

AD-A278 895



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Form Approved
OMB No. 0704-0188

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1. REPORT DATE August 1992		3. REPORT TYPE AND DATES COVERED Final July 1991 - July 1992	
4. TITLE AND SUBTITLE A STUDY OF PATIENT SATISFACTION IN THE PEDIATRICS CLINIC AT WALTER REED ARMY MEDICAL CENTER		5. FUNDING NUMBERS	
6. AUTHOR(S) Jeffrey H. Allan, CPT, MS, US Army			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Walter Reed Army Medical Center Washington DC, 20307		8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) US Army-Baylor University Graduate Program in Health Care Administration AHS San Antonio, Texas 78234-6100		10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES			
12a. DISTRIBUTION/AVAILABILITY STATEMENT Unclassified/Unlimited		12b. DISTRIBUTION CODE	
DTIC ELECTE MAY 06 1994 S G D			
13. ABSTRACT (Maximum 200 words) The purpose of this study was to research and analyze whether there was variability in patient satisfaction in the Walter Reed Army Medical Center (WRAMC) pediatrics clinic based on the structures and processes of care, and whether there was variability in patient satisfaction based on patient sociodemographic and socioeconomic factors. An analysis of the surveyed beneficiary population indicated a relatively high level of satisfaction with care at the pediatrics clinic. Reliability and validity assessed on the questionnaire met established parameters for content areas; overall satisfaction with the constructs of technical quality, access to care, and interpersonal care correlated positively and significantly with overall patient satisfaction. There was no statistical correlation between patient satisfaction and demographic parameters. The researcher concluded that the high patient satisfaction in the clinic reflected the unique nature of subspecialty services at this tertiary care teaching facility, overcoming dissatisfiers with access to care.			
14. SUBJECT TERMS PATIENT SATISFACTION SURVEY PEDIATRICS		15. NUMBER OF PAGES 100 Pages	
		16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT SAR

A STUDY OF PATIENT SATISFACTION IN THE PEDIATRIC CLINIC AT
WALTER REED ARMY MEDICAL CENTER

A Graduate Project
Submitted to the Faculty of
Baylor University
In Partial Fulfillment of the
Requirements for the Degree
of
Master of Health Administration
by
Captain Jeffrey H. Allan, MS
JULY 1992

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Acknowledgements

The author gratefully acknowledges the contributions of several individuals during the research and preparation of this paper. I am truly appreciative of the support and guidance provided by my Preceptor, Colonel Donald A. Johnson, throughout this project and my entire residency year.

A special thanks is extended to the faculty, staff and support personnel of the Walter Reed Army Medical Center Department of Pediatrics and the pediatric clinic. Without their forbearance and active participation, this research effort could not have occurred. A particular note of appreciation is extended to Dr. William Walker, Chief of the pediatric clinic and Ms. Linda Williams, clinic administrator for support and encouragement.

A final note of love and appreciation is extended to my wife, Dr. Karla Allan, who has supported me steadfastly throughout my graduate program.

Abstract

The purpose of this study was to research and analyze the extent to which there was variability in patient satisfaction in the Walter Reed Army Medical Center (WRAMC) pediatric clinic based on the structures and processes of care, and the extent to which there was variability in patient satisfaction based on patient sociodemographic and socioeconomic factors. An analysis of the surveyed beneficiary population indicated a relatively high level of satisfaction with care at the pediatrics clinic. Reliability and validity assessed on the questionnaire met established parameters for content areas; overall satisfaction with the constructs of technical quality, access to care, and interpersonal care correlated positively and significantly with overall patient satisfaction. There was no significant statistical correlation between patient satisfaction and demographic parameters. The researcher concluded that the high patient satisfaction in the clinic reflected the unique nature of subspecialty services at this tertiary care teaching facility overcoming dissatisfiers with access to care.

A STUDY OF PATIENT SATISFACTION IN THE PEDIATRIC
CLINIC AT WALTER REED ARMY MEDICAL CENTER

Introduction

Patient satisfaction has moved to the forefront as the health care community has strived to improve on the services provided, attract customers to those services and insure that those customers return. Cleary and McNeil (1988) quoted Donabedian, "the father of quality assurance in health care" as stating that, "achieving and producing health satisfaction is the ultimate validator of quality of care" (p. 25). As the military takes a more competitive and proactive stance in actively attempting to attract many of these beneficiaries back from the Civilian Health and Medical Program on the Uniformed Services (CHAMPUS), the ability to assess patient satisfaction and areas where improvements can be made in patient satisfaction become paramount.

Conditions Which Prompted the Study

Walter Reed Army Medical Center (WRAMC) is a tertiary care medical complex located in Northwest Washington DC. The main hospital (opened in 1978) at

the center of the WRAMC complex is a 1,000 bed, 7 floor facility that provides some of the most complex and intricate care available in the Department of Defense to include organ transplantation, open heart surgery and lithotripsy. The daily inpatient census ranges between 600-800 patients and there are on average between 3,000-3,500 outpatients per day seen at WRAMC. WRAMC as the flagship for Army medicine is the largest facility in the Department of Defense and has served as home to Kings, Queens and Presidents who have come seeking the finest medical care in the world.

However, having served as a home to Army medicine continually since 1909 will not protect WRAMC from the conditions that are changing the face of medicine in the United States to include the Department of Defense. For fiscal year 1991 WRAMC obligated 229 million dollars; the fiscal year 1992 budget is 221 million dollars, a decrement of 8 million dollars (HSC Resource Summary, April, 1992). According to COL Joe Lyons, the Comptroller for the Army Medical Department, the expectation is for a zero growth budget as an optimistic estimate.

In response to the anticipation of the constraining of resources for medical care, the

Department of Defense has moved towards a Coordinated Care model for providing health care where the efficiency of resource utilization becomes a much greater consideration for how care is delivered, along with the quality aspects of care. According to the Policy Guidelines on The Department of Defense Coordinated Care Program set forth by the Assistant Secretary of Defense for Health Affairs, Dr. Mendez, (January, 1992):

"The Coordinated Care Program will enable the DOD and the Military Departments to better accomplish the medical mission by improving beneficiary access to health care services, controlling health care costs (underlining provided), and ensuring quality care to all Military Health Services System (MHSS) beneficiaries" (p. 1).

WRAMC's Executive Management has accepted the mandate to provide quality services in a cost effective manner. Throughout WRAMC's Strategic Planning Presentation to Department Chiefs by the Commander, Chief of Staff and Chief Medical Officer of Walter Reed, (24 March 1992) references are made to cost-benefit analysis for new programs, resource templates,

resource constraints during the military downsizing, and threats to service/programs.

As WRAMC faces the difficult challenge of providing quality services in a cost effective manner, one of the issues being addressed is how does WRAMC insure that it is optimizing the services that the customers of WRAMC are receiving? One aspect of WRAMC's effort is to assess the perception of its services from the customer's perspective. WRAMC is in the process of making a major effort as part of its strategic plan to adopt a Total Quality Management/Continuous Quality Improvement (TQM/CQI) model and has established a CQI Task Force under the auspices of the Deputy Commander for Clinical Services.

A vital component of being a customer driven medical organization immersed in Continuous Quality Improvement is assessment of patient satisfaction. In their article, "Patient Satisfaction Surveys: An opportunity for Total Quality Improvement" Nelson and Niederberger state that, "In medicine, as in other service, or goods-producing industries, increased emphasis is being directed toward judging quality based on consumer feedback" (1990, p. 410). They go on to point out how the Joint Commission on Accreditation of

Healthcare Organizations (JCAHO), in their push towards continuous quality improvement versus meeting standards, has indicated that the Commission intends to mandate patient satisfaction monitoring in the next two years. The goal of being a customer focused organization constantly striving to increase patient satisfaction as a vital component of CQI, combined with the JCAHO's coming mandate to assess patient satisfaction, has moved surveying and assessing WRAMC's customers from a side issue to an issue with more urgent parameters.

In determining a good site to begin more fully assessing patient satisfaction at WRAMC, the developments and aspects of coordinated care came to the forefront. One of the keys to a successful Coordinated Care Program is a well utilized and effective primary care component. According to Kongstvedt, in his book, Managed Care, nowhere is patient satisfaction as critical as in the primary care arenas of family practice, internal medicine and pediatrics (1989). These outpatient arenas are the portals to care in military medical treatment facilities, and are essential well functioning services in any managed care plan.

The future of outpatient pediatrics at WRAMC is an issue of a high degree of relevance to the Command. With space at a premium for inpatient and highly technical services, and the exploration by outside providers to provide primary care services for the military as Congress explores ways to increase access while controlling costs, Major General Cameron, WRAMC Hospital Commander, has theorized that outpatient pediatrics in the future may not reside inside the hospital of WRAMC in its current form. However, prior to making any strategic decisions regarding medical services, modifications which could potentially require an investment of millions of dollars, it is critical for the Command at WRAMC to obtain a fuller understanding of how the services as they are currently delivered are viewed by the customer.

Problem Statement

The focal point of this research was to respond to WRAMC's Executive Management's perception that customer and guest relations can be enhanced and improved, given the resource constrained environment of health care in the United States, the Department of Defense (DOD) and the Army.

In order to meet the coming regulatory requirements under JCAHO, better assess customer satisfaction under CQI, ensure that the primary care patient base is satisfied with the services rendered in the setting in which they are provided, and better strategically plan for the future, the Executive Management of WRAMC pinpointed the WRAMC outpatient pediatric clinic as a research opportunity to prepare for the anticipated arrival of a more competitive health care environment. As a proactive Department at Walter Reed that has been a spearhead for positive change, the Department of Pediatrics and the pediatric clinic enthusiastically and graciously consented to participate in this research and analysis effort.

Literature Review

Patient satisfaction is becoming progressively more important to hospital directors and trustees as competition in the health care market increases. Hospitals want to ensure the highest level of patient satisfaction, not only to maintain their patient base, but to expand it (Abramowitz, Cote & Berry, 1987). As military facilities try to recapture CHAMPUS dollars and direct beneficiaries to the most cost efficient

care, assessing the level of patient satisfaction and making improvements in satisfaction becomes an integral strategy for competing in the dynamic health care environment. Furthermore, according to Cleary, Keroy, Karapanos and McMullen, in their article, "Patient Assessments of Hospital Care", patient satisfaction is not only related to attracting and retaining patients, but may directly impact on effective and efficient medical diagnosis, treatment, and outcomes (1989). The patient retention aspect of patient satisfaction was further reinforced by Ware, as presented in his paper at the National Conference on Quality Assessment in Ambulatory Health Care, "Measuring the Quality of Care: The Patient Satisfaction Component". His research indicated that patient satisfaction is a determinant of the choice of health care provider or system (Ware, 1987). WRAMC's ability to effectively assess health care services provided may not only insure satisfied customers, but assist in assuring a sufficient customer base.

Strasser and Davis also address patient base retention in their book, Measuring Patient Satisfaction for Improved Patient Services (1991). Their overall premise is that dissatisfied patients will have an

impact on the health care organization's bottom line and if patients are not asked, there may be a large silent group of dissatisfied patients taking their business elsewhere.

Milakovich, in his article, "Creating a total quality health care environment," makes the case that patient dissatisfaction is an indicator of poor quality, significant to the overall total quality environment of a medical facility, and has multiple impacts as repeat visits are lost from friends and relatives of dissatisfied patients (1991, p. 16).

From a regulatory perspective, the JCAHO has recognized and formalized the importance of patient satisfaction in the continuum of care by requiring that characteristics of effective hospital-sponsored ambulatory care services be: (1) acceptable to patients; (2) appropriate to the psychosocial needs of patients; and (3) evaluated through gathering, assessing and taking appropriate action on information that relates to the patient's satisfaction with all aspects of the ambulatory care services provided. These three listed characteristics are all key factors in the JCAHO accreditation process (JCAHO, 1990).

The JCAHO clearly considers patient and family

satisfaction a key component of quality healthcare.

The Joint Commission Guide to Quality Assurance (JCAHO, 1988) states that:

"The organization's (read each Hospital's) program to improve quality also should include systematic monitoring of patient and family satisfaction to ascertain whether patients and their families perceive care to be of high quality. This process includes interviews and or surveys using appropriate survey research techniques" (p. 29).

As a tool to assess customer perceptions, the use of patient satisfaction surveys has increased in the health care marketplace, due in part to the belief that the perception of quality is a significant factor in the demand for services (Nelson & Niedermeyer, 1990). Ware, Snyder and Wright in their seminal two volume work, Development and Validation of Scales to Measure Patient Satisfaction with Health Care Services (1976) documented in detail the nationwide trend towards holding those who control and provide essential services more accountable to consumers, and increasingly, how patient satisfaction surveys have been used for this purpose. Goldsmith, in his article,

"Patient satisfaction with a family practice clinic: comparison of a questionnaire and an interview survey" (1982) supports the use of a written questionnaire through its ability to extract honesty through anonymous respondents, its inexpensive cost and the ease of administration.

Surveys have also been a useful tool for military facilities in the outpatient arena as illustrated by CPT Karen J. Johnson, MS, in her work, A Study to Determine Patient Preferences for Primary Care at Dwight David Eisenhower Army Medical Center (1986) and LTCDR John A. Rooney, MSC, USN, in his work, Naval Outpatient Medical Care and Services: A Comparison of the Perceptions of Satisfaction Held by Sub-Groupings of a Beneficiary Population (1985).

Donabedian provides a summation of the importance of consumer satisfaction in health care when he relates that, to the extent that satisfaction is an aspect of well-being, it may be considered an outcome of care, and can also serve as a contribution to care, since satisfaction reflects the patient's judgement on all aspects of the care he has received (1988). The literature provides ample evidence that patient satisfaction is an integral component of quality

healthcare that should be assessed and measured in order to: (1) increase effective and efficient medical care, (2) attract and retain customers, (3) meet the changing needs of the marketplace and effect continuous quality improvement, and (4) meet the changing regulatory requirements as established by JCAHO. The literature also demonstrates that surveying customers' attitudes regarding their medical care is an effective tool for assessing patient satisfaction.

Purpose

The purpose of this research was to define, describe, and evaluate patient satisfaction in the outpatient pediatric clinic at WRAMC, and make feasible recommendations for positive change regarding clinic operations based on analysis of this research effort and the changing environment in which the clinic will be functioning. Through description of clinic structure and processes, survey selection, and analysis of information collected from parents/guardians that were utilizing outpatient pediatrics at WRAMC, the investigator attempted to provide useful management information to Walter Reed's Executive Management.

This study will explore two hypotheses:

H1: The variability in patient satisfaction is accounted for by the structures and processes of care.

H2: The variability in patient satisfaction is accounted for by the sociodemographic and socioeconomic factors of the patients and their parents/guardians.

This research attempted to: (1) identify problem areas in the structures and processes of care, (2) enhance and improve patient and family satisfaction for future customers, (3) provide a format for assessing potential problem areas in the other outpatient arenas, and (4) help Walter Reed become more effective, efficient, and competitive in the rapidly changing healthcare environment.

Methods and Procedures

Introduction

In order to facilitate understanding of the management information to be provided by surveying Walter Reed outpatient pediatrics, the structures and processes of care provided at the clinic must be explored. During February, 1992 a number of key individuals involved with the management and provision

of care at the WRAMC Pediatric Clinic were interviewed. These individuals were COL Richard M. Lampe, MC, Chief, Department of Pediatrics; LTC William Walker, MC, Chief, Pediatric Clinic; CPT Kurt Allebach, MS, Administrator, Department of Pediatrics; Ms Carol Tross, Nursing Supervisor, Pediatric Clinic; and Ms Linda Williams, Clinic Administrator for the Pediatric Clinic.

Outpatient pediatrics at Walter Reed is a complex organization interwoven with a variety of elements throughout the various medical components that make up this institution. In a large sense, the pediatric clinic is two clinics in one. One component is the pediatrics portion which sees children from birth through 12 years 11 months; the second portion is the Adolescent clinic which sees children 13 years old through 21 years old. These two clinics are co-located with separate waiting areas and separate dedicated staff, but for purposes of this research will be referred to as the pediatric clinic unless otherwise specified. Also, the goal of this research is to explore the thoughts, feelings and attitudes of the pediatrics patients' parents/guardians who accompany the child for care to the clinic. In all cases when

the researcher refers to survey responses from "patients" he is referring to that parent/guardian unless otherwise noted.

Mission

As in any medical setting in the military, the overarching mission of the pediatric clinic is to provide effective patient care to its beneficiaries. However, given the teaching mission of WRAMC and the location of one of the six Department of the Army's pediatric residency programs at WRAMC, an equally important and complicating factor in the provision of care in the pediatric clinic is that complementing the mission of pediatrics to provide effective care to its beneficiaries is an equal responsibility to provide a platform for graduate medical education (GME) (Lampe, 1992). The pediatric clinic in effect provides a platform for fulfilling the requirements for a pediatrics residency to provide "clinic time" to its Residents. This requirement also applies to the pediatric subspecialty Fellows and the Uniformed Services University of the Health Sciences (USUHS) medical students training at Walter Reed (Residency Review Committee for Pediatrics (RRC for Peds), 1991).

These requirements for "clinic time" combine with the ambulatory visits of previously hospitalized or long term care pediatrics patients to provide a radically different mix of patients seen in the Clinic than might be seen in a civilian outpatient pediatric clinic (more follow-up care in contrast to acute care). All pediatrics outpatient follow-up care is provided out of the pediatric clinic providing a management challenge in structuring clinic operations. According to the Directorate of Resources Management (DRM) at WRAMC, in fiscal year 1990, there were 38,740 pediatric clinic visits; 12,626 adolescent clinic visits; 1,658 well baby visits and 5,706 exceptional family member visits attributed to the pediatric clinic for a total of 58,730 pediatric outpatient visits in fiscal year 1990. According to the RRC for Peds (1991) only 16,277 (28%) of these visits were for acute illness or what would commonly be associated with children with colds, fevers, and infections that need attention on a short notice basis.

Clinic Structure and Function

One clue to the complexity of patient care taking place in the clinic is the listing of pediatric

specialties that provide outpatient services at the clinic. The listing of these specialties is as follows; those specialties with patients physically seen in the clinic are marked with an asterisk (*) (RRC for Peds, 1991):

1. allergy/immunology
2. cardiology
3. endocrine/metabolism*
4. gastroenterology*
5. hematology/oncology*
6. nephrology*
7. neurology*
8. pulmonology*
9. child psychiatry
10. dermatology*
11. genetics*
12. infectious disease*
13. pediatric radiology
14. pediatric surgery
15. rheumatology
16. developmental pediatrics*
17. pediatric orthopedics*
18. adolescent gynecology*

Each of these pediatric specialty areas has a

Board certified physician who provides hands on training to the students, residents, and fellows participating in the clinic.

There are currently 18 pediatric residents training in pediatrics at WRAMC. These residents break down into 7 first year residents, 6 second year residents and 5 third year residents for this 3 year residency program. In addition there are 15 subspecialty residents (fellows) training in a pediatric subspecialty at WRAMC (RRC for Peds, 1991). These fellows are currently training in neonatology, hematology/oncology, gastroenterology, endocrinology and infectious disease. Each of these Fellowship programs has a Board certified subspecialist working directly with the fellows in their training program; both the teacher/physician and the fellow/student spend time seeing patients in the clinic. Furthermore, every 6 weeks, 6-8 USUHS medical students rotate through the pediatric clinic. Other students who train in the clinic on an irregular basis come from Georgetown University, Howard University, and the Health Professionals Scholarship Program (HPSP). These medical students see patients in the clinic as part of their training, but it is the policy of the pediatric

clinic that no patient seen by a medical student leaves the clinic without seeing a supervising physician (LTC Walker, February, 1992).

The full time staff who support the pediatric clinic consists of 5 physicians; Dr. Walker is the Chief of pediatrics and is a developmental specialist. Dr. Ziegler and Dr. Chamberlain are the staff physicians for the pediatric clinic and Dr. Robinson and Dr. Scott are the staff physicians for the adolescent clinic. Dr. Scott is the Chief, adolescent clinic. There are currently 16-18 other Board certified pediatric specialists who work into the clinic. There is no formalized policy as to physicians spending time in the clinic, but it is the policy of the Chief of the Department of Pediatrics, Dr. Lampe, that "clinic time" is important and he demonstrates that by personally spending 2 blocks of time a week in the clinic. The clinic week is broken into 10 blocks of time consisting of a morning and afternoon for each of the five days of the week.

The pediatric clinic support staff consists of a nursing and administrative component. The nursing component consists of 2 Registered Nurses (RNs) with the senior RN being the nursing supervisor of the

pediatric clinic, Ms. Tross. Her staff further consists of 1 Licensed Practical Nurse (LPN), 2 Nursing assistants, 1 91B medic (functioning as the NCOIC of the clinic) and 3 91A medics with one assigned to the adolescent clinic. There are 2 nurses who support the Hematology/oncology clinic full time that report to Ms. Tross; this clinic is colocated with the pediatric clinic, but operationally is a separate entity. Ms. Tross also has a Logistical Technician that reports to her part time with the responsibility of replenishing the clinic supplies. Ms. Williams, the clinic administrator, is formally known as an Administrative Support Assistant (ASA); her staff consist of 3 medical records clerks and 2 secretaries.

Functionally, the outpatient pediatric clinic provides comprehensive care from birth through 21 years of age. This care is rendered through a comprehensive package of ambulatory services and specialties consisting of (RRC for Peds, 1991):

1. General Outpatient Pediatrics. The general outpatient pediatric clinic provides for regular appointments to include physicals, non-acute medical conditions and preexisting medical conditions. It further delivers care through acute care same day

appointments such as fever, asthma, seizure, vomiting, dehydration and rash. The pediatric clinic functions as the pediatric emergency room during the hours of 0745-1630 hours.

2. Well Baby Clinic. The well baby clinic provides regular check ups for babies at age 2 weeks, 2 months, 4 months, 6 months, 12 months, 15 months and 18 months of age.

3. Adolescent Clinic. This clinic provides care for adolescents age 13 years through 21 years to include adolescent gynecological services and treatment for acute medical conditions.

4. Developmental Clinic. This clinic provides for evaluation of children with school, behavioral and handicapping conditions requiring testing and comprehensive evaluation.

5. Ambulatory Subspecialty Clinics. The outpatient clinic is the site for ambulatory subspecialty care in Pediatric hematology/oncology, endocrinology, gastroenterology, infectious disease, special nursery follow-up (high risk neonatal intensive care), nephrology, pediatric orthopedics, pulmonary, and dermatology.

6. Immunizations. The pediatric clinic staff

provides all immunizations for children at the clinic

7. Laboratory Services. The pediatric staff draws blood on site at the clinic from all pediatric patients seen at the clinic.

As the Chief of the clinic, Dr. Walker is faced with the competing priorities of the variety of specialists and functional necessities competing for his resources. One of the critical concerns of the clinic staff and administrators is clinic space. There is not enough room in the clinic to meet the needs of the diverse pediatric elements all at the same time. Dr Walker must further balance the priorities of acute care patients with the continuing needs of non-acute care patients requiring long term patient care. He must further assess the medical priorities of patients with the demands of GME to provide training to students, residents, and fellows. As Dr. Walker explained (February, 1992) the clinic in a sense exists in order to have a training program.

In order to meet the needs of the multiple pediatric operational elements, Dr. Walker has developed an innovative computerized spreadsheet to provide operational space to the various function components delivering pediatric care. This format of

providing care to patients in specified blocks of time may have an impact on patient satisfaction. Even though the pediatric clinic runs an acute care clinic throughout all ten blocks of time during the week, the large proportion of follow-up and specialty outpatient care may translate into patients expressing frustration with not being able to seek care at a time most convenient to them.

In terms of assessing the relationship of the structure and function of outpatient pediatrics at WRAMC to patient satisfaction, it was desirable to assess convenience from a patient perspective, especially clinic availability. Convenience as a component of access to care is one of the most important determinants of patient satisfaction (Cleary & McNeil, 1988, p. 29). It was further desirable to key on the technical competency from a patient perspective due to the teaching/training nature of this program. According to DiTomasso and Willard in their article, "The Development of a Patient Satisfaction Questionnaire in the Ambulatory Setting" (1991):

"Satisfaction-related factors are probably more critical in medical education sites, such as family practice residencies. Many

residency patients are by definition treated by unseasoned practitioners. The medical encounter, a primary source of patient satisfaction depends on skilled interviewing that is frequently lacking in the novice practitioner" (p. 127).

Processes of Care

In order to obtain a clearer picture of the satisfiers and dissatisfiers of care at the pediatric clinic, it is important for the researcher to obtain a thorough understanding of the processes of care from the pediatrics customer's perspective.

Dr Donabedian in his article, "The Quality of Care; How Can It Be Assessed?" (1988) discusses the process of care as including the patient's activities in seeking care and carrying it out as well as the practitioner's activities; he further describes the structures of care as the attributes of the setting in which care is received (p. 1745). Through analysis of these processes of care, the researcher will attempt to identify the structural impediments to care and potential dissatisfiers built in to the patient care journey.

The Medical Appointment. The first step in the patient care journey is the medical appointment. In order to access care in the pediatric clinic, the patient who needs care at the WRAMC pediatric clinic falls into one of five different categories, some of which have overlapping elements based either on their patient status or portal of entry:

1. New Patients. This category includes all patients to be seen for the first time in the clinic. This category includes anyone who is seen for a new incident, even though they may have been seen previously for care at the clinic.

2. Walk-in Patients. These are patients who actually physically come into the clinic for care, normally acute care. This category includes pediatric emergency room patients who come in during the hours of 0745-1630 during the week. Walk-in patients normally are seen in the acute care clinic, a sub-clinic on general pediatrics, staffed by 2 medical students and overseen by a pediatric physician. Both Ms. Williams and Dr. Walker noted that, in contrast to civilian pediatric clinics, walk-in patients in their clinic are seen very quickly, due to the use of the acute care clinic as a teaching/training forum. This area may be

a particular satisfier of care to be examined through the survey process.

The importance of a potentially unusual satisfier such as ease of last minute access should not be understated. In their article, "Dimensions of Patient Attitudes Regarding Doctors and Medical Care Services, Ware and Snyder comment that many attitudinal measures appear to have complex factor content (1975). Measures of attitudes toward access may also reflect attitudes toward doctors to some degree. They go on to state that, "It appears that, to a certain extent, patients generalize their favorable or unfavorable attitudes regarding their physicians and health services characteristics" (p. 679).

3. Same Day Patients (Appointments). This category of patients generally comprise the same acute care patients seen in the walk-in clinic. The two main differences between same day patients and walk-in patients is that (1) same day patients make their appointment by phone, and (2) same day patients will receive a scheduled appointment with a physician.

As in most modern day clinics, the pediatric clinic and all clinics at WRAMC are telephone-appointment driven. Furthermore, WRAMC has implemented

the Composite Health Care System (CHCS), a local area network of computer software and hardware that contains an appointment module allowing clinic appointments and scheduling to be conducted by clinic front desk personnel at a CHCS terminal. These same day appointments are scheduled through scanning physician appointment availability in the CHCS module and making that appointment. In many cases these physician blocks may not be available for the same day that the patient calls, in which case the patient is encouraged to make an appointment for the next day, or if the case is a true emergency, come in on a walk-in basis.

According to Ms. Tross, the patient also has the option of speaking with one of the clinic nurses, but that option is not a standard feature of the appointment process for front desk personnel. The lack of an "advice nurse" as an integral clinic concept may be a potential dissatisfier to those patients who have received civilian care from organizations such as Kaiser Permanente, who have utilized this concept to control utilization and increase patient satisfaction (Interviews with COL (RET) Carshal A. Burris, Medical Facility Administrator, Springfield Center, Kaiser Permanente of the Mid Atlantic States, Springfield,

Virginia, January, 1992).

4. Follow-up Appointments. These appointments apply to cases such as 10-day ear infection rechecks or other regularly scheduled appointments for follow up care. These appointments are normally made by the front desk personnel on the CHCS system prior to the patient leaving the clinic.

5. Specialty Appointments. These are patients scheduled for outpatient care with any of the various pediatric specialists who work into the pediatric clinic during their scheduled blocks of time. As previously noted, due to the volume and variety of specialists, the time frame during which patients in this category can make their appointments is going to be limited. This limitation may be a potential dissatisfier in the access arena.

Congruent with these five categories of care is the adolescent clinic which medically treats their patients separately, but utilizes the overall pediatric format and front desk assets for scheduling purposes.

Access to the Clinic. Once the pediatric appointment is made the patient must access the pediatric clinic in the hospital. Walter Reed is an

urban campus in the northwest quadrant of Washington DC. All pediatric care is provided on-site at the hospital; there are no outlying clinics to provide convenience to the beneficiaries in the Walter Reed catchment area. However there are other sources of pediatric care for military beneficiaries in the WRAMC hospital catchment area to include The National Naval Medical Center (Bethesda, Maryland), Malcom Grow Air Force Medical Center (Andrews Air Force Base), DeWitt Army Community Hospital (Ft Belvoir, Virginia), and Kimbrough Army Community Hospital (Ft Meade, Maryland).

None of these medical facilities provides the comprehensive level of services that WRAMC pediatrics provides, but may provide a local alternative for minor acute care illnesses, in effect screening out those patients who may be dissatisfied by a long, arduous city drive if no other alternatives for care existed. In the future, local military beneficiaries may not have the luxury of picking and choosing their site of care, as the Department of Defense moves to Coordinated Care with mandatory enrollment (Mendez, 1992). The impact on this research may be an overestimation of the true level of satisfaction with this element of access.

In contrast to the potentially difficult travel to

Walter Reed by car, public transportation in the Washington DC area is abundant either by bus or by metrorail. There are public buses that stop outside the front and back gates of Walter Reed (a short walk to the hospital, but potentially difficult with small, sick children in tow) and there is a shuttle bus that picks up and delivers WRAMC customers and workers to the Takoma Park metrorail station every half-hour and every 15 minutes during rush hour (0630-0900 hrs and 1600-1800 hrs, monday through friday).

One potential source of dissatisfaction in the access arena is parking. WRAMC sees over 3,000 outpatient visits per day (WRAMC Command Briefing, Mar, 1992). Combined with the 600-800 inpatients per day and their visitors, parking in the one multi-level parking garage can be an intimidating feat. Even though it is rare that the patient garage of 1,489 spaces is full, it may take up to one-half hour from the time a patient enters the garage to the time he enters the pediatric clinic. There is a strong potential for many patients to underestimate this block of time in their planning process; all of the pediatrics personnel interviewed indicated that this issue was a source of potential dissatisfaction.

Medical Records. Prior to patients coming to the clinic, they must pick up their medical records at outpatient records. Pediatrics is located directly across from outpatient records on the first floor, minimizing the time-distance process to arrive on time for patient appointments. However, of particular note in the records retrieval process, is that patients sign out their medical records from outpatient records and are responsible for returning those records to outpatient records following their appointment. According to Ms Williams the process of patient responsibility for their records is due to the scope and variety of specialty clinics that work out of the pediatric clinic; many patients have multiple appointments in a fairly short span of time, impeding the ability of the pediatric medical records clerks to establish control and accountability over patient records and still allow providers access to those records.

Ms. Williams further noted that this lack of accountability for medical records by pediatrics has led to missing records or incomplete records when patients return to the clinic for care, creating the potential for patient dissatisfaction as providers

without charts attempt treatment without complete historical data; laboratory and radiological test results may have to be searched for or the tests redone.

The Clinic Process. When patients arrive at the pediatrics clinic (between 0745 and 1630 hrs Monday through Friday) all patients check in at the front desk. Two medical records personnel staff the front desk throughout the day. These personnel pull up the patient appointment on the CHCS daily appointment listing and log it in as an arrival on the computer. The patients are checked for the presence of medical records and then take a seat in the waiting area. The pediatric clinic and the adolescent clinic have two separate waiting areas. The waiting area for pediatrics is spartan in nature with rows of inexpensive metal/plastic chairs laid out on a tiled floor facing a television set. Due to space restrictions there are no toys nor play area for the children to amuse themselves; there is a row of child sized chairs to sit in and watch television. Next to the television there is another viewing system called Healthlink Programs for Healthy Living that plays

appropriate lifestyle and health features for adults during the midday hours when cartoons are not available on non-cable channels. The waiting area is brightly painted with some interesting decorations for children to look at -- provided by the personal effort and expense of the clinic staff. There are approximately 60 chairs in this waiting room area. The adolescent waiting room is an enclosed separate carpeted room off of the main waiting area with its own television set.

According to Ms. Williams, the two waiting areas are rarely full. However, the lack of space for child amusement activities may have an impact on patient satisfaction. Spitzer, in her article, "Meeting Consumer Expectations" (1988), reports that the consumers perception of quality in health care may in fact be more related to aesthetic judgement than to any sound value estimation (p. 32). Shortly after the patient arrives in the waiting area one of the nurses will call the patient to a brightly lit and child-like decorated examining room to check the patient's vital signs (temperature, pulse, blood pressure and respiration) and take the patient's height and weight. According to Ms. Tross, this triage opportunity provides the nurses an ability to see the patient and

identify those patients in need of immediate care.

According to the observations of the researcher during January and February 1992, the time from the patient entering the waiting area to the time the patient was first called to triage was usually from 3-5 minutes. The patient then returns to the waiting area to wait for the appointment to see the physician. This process usually took from 5-15 minutes.

After seeing the physician, either blood can be drawn in a separate room in the pediatric clinic or the physician will order their prescriptions through the CHCS Pharmacy module. The pediatric clinic will provide a hard copy to the patient of his prescription and the prescription will concurrently be sent via CHCS to the pharmacy. According to Dr. Walker and Dr. Lampe, the pharmacy in the past has been a big source of patient dissatisfaction through lost prescriptions, patient waiting time, and a lack of clarity about the pick-up process from the pharmacy. The very nature of having to wait for a prescription with children after a 30-45 minute appointment process lends itself to patient dissatisfaction. In his treatise, "Quality Assessment and Assurance: Unity of Purpose, Diversity of Means" (1988) Dr. Avedis Donabedian notes how

satisfaction or dissatisfaction reflects the patient's judgement on all aspects of care, and how richer levels of communication between provider and patient result in higher satisfaction (p. 180). The importance of Donabedian's comments in this instance is that patient satisfaction/dissatisfaction with the pharmacy process may appear, not only as a structural critique, but as a critique of the technical processes of care, or satisfaction with providers' interpersonal skills.

In summarizing the concerns of the key pediatric personnel regarding patient satisfaction some issues continually surfaced:

1. Space. There is not enough space to meet the variety and complexity of needs and specialties that operate out of the pediatric clinic. Not only does the clinic provide space for the majority of pediatric specialties for outpatient care, but it also provides dedicated space to the pediatric hematology/oncology clinic, further straining tight resources. Ms. Tross's office doubles as an isolation room for children with infectious illnesses and Ms. Williams, the Clinic Administrator, has no office of her own. The clinic must further provide space to conduct blood drawing functions and immunizations, both of which in other

medical settings are not conducted in the pediatric clinic. Also, most pediatric specialists do not have dedicated space in the clinic and must personally work out arrangements for space if they need to see outpatients during unscheduled times, as there are usually no free rooms available. Ms. Tross also pointed out that with the advent of magnetic resonance imaging (MRI) as a regular diagnostic tool, children must be sedated one and one-half to two hours prior to testing. As an outpatient procedure it is the responsibility of the pediatric clinic to administer the sleep medication and provide a sleep room for the children, further straining tight resources.

2. Parking and Access. The experiential base for the personnel this researcher interviewed is that parking and access is a potent dissatisfier for the pediatrics clinic.

3. Impacts of Technology. As diagnostic tools such as MRI and more complex blood tests and diagnostic procedures become available on an outpatient basis, the impact on the patients is more complex, time-consuming work-ups and longer patient waiting times.

4. Graduate Medical Education. As a training program, the experience level of providers may impact

on patient satisfaction; the results of this inexperience may be demonstrated through a lack of confidence in the technical quality of care or the communication aspects of care, even though no patients leave the clinic without having seen a physician.

Survey Methodology

In determining how to proceed in the data gathering portion of the methodology, the researcher had to examine the constraints on the research process. One main constraint was time to complete the research. Surveying provides a versatile, efficient and economical technique of data collection (Emory, 1985) and will allow necessary and representative information to be collected in a reasonable amount of time, leaving time to critically analyze the data.

Given the fixed time schedule of the second half of the Residency year, the researcher could not make an open ended commitment to data gathering and observational studies. Having selected survey research as the tool of choice for gathering data, the researcher looked at a retrospective mail questionnaire versus a clinic-site questionnaire. As Kerlinger points out in his book, Foundations of Behavioral

Research (1986), the mail questionnaire has two serious drawbacks in collecting data, lack of response (returns of 40-50% are common) and inability to validate that the response received is from the targeted subject. As a result of these low returns, valid generalizations cannot be made. The best advice would seem to be not to use mail questionnaires if a better method can be used (p. 380). LTCDR Rooney's experiences with his research in terms of poor response rate was very much in line with Kerlinger's comments with a response rate of 28% in his initial mail questionnaire efforts (Rooney, 1985).

In order to collect enough useful data efficaciously, the researcher determined that a prospective cross-sectional survey on-site at the clinic would be an effective means of obtaining a good response rate from a representative sample of the beneficiaries of care in a reasonable time period (Marks, 1982).

Survey Selection

In order to select a survey instrument, the investigator first examined the ability of the instrument to address key questions concerning the

structures of care, such as ease of getting an appointment and accessibility, and the processes of care, such as the technical aspects of care and the interpersonal aspects of care (Cleary & McNeil, 1988).

Secondly, the survey selection process evaluated question construction, insuring that wording, content, the response structure, and question sequence are appropriate (Emory, 1985) for the military dependent, many of whom are relatively young and have been educated only through high school.

Third, the selection process explored the ability of the instrument to identify selected sociodemographic characteristics that may provide value in explaining perceptions and attitudes towards care. Preexisting health experiences, education levels, age, social class and race may provide insights into patient perceptions and responses (Cleary & McNeil, 1988).

Another key component of the survey selection process, was that the instrument selected was statistically valid and reliable. According to Kerlinger (1986) nothing seems more natural when observing (or collecting data on) behavior than to believe we are measuring what we say we are measuring. However, when the burden of evaluating the data is put

on the observer, validity as well as reliability may suffer (p. 488). As Ware et al. pointed out (1976), their research unveiled a startling absence of information regarding the reliability of scores computed from questionnaire items used in satisfaction surveys. Therefore, for many studies there was no reason to assume that responses reflected more than random error (p. 2).

Some additional practical considerations in selecting the instrument were its: applicability to outpatient medicine; ability to be obtained in a timely fashion from the source; ability to be replicated and modified to be situation specific at low to no cost; translatability to the military setting; and "approvability" to the Chief of Staff of WRAMC and the Department of Pediatrics.

In further assessing the determinants of a patient satisfaction questionnaire, Ware et al. (1976), after looking across the spectrum of patient satisfaction questionnaires, arrived at 7 hypothesized groupings or content areas to encompass the structures and processes of care. These areas were (p. 181):

1. Accessibility/Convenience
2. Availability of Resources

3. Comprehensiveness
4. Continuity of Care
5. Financial
6. Doctor Conduct
7. General Satisfaction

The researcher examined the potential surveys for my research to address the above content areas.

The survey selected was a patient satisfaction survey utilized by Dr. A. David Mangelsdorff, U.S. Army Health Care Studies and Clinical Investigation Activity, under the auspices of Headquarters, Health Services Command (HSC). This instrument was originally the Group Health Association of America (GHAA) Consumer Satisfaction Survey, modified by Dr. Mangelsdorff with the permission of GHAA in 1989 to survey potential users of DOD medical treatment facilities (Mangelsdorff, 1991). The survey was used in research conducted in 1990 and 1991, in which surveys were mailed to 9,200 eligible military beneficiaries (the same population this study draws from) at 38 Army medical treatment facilities.

The survey instrument used by Mangelsdorff is 69 questions long, consisting of 34 rated items using a 5 point Likert scale, with one additional scale point

added of "Have Not Used" (scored as a missing value), and 35 demographic questions. Reliability estimates in the content areas were in the quite acceptable range of from .844 to .954 for coefficient alphas, which measure internal consistency (Mangelsdorff, 1991, p. 4).

Content validity was established through a comparative analysis of the ten GHAA content categories of access, finances, technical quality, communication, choice and continuity, interpersonal care outcomes, overall quality, time spent and general satisfaction (Mangelsdorff, 1991, p. 1). These item-content areas are in congruence with the structures and processes of care as previously established through the literature (Ware et al., 1976). The Mangelsdorff survey was previously utilized as a mail-out questionnaire to randomly selected eligible beneficiaries of the military health care system.

This survey was chosen for its applicability to the military through proven usage; the construction of its questions which are appropriate for the outpatient setting; the strong reliability as evidenced through more than acceptable coefficient alphas; the scope of its' content validity and congruence with the literature; and the variety of socioeconomic and

sociodemographic questions which permit varied analysis.

Prior to administering the instrument, with the approval of Dr. Mangelsdorff, the researcher further modified the instrument to focus applicability on outpatient pediatrics at WRAMC. The majority of modifications consisted of eliminating demographic questions that were outside the scope of the present study. One item-content question was added to elicit information on satisfaction with civilian outpatient pediatrics. As a result, the questionnaire total length was reduced from 69 to 48 questions, potentially minimizing respondent fatigue, a source of random error.

The Survey Pilot

In order to determine to the satisfaction of the researcher whether the selected instrument in its current format was going to be a viable instrument, a pilot study was conducted at the pediatric clinic in February, 1992. Emory and Cooper in their book, Business Research Methods (1991) relate the importance of testing to detect weaknesses in design and implementation (p. 88). The pilot was conducted as a

two-pronged approach.

First the survey was provided to an expert panel of pediatric physicians including Dr. Lampe, Chief, Department of Pediatrics and Dr. Walker, Pediatric Clinic Chief. These individuals and other pediatric staff provided written and verbal feedback on their assessment of how well the instrument would measure the facts, opinions, and attitude of their patients in the clinic. Their critical comments impacted on the final wording of some questions, and provided a physician's perspective regarding the patients ability to assess the accuracy of diagnosis.

Emory and Cooper emphasize the importance of the pilot test drawing subjects from the target population and simulating the procedures and protocols that have been designated for data collection (1991, p. 88). Therefore, the second part of pilot testing the instrument was to have respondents complete the survey under the same conditions with which the final survey would be given. Pediatrics front desk personnel were requested to give the survey to 20 patients over a two day period, as the researcher observed the survey process, interviewed a sampling of the respondents, and analyzed the results.

The researcher's first main conclusion impacting on the implementation of the final survey was that the survey was too long to be completed comfortably on-site at the clinic. Based on a sample of 5 respondents, a mean time of 20 minutes was required to complete the survey with one respondent taking 35 minutes and many remaining at the clinic after their appointment was complete in order to finish the survey. The researcher felt that the survey process was too rigorous in length for pediatric parents/guardians who have the added burden of watching their children while trying to participate in the survey process. Nonetheless, pilot respondents generally found the survey easy to understand and expressed positive opinions regarding being surveyed at the clinic.

The second conclusion, drawn from analysis of pilot survey results, was that many of the questions were not applicable to this patient population. For example, questions in the access arena regarding specialty care (30% responded they have not used), hospital care (30% responded they have not used) and emergency care (20% responded they have not used) were all answered at greater than 20% for Have Not Used. A staggering 50% of the respondents indicated that they

had not utilized civilian pediatric services. According to Kerlinger (1986, p. 380) every effort should be made to obtain returns of at least 80-90 percent; low rates of return equal an inability to make valid generalizations.

Given the need to shorten the instrument and the potential for poor responses on a number of questions, the researcher chose to drop all questions with a non-response rate of 20% or greater in the pilot. The researcher also chose to delete a three question block on outcomes as outside the original scope of this research. A final scrub of the content items led to the researcher deleting the "opposition response set (ORS)" contained in questions 33-36. The research of Ware et al. (1976, p. 145) did not indicate a high correlation between lengthy surveys and an inattention to response sets as potentiated by this section. The researcher felt that the data offered through the other response sets would more that offset the reliability-check of these questions of opposite tendencies.

In further addressing the survey length, the sociodemographic and socioeconomic questions were reevaluated for retention in the final product. The four demographic questions that were retained to serve

as proxy indicators for socioeconomic and sociodemographic characteristics were: (1) rank (the higher the rank, the higher the income group); (2) marital status (a married family provides for stability and in many cases two incomes); (3) beneficiary status (active duty/active duty dependent vs retired or widowed provides a generalizability about age groups, norms, and lifestyles); and (4) visits, as an alternate variable to be assessed if there is no variability in the main demographic factors: (the unique nature of multiple specialty services providing services from the clinic may lend insights into the satisfaction of acute care patients vs chronic care patients).

The final revision to the survey resulted in a 30 question questionnaire (See the Appendix for a copy of the resulting pediatric satisfaction with care survey). The survey was recrafted around three broad content areas: (1) Technical Quality; (2) Access to Care; and (3) Interpersonal Care. A global question was added to each content area to allow the researcher to assess representativeness in each content area and to utilize these three sub-global questions for multiple regression analysis of the final results. 63 percent of the content questions from the Mangelsdorff survey

were retained in their basic original form.

The last content change to the survey was to return the survey to the original GHAA format of 5 scale points by removing the 6th scale point "have not used". The original HSC survey utilized as the basis for this research was a retrospective survey effort that addressed a wide range of medical and demographic topics across 38 Army medical treatment facilities. The researcher felt that the narrowed scope of the questions in the final version of the questionnaire was reflective of content areas that almost all customers of outpatient pediatrics at WRAMC would have had exposure to, negating the necessity to provide an option to not address the question. There was also evidence in the pilot study that respondents were confusing the "have not used" scale point with the "excellent" response that normally frames that far right spacial position on many surveys.

Ethics

The surveys were carefully prepared to preserve anonymity of the respondents. There was a statement in bold letters on each survey, both in the pilot and in the final instrument that stated "DO NOT PUT YOUR NAME

ON THE SURVEY; YOUR HONEST ANSWERS WILL BE USED TO IMPROVE THE OVERALL QUALITY OF CARE AT THIS CLINIC AND WILL IN NO WAY AFFECT YOUR VISIT TODAY". None of the respondents personally approached in the pilot for information regarding the utility of the instrument was asked to provide their name or other potentially incriminating information; none was contacted for follow-up information.

Data Collection

The data collection process was structured to obtain a representative sample from the target population, eligible beneficiaries of the Military health care system who utilize WRAMC's pediatric clinic. This population includes parents/guardians of dependent minors up to age 22 (if still actively attending College) who are active duty, spouses of active duty, retirees and their spouses, separated spouses with eligible dependent children, divorced spouses with dependent children and widowed spouses of active duty or retirees with dependent children. The demographics of the respondent sample were assessed through questions 29 and 30 of the final survey (See Appendix).

In determining the sample design, the researcher strove to reduce systematic variance in sampling procedures. The goal was to obtain a sample representative in size and scope that reflected the parameters of interest (Emory and Cooper, 1991). The scope of the sampling effort would need to insure coverage of the users across the spectrum of specialty clinics that work out of the pediatrics clinic.

In determining the size and duration of the sampling effort, the researcher examined the monthly number of clinic visits, the time constraints of the researcher, and the time constraints of the pediatrics front desk personnel. Gross clinic visits are computed by the DRM each month. Most data collection and reporting efforts are reported on a monthly basis through the CHCS Medical 302 Reports (DRM, April, 1992). In order to assess the validity of the collection effort the surveys were distributed and collected within a single month time span, over a period of three weeks in March, 1992 (11 March - 31 March). The monthly clinic visit statistics for the collection effort will be compared and be within one standard deviation of the mean number of clinic visits for the preceding months in Fiscal Year 1992 (Oct,

1991-Feb 1992). To accomodate the monthly schedule of clinics and to complete the research process in a timely fashion, the researcher, in consultation with the Chief of the pediatric clinic, Dr. Walker, made the decision to limit the data collection effort to one month. One further constraint on the size of the sampling effort was availability of pediatric clinic front desk personnel. These personnel were a critical element in the data collection process due to their direct interface with the surveyed population and responsibility for distributing and collecting surveys. Personal observations by the researcher demonstrated that these personnel were very busy when patients were accessing the clinic, verifying and making appointments and insuring that patients were briefed on their appointment process. Clearly, too large a survey load would have caused the data collection process to be burdensome and may have corrupted that process. In consultation with Ms Williams, the clinic administrator, it was decided that a maximum of 10 surveys per block of time (morning or afternoon) would be a reasonable load for her personnel.

Given the listed constraints of both size and scope, the researcher determined to conduct modified

proportional sampling of the pediatric clinic, distributing 210 surveys at the pediatric clinic over a period of three weeks in March, beginning on 11 March and concluding on 31 March 1992. The surveys were proportionalized over the collection period by distributing 7 surveys in each of the 10 patient care blocks, Monday through Friday during that time frame. This proportional distribution of surveys in effect randomized the collection effort across the spectrum of scheduled clinics and acute care patients, and effected a representative sampling of the those clinics scheduled on a regular basis.

In determining the conduct of the sampling on-site at the clinic, the researcher was aware that there was a trade-off to be made between reducing sampling bias through probability sampling versus the personnel operational constraints of front desk personnel at the clinic. The operations of the front desk personnel at the clinic are such that multiple patients are being inprocessed by the two to three personnel working there. There are also phone answering activities and making of future appointments all taking place at the same site by the same personnel. The researcher strove to find a middle ground between true systematic

probability sampling, where there would be a random start and the survey process would continue with a respondent selected every 3rd, 4th, 5th etc., individual based on a random number, versus nonprobability sampling which introduces a greater measure of error into the sampling process (Emory and Cooper, 1991, pp. 264-275). The determination was made to assign two clipboards to the clinic, one to go with each survey given to a respondent. The respondents would instruct the respondents on the purpose and conduct of completing the survey and when the clipboard was returned to the front desk, a new survey was attached to it and given to the next patient in the queue. This convenience nonprobability sampling had systematic elements built into the process reducing sampling error, even though the sampling was not statistically random.

Restated Hypotheses

The following hypotheses were tested by this research effort:

H1: There is variability in patient
(parent/guardian) satisfaction with care at
the WRAMC pediatric clinic, based on

satisfaction with the technical quality of care, the access to care and the interpersonal skills of the pediatric clinic personnel at WRAMC.

H2: There is variability in patient (parent/guardian) satisfaction with care at the WRAMC pediatric clinic based on the socioeconomic and sociodemographic factors of the beneficiary population.

Statistical Methods

In this study the data off of the completed surveys were statistically analyzed utilizing the psychometric, descriptive and inferential analyses outlined below.

Reliability and Validity. Reliability and validity are the two major problems of measurement (Kerlinger, 1986). To the extent that the data measurement contains error, the analysis of that data's dependability is called into question.

Reliability refers to consistency, dependability, and predictability. As Emory (1985) and Soeken (1985) point out, reliability or internal consistency is

necessary for, but not sufficient condition for validity. This study represented reliability utilizing the homogeneity index of Cronbach's Alpha (Cronbach, 1970) which correlates rank orders and compares all variables within the domain in question. The reliability coefficient of greater than or equal to .7 was used as a standard measure of reliable results. Reliability was assessed across the three measured domains in question: technical quality, access to care, and interpersonal care.

Validity is a measure of the accuracy of measurement, or is the instrument measuring the construct, idea or attitude in question (Sims, 1981). In reviewing the literature there are a number of types of validation measures to include construct related evidence, criterion related evidence and content related evidence. There are no clear and distinct lines of distinction between the types of validity.

The questions that make up the tool for this study were previously utilized by Dr. Mangelsdorff in the HSC Study (Mangelsdorff, 1991). A majority of the questions were retained in their original form in order to provide a means of establishing the concurrent validity of those questions through a comparative

analysis of the mean scores of those questions.

A second perspective on the validity of the questionnaire is the face validity or expert validity that was established through empaneling the pediatric physicians to review the instrument and appraise its utility to assess the satisfaction constructs of their patients. Except for minor recommendations, these physicians approved of the survey's utility.

The results obtained from the data analysis were validated by assessing concurrent criterion validity. Correlating the responses in each individual construct to the overall satisfaction question in that same construct provided insight into the predictive ability of the instrument and its component questions. Significance in assessing concurrent criterion validity was measured against an alpha level of .05 as computed by the statistical software, Microstat.

In assessing the reliability and validity of the four demographic questions, they were measured as independent variables; each was correlated with the overall satisfaction question to determine whether there was a statistically significant relationship. Descriptive statistics of the survey respondents were computed to analyze means and standard deviations for

all questions.

Descriptive Statistics. Averages and standard deviations were computed for all item responses to the survey. Through use of the Microstat program all non-responses were treated as missing data and did not impact on the direction and magnitude of the means and standard deviations; location and degree of missing data are reported in the Results section of this research.

Inferential Statistics. Inferential statistics were computed for each construct area, utilizing a randomized blocks analysis of variance (ANOVA), arriving at the error, degrees of freedom, and F scores, while testing for significance at a probability of less than or equal to .01 by subject and item. Cronbach's Alpha was then computed for the three domains in question.

Validity was computed by correlating the items in each construct area with the sub-global question in each construct area. The four demographic questions were correlated against the measure of overall satisfaction.

If reliability and validity were established for each construct area, the global questions of satisfaction with technical quality, access to care, and interpersonal care were correlated with the item scores for overall satisfaction with care at the WRAMC pediatric clinic in order to further describe and predict the shared variance between each construct area and overall satisfaction.

A multiple regression analysis was then performed utilizing overall satisfaction as the dependent variable (Y), and overall satisfaction with technical quality (X1), access to care (X2), and interpersonal care (X3) as the independent variables. This statistical analysis yields coefficients of determination which indicate the individual contribution of each independent variable to prediction of the dependent variable.

If any of the demographic variables correlated with overall satisfaction, such that there is a 95 percent probability that the correlation was not due to chance alone, regression analysis was conducted on those significant demographic variables.

In reporting the results priority attention was given to statistically significant relationships and

the direction and magnitude of those relationships.

Results

The data collection process was completed on 31 March 1992. Out of the original intent to distribute 210 surveys, 203 were distributed and 142 surveys were completed and returned for a return rate of 70 percent.

Out of the returned survey's 4,260 potential data points, there were 39 unanswered questions for a rate of less than 1 percent. Question number 13, the availability of medical information or advice by phone, was the question with the largest non response rate at 11 percent. Table 1, Descriptive Statistics, displays the means and standard deviations for each item in the questionnaire.

INSERT TABLE 1 ABOUT HERE

Construct Items

Questions regarding technical quality demonstrated the most favorable ratings at a grand mean of 4.08 (very good to excellent) for that construct area, with questions regarding access demonstrating the least favorable ratings at a grand mean for that construct

area of 3.34 (good to very good). The question with the most favorable rating was the global question of overall satisfaction with care (question number 1) at a mean of 4.12 (very good to excellent) and question number 17, friendliness and courtesy shown to you by doctors and medical staff, with the same mean rating of 4.12. The lowest rated item was satisfaction with parking (question number 9) at a mean of 2.29 (fair to good) -- almost 2 full scale points below the highest rated questions and close to one and one half scale points below the grand item mean at 3.75.

Demographics

Frequency distributions of the respondents indicated that a typical respondent was a married (76 percent) dependent of an active duty service member (54 percent). Typical responses for the rank of individuals surveyed (or their sponsors rank) conveyed a population that was either an Enlisted Specialist or Sergeant (35.51 percent), or an Officer at the rank of Captain or Major (24.64 percent). The typical beneficiary had visited the clinic 2-4 times (36.62 percent).

INSERT TABLE 2 ABOUT HERE

Inferential Statistics

Reliability. In order to assess the reliability of the results Cronbach's Alpha was calculated for each of the item construct areas of technical quality, access to care, and interpersonal care (See Table 3: Reliability). All subject and item scores were significant at a probability of less than or equal to .01 by subject and item across the three construct areas except for the item scores for technical quality $F(4,564) = .423, n/s$. Even though technical quality scores were uniformly high there was a lack of variance among the item scores in this domain. However the Cronbach's Alpha for each area was significant at .92 for technical quality, .85 for access to care and .96 for interpersonal care.

INSERT TABLE 3 ABOUT HERE

Validity. All of the items scores were intercorrelated in order to assess concurrent criterion validity. For the three construct areas, all of the

items scores achieved statistical significance when correlated against the item scores for overall satisfaction question in each area (See Table 4: Validity) at a critical value of $\alpha=.05$.

INSERT TABLE 4 ABOUT HERE

Correlation and Multiple Regression. The three construct area satisfaction questions all correlated well with the global satisfaction question with overall satisfaction correlating with satisfaction with technical quality at .84, overall satisfaction correlating with satisfaction with access to care at .60, and overall satisfaction correlating with satisfaction with interpersonal care at .70 (See Table 4: Validity).

Through multiple regression analysis, the hypothesis that overall satisfaction with WRAMC pediatrics is a function of the technical quality of care, the access to care, and the level of interpersonal care provided, was tested utilizing the highly correlated proxy variables of satisfaction with each of those constructs. By utilizing multiple regression of the full regression equation (overall

satisfaction = a constant + satisfaction with the technical quality of care + satisfaction with the access to care + satisfaction with interpersonal care provided) and then testing for each effect by holding constant the other two constructs an omnibus test was constructed. Correct F scores and Probabilities were recalculated utilizing the proper Degrees of Freedom. The full model contributed 64.78 percent predictive efficiency towards being an effective predictor of overall satisfaction. As tested effects contributing to being a reliable predictor of overall satisfaction, satisfaction with technical quality provided 62.65 percent predictive efficiency, satisfaction with access to care provided 34.40 percent predictive efficiency and satisfaction with interpersonal care provided 46.49 percent predictive efficiency.

INSERT TABLE 5 ABOUT HERE

None of the four demographic questions demonstrated significance at an alpha level of .05 and a Critical Value of +/- .19357 when correlated against overall satisfaction with care (See Table 4: Validity). The questions of visits (question number 27) and rank

(question number 28) were captured as ordinal data; this type of data is rank-ordered, but does not connote equal distances between the categories. The analysis of correlations for the two ordinal variables, were meaningful, but not significant. However, due to the nature of the way in which the demographic data was captured on the survey, the survey responses for marital status (question number 29) and beneficiary status (question number 30) needed to be dissected and transformed to obtain a meaningful analysis.

The question of marital status (question 29) was captured on the survey in essence as nominal data; basically the marital category for each respondent was captured, but this mutually exclusive, categorically exhaustive (MECE) data did not imply rank ordering or any numerical distance value between categories. The same situation was encountered for the question of beneficiary category (question 30).

In order to provide value to the responses, the data for questions regarding marital status and beneficiary category were recoded. For marital status, due to the large number of married respondents (76 percent), the data was recoded one if married, zero if otherwise. For beneficiary category, the four response

categories were recoded 1/0 with 1 representing the attribute being present and 0 representing the attribute being absent. In effect 5 new 1/0 variables were created in the data base and then tested for significance against the question of overall satisfaction.

At a critical value of $\pm .16654$, at an alpha level of .05, none of the recoded variables established that any differences would not be due to error alone when correlated against overall satisfaction with care (See Table 6: Recoded Response/Correlation Table).

INSERT TABLE 6 ABOUT HERE

Discussion of the Findings

In recapitulating the research effort to this point, the purpose of this study was to research and analyze whether there was variability in patient satisfaction in the WRAMC pediatric clinic based on the structures and processes of care, and whether there was variability in patient satisfaction based on patient sociodemographic and socioeconomic factors.

In conducting this research, through review of the

literature and consultation with advisors at WRAMC and the Academy of Health Sciences, the researcher utilized a patient questionnaire as the tool of choice to assess patient satisfaction. A thorough assessment of the pediatric clinic was conducted to assess its unique features and the limitations and constraints of conducting a survey of personnel who utilize that clinic. Given the time constraints and anticipated return rates for questionnaires, the researcher surveyed respondents on site at the clinic and attempted to receive responses from the spectrum of patients who utilize the pediatric clinic as their site of care for a variety of services.

The base survey selected, the GHAA survey modified and utilized by Health Services Command's Clinical Investigation Activity, covered the major content groupings as addressed in the literature, was applicable, and had previously been validated on Army beneficiaries, and was approved for modification by the leading survey researcher, Dr. Mangelsdorff. The survey was modified for use at WRAMC's pediatric clinic, pilot tested for its utility, redesigned to address the particulars of surveying on-site (the original survey had been a retrospective mail-out),

assessed by a physician pediatric panel and conceptually approved by the Chief of Pediatrics and the WRAMC Chief of Staff. The survey was administered in the pediatric clinic in March 1992.

Discussion: Survey Results

The return rate for the survey was 70 percent; this rate was higher than many retrospective mail-out efforts, but not as high as the 80-90 percent originally anticipated. Even though the length of the survey was reduced significantly from the pilot to the final document, some individuals may have found the effort difficult given the constraints of watching upset and ill children and multiple siblings. Also, throughout the survey period, given the level of activity at the front desk, the personnel were not always diligent about distributing the surveys, creating a source of error in the collection process.

The workload reported for the pediatric clinic for March 1992 was 2,926 patients seen as indicated by the MED 302 patient information collection reports. In assessing this figure, the mean patient load for pediatrics for fiscal year 1992 was 2,826 patients per month with a standard deviation of 383 patients. The

March figures fell within one standard deviation of the mean for fiscal year 1992, an indication that the sampling period was representative for the WRAMC pediatric clinic.

Therefore, this survey effort provided a reasonable basis for prediction, allowing the researcher to draw conclusions from the findings.

Discussion of Results: Descriptive Statistics

Overall the analysis of the surveys indicated a relatively high level of satisfaction with care at the pediatric clinic. The grand mean for all content items of 3.75 (good to very good) was almost .75 of a scale point higher than the results obtained by Dr. Mangelsdorff in his 1991 survey (p. 5). Interestingly, the mean comparison for questions across both surveys indicated almost a .5 scale point to the positive for the WRAMC pediatric surveys. This interesting result may be attributed to the high satisfaction of users who stay with the system versus those who have opted out for CHAMPUS care (not assessed by the pediatrics on-site survey) or may be attributed to the impact of being questioned at the clinic in contrast to the social desirability to answer negatively in the privacy

of home with the mail-out survey. These results alone may be promising grounds for further study. Some of the questions with low end answers on the pediatric survey such as clinic hours had similar ratings with the HSC survey (3.53 for the peds survey vs 3.42 for the HSC survey), but given the overall results, a comparable rating for a pediatrics item with the same item in the HSC survey, may connote an area of concern for WRAMC.

Another significant difference between the HSC survey and the pediatric survey responses was the make-up of the beneficiaries. The HSC survey reported 26 percent active duty, 12 percent active duty dependent, 39 percent retired and 23 percent retired/deceased dependents. For the pediatrics survey the respondent group had a make-up of 85 percent active duty or active duty dependent, a percent higher total for this population group. It is not unexpected given the nature of pediatrics. Also the rank structure clusters around E4/E5 and O3/O4 would also not be unexpected given that these ranks make up the bulk of the Enlisted and Officer populations. Overall, the demographics of the respondents from the pediatrics survey appear to be a representative make-up of the pediatrics population

group that utilizes the WRAMC pediatrics clinic.

Discussion of Results: Inferential Statistics

Reliability and Validity. The Cronbach's Alpha for the three construct areas of technical quality (.92), access to care (.85), and interpersonal care (.96) all significantly exceeded the reliability standard of .70 (See Table 3).

The validity of the item-content areas were well established by correlating the item scores in each construct area with the construct satisfaction question in each of those constructs. At an alpha level of .05 all correlations demonstrated that the results obtained were 95 percent likely not to be due to chance alone, providing concurrent criterion validity to the response set.

Given the positive statistical correlations through the data analysis process, Hypothesis 1 is not rejected, and the null hypothesis is rejected. There is variability in patient (parent/guardian) satisfaction as accounted for by the structures and processes of care, as reflected by the constructs of technical quality of care, access to care and interpersonal care.

Demographics. The four demographics questions regarding number of visits to the clinic, and rank, marital status and beneficiary group as proxy indicators for socioeconomic and sociodemographic status (The higher the rank, the higher the income group; married vs single with children or separated with children, married = income/family stability; active duty/active duty dependent vs retired or widowed providing a generalizability about age groups, norms and lifestyle) were correlated with the question of overall patient satisfaction. There were no statistically significant correlations regarding the demographics of the beneficiary population sampled and thus the results of this survey did not provide an ability to generalize any results regarding the relationship between patient satisfaction and the socioeconomic and sociodemographic factors of this beneficiary population. Furthermore, none of these four questions had any statistically significant correlations with the three sub-global construct questions regarding satisfaction with technical quality, access to care, and interpersonal care. Thus, Hypothesis 2 is rejected and the null hypothesis is accepted. There is no variability in patient

(parent/guardian) satisfaction with care at the WRAMC pediatric clinic based on socioeconomic and sociodemographic factors.

Discussion: Regression Analysis of Content Areas

Through correlation the sub-global questions of satisfaction with technical quality, satisfaction with access to care, and satisfaction with interpersonal care were evaluated as suitable proxy variables to positively represent each construct area in conducting an omnibus test of the full regression equation:

overall satisfaction = a constant + satisfaction with technical quality + satisfaction with access to care + satisfaction with interpersonal care provided.

The results indicated (See Table 5) that these three areas accounted for 64.78 percent predictive efficiency towards assessing overall satisfaction with care. As individual predictors, satisfaction with technical quality most closely predicts overall satisfaction with care (62.65 percent). However these results must be weighed against the overall lack of variation in the questions that made up the construct technical quality with care.

Conclusions and Recommendations

This research was conducted to assess patient satisfaction in the Walter Reed Army Medical Center pediatric clinic in order to: meet the coming regulatory requirements under JCAHO; provide better assessment of customer satisfaction using CQI; insure a primary care base that is satisfied with the services rendered; and better strategically plan for the future.

This study provided a good first step in exploring, refining, and validating a tailored instrument to assess patient satisfaction in a statistically significant and comprehensive fashion. Utilizing this instrument to assess variability in satisfaction with care in the WRAMC clinics, combined with the more extensive HSC survey (developed by Dr. Mangelsdorff) to assess variability in satisfaction among those beneficiaries who solely utilize CHAMPUS, may provide a total picture of how the beneficiary population in the WRAMC catchment area views WRAMC patient care services.

The higher scores reflected in the present survey in the area of satisfaction with technical quality, compared to similar questions in the HSC survey, may be an indication of the generally high level of specialty

care that is provided, suggesting that technical quality is a unique and more positive indicator of satisfaction for an institution that has a graduate medical education program with many subspecialties such as WRAMC.

The minimal impacts on overall satisfaction of the questions answered negatively, such as satisfaction with clinic location and parking, may also be an indication that the survey population has already "self-selected". In effect those who find travelling to WRAMC onerous may already have accessed the abundance of care available elsewhere in the area. However, the fact that a large percentage of the user population find structural attributes such as parking and clinic location unacceptable, provides the Executive Management an insight into patient perspectives as initiatives are undertaken to implement CQI.

Overall, the analysis of the survey results indicate that more study must be done to generalize the utility of this instrument as a reliable predictor and assessor of overall satisfaction with care. The fact that the mean overall satisfaction with care score provided the highest mean score of all questions, calls

into question the contribution value of any particular question or group of questions in the survey.

However, the lack of statistical variation in regards to the perception of quality of care within the beneficiary population, as defined by rank, marital status, and beneficiary group, reflects positively on the lack of bias in the rendering of care by the pediatrics staff. The researcher concludes that the pediatrics staff delivers quality care without regard to socioeconomic and sociodemographic factors, concentrating their focus on the clinical aspects of care.

The results from this study indicate a very high overall level of satisfaction with the WRAMC pediatric clinic, clearly overcoming any negatives attributed to structure and process. This satisfaction is not surprising given the expertise of clinic staff and specialists, and the ability of pediatrics to provide a full service operation of walk-in and same day care, immunizations, laboratory services and sub-specialty care all in one site.

The researcher recommends that:

1. The pediatrics survey instrument be further calibrated and utilized in order to more precisely

measure aspects of satisfaction, not only in pediatrics, but in the other clinics at large. This survey instrument, with its strength in assessing satisfaction with the technical quality of care, access to care, and interpersonal care, should be retained and enhanced. The further use of this instrument will provide a statistically validated tool for meeting JCAHO requirements to assess key components of patient satisfaction.

2. Continued study of patient satisfaction, using this and other survey instruments, will yield positive results, and an ability for the Executive Management at WRAMC to better define and detect areas of concern. This ongoing effort is a significant component of CQI, which must continually be utilized in order to define the essential changes needed to define quality and appropriateness of care. The pediatrics staff should be commended for their openness and willingness to strive for innovative change.

3. Additional studies need to be conducted on the demographics of the utilizers of outpatient pediatrics at WRAMC, in order to identify in a statistically significant fashion beneficiary groups with specific troubling concerns regarding satisfaction with care.

Continued efforts to understand potential variability within the beneficiary population, as yet unearthed by this study, is critical to maintaining and insuring a primary care base satisfied with the services rendered.

4. Additional studies need to be conducted on the CHAMPUS pediatric utilizers of care in the WRAMC catchment area, prior to making any stand alone decisions regarding how negative factors, such as parking and clinic location, impact upon the total beneficiary population.

5. A cost-effective analysis of this successful, comprehensive package of pediatric services (as indicated by the high degree of satisfaction with care) needs to be calculated and analyzed. Cost must be weighed against satisfaction prior to WRAMC's Executive Management taking action on any proposed revisions in the pediatrics service envelope. This cost-satisfaction analysis promotes a perspective of strategic planning into WRAMC's understanding of this important medical service, and allows the vital assessment of patient satisfaction to be utilized to its fullest potential.

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Tables

Table 1 - Descriptive Statistics

Table 2 - Frequency Distributions: Demographics

Table 3 - Reliability

Table 4 - Validity

Table 5 - Multiple Regression Analysis

Table 6 - Recoded Response/Correlation Table

Table 1

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DESCRIPTIVE STATISTICS			
SURVEY QUESTIONS	SAMPLE SIZE n	MEANS	STANDARD DEVIATIONS
1. OVERALL SATISFACTION	142	4.1197	.8207
2. THOROUGHNESS OF EXAM	142	4.0352	.8704
3. SKILL AND TRAINING OF PHYSICIANS	142	4.0986	.8192
4. THOROUGHNESS OF TREATMENT	142	4.0915	.8414
5. NURSING	140	4.0857	.8352
6. OVERALL SATISFACTION WITH TECHNICAL QUALITY	142	4.0704	.8476
7. WRAMC CONVENIENCE	139	3.3094	1.1969
8. CLINIC HRS.	139	3.5324	.9271
9. PARKING	138	2.2899	1.2393
10. PHONE APPOINTMENTS	137	3.5766	1.2760
11. CLINIC WAITING TIME	140	3.0643	1.0263
12. APPOINTMENT WAITING TIME	136	3.5515	1.0234
13. PHONE ADVICE	126	3.2619	1.1536
14. ACCESS ANYTIME	138	3.7246	1.0164
15. PHARMACY	132	3.2727	1.1263
16. OVERALL SATISFACTION WITH ACCESS	141	3.8440	.9280

Table 1

DESCRIPTIVE STATISTICS			
SURVEY QUESTIONS	SAMPLE SIZE n	MEANS	STANDARD DEVIATIONS
17. STAFF COURTESY	142	4.1197	.8710
18. PERSONAL INTEREST SHOWN IN WELL-BEING	142	4.0282	.9889
19. RESPECT FOR PRIVACY	141	4.0993	.8808
20. REASSURANCE AND SUPPORT	141	3.9929	.9449
21. COURTESY OF ADMIN. STAFF	142	3.7394	1.0797
22. TIME SPENT WITH PHYSICIANS	142	3.8732	.9883
23. EXPLANATION OF PROCEDURES	140	3.9786	.9706
24. ATTENTION TO PATIENT CONCERNS	142	3.9789	.9710
25. ADVICE ON PREVENTION	135	3.7185	1.0341
26. OVERALL SATISFACTION INTERPERSONAL CARE	142	3.9789	.9261
27. VISITS: LAST 12 MONTHS	142	3.4648	1.0496
28. RANK	138	9.1159	5.6051
29. MARRITAL STATUS	141	2.1631	.6827
30. BENEFICIARY CATEGORY	140	1.9571	.9125
GRAND MEAN FOR ITEM-CONTENT QUESTIONS (1-26) = 3.75			

Table 2

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QUESTION 27: VISITS TO PEDIATRICS CLINIC IN LAST 12 MONTHS		
RESPONSE	FREQUENCY	PERCENT
1 VISIT	24	16.90
2-4 VISITS	52	36.62
5-9 VISITS	38	26.76
10 OR MORE VISITS	28	19.72
TOTAL =	142	100.00

QUESTION 28: RANK		
RESPONSE (ARMY EQUIVALENT)	FREQUENCY	PERCENT
E1/E2: PRIVATE	1	0.72
E3: PRIVATE FIRST CLASS	5	3.62
E4: SPECIALIST	25	18.12
E5: SERGEANT	24	17.39
E6: STAFF SERGEANT	19	13.77
E7: SERGEANT FIRST CLASS	14	10.14
E8: MASTER SERGEANT	2	1.45
E9: SERGEANT MAJOR	1	0.72
WO1-WO4: WARRANT OFFICER ONE-WARRANT OFFICER FOUR	1	0.72
O1/O2: SECOND/FIRST LIEUTENANT	2	1.45
O3: CAPTAIN	15	10.87
O4: MAJOR	19	13.77
O5: LIEUTENANT COLONEL	9	6.52
O6: COLONEL	1	0.72
TOTAL	138	100.00

FREQUENCY DISTRIBUTIONS: DEMOGRAPHICS

QUESTION 29: MARITAL STATUS		
RESPONSE	FREQUENCY	PERCENT
SINGLE/NEVER MARRIED	11	7.80
MARRIED	107	75.89
SEPARATED	13	9.22
DIVORCED	9	6.38
WIDOWED	1	0.71
TOTAL	141	100.00

QUESTION 30: BENEFICIARY CATEGORY		
RESPONSE	FREQUENCY	PERCENT
ACTIVE DUTY	44	31.43
ACTIVE DUTY DEPENDENT	75	53.57
RETIRED	4	2.86
RETIRED DEPENDENT	17	12.14
TOTAL	140	100.00

TABLE 3

RELIABILITY

TECHNICAL QUALITY (SOURCE TABLE)					
SOURCE	SUM OF SQUARES	d.f.	MEAN SQUARE	F RATIO	PROBABILITY
TREATMENT (QUESTS. 2-6)	.361	4	.090	.423	.7918
BLOCKS:	379.344	141	2.690	12.626	6.00E-14
ERROR	120.177	564	.213		
TOTAL	499.882	709			
CRONBACH'S ALPHA = .9208					
ACCESS TO CARE (SOURCE TABLE)					
SOURCE	SUM OF SQUARES	d.f.	MEAN SQUARE	F RATIO	PROBABILITY
TREATMENT (QUEST. 7-16)	245.656	9	27.295	37.447	.00E+00
BLOCKS:	705.876	141	5.006	6.868	.00E+00
ERROR	924.981	1269	.729		
TOTAL	1876.513	1419			
CRONBACH'S ALPHA = .8544					
INTERPERSONAL CARE (SOURCE TABLE)					
SOURCE	SUM OF SQUARES	d.f.	MEAN SQUARE	F RATIO	PROBABILITY
TREATMENT (QUEST. 17-26)	23.478	9	2.609	8.788	9.80E-14
BLOCKS:	922.944	141	6.546	22.051	.00E+00
ERROR	376.701	1269	.297		
TOTAL	1323.123	1419			
CRONBACH'S ALPHA = .9547					

VALIDITY

CONCURRENT CRITERION VALIDITY/CORRELATION
(CRITICAL VALUE, 2 TAIL, $p < .05$, = +/- .19357)

TECHNICAL QUALITY CONSTRUCT	
QUESTION NUMBER	CORRELATION (PEARSON'S r): OVERALL SATISFACTION WITH TECHNICAL QUALITY (QUEST NO.6)
2. THOROUGHNESS OF EXAM	.7322
3. SKILL AND TRAINING OF PHYSICIANS	.7381
4. THOROUGHNESS OF TREATMENT	.7877
5. NURSING SKILLS	.7105

ACCESS TO CARE CONSTRUCT	
QUESTION NUMBER	CORRELATION (PEARSON'S r): OVERALL SATISFACTION WITH ACCESS TO CARE (QUEST NO. 16)
7. WRAMC CONVENIENCE	.2885
8. CLINIC HOURS	.5015
9. PARKING	.3349
10. PHONE APPOINTMENTS	.5727
11. CLINIC WAITING TIME	.4050
12. APPT. WAITING TIME	.5917
13. PHONE ADVICE	.5358
14. ACCESS ANYTIME	.6996
15. PHARMACY	.4255

N = 142

VALIDITY

CONCURRENT CRITERION VALIDITY/CORRELATION
(CRITICAL VALUE, 2 TAIL, $p < .05$, = $\pm .19357$)

INTERPERSONAL CARE CONSTRUCT	
QUESTION NUMBER	CORRELATION (PEARSON'S r): OVERALL SATISFACTION WITH INTERPERSONAL CARE (QUEST NO. 26)
17. STAFF COURTESY	.6338
18. DEMONSTRATED PERSONAL INTEREST IN MEDICAL PROBLEMS	.7003
19. RESPECT FOR PRIVACY	.6438
20. REASSURANCE AND SUPPORT	.7696
21. ADMIN. COURTESY	.6020
22. TIME SPENT W/PHYSICIAN	.7912
23. EXPLANATION OF PROCEDURES	.7488
24. ATTENTION TO PT. CONCERNS	.7801
25. ADVICE ON PREVENTION	.6605

SOCIOECONOMIC/SOCIODEMOGRAPHIC CONSTRUCT	
QUESTION NUMBER	CORRELATION (PEARSON'S r): OVERALL SATISFACTION WITH CARE AT WRAMC PEDIATRICS (QUEST 1)
27. VISITS IN LAST 12 MONTHS	.1537
28. RANK	-.0724
29. MARITAL STATUS	-.1731
30. BENEFICIARY CATEGORY	.0035

N = 142

VALIDITY

CONCURRENT CRITERION VALIDITY/CORRELATION
(CRITICAL VALUE, 2 TAIL, $p < .05$, = $\pm .19357$)

CONSTRUCT OF OVERALL SATISFACTION	
QUESTION NUMBER	CORRELATION (PEARSON'S r): OVERALL SATISFACTION WITH CARE AT WRAMC PEDIATRICS (QUEST 1)
6. OVERALL SATISFACTION WITH TECHNICAL QUALITY	.8418
16. OVERALL SATISFACTION WITH ACCESS TO CARE	.5973
26. OVERALL SATISFACTION WITH INTERPERSONAL CARE	.7029

N = 142

Table 5

MULTIPLE REGRESSION ANALYSIS

(THE VARIABILITY IN OVERALL SATISFACTION ACCOUNTED FOR BY THE EFFECTS OF SATISFACTION WITH TECHNICAL QUALITY, ACCESS TO CARE AND INTERPERSONAL CARE)
 y = OVERALL SATISFACTION

$$a_0U = \text{CONSTANT}$$

$$x_1 = \text{SATISFACTION WITH TECHNICAL QUALITY}$$

$$x_2 = \text{SATISFACTION WITH ACCESS}$$

$$x_3 = \text{SATISFACTION WITH INTERPERSONAL CARE}$$

EFFECT TESTED	R_F^2	R_R^2	NLIPV _F	NLIPV _R	df ₁	df ₂	F	p
FULL EFFECT: $y = a_0U + b_1(x_1) + b_2(x_2) + b_3(x_3)$	.6478	0	3	1	2	139	127.8	.00E+000
$y = a_0U + b_1(x_1)$	.6478	.6265	3	2	1	139	8.41	.004
$y = a_0U + b_2(x_2)$	.6478	.3440	3	2	1	139	119.9	1.2E-14
$y = a_0U + b_3(x_3)$	.6478	.4649	3	2	1	139	72.18	.00E+000

RECODED RESPONSE/CORRELATION TABLE
(CRITICAL VALUE, 2 TAIL, $p < .05 = \pm .16654$)

RECODED RESPONSES TO QUESTION 29 (MARITAL STATUS), AND QUESTION 30 (BENEFICIARY STATUS)	
RECODED RESPONSES	CORRELATION (PEARSON'S r): OVERALL SATISFACTION WITH CARE IN THE WRAMC PEDIATRICS CLINIC (QUEST NO. 1)
MARITAL STATUS: CODE 1 IF MARRIED, 0 IF OTHER	.1073
BENEFICIARY STATUS: CODE 1 IF ACTIVE DUTY, 0 IF OTHER	.0646
BENEFICIARY STATUS: CODE 1 IF ACTIVE DUTY DEPENDENT, 0 IF OTHER	-.0760
BENEFICIARY STATUS: CODE 1 IF RETIRED, 0 IF OTHER	-.0210
BENEFICIARY STATUS: CODE 1 IF DEPENDENT OF RETIRED SERVICE MEMBER, 0 IF OTHER	-.0343

Appendix

**SATISFACTION WITH CARE AT WALTER REED'S
PEDIATRIC/ADOLESCENT CLINIC**

Walter Reed Army Medical Center is looking for ways to improve your medical care. The purpose of this survey is to document how you feel about the medical care your children receive at Walter Reed's Outpatient Pediatric/Adolescent Clinic.

**DO NOT PUT YOUR NAME ON THE SURVEY;
YOUR HONEST ANSWERS WILL BE USED TO IMPROVE THE OVERALL QUALITY
OF CARE AT THIS CLINIC AND WILL IN NO WAY AFFECT YOUR VISIT TODAY**

ANSWER ALL QUESTIONS: CIRCLE ONE NUMBER FOR EACH QUESTION

	<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>	<u>Excel- lent</u>
1. Overall how would you rate the care your children get at Walter Reed's Peds/Adolescent Clinic	1	2	3	4	5

**THINKING ABOUT YOUR OWN SITUATION REGARDING YOUR CHILD'S HEALTH
CARE AT WALTER REED OUTPATIENT PEDIATRICS, HOW WOULD YOU RATE THE
FOLLOWING?**

	<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>	<u>Excel- lent</u>
TECHNICAL QUALITY					
2. Thoroughness of exam and accuracy of diagnosis	1	2	3	4	5
3. Skill, experience and training of Doctors	1	2	3	4	5
4. Thoroughness of treatment	1	2	3	4	5
5. Skill, experience and and training of Nurses and Nursing Aides	1	2	3	4	5
6. Overall satisfaction with technical quality at the WRAMC Peds/Adolescent Clinic	1	2	3	4	5

Appendix

	<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>	<u>Excel- lent</u>
ACCESS: Arranging For and Getting Care					
7. Convenience of Walter Reed's location	1	2	3	4	5
8. Hours when Clinic is open	1	2	3	4	5
9. Satisfaction with parking	1	2	3	4	5
10. Ease of making appointments for medical care by phone	1	2	3	4	5
11. Length of time spent waiting in the clinic to see the Doctor	1	2	3	4	5
12. Length of time you wait between making an appointment for routine care and the day of your visit	1	2	3	4	5
13. Availability of medical information or advice by phone	1	2	3	4	5
14. Access to medical care whenever you need it	1	2	3	4	5
15. Services available for getting prescriptions filled	1	2	3	4	5
16. Overall satisfaction with arranging for and getting care at the Peds/Adolescent Clinic	1	2	3	4	5

		Appendix				
		<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>	<u>Excel- lent</u>
INTERPERSONAL CARE						
17. Friendliness and courtesy shown to you by doctors and medical staff	1	2	3	4	5	
18. Personal interest in your child and your child's medical problems	1	2	3	4	5	
19. Respect shown to you, attention to privacy	1	2	3	4	5	
20. Reassurance and support offered to you by doctors and medical staff	1	2	3	4	5	
21. Friendliness and courtesy shown by administrative staff (receptionist and others)	1	2	3	4	5	
22. Amount of time you have with doctors and medical staff during a visit	1	2	3	4	5	
23. Explanation of medical procedures and tests	1	2	3	4	5	
24. Attention given to what you have to say	1	2	3	4	5	
25. Advice you get about ways to avoid illness and injury	1	2	3	4	5	
26. Overall satisfaction with interpersonal care at the Peds/ Adolescent Clinic	1	2	3	4	5	

Appendix

FOR THE FOLLOWING STATEMENT, PLEASE CIRCLE ONE NUMBER

27. During the last 12 months, how many total visits did you make to the Walter Reed Pediatric/Adolescent Clinic? (Count the current visit)

none	1
1 visit	2
2-4 visits	3
5-9 visits	4
10 or more visits	5

PERSONAL INFORMATION

28. Specify your own pay grade or rank (if you are active duty or retired) or the pay grade of your sponsor (if you are a family member). (Circle one number)

PV1/E1	1	WO1	10	2LT/01	14
PV2/E2	2	WO2	11	1LT/02	15
PFC/E3	3	WO3	12	CPT/03	16
CPL,SPC/E4	4	WO4	13	MAJ/04	17
SGT/E5	5			LTC/05	18
SSG/E6	6			COL/06	19
SFC/E7	7			GEN OFF/07+	20
MSG/1SG/E8	8				
CSM/E9	9				

29. Which of the following best describes your current marital status?

Single, never married	1	Divorced	4
Married	2	Widowed	5
Separated	3		

30. Which category of beneficiary best describes you?

Service member on active duty	1
Family member of active duty service member	2
Retired service member	3
Family member of retired service member	4