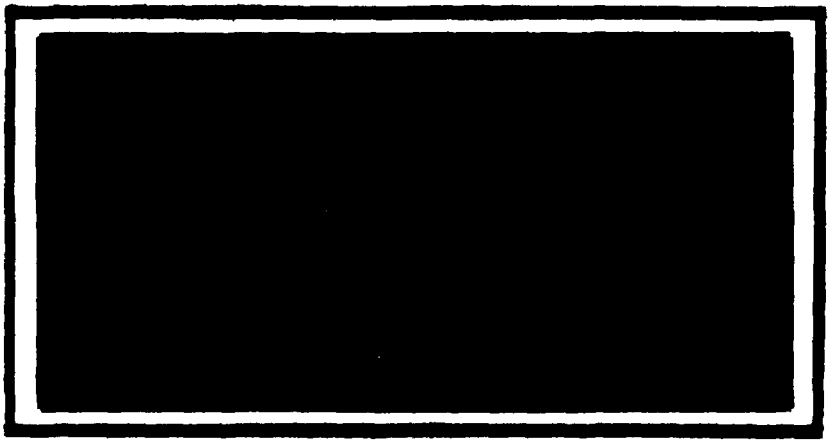

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MEASURING PATIENT SATISFACTION AS A BASIS FOR MEDICAL MARKETING AND STRATEGIC PLANNING

THESIS

Anne C. McPharlin, Captain, USAF

AFIT/GIR/LSR/89D-6

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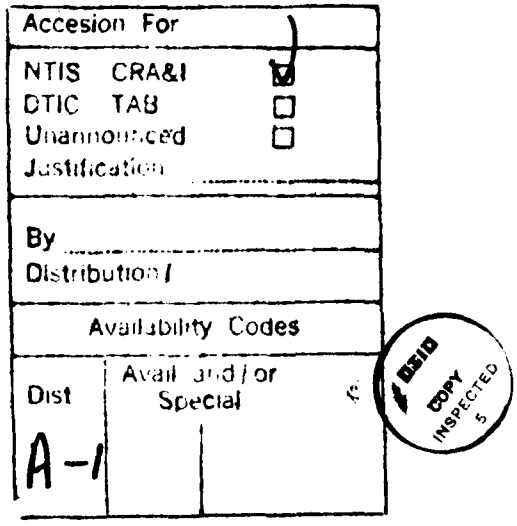

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THESIS

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

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In Partical Fulfillments of the

Requirements for the Degree of

Master of Science in Information Resource Management

Anne C. McPharlin, B.A.

Captain, USAF

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Preface

The purpose of this study was to perform a demographic analysis and a satisfaction assessment of the consumer population of the USAF Regional Medical Center at Wright-Patterson AFB, OH. This research was the first step of what may be a continuing process of research and analysis in order to develop a marketing orientation to strategic planning.

This study found that the medical center's consumers were satisfied with the majority of the aspects of their health care. There was, however, dissatisfaction with two aspects of care. These were the appointment system and continuity of care.

Throughout the writing of this thesis I have had a great deal of support and help from others. I would like to thank my thesis advisor, Dr Robert P. Steel for his assistance and guidance. I would also like to thank Mr. O.B. Murray and Maj Donald B. Shields of the USAF Regional Medical Center at Wright-Patterson for their help and advice. Finally, I would like to thank my parents, Peter W. and Roberta C. McPharlin, for their support and patience.

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Abstract

The purpose of this research was to conduct a consumer analysis and a consumer satisfaction assessment of the patient population of the USAF Regional Medical Center at Wright-Patterson AFB, OH. These analyses were conducted as a basis for medical marketing and strategic planning.

A questionnaire was developed and sent to a random sample of beneficiaries in order to collect the demographic and satisfaction data. Five investigative questions were addressed concerning consumer satisfaction: (1) Are there different levels of satisfaction between the demographic categories? (2) Are there different levels of satisfaction between individuals who visit the medical center frequently compared to infrequently? (3) What areas of dissatisfaction cause eligible individuals to seek care from other health care providers? (4) Are there different levels of satisfaction between the health care satisfaction factors? (5) Are there different levels of satisfaction between the clinics and departments of the medical center?

This study found that, overall, consumers were satisfied with the health care they received. Retired military were the most satisfied while active duty military were the least satisfied. There were two primary areas of consumer dissatisfaction. These were the appointment system and the continuity of care. This study showed that the majority of eligible individuals who chose to switch to another health care provider did so because they had difficulty getting an appointment.

It was recommended that programs be developed to improve continuity of care and the appointment system at the medical center at Wright-Patterson AFB. This study also recommended that an evaluation of DEERS be conducted to determine its usefulness in strategic planning for the DoD health care system.

MEASURING PATIENT SATISFACTION AS A BASIS FOR MEDICAL MARKETING AND STRATEGIC PLANNING

I. Introduction

General Issue

Health care centers are organizations whose purpose is to provide quality health care. The United States Air Force Medical Center at Wright-Patterson Air Force Base (WPMC) needs to continually search for methods to improve quality care. This must be done through a method of systematic research to develop programs and services better fulfilling the needs of health care consumers. One of several outcomes of quality care is consumer satisfaction. Winston (1985:*x*) states that "the ultimate success of any health or human service is a satisfied customer".

Specific Problem

Traditionally, hospital administrators and medical personnel have decided what the best health care services are and then expected their consumers to agree. Medical marketing is a process which tackles the problem from a different angle by suggesting that medical programs should be based on what the consumers want and need. The first step of medical marketing consists of a process of systematic research and analysis to determine consumer wants and needs prior to the establishment of goals and strategies. Two elements of the research and analysis process which contribute to medical marketing are a consumer analysis and measurement

of the level of consumer satisfaction with the current services offered by the medical center.

Research Objectives

The purpose of this study is threefold. The first purposed is to perform a demographic analysis of the consumer population. The second purpose is to assess perceptions of satisfaction held by the consumers who use the health care services provided by WPMC. The third purpose is to act as validation for the research findings of the 1987 Air Force Health Care Survey conducted by Quintana, McKay, and Opsut (1988).

Investigative Questions

There were five investigative questions focusing on the measurement of perceived consumer satisfaction with the health care services provided by WMPC. These questions were as follows:

1. Are there different levels of satisfaction between categories of the demographic variables? These categories were: beneficiary category, age, gender, marital status, race, educational level, pay grade, number of children, employment status and employment status of spouse.

2. Are there different levels of satisfaction between individuals who frequently visit WPMC for health care compared to those who visit WPMC infrequently?

3. What areas of dissatisfaction cause individuals eligible for care at WPMC to switch to an alternate provider for the majority of their health care?

4. Are there differences in the levels of satisfaction between the factors which describe consumer satisfaction with health care?

5. Are there different levels of satisfaction between the most common clinics and departments within WPMC? These departments and clinics were: primary care, obstetrics/gynecology, internal medicine, surgery, optometry/ear nose throat, pediatrics, orthopedics/podiatry, partnership, emergency room, flight surgeon, pharmacy, and the appointment system.

Scope

This research is limited to a survey of Air Force personnel eligible for medical care under the Defense Enrollment Eligibility Reporting System (DEERS) who reside within WPMC's primary service area, which is a forty-mile radius surrounding Wright-Patterson AFB.

Summary

Quality medical care is the ultimate outcome of any health care center. The USAF Regional Medical Center at Wright-Patterson AFB needs to improve methods of providing quality care. Medical marketing is a strategic tool which analyzes the consumers' wants and needs in order to put policies and programs into effect to improve the quality of care. Because the quality of health care cannot be directly measured, other outcomes of care need to be measured in its place. Consumer satisfaction is one outcome of care which can be directly measured to determine the current level of satisfaction with health care.

II. Literature Review

Introduction

This research is based on the premise that consumer satisfaction is an important goal of any service organization and is an outcome of quality medical care. It is thus a strong concern of the USAF Medical Center at Wright-Patterson AFB because it is in keeping with the Surgeon General's goals of quality, access, and compassion. The focus of this research is a demographic analysis and a satisfaction assessment designed to identify possible trends and/or problem areas. This data will be used by medical center administrators as a basis for health care marketing and strategic planning so that better services may be provided to the medical center's client population.

Quality of Health Care

The quality of the care provided is the most important outcome that all health care centers are striving for (Donabedian, 1966). Quality of medical care is difficult to define because its meaning is constantly changing. Donabedian (1966:167) defines it as "a reflection of values and goals current in the medical system and in the larger society of which it is a part". He proposed that an assessment of quality care can be made by studies in one of three areas: the structure of the health care center, the processes that the health care center or provider use to give care, or the outcomes of care. A model of the assessment of quality of care is shown in Figure 1. Structure represents the material and social instruments used to provide care. Examples include the qualifications of the health care center staff,

equipment, facility space, and the organization and governance procedures such as strategic planning. Process represents a review procedure which may include audits or studies conducted by either direct or indirect observation. Outcome symbolizes the assessment based upon the end results of actions taken or care rendered. Examples of outcomes which can be studied are mortality, morbidity, disability, and satisfaction. Outcomes are considered to be the ultimate validators of the quality of medicine because they are directly measurable, specific, and can be used to indicate the effectiveness of the health care center or provider (Donabedian, 1966).

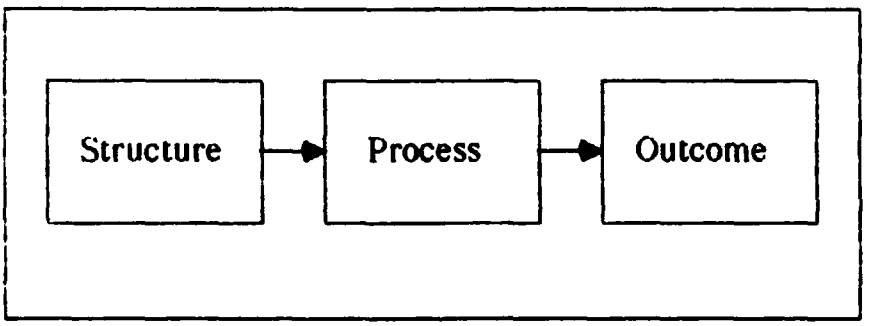


Figure 1. Donabedian Model of Quality Care (Quintana et al., 1988)

In order for quality health care to be rendered, the health care system must contain quality structures, processes and outcomes. Medical marketing is a process which improves the quality of strategic planning. This, in turn, will improve other processes which will eventually improve the outcomes of care, including consumer satisfaction.

Strategic Planning

Strategic planning is the "process of guiding the future direction of an organization by developing appropriate processes and identifying personnel

to carry them out" (Breindel, 1981:5). Strategic planning may be conducted by any type of organization: private or public, profit or nonprofit. It is an important process because those organizations who conduct formal strategic planning and management continually outperform organizations that do not (Mowen, 1987). Organizations that don't perform strategic planning tend to lack a general management perspective and often have short-range plans which are poorly integrated across functional area lines (Mowen 1987).

Elements of strategic planning. There are three fundamental elements of a successful strategic planning process:

1. Key decision makers must participate in the planning process, not just in the final decision.
2. Planning decisions must be empirical.
3. The planning process must culminate in the development of a strategic plan for the future. (Deegan, 1982:7)

Deegan states that health care organizations, as a whole, tend to move away from participative planning instead of toward it. Board members, administrators and physicians must make these plans together rather than attempt to delegate these responsibilities to consultants and researchers (Deegan, 1982).

It is also important that planning be based on accurate and relevant information obtained from both inside and outside the organization. This information may be compiled from consumer analyses and needs assessments and incorporated into marketing models (Deegan, 1982).

The major outcome of strategic planning is the preparation of a comprehensive long-range plan for the health care center. Deegan states that

> achievements are only possible when measured against specific, limited, clearly defined targets in a service organization or a business firm. Only if targets are defined can resources be allocated for their attainment, priorities and deadlines set, and somebody held accountable for their achievement. (Deegan, 1982:17)

However, a plan should never be frozen nor the process concluded. Health care organizations should be in a constant state of strategic thinking. This leads to a comprehensive planning process in which a series of activities create a strategic guiding system (Breindel, 1981). In other words, the development of the plan itself is not the objective. Rather, the object is the development of a system to make plans.

Strategic planning frameworks. In order to conduct effective strategic planning, one must plan for planning by creating an outline or framework. Scotti (1984) proposes a framework for non-profit medical centers which consists of six distinct but interrelated steps. Step one involves developing a mission statement which describes the fundamental purpose for the health care center's existence; step two is a situational analysis which involves collecting information about the health care center's internal and external environments. Step three is goal development which reflects the results that the health care center seeks to achieve; step four is strategy formulation which defines a broad course of action designed to achieve the health care center's mission and long-range goals. Step five is establishing control procedures which describe how the mission, goals and strategies will be reviewed; and step six is preparing the written plan (Scotti, 1984). This framework is depicted in Figure 2.

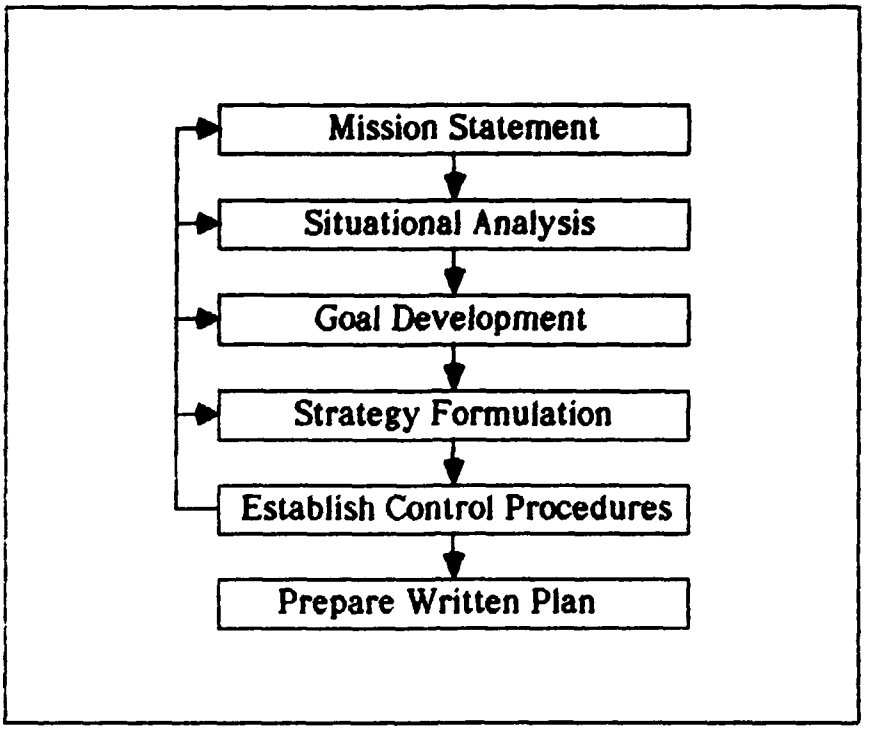


Figure 2. The Scotti Model of Strategic Planning

Health Care Management

As stated above, the basic strategic planning framework can be adapted to meet the needs of any type of organization. In health care, there are three types of management viewpoints. These are the service concept, the selling concept, and the marketing concept (Cooper, 1979). The service concept is a viewpoint that has evolved with the health care center. It assumes the consumer will react favorably to what the health care center offers because the service stands on its own merit and is recognized as being superior. The problem with this approach is that a health care center is not automatically guaranteed survival simply because it exists. The selling concept takes a more active role, because it assumes that the

consumer will not use the health care center unless approached with a substantial selling and promotional effort. The theory behind this viewpoint is that services are sold and not bought; it doesn't matter if a consumer buys again because there are plenty of other consumers needing to be sold. The marketing concept is a more recent viewpoint and is the antithesis of the selling concept. Its objective is to determine the wants and needs of consumers and shape the system to conform to their level of satisfaction. This is accomplished by developing a marketing research plan to discover the consumers' needs and to shape appealing services. If the health care center successfully satisfies its consumers, the consumers will support the center with repeat usage and word of mouth advertising.

Models of strategic planning for the service concept and the selling concept are shown in Figures 3 and 4, respectively. A comparison of these models shows that the service concept excludes situational analysis and marketing research as part of the planning process. In the selling concept model, analysis and research are performed after strategies have already been formulated. This aids in selling the product only after it has already been offered. In medical marketing, the consumer is the focal point. The process begins with analysis and research which is designed to shape strategies, goals, and objectives. A model of how this process is incorporated into a strategic planning framework is depicted in Figure 5.

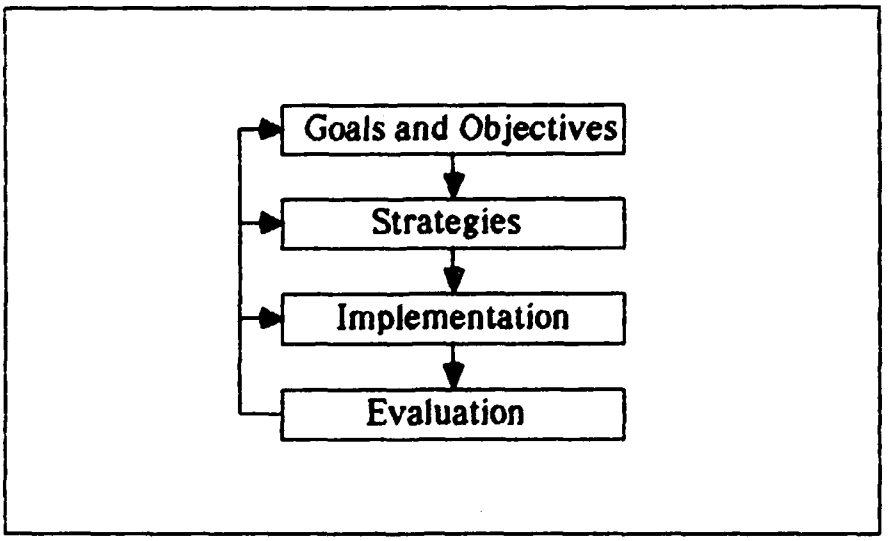


Figure 3. Model of Strategic Planning for the Service Concept of Health Care Management (Berkowitz and Flexner, 1979)

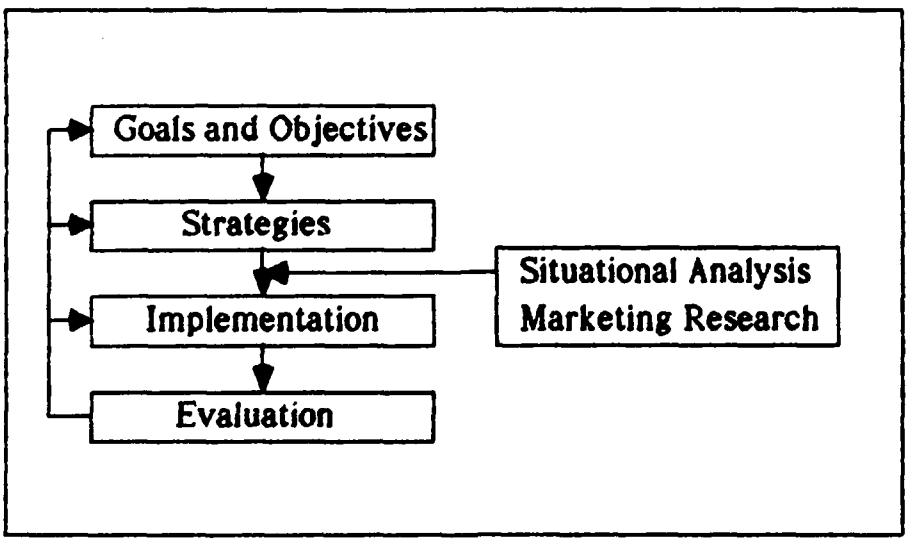


Figure 4. Model of Strategic Planning for the Selling Concept of Health Care Management (Berkowitz and Flexner, 1979)

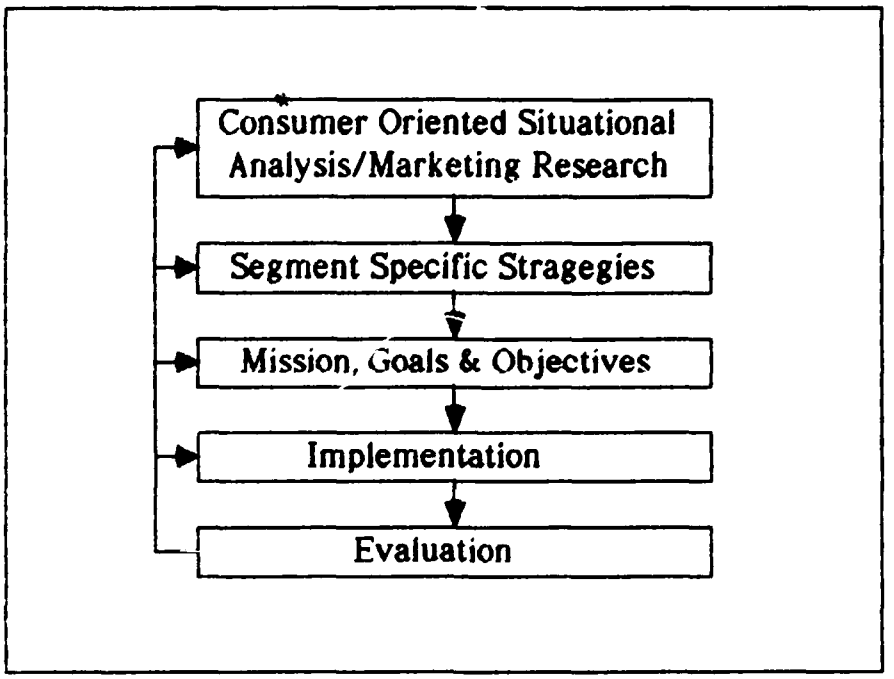


Figure 5. Model of Strategic Planning for the Marketing Concept of Health Care Management (Berkowitz and Flexner, 1979)

Medical Marketing

Marketing may be defined as "the analysis, planning, implementation, and control of carefully formulated programs designed to bring about voluntary exchanges of values of target markets for the purpose of achieving organizational objectives" (Kotler, 1982:6). In order to fully understand this definition, one also has to understand the concepts of "exchange relationship" and "target market". An exchange relationship is "the act of offering something of value to someone who voluntarily accepts the offer in exchange for something else of value" (Keith,1981:68). Target markets comprise the health care center's constituencies which are "any group within or outside the organization which has a stake in the organization's performance" (Daft and Steers, 1986:342). The constituents of WPMC include employees, physicians, the public health department, health

advisory boards, and patients. The target market that this research is concerned with is the consumers of the health care services of WPMC; this includes patients and prospective patients who reside within a forty mile radius of the medical center. Marketing may be used for either financial or human services purposes, but the final result of a successful marketing concept is the same: fostering client satisfaction and loyalty on the part of the consumer (Cooper, 1982).

Elements of marketing. There are four major elements in the marketing process. These are traditionally known as product, place, price and promotion. When referring to health care marketing, these terms are frequently modified to fit the type of industry (Keith, 1981). In place of "product" the term "service" is used because the product produced by a health care center is a service. The notion of "place" translates into "access" because this notion also encompasses the concept of availability of medical care. Better than "price", the term "consideration" is frequently used because consumers may give up other things of value for medical care besides money. In the case of the military, health care is provided as a fringe benefit and, in most cases, no monetary payment is necessary. The final term "promotion" is retained because it is as important to health care as any other industry (Keith, 1981).

Marketing a service. Medical care is a service. It requires marketing techniques which differ from those designed for marketing products. Services differ from physical goods in these respects: intangibility, nonstandardization, and simultaneous production and consumption. The concept of intangibility means that services have no existence except to the degree that they are produced and consumed; the finished product cannot

be inventoried nor touched by the consumer. Nonstandardization refers to the fact that there is a great deal of variability between one service encounter and the next; this is true for repeat contacts by one individual or between two or more individuals. Simultaneous production and consumption means that a service is consumed as it is produced; there is no lag time as there is with production and distribution of tangible products. (Mowen, 1987)

Medical marketing models

Flexner-Berkowitz model. Flexner and Berkowitz (1980) proposed a three-phase model which suggests how marketing may be incorporated into health services planning models (Keith, 1981).

Phase I consists of problem identification through the use of qualitative studies. Nine components of consumer perceptions (attitude of staff, quality, cost, location, range of services, appearance of the facility, reputation, cleanliness, and personal physician's hospital affiliation) are identified and analyzed by three techniques: focus group discussion, individual in-depth interviews, and nominal group and delphi processes.

Phase II of the model consists of two types of quantitative studies: descriptive and analytical. These studies are designed to identify conditions and interactions between the health care organization and its consumer. Descriptive studies are designed to generate profiles and behavior assessments of all constituent groups in order to define who they are. Analytical studies are used to identify relationships between the various constituent groups and other variables affecting satisfaction with health care services. Phase III involves planning, implementation, and evaluation;

this phase translates data into actionable programs. The Flexner-Berkowitz medical marketing model is depicted in Figure 6.

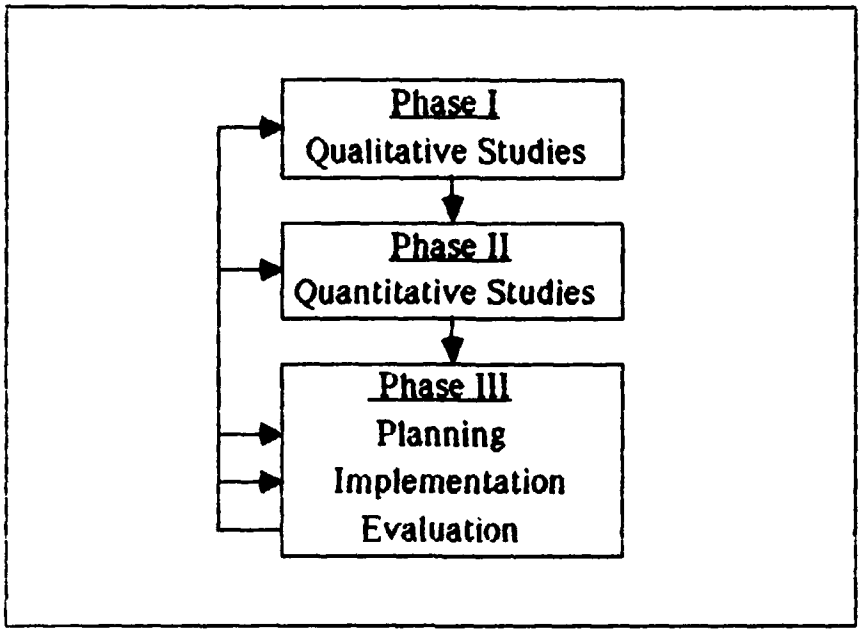


Figure 6. Flexner-Berkowitz Model of Medical Marketing

U.S. Air Force model. A similar model has been proposed in the mangement guide, Marketing the Medical Service (Air Force Medical Service, 1983). This model is geared toward military health care centers and consists of five steps: constituency analysis, needs assessment, strategic planning, implementation strategy, and evaluation.

The objective of the first step, constituency analysis, is to identify those groups who are involved in, or are served by, the health care center. This step is similar to the descriptive studies in phase II of the Flexner-Berkowitz model. The objective of the second step, needs assessment, is to determine the needs, wants, and perceptions of the constituents. This step

is similar to a combination of phase I and the analytical studies of the Flexner-Berkowitz model. The last three steps, strategic planning, implementation strategy, and evaluation, are identical to phase III of the Flexner-Berkowitz model. Their purpose is to select, implement and evaluate programs which match the needs of the constituents to the health care center's mission, goals and capabilities. The Air Force medical marketing model is shown in Figure 7.

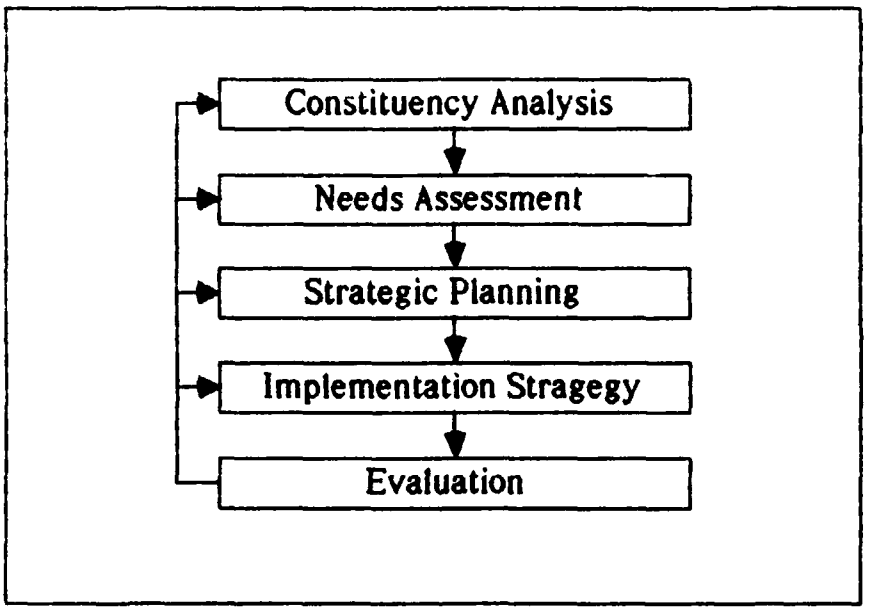


Figure 7. Air Force Model of Medical Marketing

Both marketing models emphasize conducting situational analyses and marketing research prior to the formulation of goals and strategies. This is the process by which consumers' wants and needs may be determined. Andreasen sums up these ideas by stating

> Indeed, the increased involvement of marketers in health care may be seen as an indicator of a growing awareness that success for them , and society as a whole, will only come about with increased attention to satisfaction of consumer needs and wants. (Andreasen, 1984:123)

Consumer Satisfaction

Health care centers exist to provide a service and, as stated above, a strong measure of their success is consumer satisfaction. Research has shown that the success of any organization compared to their competitors is generally due to superior consumer satisfaction (Lele and Sheth, 1987).

Satisfaction may be defined as an overall post-usage evaluation that a product or service was at least as good as it was expected to be (Hill, 1984; Smith, Bloom and Davis, 1984). Expectation is defined as a perceived likelihood that a product possesses a certain characteristic or attribute or will lead to a particular event or outcome (Hill, 1984).

Psychological models. There are four psychological models which have been used as a basis for consumer satisfaction research. These are cognitive dissonance (assimilation), contrast, generalized negativity, and assimilation-contrast (Anderson, 1973). The dissonance theory suggests that any discrepancy between expectations and product performance will be minimized or assimilated by the consumer adjusting his perception of the product to be more consistent with his expectations. The converse of the dissonance theory is the contrast theory. The contrast theory assumes that the consumer will magnify the difference between the product received and the product expected. If a product does not meet a consumer's expectations, he will rate it less favorably than if he had no expectations. The generalized negativity theory is similar to the contrast theory; however, it proposes that any discrepancy between expectations and reality (whether positive or negative) will result in a generalized negative state greater than if there had been no expectation. The final theory is the assimilation-contrast theory which is a combination of the dissonance and contrast

theories. It proposes that there are zones of acceptance and zones of rejection in consumer perceptions. If the difference in perceptions and expectations is small, then the consumer will tend to minimize the difference, but if the difference is large, then the consumer magnifies the difference.

The disconfirmation paradigm. The assimilation-contrast theory has been used to develop the widely cited disconfirmation paradigm which was developed by Cardozo in 1965 (Barber and Venkatraman, 1984; Hill, 1984; Woodruff, Cadotte, and Jenkins, 1983). This model is composed of three elements: 1) some prior evaluation or expectation, 2) a comparison of perceived performance with expectations and 3) judgement. The expectations may be formed by exposure to the actual product, exposure to the marketing activity, or from knowing other consumers' expectations (Hill, 1984). Perceived performance is based on two qualities, instrumental (technical) and expressive (functional). Expressive qualities are subjective and have to do with how the consumer receives the product. The instrumental qualities are objective and have to do with what the consumer receives from the purchase of the product.

The disconfirmation paradigm states that expectations are either 1) positively disconfirmed when performance exceeds expectations, 2) negatively disconfirmed when performance is less than expectations, or 3) confirmed when performance is approximately equal to expectations. The level of satisfaction or dissatisfaction is related to the size and direction of the disconfirmation. A diagram of the disconfirmation paradigm is shown in Figure 8.

The performance hypothesis. The disconfirmation paradigm explains satisfaction/dissatisfaction with low involvement products but some researchers do not believe it is as successful in explaining satisfaction with high involvement products (Barber and Venkatraman, 1984; Oliver and Bearden, 1983). A high involvement product is one which has a high personal importance or relevance to the consumer; health care is a high involvement product (Barber and Venkatraman, 1984). The performance hypothesis is a rival to the disconfirmation paradigm and states that performance of the product or service is independent of expectations (Oliver and Bearden, 1983; Churchill and Suprenant, 1982). Perceptions are all that need to be measured in order to develop a taxonomy of consumer satisfaction with high involvement products such as health care.

Satisfaction domains. Ware, Davies-Avery, and Stewart (1978) supported the perception hypothesis when they developed their taxonomy of patient satisfaction. This taxonomy includes eight dimensions that constitute the major sources of satisfaction and dissatisfaction with health care. These are: art of care, technical quality of care, accessibility/convenience, finances, physical environment, availability, continuity, and efficacy/outcomes of care. The dimensions are defined below:

Art of care. This is a dimension of provider conduct also known as personal qualities of the provider. It pertains to the amount of caring shown toward patients.

Technical quality of care. This is the second dimension of provider conduct, and it is also known as professional qualities of the provider. This

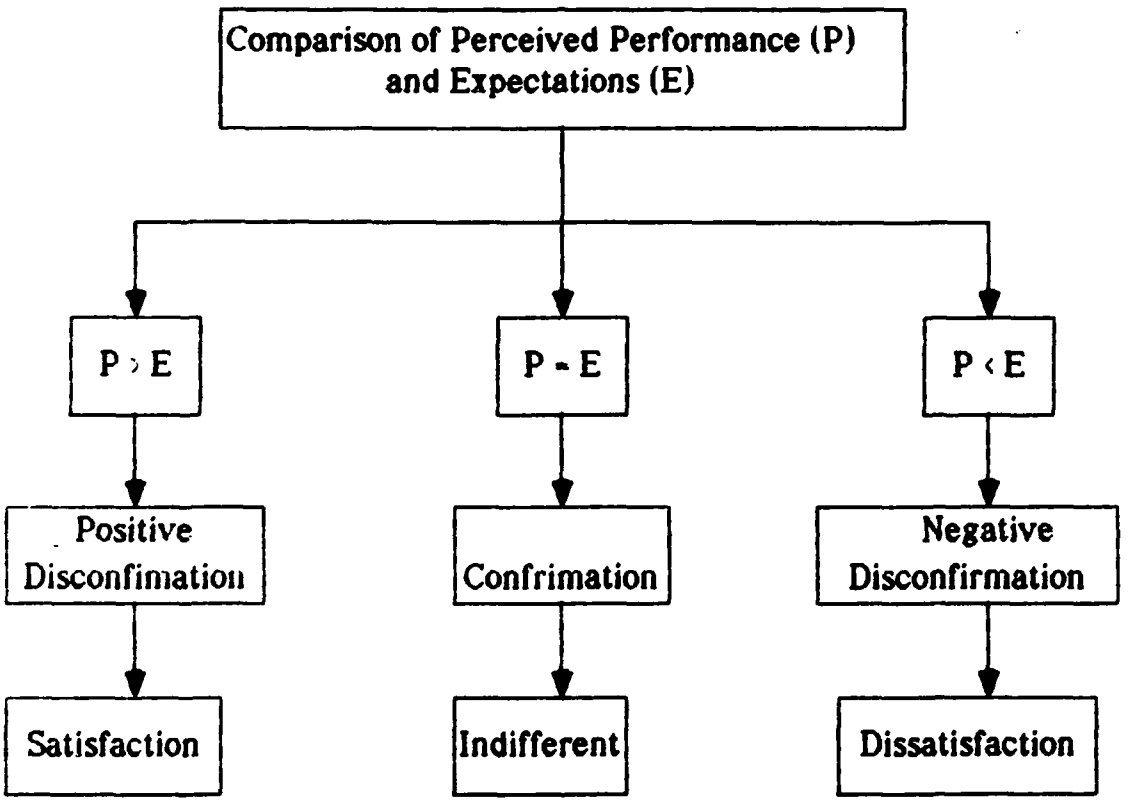


Figure 8. The Disconfirmation Paradigm

variable focuses on the competence of providers and their adherence to high standards of diagnosis and treatment.

Accessibility/convenience. This dimension includes all the factors involved in arranging to receive medical care.

Finances. This dimension refers to the ability to pay or arrange for payment.

Physical environment. This dimension encompasses the physical surroundings of the health care center or provider's office.

Availability. This dimension focuses on whether there are enough physicians, nurses, and other providers, and such facilities as clinics and hospitals in the area.

Continuity of care. This refers to the regularity of care from the same facility, location or provider in terms of availability of a continuous medical record on all visits for care.

Efficacy/outcomes of care. This refers to the perceptions regarding the usefulness or helpfulness of medical care providers and specific treatment regimens in improving health status.

Other researchers have found similar dimensions. Personal qualities and professional qualities of the provider have both been cited in several studies (Hill, 1984; Hulka, Zyzanski, Cassel, and Thompson, 1970; King and Goldman, 1975; Mangelsdorff, 1979; Quintana et al., 1988). However, there have been differences reported in the number of access mechanism factors (Hill, 1984; Hulka et al., 1970; King and Goldman, 1975 Mangelsdorff, 1979; Quintana et al., 1988).

Swan and Combs (1976) examined the influence of physical and psychological dimensions of product performance on consumer satisfaction.

Their research showed that there are two major dimensions which affect satisfaction: the expressive, which is nonmaterial and psychological, and the instrumental, which is physical. Factors which fall under the instrumental domain are determinants of dissatisfaction, while factors in the expressive domain are determinants of satisfaction. These dimensions correspond to the factors influencing patient satisfaction. Professional qualities of the health care provider fall under the instrumental dimension while the personal qualities of the health care provider and the access mechanisms fall under the expressive dimension.

Measuring Patient Satisfaction

Surveys of patient satisfaction have usually been performed for one of two purposes. First, the data have been used as dependent variables to evaluate provider services and facilities on the assumption that patient satisfaction is an indicator of the structure, process, and outcomes of care. Second, satisfaction data have been used as independent variables to predict consumer behavior on the assumption that differences in satisfaction influence what people do. This research is concerned with the first purpose.

Instruments for measuring patient satisfaction frequently consist of two types of items: demographic items and patient satisfaction/consumer needs items. This method was used by Hill (1984), Hunter (1987), Hulka et al. (1970), King and Goldman (1975), Mangelsdorff (1979), and Quintana et al. (1988). Ware et al. (1978) examined thirteen studies which reported correlations between demographic or socioeconomic variables on patient satisfaction. Table 1 contains their interpretations of the correlates.

Ware, Snyder, Wright, and Davies (1983) developed the Patient Satisfaction Questionnaire (PSQ) to measure satisfaction with health care. The PSQ contained 68 items and was designed to measure all eight of the dimensions of care described above. The PSQ was developed during a four year period in the early 1970s and was tested for validity and reliability in twelve studies.

Hypotheses

In response to the investigative questions, the following hypotheses were formulated:

Hypothesis one. There will be differences in satisfaction level between the different categories in each of the demographic variables. Specific predictions are:

Hypothesis 1a. Retired military will be more satisfied with health care than the other beneficiary categories.

Hypothesis 1b. Older individuals will be more satisfied with health care than younger individuals.

Hypothesis 1c. Due to the military environment, males will be more satisfied with health care than females.

Hypothesis 1d. Individuals in higher pay grades will be more satisfied with health care than those in lower pay grades.

Hypothesis 1e. Individuals in larger families will be less satisfied with health care than those in small families.

According to the literature, there are no other clear trends for satisfaction level based on demographic and socioeconomic variables. These predictions are based on the findings of Quintana et al. (1988) and Ware et al. (1978).

Table 1
Demographic and Socioeconomic Correlates of Patient Satisfaction

Age	Older persons tend to be more satisfied with the conduct of providers and less satisfied with access to care and outcomes of care
Education	Less educated persons tended to be less satisfied with medical care in general and with conduct of providers
Family size	Persons in larger families tended to be less satisfied with access to care
Income	Lower income persons tended to be less satisfied with access and outcomes of care
Marital status	No clear trends
Occupational Level	Persons at the higher occupational levels tended to be more satisfied with medical care
Race	No clear trends
Sex	Women tended to be more satisfied in general than men
Social Class	No clear trends

(Ware, Davis-Avery and Stewart, 1978:11)

Hypothesis two. There will be differences in satisfaction levels for those individuals who use the health care center and those individuals who use it only occasionally. Specifically, those who visit more frequently are predicted to be more dissatisfied than those who visit only occasionally (King and Goldman 1975).

Hypothesis three. Individuals will elect to receive the majority of their health care from an alternate provider if they are dissatisfied with the professional qualities of their current provider rather than if they are dissatisfied with the personal qualities of the provider or access mechanism factors. This hypothesis was based on the findings of Swan and Combs (1976). They found that dissatisfaction occurs when expectations in the instrumental domain are not met.

Hypothesis four. There will be significant differences in the ratings of consumer satisfaction across the satisfaction factors. Five satisfaction factors are predicted. This prediction coincides with the findings of Quintana et al. (1988). A version of their measurement instrument was used in the current study.

Hypothesis five. There will be no differences in satisfaction levels with the WPMC clinics and departments. These clinics and departments are: primary care, obstetrics/gynecology, internal medicine, surgery, optometry/ear-nose-throat, pediatrics, orthopedics/podiatry, partnership, emergency room, flight surgeon, pharmacy, and the appointment system.

Summary

This chapter presented a literature review on the aspects of health care management which are designed to produce quality care. Health care management is composed of structures, processes and outcomes. These three components may be manipulated to improve quality of care. Strategic planning is an important structure which must be conducted in order to produce quality care. Medical marketing is a process designed to improve strategic planning by discovering the wants and needs of the consumer

population. Strategic planning makes use of medical marketing in order to implement policies and practices designed to fulfill the wants and needs of the consumer population. There are many types of research and analyses which can be used to discover the wants and needs of the consumer population. Developing a consumer profile and measuring levels of consumer satisfaction are two types of research and analysis. The following chapters present the method, results and findings of a study with the purpose of developing a consumer profile and measuring the current level of satisfaction for the USAF Medical Center at Wright-Patterson.

III. Method

Introduction

This research involved a consumer demographic analysis and a consumer satisfaction assessment as the first phase of research and analysis for the purpose of medical marketing. The study collected primary data via questionnaire for both the demographic analysis and the satisfaction assessment.

Justification

A survey was necessary for the demographic analysis because secondary data collection would eliminate all eligible personnel who have not used the medical center's services. It was also necessary to get current information because a population can change over time. A survey was also necessary for the consumer satisfaction assessment because secondary data in the depth necessary for this research were not currently available from any known sources. It was also more economical and efficient to survey via a mailed questionnaire than a personal interview, telephone interview, or personally administered questionnaire.

Survey Development

The instrument used to collect the data was a survey questionnaire containing two sections to cover both demographic data collection and the consumer service perceptions. The survey consisted of 49 items. It contained 17 demographic items and 35 consumer satisfaction items. The satisfaction portion contained 19 items measuring general satisfaction and

12 items which measured satisfaction with specific clinics and departments. The satisfaction items were taken directly from the 1987 Air Force Health Care Survey in order for this research to serve as further validation for that portion of the instrument. The questionnaire in this research is located in Appendix A.

Demographics. The demographic variables were measured to provide an analysis of the consumer population. The demographic items are described below:

An item measuring beneficiary category requested that the respondents identify whether they were active duty military, dependent of active duty military, retired military or dependent of a retiree or a deceased member. If none of these categories applied, the respondents were asked to write their beneficiary category on the questionnaire.

An item measuring branch of military service requested that the respondents identify the branch that they or their sponsor were assigned. The responses were Air Force, Army, Navy, Marine Corps and Coast Guard.

An item measuring respondent age group offered six responses which ranged from (1) 6-25 to (6) 66 or over.

An item requested that the respondents indicate their current marital status. The responses were: married, separated, divorced, widowed, or never married.

An item requested that the respondents indicate their race. The responses were: American Indian/Alaskan native, black (non-Hispanic), white (non-Hispanic), Hispanic, and Asian/Asian American, Pacific Islander. If none of the categories applied, the respondents were asked to write in another term which best described their race.

An item requested that respondents indicate the highest educational level completed. Responses ranged from (1) less than high school graduate to (7) advanced professional degree.

An item requested that respondents indicate their, or their sponsor's, current pay grade. The grades ranged from (1) E1-E3 to (7) 07 or higher.

An item measuring employment outside the home offered the following response options: (1) no; (2) yes, full time; (3) yes, part time; or (4) not applicable.

An additional item measured whether the respondent's spouse was employed outside the home. Responses were: (1) no; (2) yes, full time; (3) yes, part time; and (4) not applicable.

Respondents indicated the number of their dependent children who were eligible for medical care under DEERS. The responses ranged from (1) none to (6) more than six.

Respondents were asked to estimate the number of visits they made to WPMC for treatment in the previous twelve months. The responses ranged from (1) none to (6) twelve or more.

A similar item asked respondents to estimate the number of visits their family members made to WPMC for treatment in the previous twelve months. The responses ranged from (1) none to (6) sixteen or more times. Furthermore, a not applicable response was also available.

Respondents were asked whether the majority of their health care was provided by WPMC. Responses were (1) yes or (2) no.

If no, respondents indicated the reason why they did not receive the majority of their health care from WPMC. The responses were: (1) WPMC lacked services, (2) WPMC was not convenient, (3) respondent was not

treated courteously, (4) WPMC providers were not thorough in their examination, (5) respondent saw different providers for each visit, (6) schedule conflicts with hours of operation, and (7) difficult to get an appointment.

Respondents were then asked to indicate where they received the majority of their medical care if not from WPMC. The responses were: (1) CHAMPUS, (2) private insurance, (3) employee programs, (4) other federal facility, or (5) pay for care themselves. If none of these categories were applicable, respondents were asked to write in their response.

Patient satisfaction. The survey contained nineteen patient satisfaction items which were extracted directly from the 1988 Air Force Health Care Survey as requested by HQ AFMPC/DPMYOS (Kruezer, 1989). These nineteen items were originally extracted from a 68 item questionnaire, the Patient Satisfaction Questionnaire (PSQ) developed by Ware et al. (1983). Eighteen PSQ items in the current survey measured five of the eight health care dimensions defined by Ware et al. (1978). These were: art of care (four items), technical quality of care (four items), accessibility/ convenience (two items), availability (six items) , and continuity of care (two items). A final item measured overall satisfaction.

The PSQ scales were subjected to reliability analysis using Crombach's Alpha. Reliability is concerned with estimating the degree to which a measurement is free of random error; a measure is reliable to the degree that it supplies consistent results (Emory, 1985). The results of the analysis reveal reasonable levels of reliability for the five factors shown in Table 2. Four out of the five scales demonstrated adequate internal consistency. The convenience scale had somewhat poorer reliability. This is consistent with

the results of the 1987 Air Force Health Care Survey (Quintana et al., 1988). Quintana hypothesized that the time and distance areas of the convenience factor may be viewed differently in the military health care system and recommended further research on this issue (Quintana et al., 1988).

Table 2
Internal Consistency Reliability Alpha Coefficients for Variables Using Item-Composite Scores

Component of Satisfaction	Number of Items	Alpha Coefficient
Professional Qualities	5	.80
Continuity	2	.78
Services Available	2	.73
Personal Qualities	3	.72
Convenience	5	.59

Note: N-201

The PSQ items were worded as statements about health care and the respondents were asked about their agreement with the statements. The statements were measured on a five point Likert scale ranging from strongly disagree (1) to strongly agree (5). The items contained a balance of favorably- and unfavorably-worded items to control bias due to the tendency to agree with statements regardless of content (Ware et al., 1983).

Satisfaction with major clinics and departments. The respondents were asked to rate their satisfaction level with twelve clinics and

departments in WPMC. The clinic satisfaction ratings used a five point Likert scale ranging from very dissatisfied (1) to very satisfied (5). The clinics and departments rated on the questionnaire were chosen by WPMC administrative personnel because they were the most frequently used by consumers.

Open-ended item. The respondents were given the opportunity to make statements or ask questions. The primary objective of the open-ended item was for clarification purposes. The use of the open-ended item for content analysis was beyond the scope of this study.

Population

The population consisted of all personnel eligible for health care services under the defense enrollment eligibility system (DEERS) who reside within a forty mile radius surrounding Wright-Patterson AFB. This forty mile radius is the medical center's catchment area which is designed to encompass 70 to 80 percent of the medical center's consumers. The population consists of 52,766 personnel who may be broken down into beneficiary categories as follows: 10,048 active duty military, 17,220 dependents of active duty military personnel, 9,194 retired military, 16,304 dependents of retirees and deceased members.

Sample

For this research, HQ AFMPC/DPMYOS (Kruezer, 1989) requested that a a random stratified sample of 538 personnel be used. This number was chosen in order to replicate the sample size of the mail-out portion of the 1987 Air Force Health Care Survey. A stratified sample was chosen for the 1987 study because pre-testing indicated that beneficiary category was a

significant distinguisher of patient satisfaction (Quintana et al., 1988). The sample for this study consisted of 134 persons from each of the following beneficiary categories: active duty, dependents of active duty, retirees and dependents of retirees. The sample was limited to Air Force members because address listings for the other four branches of military service were unavailable.

Data Collection Plan

For the survey, data collection involved mailing the survey packages to the individuals on the sample list. Each survey package contained a survey with a cover letter and set of instructions, a machine coded response form, and a pre-addressed postage paid return envelope. Participation in the survey was voluntary and all respondents remained anonymous. Once the surveys were returned, they were optically scanned and the data stored on a computer data file for analysis.

Due to peculiarities in the personnel system, address listings could only be obtained for the active duty military and the retired military. One hundred thirty-four surveys were mailed to respondents in each of four beneficiary categories. One half of the surveys (268) were mailed directly to the active duty and retired personnel requesting that they personally complete the survey. The other half of the surveys were also mailed directly to the active duty military and retired military. However, these surveys requested that an adult dependent fill out the survey questionnaire. From the total sample, 247 usable surveys were returned and used for analysis. The response rate by beneficiary category is shown in Table 3.

Table 3
Response Rates by Beneficiary Category

Beneficiary Category	Number of Responses	Response Rate
Active Duty	84	62.7
Dependent of Active Duty	35	26.1
Retiree	101	75.4
Dependent of Retiree or Deceased Member	27	20.1

Summary

This chapter outlined the basic methodology used to test the hypotheses of this research. A survey was developed to analyze the demographic make up of the population and to determine the satisfaction level of consumers. The survey was sent to a sample of personnel who were eligible to receive health care services under DEERS. The next chapter presents the actual analysis of the data.

IV. Results

Introduction

This chapter presents the results of the analysis of the responses to the WPMC Patient Satisfaction Questionnaire. The data acquired from the returned surveys was analyzed to evaluate the study's hypotheses.

Respondent Demographics

Part one of the questionnaire used demographic information about the respondents to develop a consumer profile. The eleven demographic items included beneficiary category, age, gender, marital status, race, educational level, pay grade, employment status, employment status of spouse, and number of children. The respondents were also asked to indicate the number of visits they made to WPMC for treatment and the number of visits made by family members for treatment. Frequency statistics and a general discussion of each demographic variable follow.

Beneficiary category. The beneficiary category frequencies are presented in Table 4. The majority of the respondents were retired military and active duty military. Together they accounted for 74.9 percent of the sample. Dependents only accounted for 25.1 percent of the sample. This is similar to the response rate observed in the mail-out portion of the 1987 Health Care Survey.

Age. Age frequencies are shown in Table 5. Frequencies in the age categories were fairly evenly distributed. However, the 26-35 age category

Table 4
Beneficiary Category of Respondents

Beneficiary Category	Frequency	Percentage
Active Duty	84	34.0
Dependent of Active Duty	35	14.2
Retiree	101	40.9
Dependent of Retiree or Deceased Member	27	10.9
	247	100.0

Table 5
Age of Respondents

Age	Frequency	Percentage
16-25	30	12.1
26-35	65	26.3
36-45	36	14.6
46-55	43	17.4
56-65	42	17.0
66 +	31	12.6
	247	100.0

was the largest with 26.3 percent of the sample. The average age of respondents was in the late twenties.

Gender. The gender frequencies are shown in Table 6. Two thirds of the respondents were male and one third were female. Poor response rates by dependents may explain this imbalance. The majority of dependents would be female since the majority of active duty and retired military are male.

Table 6
Gender of Respondents

Gender	Frequency	Percentage
Male	165	66.8
Female	82	33.2
	247	100.0

Marital status. The marital status frequencies are shown in Table 7. The majority of the sample, 81.4 percent, were married. The next largest category were those who have never married, but they accounted for only 10.1 percent of the sample.

Race. The frequencies for race are shown in Table 8. A majority of the sample was non-Hispanic Caucasian (89.8 percent). The next largest racial category was non-Hispanic blacks which comprised only 5.3 percent of the sample.

Table 7
Marital Status of Respondents

Marital Status	Frequency	Percentage
Married	201	81.4
Separated	3	1.2
Divorced	15	6.1
Widowed	3	1.2
Never Married	25	10.1

Table 8
Race of Respondents

Race	Frequency	Percentage
American Indian/Alaskan Native	2	.8
Black (non-Hispanic)	13	5.3
White (non-Hispanic)	220	89.8
Hispanic	4	1.6
Asian/Asian American	5	2.4
	245	100.0

Educational level. The frequencies for educational level are shown in Table 9. Results for this demographic variable were fairly evenly distributed across respondent categories. The largest category was high school graduates which made up 33.5 percent of the population. The second largest category was made up of individuals who had a masters degree or some post graduate work (24.5 percent of the sample).

Table 9
Educational Level of Respondents

Educational Level	Frequency	Percentage
Non high school graduate	5	2.0
High school graduate	82	33.5
Associate degree	25	10.2
Associate degree plus	31	12.7
Bachelor's degree	36	14.7
Master's degree or post grad work	60	24.5
Advanced professional degree	6	2.4
	245	100.0

Pay grade. The frequencies for pay grade are shown in Table 10. Each of the pay grade categories E4-E6, E7-E9, and O1-03 accounted for approximately one quarter of the sample. The category 04-06 accounted for another twenty percent. The other categories accounted for much smaller portions of the sample.

Table 10
Pay Grade of Respondents

Pay Grade	Frequency	Percentage
E1-E3	7	3.2
E4-E6	54	24.9
E7-E9	52	24.0
W1-W4	2	.9
01-03	55	25.3
04-06	45	20.7
07 +	2	.9
	217	100.0

Employment status. The employment status frequencies are shown in Table 11. Just over half of the sample, 56.1 percent, were employed and just under half of the sample, 43.9 percent were not employed outside of the home.

Table 11
Employment Status of Respondents

Employment Status	Frequency	Percentage
Not employed	100	43.9
Employed full time	101	44.3
Employed part time	27	11.8
	228	100.0

Employment status of spouse. The frequencies for the employment status of the respondents' spouses are shown in Table 12. Approximately sixty percent of the respondents' spouses were employed outside the home while approximately forty percent were not.

Table 12
Employment Status of Respondents' Spouses

Employment Status of Spouse	Frequency	Percentage
Not employed	82	40.4
Employed full time	103	50.7
Employed part time	18	8.9
	203	100.0

Number of children. The frequencies for number of children are shown in Table 13. Over half of the respondents, 53.2 percent, have no children who are eligible for health care under DEERS. None of the respondents had five or more children eligible for health care.

Number of visits. The frequencies for the number of visits by respondents and respondents' family members are shown in Tables 14 and 15, respectively. One quarter of the respondents had visited WPMC for health care between one and two times. Another quarter of the respondents visited WPMC for health care between three and five times. The frequencies for the number of visits by family members were similar.

Table 13
Number of Children of Respondents

Number of Children	Frequency	Percentage
None	123	53.2
1-2	82	35.5
3-4	26	11.3
5-6	0	0.0
7 +	0	0.0
	231	100.0

Table 14
Number of Visits by Respondents in Twelve Month Period

Number of Visits	Frequency	Percentage
None	43	17.4
1- 2 Times	65	26.3
3- 5 Times	65	26.3
6- 8 Times	39	15.8
9-11 Times	8	3.2
12+ Times	27	10.9
	247	100.0

Table 15
Number of Visits by Respondents' Family Members
in Twelve Month Period

Number of Visits by Family	Frequency	Percentage
None	55	25.5
1- 3 Times	56	25.9
4- 7 Times	54	25.0
8-11 Times	27	12.5
12-15 Times	10	4.6
16+ Times	14	6.5
	216	100.0

Satisfaction Domains

This research identified five out of the eight factors identified by Ware et al.. The factors identified were professional qualities of the health care provider, personal qualities of the health care provider, continuity of care, availability of services, and convenience. Table 16 shows the PSQ items used in this study.

Table 17 provides the results of a factor analysis on the PSQ items. The factors were identified using principal axis factor analysis with a varimax rotation. Commonalities for all variables were above .30. Loadings of .40 or greater were interpreted. Item 35 was the only item which had a loading less than .40. It was dropped from the analysis. Professional qualities accounted for the highest proportion of variance at 28.6 percent. Personal qualities accounted for 8.3 percent of the variance, continuity of care

Table 16
PSQ Item Statements

Item #	Item Statement	Quintana et al. Item #
17	Overall satisfaction Rating	V06
18	Provider is careful to check everything	V09
19	MTF had everything to provide complete treatment	V10
20	Provider is polite	V11
21	Hardly ever see same provider	V12
22	Takes long time to get to the MTF	V13
23	Past medical problems are ignored	V14
24	Provider is warm and friendly	V15
25	Provider isn't as thorough as should be	V16
26	Hard to get emergency care quickly	V17
27	MTFs are conveniently located	V18
28	Provider keeps me from worrying	V19
29	See the same provider	V20
30	Providers don't explain medical problems	V21
31	Time I wait to see provider is reasonable	V22
32	Hours are good	V23
33	MTF lacks some things to provide complete treatment	V24
34	Often repeat tests because see different providers	V25
35	I have no difficulty getting an appointment	N/A

accounted for 8.1 percent of the variance, availability of services. accounted for 7.6 percent of the variance, and convenience accounted for 5.9 percent of the variance.

The factor structure was similar to that of Quintana et al. (1988). However, there were a few differences in the item loadings. The first difference was that item 34, which stated "I have to repeat tests or answer the same questions because I constantly see different health care providers",

Table 17
Factor Analysis of PSQ Satisfaction Scale

Item *	Loadings (1) Professional Qualities	(2) Personal Qualities	(3) Continuity	(4) Services Available	(5) Convenience
25	.75702	.26273	.15933	.19606	.07699
23	.68858	.11711	.07890	.12591	.06283
34	.64974	.10974	.33662	.00829	-.05985
30	.64236	.17204	.04666	-.02198	.12776
18	.56597	.56329	.18344	-.00404	.07218
20	.10419	.79292	.15316	.05911	.01888
24	.36393	.65842	.01104	.07375	.16137
28	.43188	.60952	-.00451	.23626	.07246
29	.12285	.06102	.87009	.06062	.13994
21	.25975	.13890	.82683	.01415	.01079
33	.21900	-.00449	.10670	.84026	.03910
19	.00372	.19025	-.03048	.83065	.07218
22	.13080	-.13508	-.03578	-.21181	.61508
27	-.24373	.29010	.00819	-.09749	.57103
32	.01657	.30003	.15730	.21618	.55192
26	.38603	-.03301	.02442	.16743	.54580
31	.11826	.02398	.33091	.31599	.45856
35	.36190	.18693	.16518	.23465	.35597
Eigenvalue	5.1	1.5	1.5	1.4	1.6
% of Variance	28.7	8.3	8.1	7.6	5.9

loaded on professional qualities in the current study while it loaded on continuity of care in Quintana et al.'s study. The second difference was that item 24, which stated "the health care provider is warm and friendly", loaded on professional qualities in this study. It loaded on personal qualities in Quintana et al.'s study. There was also a difference in the percent of variance accounted for by the factors. In the current study, professional qualities accounted for the greatest portion of variance while in Quintana et al.'s study, personal qualities accounted for the most variance.

Hypothesis One

The first research hypothesis was concerned with the differences in satisfaction levels between the categories in the demographic variables. Oneway ANOVA was used to test for significant differences. Results of the ANOVAs are shown in Tables 18 through 24. In the event of a significant F statistic, multiple comparison tests were conducted using the Tukey W procedure to isolate differences between response groups. In the current research, there were four demographic variables which yielded significant differences on satisfaction levels. These were beneficiary category, age, gender and pay grade. This differs from the findings of Quintana et al., who found significant differences only on beneficiary category and gender.

Beneficiary category. Table 25 shows mean satisfaction levels on each of the five satisfaction factors identified by the factor analysis and overall satisfaction by beneficiary category. On three of the five factors (i.e. professional qualities, personal qualities, and convenience), there were significant differences in satisfaction levels between active duty military and retired military, but there were no significant differences between any

Table 18
Significant Group Differences for Beneficiary Category
Using Oneway ANOVA

Variable	F-Ratio	Probability of F
Professional Qualities	4.0655	.0034
Personal Qualities	4.3579	.0021
Convenience	3.7352	.0058
Availability of Services	2.0076	.0942
Continuity of Care	6.0710	.0001
Overall Satisfaction	1.5493	.1888

Table 19
Significant Group Differences for Gender
Using T-test

Variable	T-Value	Probability of T
Professional Qualities	1.62	.107
Personal Qualities	1.68	.094
Convenience	.52	.604
Availability of Services	2.35	.096
Continuity of Care	1.68	.020
Overall Satisfaction	.24	.814

Table 20
Significant Group Differences for Age
Using Oneway ANOVA

Variable	F-Ratio	Probability of F
Professional Qualities	5.6449	.0001
Personal Qualities	3.3576	.0060
Convenience	3.1568	.0090
Availability of Services	1.9961	.0800
Continuity of Care	8.5292	.0000
Overall Satisfaction	1.5409	.1780

Table 21
Significant Group Differences for Marital Status
Using Oneway ANOVA

Variable	F-Ratio	Probability of F
Professional Qualities	.7025	.5910
Personal Qualities	.4547	.7689
Convenience	1.4961	.2056
Availability of Services	1.1899	.3159
Continuity of Care	1.9639	.1010
Overall Satisfaction	.3497	.8441

Table 22
Significant Group Differences for Race
Using Oneway ANOVA

Variable	F-Ratio	Probability of F
Professional Qualities	1.6394	.1656
Personal Qualities	1.0793	.3674
Convenience	2.0350	.0906
Availability of Services	.9233	.4511
Continuity of Care	.6291	.6422
Overall Satisfaction	1.5582	.1864

Table 23
Significant Group Differences for Educational Level
Using Oneway ANOVA

Variable	F-Ratio	Probability of F
Professional Qualities	.9919	.4318
Personal Qualities	2.0659	.0583
Convenience	.9782	.4409
Availability of Services	.4846	.8195
Continuity of Care	1.1146	.3546
Overall Satisfaction	.7542	.6067

Table 24
Significant Group Differences for Pay Grade
Using Oneway ANOVA

Variable	F-Ratio	Probability of F
Professional Qualities	2.2707	.0153
Personal Qualities	1.3715	.2278
Convenience	1.1979	.3088
Availability of Services	1.7392	.1140
Continuity of Care	2.4915	.0241
Overall Satisfaction	1.1323	.3448

of the other categories. There were significant differences between retired military and both active duty military and dependents of active duty military on the continuity of care factor. There were no significant differences between beneficiary categories on the availability of services factor or for overall satisfaction.

Age. Table 26 shows the means for the satisfaction factors and for the overall satisfaction item by age group. The eldest age group (i.e. 66+) produced the highest satisfaction rating, and the youngest age group (i.e. 16-25) was the least satisfied. On the factor professional qualities there was a significant difference in the level of satisfaction between age group 66+ and all other age groups except age group 56-65. There was also a significant difference in the level of satisfaction between age group 56-65 and age group 16-25. For the factor personal qualities, there was a

Table 25
Mean Satisfaction Levels Between Beneficiary Categories

Beneficary Category	Consumer Satisfaction Factor					
	General Satisfaction	Personal Qualities	Professional Qualities	Continuity	Services Available	Convenience
Active Duty	3.55	3.57	3.11	2.42	3.39	3.24
Dependant of Active Duty	3.80	3.78	3.36	2.18	3.28	3.30
Retiree	3.83	4.00	3.58	3.08	3.62	3.60
Dependent of Retiree or Deceased Member	3.32	3.74	3.14	2.71	3.69	3.46
Total	3.68	3.80	3.34	2.69	3.50	3.42

Table 26
Mean Satisfaction Levels Between Age Groups

Age	Consumer Satisfaction Factor					
	General Satisfaction	Personal Qualities	Professional Qualities	Continuity	Services Available	Convenience
16-25	3.34	3.43	2.94	2.09	3.24	3.24
26-35	3.81	3.71	3.28	2.49	3.41	3.23
36-45	3.82	3.85	3.25	2.55	3.43	3.44
46-55	3.44	3.77	3.18	2.34	3.70	3.44
56-65	3.62	3.94	3.51	3.36	3.78	3.59
66 or over	4.00	4.11	3.91	3.41	3.41	3.71
Total	3.68	3.80	3.34	2.69	3.50	3.42

significant difference between ages 56+ and age group 16-25 on the accessibility factor. There were significant differences between age group 66+ and age group 16-25. For the factor continuity of care, there were significant differences between ages 56+ together and ages 16-55. There were no significant differences between any of the age groups on the availability of services factor.

Gender. Table 27 shows the satisfaction means by gender. Males were more satisfied than females on each factor. However, there was a significant difference on only one of the satisfaction factors: continuity of care.

Pay grade. Table 28 shows the satisfaction means by pay grade. There were significant differences in satisfaction level between group 3 (E6-E9) and group 6 (O4-O6) for two satisfaction factors: professional qualities and continuity of care.

Hypothesis Two

This hypothesis was concerned with whether there were differences in satisfaction level depending upon the number of visits made to the medical center. Using oneway ANOVA, no significant differences were found in satisfaction level as a function of the number of visits made by the respondents or by the respondents' family members. The results are shown in Tables 29 and 30.

Table 27
Mean Satisfaction Levels Between Genders

Gender	Consumer Satisfaction Factors					
	General Satisfaction	Personal Qualities	Professional Qualities	Continuity	Services Available	Convenience
Male	3.68	3.86	3.41	2.82	3.58	3.43
Female	3.66	3.70	3.22	2.43	3.37	3.39
Total	3.68	3.81	3.35	2.69	3.51	3.42

Table 28
Mean Satisfaction Levels Between Pay Grades

Pay Grade	Consumer Satisfaction Factor					
	General Satisfaction	Personal Qualities	Professional Qualities	Continuity	Services Available	Convenience
E1-E3	3.29	4.17	3.17	2.36	3.40	3.50
E4-E6	3.76	3.73	3.25	2.61	3.31	3.41
E7-E9	3.50	3.83	3.10	2.68	3.37	3.56
W1-W4	5.00	4.33	4.30	3.75	3.92	4.75
O1-O3	3.76	3.59	3.26	2.27	3.30	3.54
O4-06	3.76	3.86	3.65	3.10	3.60	3.34
O7 +	4.40	4.00	3.90	3.00	4.00	4.00
Total	3.70	3.77	3.32	2.65	3.39	3.49

Table 29
Significant Group Differences for Frequency of Visits by Respondents Using Oneway ANOVA

Number of Visits	F-Ratio	Probability of F
Professional Qualities	.7311	.6008
Personal Qualities	.3390	.8554
Convenience	.2943	.9157
Availability of Services	1.8210	.1094
Continuity of Care	1.5800	.1667
Overall Satisfaction	1.8846	.0979

Table 30
Significant Group Differences for Frequency of Visits by Respondents' Family Members Using Oneway ANOVA

Number of Visits	F-Ratio	Probability of F
Professional Qualities	1.2577	.2790
Personal Qualities	.5709	.7533
Convenience	.9616	.4526
Availability of Services	1.2598	.2775
Continuity of Care	.9021	.4944
Overall Satisfaction	1.2465	.2842

Hypothesis Three

This hypothesis was concerned with areas of dissatisfaction that cause individuals to switch to an alternate health care provider while they remain eligible for health care at WPMC. Frequencies indicating where the respondents receive the majority of their health care are shown in Table 31. The data showed that the majority of the respondents, 82.7 percent, receive their health care from WPMC. Frequencies reflecting reasons why respondents did not receive the majority of their medical care at WMPC are shown in Table 32. Of the 17.3 percent who switched to another health care provider, nearly half of these, 45.3 percent, stated their reason as not being able to get an appointment. One fourth of this group, 26.1 percent, stated that WPMC was not conveniently located. Further breakdown of the data showed that 83.3 percent of those who did switch to another medical care provider were retirees and dependents of retirees.

Table 31
Where Respondents Receive the Majority of Health Care

Medical Care Facility	Frequency	Percentage
Air Force MTF	201	82.7
CHAMPUS	5	2.1
Private Insurance	14	5.7
Employee Programs	17	7.0
Other Federal Facility	1	.4
Pay for Care Themselves	5	2.1
	243	100.0

Table 32
Reasons for Receiving the Majority of Health Care
From a Facility Other Than WPMC

Reasons	Frequency	Percentage
WPMC lacks services	4	8.7
WPMC is not conveniently located	12	26.1
Providers are discourteous	2	4.3
Providers are not thorough	3	6.5
Lack of continuity of providers	3	6.5
Schedule conflicts	1	2.2
Difficult to get appointments	21	45.7
	46	100.0

Hypothesis Four

This hypothesis was concerned with whether there were significant differences between the five satisfaction factors identified by factor analysis. Table 33 shows the means and standard deviations of the PSQ items. Table 34 shows the means and standard deviations for the satisfaction factors. T-tests were performed among the satisfaction factors in order to determine if there were any significant differences in satisfaction level. The t-tests results are presented in Table 35. Personal qualities were rated significantly higher than all other factors. Continuity of care was rated significantly lower than all other factors. Convenience was significantly different from professional qualities. Mean satisfaction with services available was not different from either satisfaction with

convenience or satisfaction with professional qualities. Figure 9 is a bar chart which depicts the approximate percentages of the levels of satisfaction for each satisfaction factor. This chart shows that the majority of the respondents were either satisfied or very satisfied with their health care with the exception of professional qualities and continuity of care. The actual frequencies are shown in Appendix B.

Table 33
Descriptive Statistics for the PSQ Items

Variable	M	SD
17. Overall satisfaction Rating	3.68	1.17
18. Provider is careful to check everything	3.62	1.00
19. MTF had everything to prov comp treat	3.76	1.01
20. Provider is polite	4.24	.76
21. Hardly ever see same provider	2.71	1.33
22. Takes long time to get to the MTF	3.56	1.20
23. Past medical problems are ignored	3.30	1.08
24. Provider is warm and friendly	3.75	.92
25. Provider isn't as thorough as should be	3.41	1.03
26. Hard to get emergency care quickly	3.34	1.21
27. MTFs are conveniently located	3.70	.99
28. Provider keeps me from worrying	3.56	.94
29. See the same provider	2.68	1.26
30. Providers don't explain medical problems	3.19	1.06
31. Time I wait to see provider is reasonable	3.45	1.09
32. Hours are good	3.67	.88
33. MTF lacks some things to prov comp treat	3.25	.99
34. Often repeat tests because see diff provider	3.22	1.12
35. I have no difficulty getting an appointment	2.75	1.33

Table 34
Mean Satisfaction Levels Between Factors

Factor	M	SD
Personal Qualities	3.80	.71
Convenience	3.50	.89
Services Available	3.42	.64
Professional Qualities	3.34	.71
Continuity of Care	2.69	1.18

Hypothesis Five

This hypothesis was concerned with differences in satisfaction level between the clinics and departments. The satisfaction level means and standard deviations of the clinics and departments are shown in Table 36. T-tests were performed among the satisfaction levels for the clinics and departments. Satisfaction with the appointment system was significantly lower than all other departments and clinics. The satisfaction levels of internal medicine, flight medicine and surgery were significantly higher than satisfaction with all other clinics but not with each other. Figure 10 is a bar chart which depicts the approximate percentages of the levels of satisfaction with the clinics and departments. The majority of the respondents were satisfied or very satisfied with the clinics and departments with the exception of the appointment system. The actual frequencies are shown in Appendix C.

Table 35
Results of T-tests Between Satisfaction Factors

Factor	T-Value	Probability of T
Professional Qualities Personal Qualities	-9.79	0.000
Professional Qualities Convenience	-1.49	0.138
Professional Qualities Availability of Services	-2.56	0.011
Professional Qualities Continuity of Care	8.45	0.000
Personal Qualities Convenience	7.75	0.000
Personal Qualities Availability of Services	4.71	0.000
Personal Qualities Continuity of Care	13.68	0.000
Convenience Availability of Services	-1.38	0.169
Convenience Continuity of Care	9.21	0.000
Availability of Services Continuity of Care	8.55	0.000

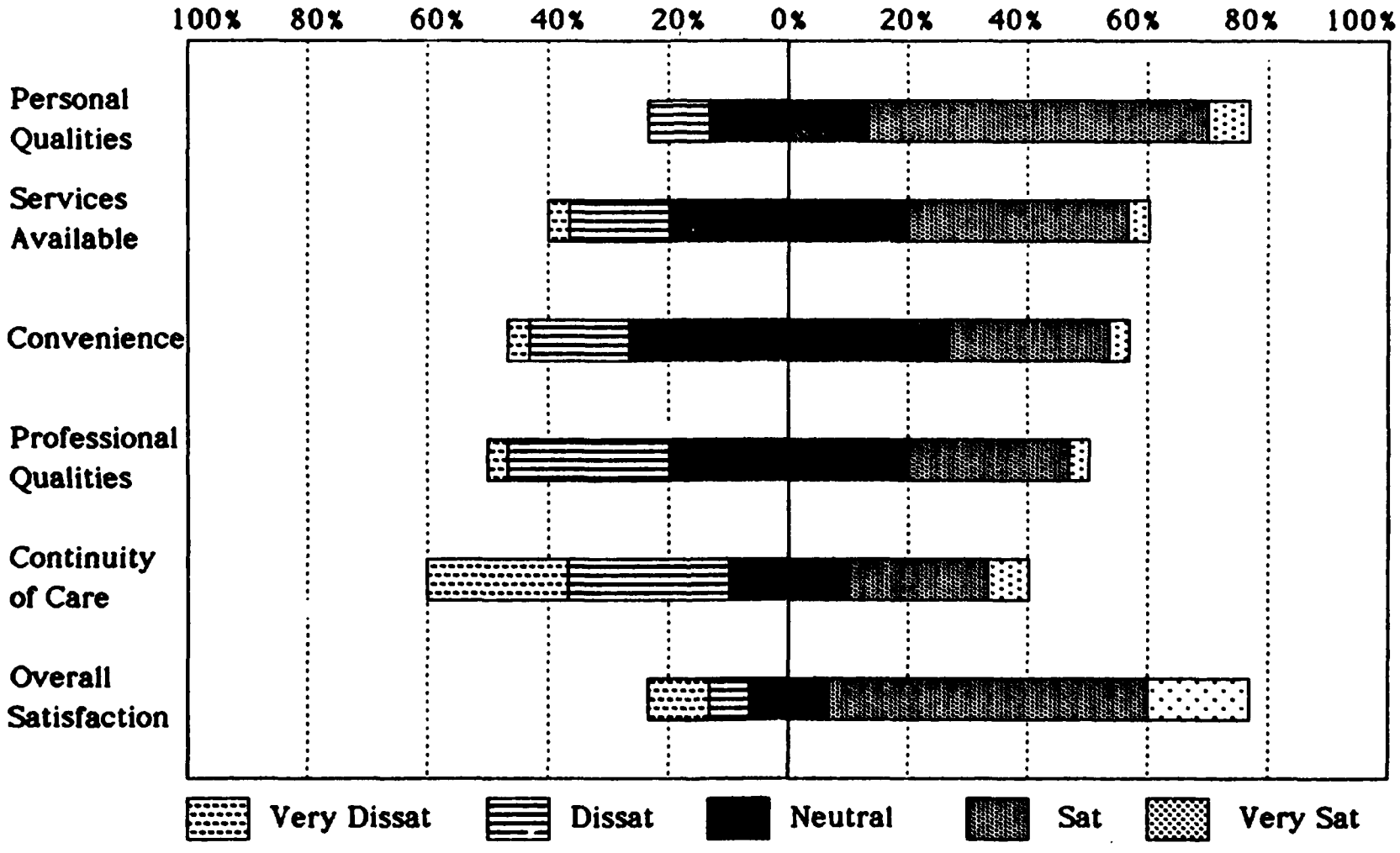


Figure 9. Satisfaction Levels of Consumer Satisfaction Factors

Table 36
Descriptive Statistics of Satisfaction with Clinics and Departments

Variable	M	SD
36. Satisfaction with appointment system	2.76	1.29
37. Satisfaction with emergency room	3.41	1.22
38. Satisfaction with partnership	3.43	1.06
39. Satisfaction with optometry/ear-nose-throat	3.44	1.20
40. Satisfaction with obstetrics/Gynecology	3.45	1.19
41. Satisfaction with orthopedics/podietry	3.48	1.18
42. Satisfaction with pharmacy	3.54	1.28
43. Satisfaction with primary care	3.54	1.60
44. Satisfaction with pediatrics	3.58	1.06
45. Satisfaction with internal medicine	3.71	1.05
46. Satisfaction with flight surgeon	3.76	1.04
47. Satisfaction with surgery	3.86	.97

Summary

This chapter presented the results of the research into the patient satisfaction levels concerning health care at the USAF Regional Medical Center at Wright-Patterson AFB, OH. The following chapter will offer a discussion of the results and recommendations reached as a result of the investigation.

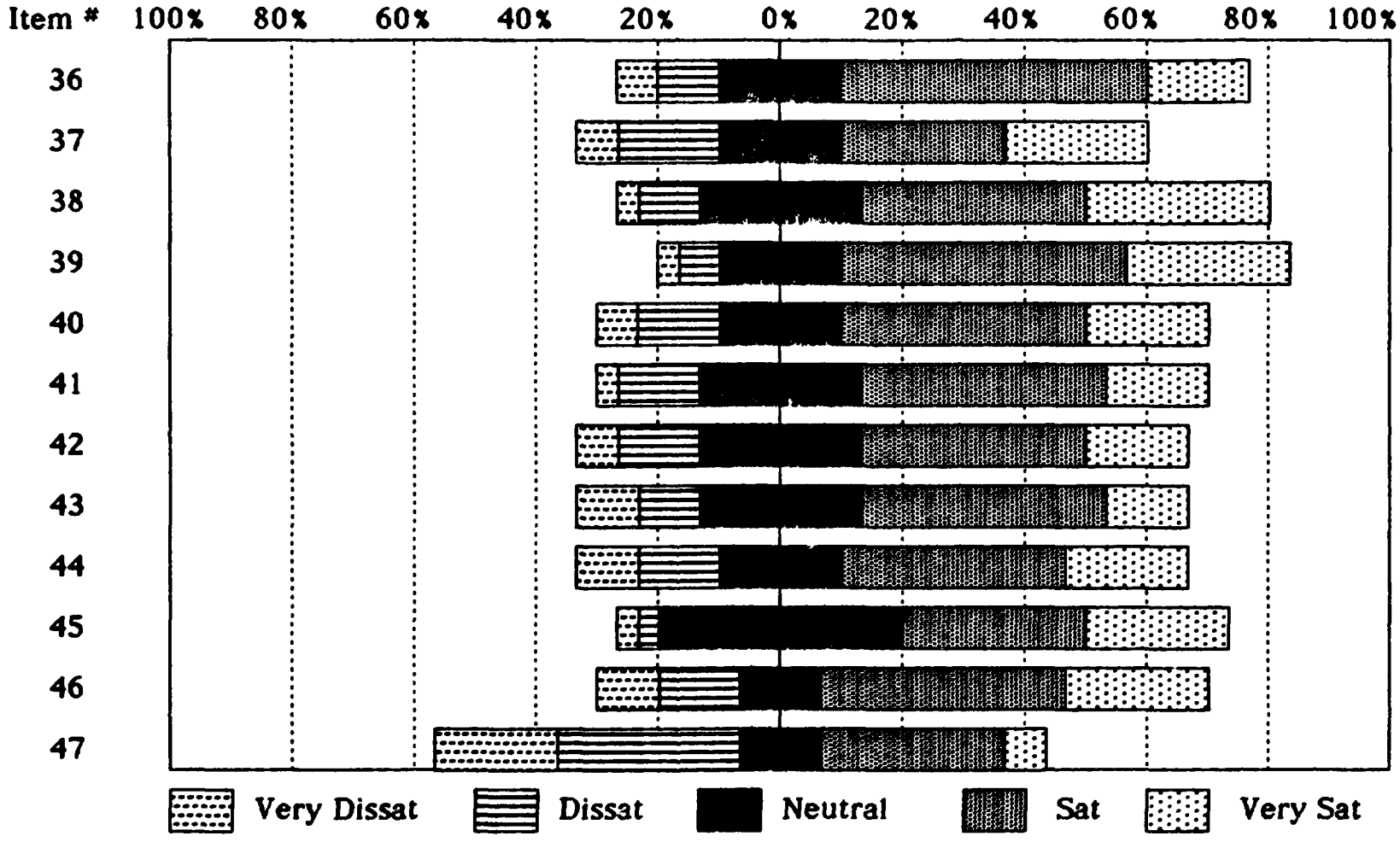


Figure 10. Satisfaction Levels of Clinics and Departments

V. Discussion of Findings, Recommendations and Conclusions

Introduction

This chapter presents a discussion of findings of the research effort to perform a consumer analysis and make a consumer satisfaction assessment of health care at the USAF Regional Hospital at Wright-Patterson AFB. This chapter also addresses recommendations and concludes with suggestions for future research.

Discussion

Consumer analysis. Due to the response rate of the questionnaires, the demographic information may not be generalizable to the population as a whole. Thus, a comprehensive consumer analysis may not be entirely feasible from the present data. The analysis presented in Chapter IV may be used. However, a comprehensive census of the population demographics should be obtained. A census would provide better quality information for a consumer analysis. This demographic census may be obtained by making a request to:

Central Systems Program Office
6 Skyline Place
5109 Leesburg Pike, Suite 502
Falls Church, VA 22401-3201

Patient satisfaction assessment

Hypothesis one. There were significant differences in levels of satisfaction between beneficiary categories and age groups for four of the

five factors: professional qualities, personal qualities, convenience, and continuity. Older people tended to be more satisfied than younger people. Retirees tended to be most satisfied, while active duty military tended to be least satisfied. There were also significant differences in pay grades on two factors: personal qualities and continuity. Field grade and general officers tended to be more satisfied than the lower ranks. There were no significant differences between the demographic variables for overall satisfaction or availability of services. This information supports the hypotheses that older persons, retirees, and individuals of higher pay grades are more satisfied with health care. However, these results did not support hypotheses predicting that males and members with smaller families would be more satisfied with health care.

Hypothesis two. There were no significant differences in satisfaction level between individuals who visited the medical center for health care infrequently and those who visited frequently. There weren't even any trends in this direction. This finding did not support the hypothesis that individuals who visited the health care center for treatment more frequently would report significantly lower levels of satisfaction. Rather, frequent visitation appeared to have no appreciable effect on consumer satisfaction.

Hypothesis three. The majority of respondents received their medical care at WPMC. Those individuals who chose another provider did so because they either could not get an appointment or because WPMC was not conveniently located. These findings did not support the hypothesis predicting that dissatisfaction with the professional qualities of the health care provider would be the primary reason for individuals choosing

alternative health care providers. Pragmatic considerations rather than quality of care issues appear to influence these decisions the most

Hypothesis four. Satisfaction with the personal qualities of the provider was rated significantly higher than any other satisfaction factor. On the other hand, satisfaction with the continuity of care was rated significantly lower than any other satisfaction factor. There were significant differences between satisfaction with professional qualities and satisfaction with convenience. However, neither of these satisfaction factors were significantly different from satisfaction with availability of services. Relatively speaking, consumers of health care at WPMC appear most satisfied with personal qualities of the staff and least satisfied with continuity of care.

These findings differ from the results presented by Quintana et al. (1988) in two respects. The first difference was that the respondents to the 1987 Air Force Health Care Survey were least satisfied with the availability of services. This difference may be attributed to the fact that WPMC is a regional medical center and provides a full range of services. Quintana et al. (1988) also reported that the respondents in their sample who were least satisfied with the availability of services visited clinics and small hospitals for the majority of their care. Hence, the Quintana et al. results may reflect consumer frustration with facilities offering a limited range clinical services. The second key difference between the studies was that respondents to the current study reported greatest dissatisfaction with continuity of care. This result may be attributable to the fact that WPMC is a large health care center with a large staff, and current practices may

make it difficult to schedule patients with the same health care provider on each visit.

Hypothesis five. As a whole, the respondents were satisfied with WPMC's departments and clinics with the exception of the appointment system. There was a significantly lower level of satisfaction with the appointment system than with any other clinic or department. Over 45 percent of the individuals who had elected to receive the majority of their medical care from an alternative health care provider did so because they reported difficulty with obtaining appointments. This problem has been recognized by the medical center administration, and the problem has been researched in a thesis by Lt Richard C. Ham (AFIT/GIR/LSY/89D-2).

Respondents appeared to be most satisfied with surgery, the flight surgeon and internal medicine. As a group, these three clinics were rated significantly higher than all other departments and clinics.

Validation of findings of 1987 Air Force Health Care Survey. The current study's results agreed with many of the findings documented by Quintana et al. (1988). The majority of respondents were satisfied with the health care provided by WPMC. The findings of this study which failed to replicate Quintana et al.'s findings may be attributable to sampling differences and to survey return rates. Also, facility differences undoubtedly played a role. There is one other set of discrepant findings which are not easily dismissed on methodological grounds. The present study found that professional qualities accounted for the largest proportion of variance while Quintana et al.'s study found that personal qualities accounted for the largest proportion of variance. Quintana et al.'s research

is consistent with the literature in that the expressive domain is the determinant of satisfaction (Hill, 1894; Swan and Combs, 1976).

Recommendations

Improve continuity of care. Andreasen (1985) states that the key to patient satisfaction is the development of a strong provider-patient relationship. Development of this relationship would be slowed if a patient cannot see the same health care provider on a continuous basis. WPMC may wish to consider implementing a system designed to assign patients to the same health care provider on a continuous basis. For instance, each provider could be assigned a particular set of patients based on the first letter of the last name or on the basis of the last four digits of the social security number. In this way patients might be automatically assigned to a health care provider without entailing complex record keeping.

Improve the appointment system. As stated previously, WPMC is aware that there is a problem with the appointment system, and research has been conducted to improve the system (AFIT/GIR/LSY/89D-2). However, the scope of that research was limited to the telephone system which provides consumers with access to the appointment desks. The current study's results also suggested that there are additional problems. There appears to be a problem with the timeliness of appointments. In many clinics, appointments appear to be projected too far into the future. WPMC may wish to consider evaluating the process of appointment scheduling.

Upgrade the Defense Enrollment Eligibility Reporting System (DEERS). DEERS is a series of data bases, and its purpose is to "provide a uniform means of determining benefit eligibility for Uniformed Services personnel,

retirees, dependents, and survivors" by providing a "single source of entitlement and demographic information of the Uniformed Services beneficiary population". (Defense Medical Systems Support Center, 1989: B-1-B-2). Currently, DEERS is able to perform nine functions. These are: eligibility inquiry, on-line update of personnel identification information, automated record of emergency data and Serviceman's Group Life Insurance (SGLI) information, the dependent dental care program, medical and dental record tracking, automation of nonavailability statements, automation of DoD medical examination review board information, storage of duplicate panoral radiographs (full mouth x-rays) for identification purposes, and the reportable disease database. DEERS contains a wealth of information; however, access is very limited. For example, DEERS contains demographic data on all eligible beneficiaries which is useful for strategic planning, but this information cannot be directly accessed. I recommend that an evaluation of DEERS be conducted on the usefulness of direct query of the data bases for strategic planning purposes.

Content analysis of open-ended item. The questionnaire for this research contained one open-ended item which requested respondents to provide comments or suggestions. This item was added to the questionnaire in case respondents needed to clarify their answers; content analysis was not within the scope of this research. However, 60 percent of the respondents made comments which contained a wealth of information. I recommend that a content analysis be conducted on the responses to the open-ended item. The information may be valuable for medical marketing and strategic planning purposes.

Future Research

This research was an initial step in the process of research and analysis for medical marketing. Additional studies are needed. One type of research that needs to be conducted is patient origin studies. These studies indicate what percentage of the patients come from the catchment area and what percentage come from elsewhere in the fourteen state region serviced by the medical center. This type of study also indicates what types of treatments individuals have received.

Consumer analysis and patient satisfaction assessments may be conducted on an annual or bi-annual basis to search for trends and possible problem areas. Although the Air Force Health Care Survey will be conducted on an annual basis, this will not take the place of WPMC's own research and analyses (Quintana et al., 1988).

If the satisfaction levels of WPMC consumers are measured again, the survey questionnaire and the sample size may be modified. Most of the demographic items may be eliminated. The demographic items which should be retained are: beneficiary category, age, gender, and pay grade. This is because they are the only variables which contained significant differences in satisfaction levels. The consumer satisfaction portion of the questionnaire (i.e the PSQ items) may be expanded to include more generic satisfaction items, continuity of care items and availability of services items. PSQ items may also be added to cover the measurement of three other satisfaction factors which were not addressed by Quintana et al.: finances, physical environment, and efficacy/outcomes of care. Finally, the number of surveyed clinics, departments, and services may be expanded to replicate the updated 1988 Air Force Health Care Survey. The sample used for this

research was stratified by beneficiary category. Due to poor response rates by the dependent categories, a sample should be based on the percentage of personnel in each beneficiary category in the population. It is also suggested that in-house surveys be conducted in addition to mail-out surveys.

There are other types of patient satisfaction research which may prove useful. The current research concentrated on perceived satisfaction of beneficiaries but ignored expectations prior to receiving care. The dominant model of consumer satisfaction, known as the disconfirmation paradigm, focuses on how individuals' expectations influence their ratings of a product or service. Studies of military health care may attempt to determine whether expectations make a difference in the beneficiaries' level of satisfaction. This type of research may be conducted in-house using questionnaires administered to patients prior to and after receipt of care. This type of research would yield important marketing information concerning expectations of Air Force beneficiaries of health care.

Conclusion

This research involved a consumer analysis and a consumer satisfaction assessment of a sample of eligible consumers of the USAF Regional Medical Center at Wright-Patterson AFB. The findings indicated that there was incomplete information for a consumer analysis. The findings also suggested that consumers are reasonably satisfied with the health care services provided by WPMC. The greatest dissatisfaction occurred with continuity of care and the appointment system.

This research represents the first step in a process of research and analysis intended to discover the wants and needs of the consumer population. Medical marketing techniques may aid in the development of programs and policies designed to improve the quality of health care at WPMC and consumer satisfaction with center services.

Appendix A: Patient Satisfaction Survey

DEPARTMENT OF THE AIR FORCE
USAF MEDICAL CENTER, WRIGHT-PATTERSON (AFLC)
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433 – 5300

28 SEP 1989

REPLY TO ATTN OF: AFIT/LSR (Lt McPharlin)

SUBJECT: Patient Satisfaction Survey Package

TO: Health Care Services Recipient

1. Please take the time to complete the attached questionnaire and return it in the enclosed envelope by 7 Oct 89.

2. This survey measures your satisfaction with the services provided by the USAF Medical Center at Wright-Patterson AFB and compiles demographic information of the population that the medical center serves. The data we gather will become part of a research project conducted by the Air Force Institute of Technology. Hopefully, the information we learn from this research project can be used to create programs to better serve you and your family's medical needs.

3. It is important that you, the addressee, fill out this survey even though you may not have used the medical center's services in the past twelve months because the demographic information we gather will be very important. Your participation is completely voluntary but we would certainly appreciate your help. For further information, contact Dr Robert Steel at 255-2254.

Charles H. Roadman II

CHARLES H. ROADMAN II, Col, USAF, MC
Commander

2 Atch
1. Questionnaire
2. Return Envelope

DEPARTMENT OF THE AIR FORCE
USAF MEDICAL CENTER, WRIGHT-PATTERSON (AFLC)
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433 – 5300

REPLY TO ATTN OF: AFIT/LSR (Lt McPharlin)

28 SEP 1989

SUBJECT: Patient Satisfaction Survey Package

TO: Health Care Services Recipient

1. Please ask one of your adult dependents to take the time to complete the attached questionnaire and return it in the enclosed envelope by 7 Oct 89. If you have no adult dependents please take the time to complete it yourself.

2. This survey measures satisfaction with the services provided by the USAF Medical Center at Wright-Patterson AFB and compiles demographic information of the population that the medical center serves. The data we gather will become part of a research project conducted by the Air Force Institute of Technology. Hopefully, the information we learn from this research project can be used to create programs to better serve you and your family's medical needs.

3. It is important that your dependent fill out this survey even though he or she may not have used the medical center's services in the past twelve months because the demographic information we gather will be very important. Participation is completely voluntary but we would certainly appreciate your help. For further information, contact Dr Robert Steel at 255-2254.

Charles H. Roadman II

CHARLES H. ROADMAN II, Col, USAF, MC
Commander

2 Atch
1. Questionnaire
2. Return Envelope

PATIENT SATISFACTION SURVEY
FOR
THE USAF MEDICAL CENTER AT WRIGHT-PATTERSON AFB, OH

INSTRUCTIONS

This questionnaire contains 49 items (individual "questions"). The first 47 items will be answered by filling in the appropriate spaces on the computer-scored response sheet provided. The final two questions (48 and 49) will be answered by writing your response on this questionnaire booklet.

Please use a "soft-lead" (No. 2) pencil, and observe the following:

1. Make heavy black marks that fill in the space (of the response you select).

2. Erase cleanly any responses you wish to change.

3. Make no stray marks of any kind on the response sheet.

4. Do not staple, fold or tear the response sheet.

The computer-scored response sheet has 200 different response blocks (numbered from
001 to 200). Each response block, beginning with the first block numbered 001, is to be used sequentially to answer the first 47 questions in the survey. In other words, you will answer the first question in the survey on response block 001, the second question on response block 002, and so on through question number 47 which will be answered in response block 047. Please respond to each survey question by marking over the appropriate numbered space (using ONLY a soft-lead pencil) on the computer-scored answer sheet as in the following example:

Sample Question:

999. What is your beneficiary category?

1. Active duty
2. Dependent of active duty
3. Retiree
4. Dependent of retiree or deceased member
5. Other

If you are active duty, you would mark over the space numbered "1" beside the appropriate response block number for the question as shown below.

Sample Answer Response to Sample Question #999:

(D) (NA) 999 (1) (2) (3) (3) (4) (5) (6) (7)

Please ignore the response (D) because it does not apply to this survey. You many use the response (NA) for any of the questions that do not apply to you.

USAF SCN 89-71
Expires 31 Dec 89

PATIENT SATISFACTION SURVEY

1. What is your beneficiary category?

    1. Active duty
    2. Dependent of active duty
    3. Retiree
    4. Dependent of retiree or deceased member
    5. Other (Specify)_____

2. To which branch of service are/were you or your sponsor assigned?

    1. Air Force
    2. Army
    3. Navy
    4. Marine Corps
    5. Coast Guard

3. What is your age group?

    1. 16-25
    2. 26-35
    3. 36-45
    4. 46-55
    5. 56-65
    6. 66 or over

4. What is your gender?

    1. Male
    2. Female

5. What is your current marital status?

1. Married
2. Separated
3. Divorced
4. Widowed
5. Never married

6. What is your race?

1. American Indian/Alaskan Native
2. Black (non-Hispanic)
3. White (non-Hispanic)
4. Hispanic
5. Asian/Asian American/Pacific Islander
6. Other (Specify)_____

7. What is the highest educational level you have completed?

1. Less than high school graduate
2. High school graduate (includes GED)
3. Two year college degree (Associate degree)
4. More than two years of college but less than a bachelor's degree
5. Bachelor's degree
6. Master's degree or some post graduate work
7. Ph.D., M.D. or other advanced professional degree

8. What is/was your active duty pay grade (dependents should indicate sponsor's pay grade)?

1. E1-E3
2. E4-E6
3. E7-E9
4. W1-W4
5. 01-03
6. 04-06
7. 07+

N/A

9. Are you employed outside the home?

1. no
2. yes, full time
3. yes, part time
N/A

10. Is your spouse employed outside the home?

1. no
2. yes, full time
3. yes, part time
N/A

11. How many children in your household are eligible for medical care under the Defense Enrollment Eligibility Reporting Systems (DEERS)?

1. none
2. 1-2
3. 3-4
4. 5-6
5. more than 6

12. How many times have you, individually, visited the medical center as a patient in the past 12 months?

1. none
2. 1-2 times
3. 3-5 times
4. 6-8 times
5. 9-11 times
6. 12 or more times

13. How many times have members of your family visited the medical center as a patient in the past 12 months?

1. none
2. 1-3 times
3. 4-7 times
4. 8-11 times
5. 12-15 times
6. 16 or more times
N/A

14. Do you receive the majority of your health care from an Air Force medical treatment facility (AF MTF)?

1. Yes (if you answer yes, please skip to question 17)
2. No (if you answer no, please also answer questions 15 and 16)

15. If you do not receive the majority of your health care from an Air Force medical treatment facility, which one of the following best explains why not?

1. The AF MTF lacks the services I need
2. The AF MTF is not conveniently located
3. I am not treated courteously
4. Providers are not thorough in their examination
5. It seems I see a different provider each time I have an appointment
6. My schedule conflicts with the times the MTF offers care
7. It is to difficult to get an appointment

16. If you do not receive most of your medical care from the Air Force medical treatment facility, which of the following do you use most to obtain your medical care?

1. CHAMPUS
2. Private Insurance
3. Employee Programs (e.g. Health Maintenance Organization)
4. Other federal facility (e.g. another military facility or the VA)
5. I pay for the care myself
6. Other (Specify)_____

17. In general, how satisfied are you with your medical care?

1. Very dissatisfied
2. Dissatisfied
3. Neither satisfied nor dissatisfied
4. Satisfied
5. Very Satisfied

N/A

Statements 18 through 35 are about medical care. Please read each statement carefully. Keeping in mind the medical care you are receiving now, use the scale below to indicate your views on the quality of care that you are currently receiving. If you have not received medical care recently, think about what you would expect to receive.

1 = strongly disagree
2 = disagree
3 = can't decide, don't know
4 = agree
5 = strongly agree
N/A

18. The health care provider is very careful to check everything when examining me.

19. I think this medical treatment facility has everything needed to provide complete medical treatment.

20. The health care provider is polite.

21. I hardly ever see the same provider when I go for medical care.

22. It takes a long time to get to the treatment facility where I receive medical care.

23. The medical problems I've had in the past are ignored when I seek care for new medical problems.

24. The health care provider is warm and friendly.

25. The health care provider isn't as thorough as he/she should be.

26. In an emergency, it's hard to get medical care.

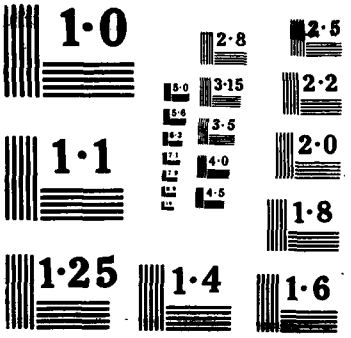
27. Air Force medical treatment facilities are very conveniently located.

28. The health care provider does his/her best to keep me from worrying.

29. I see the same health care provider just about very time I go for medical care.

AD-A218 061 MEASURING PATIENT SATISFACTION AS A BASIS FOR MEDICAL MARKETING AND STRAT (U) AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL OF SYST A C MCPHARLIN

UNCLASSIFIED DEC 89 AFIT/GIR/LSR/89D-6 F/G 6/5 NL


1·0
2·8
2·5
3·15
2·2
3·5
2·0
4·0
1·1
4·5
1·8
1·25
1·4
1·6

30. Health care providers cause some people to worry a lot because they don't explain the medial problems to them.

31. Generally, the amount of time I have to wait (after arriving and before seeing the health care provider) during the last 12 months has been reasonable.

32. Hours available to get health care are good for most people.

33. This medical facility lacks some things needed to provide complete medical care.

34. I often have to repeat tests or answer the same questions because I constantly see different health care providers.

35. I have no difficulty getting an appointment when I need medical care.

Using the scale below, please indicate how satisfied you are with the following clinics and services:

1. Very dissatisfied
2. Dissatisfied
3. Neither satisfied nor dissatisfied
4. Satisfied
5. Very satisfied

N/A

36. Primary Care
37. OB/GYN
38. Internal Medicine
39. Surgery
40. Optometry/Ear Nose Throat
41. Pediatrics
42. Orthopedics/Podietry
43. Partnership
44. Emergency Room
45. Flight Surgeon
46. Pharmacy
47. Appointment System

Statements 48 and 49 require you to write your answer on this page:

48. What is your zip code?_____

49. Please indicate any additional comments or suggestions below.

When you have completed this survey, please put both the questionnaire booklet and the computer-scored response sheet in the pre-addressed envelope and place it in the mail. Thank you for your time and effort.

Appendix B: Satisfaction Frequencies for the Satisfaction Factors

Frequencies of Satisfaction Level for Personal Qualities

Level	Frequency	Percentage
Very dissatisfied	0	0.0
Dissatisfied	27	11.6
Neutral	65	28.0
Satisfied	124	53.4
Very Satisfied	16	6.9
	232	100.0

Frequencies of Satisfaction Level for Services Available

Level	Frequency	Percentage
Very dissatisfied	9	3.8
Dissatisfied	29	12.1
Neutral	94	39.2
Satisfied	93	38.8
Very satisfied	15	6.3
	240	100.0

Frequencies of Satisfaction Level for Convenience

Level	Frequency	Percentage
Very dissatisfied	7	3.2
Dissatisfied	31	14.1
Neutral	137	62.3
Satisfied	44	20.0
Very satisfied	1	.5
	220	100.0

Frequencies Satisfaction Level for Professional Qualities

Level	Frequency	Percentage
Very dissatisfied	9	4.2
Dissatisfied	53	24.8
Neutral	93	43.5
Satisfied	56	26.2
Very satisfied	3	1.4
	214	100.0

Frequencies of Satisfaction Level for Continuity of Care

Level	Frequency	Percentage
Very dissatisfied	55	24.0
Dissatisfied	64	27.9
Neutral	44	19.2
Satisfied	57	24.9
Very satisfied	9	3.9
	229	100.0

Frequencies of Satisfaction Level for Overall Satisfaction

Level	Frequency	Percentage
Very dissatisfied	21	9.0
Dissatisfied	16	o.8
Neutral	35	15.0
Satisfied	107	45.7
Very satisfied	53	23.5
	234	100.0

Appendix C: Satisfaction Frequencies for the Clinics and Departments

Frequencies of Satisfaction Level for Primary Care

Level	Frequency	Percentage
Very dissatisfied	10	5.2
Dissatisfied	18	9.3
Neutral	47	19.0
Satisfied	93	48.2
Very Satisfied	25	13.0
	193	100.0

Frequencies of Satisfaction Level for Obstetrics/Gynecology

Level	Frequency	Percentage
Very dissatisfied	8	6.8
Dissatisfied	20	17.1
Neutral	24	20.5
Satisfied	41	35.0
Very satisfied	24	20.5
	117	100.0

Frequencies of Satisfaction Level for Internal Medicine

Level	Frequency	Percentage
Very dissatisfied	4	3.1
Dissatisfied	10	7.9
Neutral	37	29.1
Satisfied	46	36.2
Very satisfied	30	23.6
	127	100.0

Frequencies of Satisfaction Level for Surgery

Level	Frequency	Percentage
Very dissatisfied	3	2.6
Dissatisfied	8	6.8
Neutral	22	18.8
Satisfied	53	45.3
Very satisfied	31	26.5
	117	100.0

Frequencies of Satisfaction Level for Optometry/Ear Nose Throat

Level	Frequency	Percentage
Very dissatisfied	12	7.8
Dissatisfied	24	15.7
Neutral	30	19.6
Satisfied	59	38.6
Very satisfied	28	18.3
	153	100.0

Frequencies of Satisfaction Level for Pediatrics

Level	Frequency	Percentage
Very dissatisfied	4	4.1
Dissatisfied	11	11.3
Neutral	25	25.8
Satisfied	40	41.2
Very Satisfied	17	17.5
	97	100.0

Frequencies of Satisfaction Level for Orthopedics/Podietry

Level	Frequency	Percentage
Very dissatisfied	9	8.6
Dissatisfied	11	10.5
Neutral	26	24.8
Satisfied	40	38.1
Very satisfied	19	18.1
	105	100.0

Frequencies of Satisfaction Level for Partnership

Level	Frequency	Percentage
Very dissatisfied	7	7.5
Dissatisfied	7	7.5
Neutral	30	32.3
Satisfied	37	39.8
Very satisfied	12	12.9
	93	100.0

Frequencies of Satisfaction Level for Emergency Room

Level	Frequency	Percentage
Very satisfied		
Dissatisfied	29	16.1
Neutral	36	20.0
Satisfied	65	36.1
Very satisfied	34	18.9
	180	100.0

Frequencies of Satisfaction Level for Flight Surgeon

Level	Frequency	Percentage
Very dissatisfied	2	2.7
Dissatisfied	3	4.1
Neutral	27	36.5
Satisfied	24	32.4
Very satisfied	18	24.4
	74	100.0

Frequencies of Satisfaction Level for Pharmacy

Level	Frequency	Percentage
Very dissatisfied	21	9.5
Dissatisfied	34	15.5
Neutral	24	10.9
Satisfied	87	39.5
Very satisfied	54	24.5
	220	100.0

Frequencies of Satisfaction Level for Appointment System

Level	Frequency	Percentage
Very dissatisfied	46	21.2
Dissatisfied	59	27.2
Neutral	29	13.4
Satisfied	68	31.3
Very satisfied	15	6.9
	217	100.0

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The purpose of this research was to conduct a consumer analysis and a consumer satisfaction assessment of the patient population of the USAF Regional Medical Center at Wright-Patterson AFB, OH. These analyses were conducted as a basis for medical marketing and strategic planning.

A questionnaire was developed and sent to a random sample of beneficiaries in order to collect the demographic and satisfaction data. Five investigative questions were addressed concerning consumer satisfaction: (1) Are there different levels of satisfaction between the demographic categories? (2) Are there different levels of satisfaction between individuals who visit the medical center frequently compared to infrequently? (3) What areas of dissatisfaction cause eligible individuals to seek care from other health care providers? (4) Are there different levels of satisfaction between the health care satisfaction factors? (5) Are there different levels of satisfaction between the clinics and departments of the medical center?

This study found that, overall, consumers were satisfied with the health care they received. Retired military were the most satisfied while active duty military were the least satisfied. There were two primary areas of consumer dissatisfaction. These were the appointment system and continuity of care. This study showed that the majority of eligible individuals who chose to switch to another health care provider did so because they had difficulty getting an appointment.

It was recommended that programs be developed to improve continuity of care and the appointment system at the medical center at Wright-Patterson. This study also recommended that an evaluation of DEERS be conducted to determine its usefulness in strategic planning for the DoD health care system.