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THESIS

TRICARE: AN ORGANIZATIONAL CHANGE STUDY
IN THE MILITARY HEALTH SERVICES SYSTEM

by

Guillermo Nerio
and
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December, 1993

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TRICARE: AN ORGANIZATIONAL CHANGE STUDY IN THE MILITARY HEALTH SERVICES SYSTEM

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LIST OF ACRONYMS

AFB	AIR FORCE BASE
BUMED	BUREAU OF MEDICINE AND SURGERY
CBO	CONGRESSIONAL BUDGET OFFICE
CCP	COORDINATED CARE PROGRAM
CHAMPUS	CIVILIAN HEALTH AND MEDICAL PROGRAM OF THE UNIFORMED SERVICES
CHCS	COMPOSITE HEALTH CARE SYSTEM
CINCLANTFLT	COMMANDER IN CHIEF, ATLANTIC FLEET
DOD	DEPARTMENT OF DEFENSE
DV-HSS	DELAWARE VALLEY HEALTH SERVICES SYSTEM
HBA	HEALTH BENEFITS ADVISOR
HCF	HEALTH CARE FINDER
HMO	HEALTH MAINTENANCE ORGANIZATION
JCS	JOINT CHIEF OF STAFF
MACD	MILITARY ACUTE CARE DEPARTMENT
MHSS	MILITARY HEALTH SERVICES SYSTEM
MTF	MEDICAL TREATMENT FACILITY
NAB	NAVAL AMPHIBIOUS BASE
NAS	NAVAL AIR STATION
NMC	NAVAL MEDICAL CENTER
OASD	OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
OASD(HA)	OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE, HEALTH AFFAIRS
OSD	OFFICE OF THE SECRETARY OF DEFENSE
PPO	PREFERRED PROVIDER OGANIZATION
SFMC	SAN FRANSICO MEDICAL COMMAND
STS	SOCIOTECHNICAL SYSTEMS
RIT	RAPID IMPLEMENTATION TEAM
TRICARE	TRI-SERVICES COORDINATED CARE

I. INTRODUCTION

A. GENERAL DESCRIPTION

This thesis is an action research study concerning an ongoing organizational change of the Tri-Services Coordinated Care (TRICARE) program. The objectives of this thesis are to describe the Coordinated Care/Managed Care Program, explain the reasons that led the Department of Defense's medical community to implement this enormous organizational change, analyze why the military chose the Tidewater area as the site for this program, and, most importantly, to report the findings made during this field research.

B. RESEARCH

1. Data Collection.

Interviews were the primary means used to collect data on the Tidewater TRICARE coordinated care program. The interview method of collecting data was chosen because it was determined to provide the most potential for gathering qualitative data. The interviews were conducted during a one week period in September 1993. All of the interviews lasted about one hour. There were a total of 43 face-to-face interviews and four telephone interviews conducted. Refer to the figure 1 on the following page on specifics of where and whom we interviewed.

The interviewees were selected from all over the Tidewater area. We interviewed personnel from the three military hospitals, all the major subordinate clinics, the TRICARE service centers, and the TRICARE Project Office for a total of 43 interviews. There were a total of 14 interviews conducted at the surrounding clinics: six at Boone Clinic; four at Sewell's Point; and four at Oceana.

INTERVIEWS BY DEPARTMENT

DEPART-MENT	TRICARE PROJECT OFFICE	MANAGED CARE OFFICE	PORTSMOUTH HOSPITAL ADMINISTRA-TION	STAFF AT THE CLINIC	TRICARE SERVICE CENTER	TOTAL
INTER-VIEWS	7	3	4	14	15	43

FIGURE 1

The interviews were semi-structured which allowed the interviewers the freedom to pursue topics they deemed important. The interview protocol provided an introductory statement followed by general questions about the TRICARE program, how it affected them, and how well the program was operating. There was some degree of directiveness once the interview began. The interviewers asked probing descriptive questions (i.e., asking the interviewee to describe in depth what happened in a particular situation) and evaluative questions (i.e., asking the interviewees' opinions regarding specific situations). The interview protocol was evaluated each evening during the interview week and was adjusted based on issue discoveries made by the interviewers. After determining what additional data was needed and where to

obtain it, four telephone interviews were used to pursue supplemental information. Telephone interviews were more directive in nature than the face-to-face interviews. Interviewees were asked direct, focused and specific questions. The project's historical information was gleaned from command archives and presentations. No formal or statistical method of sampling was used to select the interviewees. The interviews originated with managers at the TRICARE Project Office. If someone's name came up during the course of an interview, they became candidates for a future interview. They were then called, and an appointment for an interview was set. This process repeated itself with each subsequent interview branching off the previous. Each interview was tape-recorded while the interviewer took notes to ensure answers were recorded verbatim. Each interview was later transcribed by the interviewers and indexed both alphabetically and by location.

2. Data Analysis.

Data analysis was a continuous process. Data collected from these interviews was analyzed using qualitative methods. The first step in the analysis was to read each interview to determine the major issues identified by the interviewees. As the interviews were read, topic areas began to develop and were immediately written down. Following the first reading, we discussed our ideas among ourselves with a tape recorder on

as well as taking notes. This process allowed us to generate new ideas as well as permanently storing ideas for future analysis. We then reread the interviews for better clarity and understanding. Topic categories were then established, and the data was sorted into each category. The last step in the data analysis was to write, critique, and rewrite the text. This process was repeated until a finished product was achieved.

The field data was collected in the Tidewater area mainly through oral interviews. Historical data on the TRICARE program was collected from command archives. This data was studied using qualitative methods of analysis as well as organizational change management models.

C. BACKGROUND

The cost of health care in the military has been increasing beyond what can be covered with the budget authorizations. In the last five years the military medical communities have sought to develop innovative ways to provide quality health care at a lower cost. On October 1, 1991, the Office of the Secretary of Defense published a memorandum titled "Strengthening the Medical Functions of the Department of Defense." In this memorandum, he stated that "with increasingly tight constraints on resources available for the national defense, the Department must aggressively pursue actions to execute its vital missions more effectively,

including its medical mission." Also in this memorandum he directs the implementation of several organizational changes, one specifically being a Coordinated Care Program (CCP). As a result, the Department of Defense (DOD) initiated the TRICARE program in the Tidewater area of Virginia.

D. RESEARCH QUESTIONS

There were no specific interview questions as we entered the field to conduct this study. This study was intended to be freely structured in order to remain receptive to current issues related to the TRICARE program. Thus, the broad questions we took to the field were:

1. What lead the military to change the way they provide health care and implement the Coordinated Care Program?
2. Why did the military medical community choose the Tidewater area as the site for the Coordinated Care Program?
3. What were the critical change issues that surfaced during the implementation of the Tidewater TRICARE program?
4. What specific techniques were used to manage and facilitate the change from the traditional delivery of health care to the managed care/coordinated care system.

E. ORGANIZATION OF THE THESIS

Following the introduction chapter, the thesis is organized into four chapters. Chapter II discusses the history of health care in the public sector and culminates with the delivery of health care in the military, specifically the Navy. Chapter III contains information on the Department of Defense's shift towards joint operations in services, and

how this has lead to successful programs like TRICARE. We will describe the TRICARE program and the issues that created this immense reorganization. In chapter IV, a sociotechnical approach is used to analyze the information flow between the patient, TRICARE's consolidated booking system, and the provider. Chapter V completes the thesis with conclusions, recommendations and a thesis summary. Conclusions address the key variances that occur in the information flow between the TRICARE Service Center and the clinics in the Tidewater area. Recommendations address several ways to control the key variances. Additional research questions are also addressed for follow-on research studies with regard to the TRICARE Demonstration Project.

II. HISTORY OF MEDICINE

A. DEVELOPMENT OF CIVILIAN HEALTH CARE

This section will provide a chronological account of the development of health care within the civilian sector from the 1700's to the present. It will show the cyclical pattern of medical emphasis from family medicine to specialization back to family practice. The current need for general practitioners, or "family physicians" is shown by the increasing use of managed care or Health Maintenance Organizations. This idea will be discussed later in this chapter in detail. The preponderance of historical information contained in this section is taken from *The Social Transformation of American Medicine* by Paul Starr.

1. 1700's:THE FAMILY'S ROLE IN MEDICINE

In Eighteenth Century America, a physician practiced medicine in an extremely competitive environment, competing not only with other physicians but also with the family institution. Although a doctor's ambition was to develop a strong reputation and a close relationship with his patients, the family in early American society was the focal point of social and economic life. Women had the responsibility to care for the ill in her family. This family focus made it difficult for physicians to establish themselves as necessary

agents to heal the sick. As the years went on, medical books and journals were published and circulated around town to assist women in diagnosing and preventing disease. Books such as *Domestic Medicine*, written by William Buchan, set forth in layman's terms information on current diseases and medical advice on preventive medicine. These types of books challenged the authority of medical professionals by alleging that families could care for themselves.

America, at this time, was a rapidly changing and expanding society. Professional physicians wanted to establish an elite and distinct society of professional doctors, similar to that of England. In England, physicians had specific requirements they had to meet to practice medicine. Physicians in America also wanted to establish boundaries around the practice of medicine to prevent laymen from engaging in such endeavors. These boundaries included the requirement to obtain a degree in medicine and a license to practice. Unfortunately, the boundaries between profession and trade, physician and layman that so assiduously preserved the profession in Britain were not as clear in America. Gradually, Americans who were seriously interested in practicing medicine went to Europe for advanced medical education, since none existed in this country. This proactive movement towards establishing quality medical practices motivated local governments to protect the profession with legislative initiatives.

One such initiative occurred in 1765 when the first medical school was chartered at the College of Philadelphia in Pennsylvania. Although few schools existed at this time, many physicians hoped that by establishing medical schools in America, they would be able to create a respected profession similar to that of Great Britain. Initially, medical schools offered both bachelor's and doctoral degrees in medicine, but it soon became clear that most students graduating with a bachelor's degree did not return for their doctorate degree. Since most doctors felt confident practicing medicine with only a bachelor's degree, the status and respect that might be gained with advanced education would not be realized. Although physicians wanted boundaries set for practicing medicine, the American government, with its massively expanding population, did not have the political means to enforce many requirements.

2. 1800's:THE GROWTH OF PROFESSIONAL MEDICINE

As America grew, people's social and economic life styles changed. The tight knit family circle once centered on a small piece of land started to change. Family members began moving out of the area to start a new life on their own. As the family became more geographically separated, they lost their close bond during times of illness. People conversely became more dependent on the physician for medical care. The

relationship between the doctor and his patient began to grow strong.

At the turn of the century another change was also starting to take form in medicine. The social distance between the doctor and patient started increasing while the rapport between practicing physicians grew closer. The government finally recognized the medical profession as legitimate, and boundaries to protect their practice were beginning to be enforced.

Unfortunately, American hospitals at the start of the nineteenth century were considered dangerous places to go if you were sick. They were viewed as institutions for the mentally ill, not the physically ill. Many felt it was safer to stay at home with your family and wait for the family doctor to make a house call. Consequently, hospitals were rarely used for treatment of the sick. In addition, the levels of medical technology were very elementary compared to today, and most everything that could be done in a hospital could also be done during a house call. Most people who resided far from town did not seek out doctors for treatment of their ills, and unless doctors made house calls, traveling to a doctor's office could mean an entire day's work lost for the patient. Physicians, on the other hand, made valiant attempts to make house calls in hopes of reaching the people, curing the sick, and providing themselves with a source of income. Because of the time required traveling from patient

to office to patient, physicians found it difficult to support themselves by practicing medicine as their sole source of income. Many local doctors were also the pharmacist, and surgeons were often the town barber. Autobiographies of doctors practicing medicine in the nineteenth century state that most of their day was spent traveling along back country roads, "half ... in the mud and the other half in the dust."

The "transportation revolution" in the mid-nineteenth century really benefitted the practice of medicine. The railroad brought patients into the city faster and cheaper to be treated by the physician. Street cars used in the cities saved valuable time for both the patient and the doctor. Doctors usually set up their office along the street cars' routes making access easier. This "transportation revolution" helped physicians expand the territory that they could cover. Finally, the telephone made its debut in the 1870s making it easier and more affordable to reach physicians. The first rudimentary telephone exchange on record, built in 1877, connected the Capital Avenue Drugstore in Hartford, Connecticut with twenty-one local doctors. Drug stores in those days were considered message centers for doctors. This transportation revolution also decreased indirect costs for medical care and put care within the income range of most people.

New technologies developed during the nineteenth century included advances in automobiles, hard roads, telephones and

railroads. This enabled physicians to cut travel time and allowed them to spend more time with their patients. It also meant less time out of a patient's busy day to visit the doctor. Cutting transportation costs (and time) directly raised the supply of physicians' services by increasing the proportion of the physician's time that could be spent with the patient.

The close of the nineteenth century saw a greater reliance on hospitals for providing medical care. Urban growth led to higher property taxes, and consequently, people in or near the city moved into smaller homes and apartments. Smaller places to live made it more difficult to care for the acutely ill at home. Many times, there was simply not enough room. However, the dangers of infection in general hospitals because of poor hospital hygiene led families to manage physical illness at home if at all possible. It wasn't until after the Civil War that hospital hygiene improved.

3. 1900's: THE EVOLUTION OF MANAGED CARE

As America entered the twentieth century, society transformed from a predominantly agricultural economy to a manufacturing economy. The manufacturing economy gave rise to big businesses over small, family-owned operations causing a shift in focus from individual orientation to that of institutional domination. [Ref 1:p. 3]

> During the last fifty years, society in every developed country has become a society of institution. Every major task whether performance or *health care*, education or protection of the environment, the pursuit of new knowledge or defense, is today being entrusted to big organizations, designed for perpetuity and managed by their own management. [Ref 1:p. 3]

Simultaneously, in the medical arena, a historical transition from generalist to specialist occurred. This transition set the seed for corporate management of medical care. Specialized medicine quickly began to unfold during World War II. With the surge of new technology, physicians started to specialize in certain areas of medicine. There was an increasing emphasis on medical training and facilities, and physicians released from military service were taking residency in various specialties. At the end of World War II, practicing specialists started to flood the market as 100,000 medical personnel (not all physicians) were released from active duty during the post war downsizing. By 1966, almost 70% of all practicing physicians called themselves specialists leaving 30% as generalists.

Specialists began to practice in groups instead of working on their own. The costs of providing medical care, advances in technology, scientific evolution, and other economic forces were the main catalyst for this shift. Physicians would purchase expensive equipment as a group rather than practice on their own and bear all the expense.

Managed medical care has been developing for the last 60 years, and group practice evolved into popular marketable entities called Health Maintenance Organizations (HMO) and Preferred Provider Organizations (PPO). These organizations, growing successfully on group payment and preventive medical care, inspired several other prepaid group practice plans to evolve. From 1930-1960 these organizations prospered but not without opposition from organized medicine (such as the AMA). Even when direct service prepaid plans were controlled by physicians, the AMA disapproved of them as a form of unethical contract practice. In fact, the AMA, in 1937 opposed the Group Health Association in Washington D.C. so vehemently that they fought it in court by charging that it violated the Sherman Anti-Trust Act. When court action failed, they threatened reprisals against any doctor who worked for the plan, prevented them from obtaining consultations and referrals and succeeded in persuading every hospital in the District to deny them admitting privileges. This succeeded in cutting off group members of the cooperative from hospital care.

The Kaiser-Permanente Medical Care Program, originated in 1942, is considered by far the largest, most widely distributed and best known HMO in the country. [Ref 1:p. 4] An HMO is a delivery system with a mission to provide high quality health and medical services at a competitive price. *Competition* is the key variable in the mission statement. The

basic principles of management; planning, organizing, directing, controlling and coordinating all lend themselves to carrying out the stated mission through the use of alternative provider systems such as HMO's and PPO's. [Ref 1:p. 7] The Preferred Provider Organization (PPO), by definition, is slightly different than a Health Maintenance Organization (HMO). A PPO is "a contractual arrangement between professional and/or institutional health care providers and employers, insurance carriers or third-party administrators to provide health care services to a defined population at established fees." [Ref 1:p. 5] HMO's and PPO's represent a competitive form of bureaucratic organization in medical care. [Ref 2:p. 27] By mid 1979, there were 217 HMO's operating across the nation with a total enrollment of 7.9 million people. This figure had doubled in size since 1970. Clearly, a primary reason that HMO's have been so successful is that physicians have been able to accept some financial risk - the financial risk associated with providing medical care and services to a group of subscribers. Both profits and losses are shared by all the physicians.

As we move toward the end of the twentieth century, there is a growing concern that there are too many specialists and not enough generalists to provide adequate care for the nation at a reasonable cost. There is a strong consensus that primary care physicians are the foundation to an effective health care system. Current interest among physicians to

practice primary care is very low. One possible reason is purely financial; another is related to status. Now almost all young internists have their ambitions tied to becoming a specialist. The percentage of practicing primary care physicians is a staggering 32%. That leaves 68% of the physicians practicing in a specialized field. [Ref 3:p. 380]

In contrast to other industrialized nations, the percentage of specialist and generalist is balanced at 50%. Health indicators show that in comparing costs, other countries do as well or better in providing the care at lower cost. Additionally, the percentage of physicians graduating from U.S. medical schools who are declaring generalist fields has drastically declined from 36% in 1982 to 14% in 1992. This is significant to analyze since successful models for an effective national managed health care system requires a ration of 35% specialists and a 65% generalist physician distribution (see Figures 2 and 3). [Ref 3:p. 380]

The 1980's ended with the nation realizing the need to develop awareness and incentives for physicians to practice primary care, in general, and family care practice in particular. Major issues pertinent to family practice in 1989 include passage of Medicare physician payment reform and the development of student interest initiatives. These initiatives give financial incentive to students to become general practitioners, family physicians, etc. [Ref 4:p 2643]

As the 1990's begin to unfold, it becomes even more

PROJECTED HEALTH CARE COSTS
FOR FY-93 ($16B)

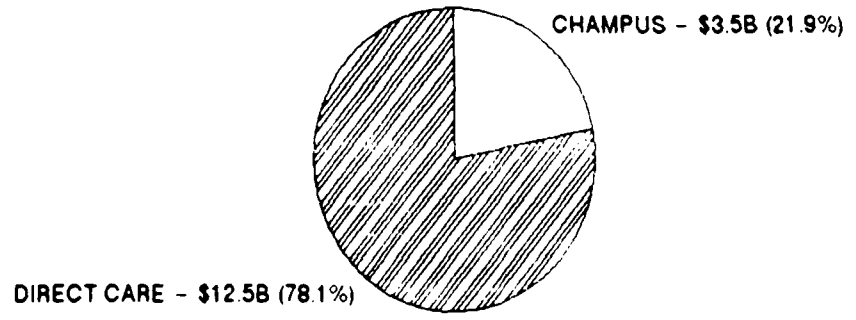

FIGURE 2

DISTRIBUTION OF DIRECT
CARE COSTS FOR FY-93 ($12.5B)

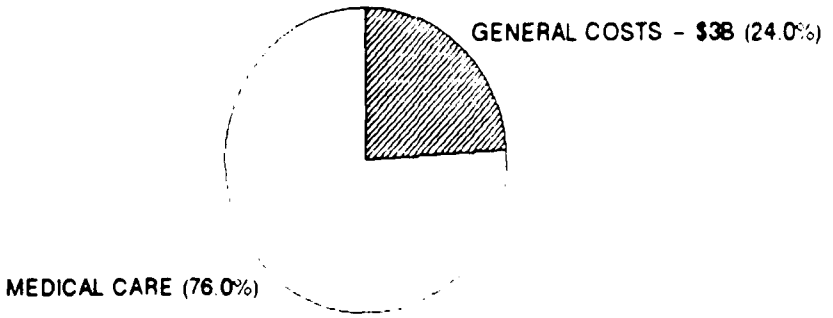

FIGURE 3

critical to promote student interest in family practice. This is particularly important as our society places greater emphasis on continuity of care, preventive medicine and health promotion. Unfortunately, 14% of graduating "generalist" medical students is far too few to meet expected demands for their services. Making the situation even worse, nearly 24,000 family and general practice physicians are now over 55 years of age and will retire in the near future. [Ref 4:p. 2643]

As we attempt to find ways to increase accessibility to care, reduce medical costs and continue to maintain high quality of care; increasing primary care physicians can be the one solution. David Meltzer in his article *Are Generalists the Answer for Primary Care* identifies that primary care physicians-can result in fewer emergent hospital admissions, shorter lengths of stay, lower medical costs, a wider access to care and overall greater patient satisfaction. Another solution could by to increase the specialists' care to include primary care. Specialists' could then provide primary care/family care and treat specific patient problems as well. This would reduce the number of referrals, decrease multiple workups and ultimately improve the continuity and coordination of care. Expanding primary care to specialists can be accomplished in less time than would training a new generation of generalists. [Ref 5: p. 1714]

It is clear that America needs to provide better primary care for its citizens. This is the objective behind President Clinton's new national health plan. As we collectively improve the nation's health care system, why not cultivate more specialists to practice primary care instead of training more physicians to be generalists.

President Clinton has launched a nationwide effort to find an acceptable new balance of competing public demands to reinvent health care in ways that provide somewhat less freedom for patients and doctors with more cost control while still providing quality care. Cost for health spending has been on the rise for at least four decades. Between 1965 and 1991 health spending has risen from 5.9 to 13.2 percent of the Gross Domestic Product. During the same time frame, health care costs have gone from 2.6 percent to 16 percent of federal outlays, and if no changes occur, could reach 25% by the year 2000. [Ref 6:p. 31]

The Department of Defense has also begun to pursue innovative approaches to reinvent their health care delivery system. There are various satellite projects ongoing throughout the United States such as the TRICARE Demonstration Project in Virginia. Reinventing the delivery of health care is a major undertaking for any organization especially the military. The remainder of this chapter will provide a brief history in chronological order of the practice of medicine in the military. It will focus primarily on the Navy's Military

Health Service System (MHSS). The chapter will conclude with a description of the TRICARE Demonstration Project.

B. DEVELOPMENT OF MILITARY HEALTHCARE

This section takes a look at the development of medical practice first in the Navy and then within the Department of Defense (DOD). The history of Navy medicine begins in 1775 with the commissioning of the Navy's first warships. This discussion will develop into current trends in medical practice within the entire DOD.

1. History of Navy Medicine.

Navy medicine has progressed in much the same way as it has in the civilian sector. The mission of today's Navy Medical Department is to "ensure the health of our Navy and Marine Corps personnel so that they are physically and mentally ready to carry out their worldwide mission." [Ref 7:p. 2] Today's Military Health Services System (MHSS) is a large, complex organization. It consists of over 400,000 personnel in the active duty, reserve and civilian workforce. It operates over 148 hospitals and medical centers and more than 800 medical and dental clinics all over the world. Total eligible beneficiaries total over 9 million people. [Ref 8:p. 22)

Ever since 1775 when the Continental Congress commissioned its first warships, the Navy has provided medical support for its sailors and marines. At that time, a civilian was

appointed as ship's surgeon and was authorized for service on the ship. They were professional gentlemen, not officers and not sailors. Surgeons and surgeon's mates were hired simply for the duration of a cruise and discharged on its completion. They were tasked with only the immediate treatment of disease and injury. Their main goal was to keep as many crewmen as possible battle ready. [Ref 9:p. 10] In fact, between 1775 and 1842 there was no formal organization to sponsor and promote Navy medicine. In 1822, the first standards were established for entrance into the medical corps. Courses of instruction in naval hygiene and military surgery were also developed for newly commissioned medical officers. It wasn't until 1842 that the Navy was reorganized and The Bureau of Medicine and Surgery (BUMED) established.

Prior to 1842, Navy medical personnel had limited status within the organization but no rank. Physicians began requesting what was called assimilated rank. They wanted to be commissioned as Navy officers with the rank of either Assistant Surgeon, Passed Assistant Surgeon, Surgeon or Fleet Surgeon. This proposal was extremely unpopular with the line officers who felt that their status as military officers was being jeopardized. In 1846, the Secretary of the Navy issued an order providing for assimilated rank. From then on, medical officers would rank with line offices of comparable seniority, although their rank titles would be different. [Ref 9:p. 14-15]

The 1900's brought great organizational change within the medical department. Increased attention was paid to requiring inoculations for small pox and typhoid. Postgraduate and specialization training were instituted and greater attention was paid to infectious disease control and sanitation. In 1908 the Nurse Corps was established and in 1912 the Dental Corps. In 1940, with the authorization of a "two-ocean" Navy, the need arose for greater focus on logistics and medical supply, medical mobility, and casualty evacuation. Mobile field hospitals with anywhere from 10 to 3,000 beds were developed and staffed. Hospital ships were made to be as fully functional as a large-shore based facility. All major U.S. Naval vessels were embarked with full medical capability and even small vessels carried at least one corpsman on independent duty. The great advances in combat casualty care are clearly shown by their effects on survival: at least half of all men wounded in battle prior to World War I died from their injuries; during World War II, 98% of the wounded recovered. [Ref 9:p. 3]

During World War II the Medical Department grew from 13,000 to 170,000, but by July of 1946, 100,000 were discharged. One of the most important Navy medical initiative of the time was the establishment of the Medical Service Corps in 1947. With the addition of nuclear weapons to many countries' arsenals, important advances were made in the areas of radiation exposure and health surveillance programs.

Increased priority was also given to defense against injury by chemical, biological and radiological warfare agents.

The attack of North Korea across the 38th parallel in 1950 brought new difficulties for the medical department. After World War II, the Medical Department found itself preoccupied with peacetime hospital practice. An amendment to the Selective Service Act was necessary to provide enough physicians and dentists to support combat forces in Korea. Tri-service coordination was used to procure medical equipment and supplies and provide more effective operational and logistics support. Casualty survival rate again increased with the ability to provide a ready supply of whole blood and blood derivatives to combat areas. With the institution of the all volunteer military force after the Vietnam conflict, recruiters found their pools of physician volunteers empty. Because of this, the Armed Forces Health Professions Scholarship Program and the School of Medicine at the Uniformed Services University of Health Sciences were established. During the post Vietnam exodus of physicians, the Navy also found itself severely short of general medical officers and had to use specialists as generalists. To respond to the urgent need for more general medical officers (and provide for career advancement of senior enlisted corpsmen), the Warrant Officer Physician's Assistant Program was established. To enhance physician retention, promotions

were accelerated and special pay was increased. [Ref 7: pp. 4-5]

2. Current Trends.

Ever since the 1800's the Medical Department's funding has come from appropriations from the federal budget. Today, free health care for active duty military personnel is, by law, a right. Therefore, all care provided to active duty personnel comes through the direct care system (military treatment facilities) or is paid for by it. Dependents of active duty personnel are also eligible for direct care but only when such care is available. When care is not available, some beneficiaries can use the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). Those eligible to use CHAMPUS include active duty dependents and retirees under age 65, their dependents and survivors (active duty members are not eligible for CHAMPUS). Under CHAMPUS guidelines, if direct care is not available, beneficiaries are directed to see civilian providers with most of the costs being covered by CHAMPUS funds.

Defense health care costs are rising fast. In 1984, DoD spent approximately $7.2 billion on military healthcare and in 1990 just over $14 billion. In 1993, DOD will spend well over $16 billion on military health care. Twelve and one-half billion dollars will be spend on direct care. Direct care costs include pay and benefits of the military and civilian

health care providers and the costs for operating and maintaining the direct care system. The remaining $3.5 billion will be consumed by CHAMPUS. Nine and a half billion of the direct care dollars ($12.5 Billion) are directly related to providing peacetime medical care to beneficiaries, and the remaining expenses are general costs associated with maintaining a medical establishment such as military construction or costs of having a medical supply war reserve (see Figures 4 and 5).

The Congressional Budget Office (CBO) predicts that, if no changes in military health care policies take place, health care costs will continue to rise over the next few years despite the drawdown in forces. Even if active-duty personnel are reduced to 1.4 million in 1997, peacetime health costs are still predicted to rise from $9.5 billion in 1993 to $11.6 billion.

During the current drawdown of military forces, more than 24 military hospitals are shutting their doors as the bases they are attached to close (this does not include clinics or small medical facilities). As direct care becomes less available as the number of Military Treatment Facilities (MTF) decrease, more beneficiaries are being driven into the civilian community for care. This is causing a direct impact on the number of CHAMPUS claims being filed. The number of CHAMPUS users has dropped from 6 million in 1988 to 5.9 million in 1992. This is mainly due to the recent reduction

CURRENT DISTRIBUTION OF
GENERALISTS TO SPECIALISTS

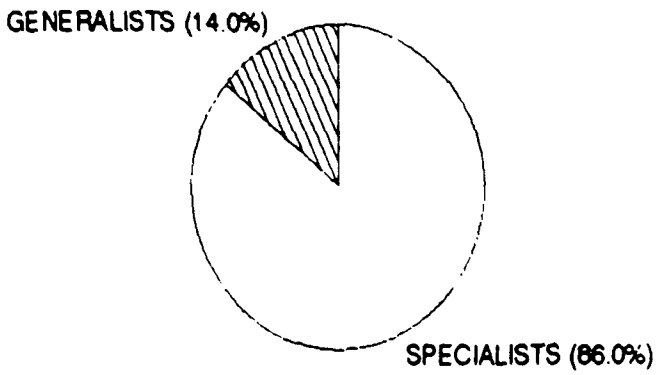

FIGURE 4

OPTIMAL DISTRIBUTION OF
GENERALISTS TO SPECIALISTS

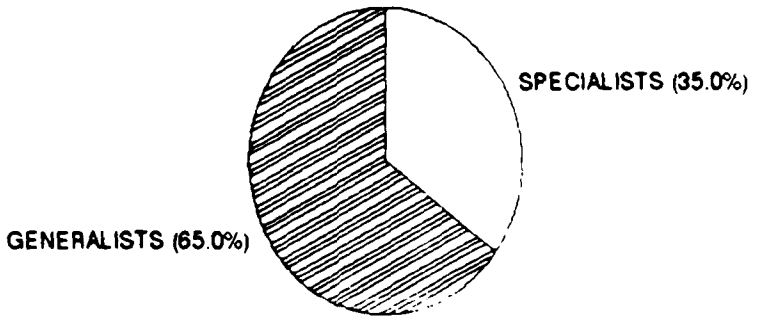

FIGURE 5

in force and the associated decrease in military dependents. Although the number of users has decreased, the number of claims filed has increased by over 65% (see Figure 6). [Ref 11:p. 14]

NO. OF BENEFICIARIES vs. NO. OF CHAMPUS CLAIMS

YEAR	NUMBER OF BENEFICIARIES	NUMBER OF CLAIMS FILED
1988	6,044,396	10,678,201
1990	5,923,822	15,470,799
1992	5,936,148	17,910,083*

***reflects claims processed through June 30,1993.**
FIGURE 6

One way to control these rising CHAMPUS costs is to reduce the number of eligible beneficiaries. A second, more feasible approach, is to decrease the need to use civilian healthcare providers by improving the availability of care in existing military MTF's. This would involve a new way of managing military health care and was the catalyst for the DOD's Coordinated Care Program (CCP).

III. THE DEVELOPMENT OF MANAGED CARE IN DOD

A. INTRODUCTION.

With the epilogue of the Cold War comes a new security strategy for the United States. This strategy requires all military services to join together and work as a cohesive group to conduct a new variety of contingency operations. The services need to understand that in order to meet the military challenges of the future, a joint strategy is imperative; a strategy that emanates inter-service cooperation. Consequently, joint ingenuity and action will be essential.

Current U.S. military doctrine addresses the need to focus on a variety of threats involving more numerous, less capable enemy forces. This is a vast change from the long standing doctrine which focused on a single superpower (primarily the former Soviet Union). With the active drawdown of U.S. military forces, the services must now be able to accomplish their missions with smaller forces and fewer bases.

> Each service will be required to fight as part of adhoc coalitions or to work with traditional partners outside existing alliance lines. In addition, mission requirements will be far more complex and diverse, running the gamut from disaster relief, humanitarian relief, nation assistance, and peacekeeping to forced-entry operations and high-intensity armored warfare all in a single theater of operations-all at the same time. [Ref 12:p. 56]

To compound these new mission challenges, all service departments are being given less money with which to operate (including the medical departments). With this in mind, highly trained forces, successfully operating at the lowest possible cost will be the military's key to success in meeting the needs of the nation's security.

This chapter will address three issues. The first gives a background of past and current trends in the strategy and mission of the Department of Defense and its current policy promoting joint operations. This discussion will include, but will not be limited to, military operations. It will also explore the emerging joint strategies and policies within the Department of Defense concerning health care and the operation of military treatment facilities.

B. BACKGROUND.

1. Joint Operations in Military Departments.

For the past 45 years military joint contingency operations were not conducted on a routine basis. Since the end of the Korean War, each military service has had clearly defined responsibilities and the strategic focus of each was explicitly recognized. The National Security Act of 1948 clearly spelled out each service's role - to man, train and equip forces to operate on land (Department of the Army), operate on and from the sea and conduct land operations essential to Naval campaigns (Department of the Navy) and

conduct offensive and defensive air operations (Department of the Air Force).

During the Cold War, the services developed habitual relationships with each other primarily due to the traditional, single strategic focus aimed at the European theater. It was then a predictable world of distinct threats and clear cut missions. A generation of soldiers, sailors, Marines and airmen became accustomed to the scenario of war against the Soviet Union. Most all efforts and training were centered on this Cold War posture. Navy officers knew the sea lanes of the North Atlantic inside and out. Likewise, Army and Air Force officers found little change in war plans by being assigned to the same bases in Europe over and over again.

Compared to the traditional Cold War, the current threat is not as clear cut. The 1993 National Military Strategy of the United States sums it up best.

> For most of the past 45 years the primary focus of our national military strategy has been containment of the Soviet Union and its communist ideology -- we met that challenge successfully. Over the short span of the past 3 years, the Berlin Wall fell; the Warsaw Pact dissolved; Germany reunified; democracy took hold in Eastern Europe and grew stronger in Latin America; and international coalition successfully reversed Iraqi aggression; and the Soviet Union ceased to exist as communism collapsed as an ideology and as a way of life. . . . Future threats to U.S. interests are inherent in the **uncertainty** and **instability** of a **rapidly changing** world.
>
> -Gen Colin L. Powell, Chairman, JCS

The current U.S. military strategy calls for a focus on a more diverse, flexible strategy. U.S. military leaders are actively pursuing innovative concepts that promote inter-service cooperation. "...From The Sea" is one such example. The white paper, signed by Admiral Frank B. Kelso II (Chief of Naval Operations) and General Carl E. Mundy (Commandant of the Marine Corps) charts out the Navy's new strategic concept for the 21st Century. Joint Pub 1, titled "Joint Warfare of the Armed Forces," specifically outlines the DOD's current guidance on joint operations as follows:

> Joint Pub 1 guides the ***joint*** action of the Armed Forces of the United States, presenting concepts molding those Armed Forces into the most effective ***joint*** fighting force.

Service troops are being employed more and more under joint force commanders. Recently, Operations Just Cause and Desert Storm have shown that American forces can work jointly and be truly successful. Services have constructed joint committees to foster inter-service cooperation and eliminate barriers to joint inter-operability.

Unfortunately, habitual relationships that develop between individuals and groups can cause difficulties when those individuals or groups are asked to work outside their normal relationships. The U.S. military is no exception. Old habits are hard to break, and getting ships, planes, tanks and most importantly, service men and women to make the force work in joint and combined operations cannot happen overnight.

Contingency and daily operations with various pieces of each service, molded together should be the standard and not the exception. To work jointly and effectively, the services need to capitalize on three key concepts: Trust, Teamwork and Training. These three ingredients will bear the fruits of victory in today's ever changing world of political and economic turmoil. Once these three principles have been deep-seated, an innovative balance of service capabilities can be built and tailored to any given conflict that requires decisive power to be successful. [Ref 12:p. 56]

Additionally, with the downsizing of the military and fewer defense dollars to go around, the services can accomplish their respective missions and national objectives collectively at a lower cost. Innovation can breed success that is also affordable. These successes brought on by trust, teamwork and training not only serve the combat arms but can serve the military medical community as well.

2. Joint Operations in the Medical Community.

The cost of health care in the military has been increasing beyond what can be covered within budget constraints.

> Military medical costs have risen twice as fast as any other military cost. One main reason: the armed forces and the Veteran Affairs having to pay increasingly larger amounts to private health-care providers now being used to supplement in-house military care. [Ref 13:p. 45]

There are three factors causing an increase in the use of civilian providers. These are: (1) military hospital closures, (2) decreasing hospital budgets, (3) and decreasing hospital staff. These three factors have caused access to direct care services to become severely limited. As a result, the military is being compelled to apply the joint principles of trust, teamwork and training to develop innovative ways to provide accessible, quality health care at affordable costs.

One of the biggest changes in the last 25 years to effect health care delivery was the adoption of the all volunteer force. Prior to the 1970's, the military was composed predominantly of single men and women. Institution of the all volunteer force brought a much larger number of married members. This resulted in an increased numbers of dependent beneficiaries. Along with this trend came an increase in the number of beneficiaries retiring from service during and after World War II and the Korean war. With the Reagan administration came a dramatic increase in the size of the military force and a corresponding increase in health care costs (more people = more health care required).

a. CHAMPUS.

The Civilian Health and Medical Program for the Uniform Services (CHAMPUS) was introduced in the 1950's. Initially, CHAMPUS costs were relatively low because most beneficiaries were active duty and could be cared for using

military direct care facilities. As the years went on, and the number of bereficiaries (specifically active duty dependents and retirees) began to increase, demand for medical care began to rise beyond the capacity of the military facilities. Up until 1987 referrals by military medical commands to the civilian community under CHAMPUS were paid by the Office of the Secretary of Defense (OSD). Consequently, the military medical department neither incurred the direct costs associated with referring their patients to the civilian community nor saw the financial impact of it. As a result, the OSD had to request from Congress additional funds each year to cover outstanding CHAMPUS bills. [Ref 14:p. 10] In 1988 Congress shifted responsibility for funding and paying CHAMPUS expenditures from OSD to each military service's medical department. Each service would receive annual CHAMPUS funding and be held responsible to live within their budgets and pay their own bills.

As a result of this change in fiscal policy, the military medical community was compelled to develop innovative approaches to providing quality health care while simultaneously bringing escalating medical costs under control. Since 1988, the medical departments have been experimenting with different programs to solve this problem. The most successful program implemented to date is the joint coordinated "managed care" program. The goal of this program is to integrate all health care services and improve access to

high quality, cost-effective care. This "managed care" program works effectively because it weaves the three key ingredients, trust, teamwork and training into the three medical pillars of high quality, accessibility, and reduced cost.

b. Trust, Teamwork and Training.

Trust: The medical departments of each service have begun to trust each other in providing quality care to their service's beneficiaries. Working jointly is creating this trusting bond between the services.

Teamwork: Military services working together, side by side is not a new concept in the medical community. "Purple suitors" is a common name for people working in a joint environment such as medical technicians working with other services in military facilities. As the military medical services begin working together, each service is opening their doors for other service members and their dependents. Joint operations and teamwork are almost synonymous.

Training: Services training together in operations like Desert Storm and Restore Hope are recent examples of successful teamwork. The Tri-Services Coordinated Care (TRICARE) in the Tidewater area of Virginia is a perfect example of a successful medical treatment and training program consisting of the Army, Navy and Air Force working together to

provide quality care at lower costs and increasing accessibility to all military beneficiaries.

C. TRICARE HISTORY

The first meeting of the Joint Services/Office of the Assistant Secretary of Defense (OASD) Health Affairs Task Force for Coordinated Care Operations took place in June 1990. This group specifically addressed the need to establish a managed care system in the Tidewater area. In September 1990, the initial meeting of the tri-service MTF commanders (MTF Commanders at Langley AF Base, Fort Eustis and Portsmouth Naval Hospital) took place to discuss the concept of establishing a coordinated cachement area management project in Tidewater.

Although this is the first truly tri-service coordinated care effort, there have been several other programs aimed at controlling growing health care costs. One of these is Cachement Area Management. Within the 1988 CHAMPUS reallocation, Congress authorized a Cachement Area Management (CAM) demonstration project aimed at controlling growing CHAMPUS costs. Five separate (single service) military sites were selected to participate in the 3-year CAM demonstration: two Army, two Air Force and one Navy. Four primary objectives of the project were to:

1. contain the rate of growth in CHAMPUS costs;

2. improve accessibility to health care;

3. improve satisfaction with health care; and

4. maintain quality of health care. [Ref 15:p.11]

Still other initiatives (all joint arrangements) include the Joint Military Medical Command in San Antonio, TX (Army-Air Force), the Delaware Valley Health Services System (DV-HSS) (Army/Air Force/Navy) and the San Francisco Medical Command (SFMC) (Army/Air Force/Navy). Although the DV-HSS and the SFMC were tri-service, they were not managed/coordinated care programs. They still have long lists of sharing and cooperative efforts that serve as examples for others to follow.

To speed the progress of the TRICARE project, the Navy assembled a Rapid Implementation Team (RIT) in August 1991. Members of the team had expertise in the areas of communications, procurement, managed care and information systems. The RIT was comprised of nine military officers; seven Navy, one Army Reserve Medical Service Officer and one Air Force Physician.

On October 1, 1991, The Office of the Deputy Secretary of Defense (OSD) published a memorandum titled "Strengthening the Medical Functions of the Department of Defense." In this memorandum, he stated that

> with increasingly tight constraints on resources available for the national defense, the Department must pursue

> aggressively actions to execute its vital missions more effectively, including its medical mission.

Also in this memorandum he directs the implementation of several new initiatives, one specifically being a Coordinated Care Program (CCP). The memorandum states:

> The Assistant Secretary of Defense for Health Affairs shall implement a program to ensure coordination within appropriate geographical areas of the provision of medical care in DOD facilities with the provision of medical care through the Civilian Health and Medical Program of the Uniformed Services. The objective of the program shall be to maximize cost-effectiveness in the delivery of high-quality health care in the accomplishment of the Department's medical mission.

Less than one year later, on August 14, 1992, the Assistant Secretary of Defense for Health Affairs (ASD(HA)) published "Policy Guidelines On The Department of Defense Coordinated Care Program which describes the CCP as a program that

> 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, and ensuring quality care to all Military Health Services System (MHSS) beneficiaries.

Less than one month later, on October 1, 1992, TRICARE-Tidewater began operation as its three Service Centers opened their doors for business; one in Portsmouth, one at Langley AFB and one at Ft. Eustis.

D. TRICARE'S MISSION

TRICARE-Tidewater is a DOD CCP whose purpose is to optimize the utilization of the MTF's (NMC, Portsmouth; McDonald Army Hospital, FT Eustis; 1st Medical Group, Langley AFB) as well as a highly competitive civilian healthcare market in the Tidewater area. Their goals are to improve access to quality health care for all beneficiaries using the Military Health Service System (MHSS), enhance Graduate Medical Education and contain the increasing cost of CHAMPUS. TRICARE's health care delivery system is based on an HMO model where patients are channeled to an appropriate level of care through the use of a "Gatekeeper" or primary care physician.

E. TRICARE AREA

The TRICARE cachement area is made up of a 40-mile radius area surrounding its three major medical facilities. These are the Naval Medical Center (NMC) in Portsmouth, 1st Medical Group at Langley AFB, and McDonald Army Hospital at Ft. Eustis. This equates roughly to the area from Yorktown, VA to northern North Carolina and from the Atlantic Ocean to Richmond, VA. The Naval Medical Center, Portsmouth, located in Portsmouth, VA is the largest of the three facilities. It is a 446 bed tertiary care facility that sponsors many training, technical and graduate medical programs. The 1st

Medical Group and McDonald Army Hospital are much smaller with 70 and 57 beds respectively. Average annual outpatient visits by facility are shown in Figure 7.

ANNUAL OUTPATIENT VISITS BY FACILITY

Service/Facility	Annual Outpatient Visits*
NAVY: NMC, PORTSMOUTH	1,253,000
ARMY: McDONALD	260,000
AIR FORCE: 1st MED GROUP	340,000

FIGURE 7
***Annual figures are for FY-91**
(TRICARE-Tidewater brief)

By virtue of the relative size of NMC, Portsmouth, the Navy has been designated "lead agent" for the project. In addition to these large medical facilities, several smaller clinics are part of the service area. These include Army clinics at Ft. Lee, Ft. Story, Ft. Monroe and Ft. Eustis; and Navy clinics at NAS Oceana, Dam Neck, NAB Little Creek, Northwest Security Group, Yorktown Naval Weapons Station, and Norfolk's Naval Base, Naval Shipyard and Naval Air Station. The Tidewater area was chosen as the first CCP site for many reasons. These include the large local beneficiary population, the in-house capacity of existing MTF's and clinics and the abundance of local civilian providers.

Tidewater has one of the largest populations of military health care (including CHAMPUS) beneficiaries in the entire Department of Defense. The local population is made up of approximately 381,000 beneficiaries (active duty and dependent). They are broken up by service as shown in Figure 8.

BREAKDOWN OF BENEFICIARIES BY SERVICE

AIR FORCE	ARMY	MARINES	NAVY	TOTAL
45,662	46,993	10,354	278,072	381,081

FIGURE 8

Of these 381,081 beneficiaries, approximately 125,000 (33%) are active duty, 151,000 (40%) are active duty dependents and the remaining (27%) are retirees, their dependents and survivors. All are eligible for direct care (active duty have first priority, dependents second and retirees and their dependents/survivors third). Approximately 238,000 are eligible for CHAMPUS (active duty personnel and retirees over age 65 are not eligible).

The second reason the Tidewater area was chosen as the first CCP site is its ratio of population size to treatment facility capacity (comparison of supply and demand). Active duty military personnel are entitled, by law, to free medical care. It is also the policy of the medical department to

provide all other eligible beneficiaries with free in-house care but only when space is available. Unfortunately, the demand for care in the area far exceeds the capacity of the local military treatment facilities. A study (simulation) was done to estimate the maximum capacity of the MTF's, shipboard medical facilities and clinics in the Tidewater area (shipboard facilities can only treat shipboard personnel). In order to see the magnitude of the shortfall, the beneficiary population is divided into two basic categories, active and non-active duty (see Figure 9).

BREAKDOWN OF BENEFICIARIES BY TYPE OF DUTY

ACTIVE DUTY	**NUMBER OF BENEFICIARIES**
AFLOAT	61,000
ASHORE	64,000
NON ACTIVE DUTY	256,000
TOTAL	**381,000**

FIGURE 9

The total estimated capacity of treatment facilities was also broken down into the three basic categories based on the type of facility.

These are shipboard facilities, MTF's and clinics (see Figure 10).

In other words, the existing network of military medical facilities can care for a maximum population of 193,000 individuals.

FACILITY CAPACITY vs. FACILITY TYPE

FACILITY TYPE	CAPACITY
Shipboard	61,000
MTF's	92,000
Clinics	40,000
TOTAL	193,000

FIGURE 10

The local beneficiary population is 381,000; 125,000 of which are active duty and have first priority for treatment. This leaves 256,000 dependent and retiree beneficiaries (381,000 total-125,000 active duty) to compete for the remaining treatment capacity of 68,000 available appointments (193,000-125,000). This shortfall in capacity decreases the morale of the beneficiaries in the area because they are now spending hours on the phone trying to get an appointment. Additionally, it has increased the number of non-active duty beneficiaries that are forced to use CHAMPUS. Since CHAMPUS funds pay most of the cost of treatment from civilian

providers, as availability of direct care decreases, CHAMPUS costs increase. Since one of the goals of CCP is to contain costs and improve access to the direct care system, the Tidewater area is an excellent candidate for this program.

Still another reason the Tidewater area was chosen is its abundance of civilian health care providers. Within the 40-mile radius service area are nineteen general acute care hospitals, two children's hospitals, six psychiatric facilities and one orthopedic hospital. There is also an adequate supply of physicians representing all specialties. The hospitals in the Tidewater area range from 50-100 bed community hospitals to 500+ bed tertiary referral centers. The combined service offerings of these hospitals include all primary, secondary and tertiary services including trauma, open heart surgery, advanced cancer care, neonatal intensive care, burn care and transplant services. Practicing within the Tidewater service area are over 2,300 non-federal physicians representing all specialty areas. They are predominantly solo practitioners with a small portion representing small, single-specialty groups. Four locally operated HMO's also exist within the Tidewater service area. Associated with these HMO's are over 3,300 physicians and 53 hospitals. Some, but not all of the associated physicians and medical facilities are located within the Tidewater service area.

The average local civilian hospital occupancy rates range from approximately 60% - 75%. Although percentages vary from hospital to hospital, most facilities within the service area could absorb additional inpatient capacity. These moderate occupancy rates coupled with the large supply of providers resulted in a highly competitive local health care market. As the laws of supply and demand apply, the DoD has an advantage in the Tidewater area. If local providers want to be a part of the Preferred Provider Organization (PPO) within the new TRICARE organization, they must be willing to negotiate rates which are lower than existing CHAMPUS rates. To date, most providers have been willing to do this as long as the rates can be tied to volume guarantees. This arrangement not only guarantees a regular supply of customers for the civilian physician, it provides the government with a significant savings over existing CHAMPUS fees.

F. TRICARE MANAGEMENT STRUCTURE

TRICARE's oversight responsibilities belong to the Navy as lead agent and more specifically to the Commander in Chief, U.S. Atlantic Fleet (CINCLANTFLT). The TRICARE Commanders' Board is responsible to CINCLANFLT for planning, implementing, managing, and evaluating the CCP in the Tidewater area. The board is chaired by the Commanding Officer, Naval Hospital, Portsmouth; and consists of the Commanding Officer, McDonald Army Community Hospital, Fort Eustis; and the Commander, 1st

Medical Group, Langley Air Force Base. The TRICARE Project Office is responsible to the Commanders' Board for the daily operations of the TRICARE project.

The TRICARE Project Office is managed by an O-6 military officer who serves as Director and is charged with the daily functions and operations of the TRICARE project. The TRICARE Project Office has four major departments. The Resources Department coordinates the financial management, management information, and contract and agreement management systems. The Clinical Services Review Department establishes, maintains, supports, and oversees an effective Quality Improvement Program. The Plans and Operations Department; and the Marketing and Public Relations Department.

G. TRICARE OPERATIONAL PLAN

TRICARE's operational concept is based on improving access to care by coordinating all of the medical resources of the MTF and civilian providers. It is also based on controlling health care costs by providing beneficiaries lower cost alternatives to finance their medical expenses. Active duty personnel assigned to units in the Tidewater area will continue to receive their medical care from the MHSS. However, Non-active duty beneficiaries in the Tidewater area have three managed care options available to them in addition to the direct care system. The three managed care options are; TRICARE Prime, TRICARE Extra, and basic CHAMPUS.

TRICARE Prime and TRICARE Extra offer beneficiaries a smaller cost share percentage than CHAMPUS (i.e., dependents of active duty service members pay 15 percent of the negotiated rate as opposed to CHAMPUS's 20 percent). TRICARE Prime provides the same benefits available under CHAMPUS with additional benefit enhancements. These enhancements include periodic examinations and preventive care procedures that are not covered under CHAMPUS. Beneficiaries wishing to use TRICARE Prime are enrolled into the program and required to pay an annual enrollment fee instead of paying the normal CHAMPUS deductible. Enrollees are given the choice of an individual provider, a group practice, a clinic, or a treatment site participating in the PPO as their primary care manager who will act as a "gatekeeper" for specialty referrals.

TRICARE Extra covers the same medical services as CHAMPUS. In addition, beneficiaries choosing this option receive discounts for office visits and hospital inpatient care by using the PPO. Providers belonging to the PPO network offer predetermined rates lower than the CHAMPUS allowable rates. This plan gives the beneficiaries more freedom when choosing a provider as well as the financial plan because they do not have to enroll. Patients may choose to receive their care through TRICARE Extra, standard CHAMPUS, or the direct care system on a case-by-case basis.

If beneficiaries choose to use one of the TRICARE packages, they will be treated by a qualified health care provider that belongs to the Preferred Provider Network in the Tidewater area. The Preferred Provider Network as well as all the MTF's and clinics are integrated through the TRICARE Service Centers.

The Service Center functions as the hub of the managed care program in the Tidewater area. There is one service center located at or near each of the three MTF's. With a single phone call to one of these Service Centers, beneficiaries can schedule medical appointments in the MTF's, clinics, or at a civilian health care provider who belongs to the PPO network. Also, beneficiaries can receive information on medical benefits and assistance with medical claims and forms processing. The Service Centers can be the most critical component of the TRICARE program. Beneficiaries will judge the TRICARE system on whether the Service Centers are providing prompt and helpful assistance to their medical needs.

IV. VARIANCE ANALYSIS

A. INTRODUCTION

TRICARE is a change initiative in the way patients access health care in the Tidewater area. In the past, access to care had been a problem in the community. As mentioned in Chapter III, demand in this area exceeded capacity by 188,000 beneficiaries. There were 256,000 beneficiaries competing for 68,000 available appointments within the Military Health Services System (MHSS) which caused to frustration when attempting to secure an appointment. One administrator describes what a patient went through to make an appointment:

> [A patient would] call on Monday, first of all, you can't get through, and when you do get through, they tell you to call back next month. If you call back next month, and the line is busy, by the time you get through, they say, "Well, it's too late. Call back." Things like that just drove people crazy.

TRICARE's change effort concentrated all of the administrative booking systems into one centralized location to provide quick, dependable entry into the Tidewater health care delivery system with one phone call. This same administrator asserts that now:

> [A patient] calls up, he wants to be seen for a bad stomachache, his job is stressing him out. He calls up, he'll call our service center now for an appointment and he'll say, "I live right next to Boone Clinic, can you see

> me?" and they say, "I don't have anything at Boone Clinic right now, but we do have something in Sewell's Point, we have something at Oceana, or we don't have that, we have something at Fort Eustis." [or] "We have three doctors that are located in your ZIP code that accept CHAMPUS, would you like to speak with one of them?" And he says, "Yeah, I would."

With the consolidated booking system, patients can now make appointments within the MHSS with one phone call. If an appointment is not available within the MHSS, this system can locate a civilian doctor that will see military beneficiaries. This new system gives TRICARE the visibility to see where all the appointments are located within the area.

Beneficiaries and providers in the Tidewater area associate TRICARE, along with its success or failure, with the centralized booking system of the TRICARE Service Center. When a nurse was asked what TRICARE meant to her, she responded by saying:

> . . .when we refer to Tricare here, we're referring to the office in Portsmouth, the health care finders that help the dependents and retirees schedule appointments or direct them into clinics where they need to be seen. That's basically, I know there's a lot more involved to Tricare, that's basically the Tricare that we work with...

Many beneficiaries and providers don't realize that TRICARE is attempting to not only provide quick, dependable access to care, but it is also attempting to contain the rising costs of care by offering the new programs mentioned in Chapter III.

After interviewing many people at the clinics and at the service center and analyzing the data, some communication and

coordination problems among the patients, the service center, and the providers emerged. In this chapter, we will analyze this central function of accessing TRICARE through the service center.

B. COMMUNICATION AND COORDINATION

Health care organizations are extremely complicated in terms of coordination and communication. In health care organizations, the actual work of caring for patients is highly decentralized. Each provider treats his or her own patient away from everyone's scrutiny. One doctor maintains that:

> Doctors are pretty much special kind of people. We're sort of independent, most of us are intelligent, probably higher than average IQ. . .We tend to be self reliant and independent thinkers. We question pretty much everything and tend not to deal very well with authority and confront authority.

Coordination and communication among these health care professionals are controlled through the standardization of skills, knowledge and indoctrination that is learned through formal education and further polished through repetitive practice in the field. Because doctors are independent thinkers and self reliant, they make most of their decisions based on what they've learned and practiced. The same doctor says that they tend to:

> . . .make a lot of decisions based on bias rather than scientific [knowledge]; by habit and bias. . . .When I talk about bias I mean what my colleagues do, in the cafeteria over coffee, what I talk to my consultants about. Habit is just the way you've always done it. Medical decision making happens most by habit and least of all by science.

Therefore, the way to communicate with a doctor is not by using authority but by exercising peer pressure and using scientific data. For instance:

> . . .the way to change a physician's behavior is to show him data, facts. Just present the data, as long as it's verifiable, if I'm here and someone else is here (doing better than me - statistically), I'm going to go to you and say, ". . . can we talk about how you do this, or why you do this." The first thing is peer pressure and showing them the data and information and let them make the decision. That works much better than ordering doctors who are real independent and not real responsive to authority and by the way who. . .are you Mr. administrator to tell me how to practice medicine. Or even if you're the chief of staff, you only practice medicine a percentage of the time. The rest of the time you're playing golf and meeting with the board of directors.

These providers do, however, share administrative and support resources that are common to the organization. These services include such things as finance and accounting, registrar and records, and appointment booking. Unlike the providers, these services operate under the traditional, vertical organizational structure in which decisions are centralized at the top of the hierarchy. This creates an organization in which two parallel structures exist: one decentralized for the health care professionals and the other centralized for the support staff. These parallel structures

generate friction in communicating and coordinating among the various levels of a health care organization. Therefore, horizontal communication and coordination becomes critical to the success of this type of organization.

In the health care industry, it is not enough to have formal coordination methods in place for the administrative and supporting services and informal coordination methods for the professionals that provide the care. These two segments must be linked in order to have an effective and efficient organization. Procedures for communicating and coordinating across these different groups must be established.

TRICARE took the administrative responsibility of booking patients for appointments and consolidated it into one unit, the TRICARE Service Center. However, medical staffs at the clinics now feel frustrated by their inability to influence decisions related to the booking system. Failure to coordinate among the service center and the providers can result in delays in accessing the system and duplication of efforts. If there is not adequate coordination between the health care finder and the provider, patients may be directed to an inappropriate provider. If there is not adequate coordination, the providers may be reluctant to release their appointments. TRICARE must create mechanisms to link these two differently structured groups.

C. TRICARE SERVICE CENTER

The TRICARE Service Center established on October 1, 1992, is the nucleus of the managed care program in the Tidewater area. It controls the information flow from the patient to the provider. Nearly 400,000 beneficiaries access care through this consolidated booking system. It is a "one stop" information shopping center for all medical care in the area.

Before opening day, getting appointments for care at any medical treatment facility was very difficult. Appointment booking at the clinics was decentralized. Every clinic in the area made their own appointments. If a patient needed an appointment. he or she would have to shop around. Patients would have to call every clinic in the area to find an available appointment. Many patients never got through to the clinics to even ask for an appointment. For example, one beneficiary described his frustration with the system:

> [I] would try to make an appointment for my children, specifically my daughter for an eye appointment. I got on the phone and--I never got through. I tried to make an appointment at NavCare and I never got through to them either--I just gave up.

Additionally, when appointments were not available within the military system, patients were on their own to get care from a CHAMPUS civilian care provider. This meant more shopping; more valuable time on the phone. For most beneficiaries, calling around or visiting various clinics in search of a good

doctor at a reasonable price was frustrating and extremely time consuming.

The idea to consolidate the appointment booking system originated from the Rapid Implementation Team that was assembled in August 1991 to accelerate TRICARE's progress. They determined that a centralized booking system would increase accessibility of care in the community. A contract was awarded to Blue Cross-Blue Shield, and in less than one year the TRICARE Service Center commenced operations on 1 October 1992.

With the inauguration of the TRICARE Service Center, accessibility of care in the Tidewater area increased. The service center began its operations receiving roughly 1,000 phone calls per day. Currently, the service center receives approximately 3,500 phone calls a day, totaling about 40,000 calls a month; and, the number of appointments scheduled is increasing rapidly. The TRICARE Service Center has increased accessibility by streamlining communication and networks from the patient to the medical care providers throughout the Tidewater area.

The TRICARE Service Center is functionally organized to assist military families with most of their health care needs. A simple phone call allows the patient to ask general CHAMPUS and TRICARE questions; check benefit coverage; utilize the Health Care Finder functions and schedule appointments. Sixty-six employees are organized into three divisions of

labor with a director supervising the entire operation and mediating with the TRICARE Project Office, Managed Care Office, and CHAMPUS. The three divisions are:

1. Health Care Finders. Currently, there are 52 Health Care Finders. Their primary responsibility is to respond to all questions from the beneficiaries regarding medical treatment facilities and network care in the Tidewater area. These Health Care Finders will also make appointments for authorized beneficiaries seeking treatment with the Medical Treatment Facilities or the network.

2. Health Benefit Advisors: Currently there are nine Health Benefit Advisors that work in the TRICARE Service Center. They serve as a single point of contact for all Health Service System Beneficiaries regarding health benefits programs available to active duty, retired members, and their dependents. They provide information and assistance concerning in-patient and out-patient medical care at military and civilian treatment facilities. They also assist beneficiaries in processing medical claims and provide expert advice concerning eligibility requirements.

3. Provider Specialists: Currently there are five Provider Specialists working at the TRICARE Service Center. Their primary responsibility is to respond to the needs of over 1,000 network civilian providers within the Tidewater community. They organize educational workshops and seminars and verify credentials for all the civilian providers in the

network. They also recruit providers for the network when necessary. They are the liaison between TRICARE and the civilian providers.

All these functions are supported by a sophisticated telephone system and an automated Digital Computer System. The telephone system is an automatic call distribution system that receives incoming calls and distributes the call to the next available Health Care Finder. The system allows managers to:

- Monitor telephone conversations to ensure quality of information.
- Track peak periods of incoming calls for staffing purposes.

The telephone system is also designed for conference calling between the Health Care Finders, beneficiaries, clinics and Network Providers.

The TRICARE Service Center is also on-line with a Digital Computer system, and all the service center employees have access to the Composite Health Care System (CHCS) Patient Appointment Scheduling software application. This computer system has a central data base which is used by all facilities. It provides both the clinic and the service center the ability to share scheduling capability and resources. Each Health Care Finder has a terminal at his or her desk for booking appointments at all the clinics that provide them with either full or co-booking authority. Health

Care Finders can register beneficiaries into the CHCS system and verify or update demographic information with each call.

All staff personnel also have a current publication of the Directory of Military Clinical Services which assists them with booking and referral criteria. This publication is a desk reference guide for the care finders. It provides them the specifics for booking appointments at all the clinics. This information is compiled from all the clinics throughout the Tidewater area and is updated regularly. This publication does not include information concerning civilian providers participating in the PPO network. It includes only military treatment facilities.

The primary mission of the TRICARE Service Center is to assist the beneficiary in obtaining health care as quickly as possible within the direct care system. If this is not acceptable, than the beneficiary has the option to obtain care through the civilian Preferred Provider Network. The TRICARE Service Center has approximately 80 percent (52 of the 66 employees) of the labor force assigned as Health Care Finders.

D. TRICARE: WHAT'S WORKING AND WHAT'S NOT

We conducted interviews with members of all organizational levels in the medical profession from management to health care providers in the Tidewater community. From these interviews we were able to determine which aspects of TRICARE were working and which were not.

1. What's Working

TRICARE is effectively reducing the administrative workload at the clinics. The clinicians at the clinic can spend more time taking care of the patient's needs and less time on the telephone booking appointments. During an interview with the Admiral, he stated that...

> The TRICARE Service Center has taken a tremendous amount of workload off the clinics in the fact that they don't have to answer the phone all day every day. More and more clinics have turned over almost all of their appointments to the TRICARE Service Center. This is a direct result people have seen that its (TRICARE) is working.

All the nurses that were interviewed agreed with the Admiral's statement. The nurses claim that consolidating the booking system has allowed them to better utilize their staff. Medical staff that were being used to make appointments before can now be used to provide medical services for the patient. Their administrative workload was reduced by removing the responsibility of booking appointments.

The TRICARE Service Center management and staff believe that TRICARE is increasing the accessibility of care for all of the beneficiaries in the Tidewater community. This is substantiated by one beneficiary who stated how great the service center is:

> I called into the TRICARE Service Center and within five minutes I had an appointment at the hospital and the paperwork was all done for me. This is great! What a system.

The clinical staff at the clinics believe that the implementation of TRICARE, has significantly improved the clinic's utilization rate. The CHCS on-line computer system shared between the TRICARE Service Center and the clinics has been very effective in streamlining the appointment system and reducing the overload at the walk in clinics. As one nurse at an acute care clinic (MACD) clinic stated...

> We have seen just in instituting TRICARE a vast improvement in the utilization of this department. Anybody who could not get an appointment anyplace else would come here because we were one of two places in the entire area that did not require an appointment. It was us and the hospital ER.
>
> With TRICARE, we don't have this hallway full of people sitting for five hours waiting to be seen.

Prior to TRICARE the MACD averaged 90-100 patients in 16 hours with only eight beds. Currently, with the implementation of TRICARE the number of patients serviced at the MACD has decreased to an average of 60-70 in the same time span. This decrease has allowed the MACD clinic to utilize their resources more effectively. As one nurse at the MACD states...

> This is not an ER. So we would fre ntly end up bagging people and get them all gathered u nd send them out.
>
> It's made a big difference to us because we've been able to get to those who could be seen elsewhere.

2. What's Not Working

As with any new organizational change, TRICARE has had its share of growing pains. Admiral McDaniel, believes that the hardest lesson learned from the introduction of TRICARE is the importance of effectively communicating to everyone what TRICARE is all about. The marketing program aimed at educating everyone must be rudimentary in design. Admiral McDaniel's advice to anyone starting a program like TRICARE is...

> you have got to get elemental. You have got to get so elemental you think you're insulting the intelligence of everybody out there. . .Absolutely the number one lesson learned out of this as far as I'm concerned is the incredible difficulty of communicating effectively.

At the TRICARE Service Center, the Health Care Finders who were interviewed find the beneficiaries confused about the concept of the TRICARE Service Center. The beneficiaries think that by increasing the access of care you have also increased the access to free care. As one Health Care Finder puts it...

> The beneficiaries I talk to thought that TRICARE was still affiliated with the service, and still free care--regardless of where they went.

Again, we see that it is imperative to educate the beneficiaries on what the program can offer and what to expect when you call the TRICARE Service Center. The TRICARE Service Center is providing a passageway for increased communication

and networking among the staffs of the local military hospitals and clinics.

The providers at the specialty clinics are struggling with the TRICARE Service Center booking appointments for them. The hospital's central appointments department booked appointments for the specialty clinics prior to the introduction of TRICARE. Appointment clerks at the hospital had many years of experience booking consult appointments with the specialty clinics such as the Ear, Nose and Throat Clinic. Routinely, the TRICARE Health Care Finder gets a certain number of slots available for booking appointments at the specialty clinic. Unfortunately, there are more patients with consults then there are slots available. So the problem comes down to learning the system (corporate knowledge) and developing a good feedback loop between the clinic and the TRICARE Service Center.

As we review the points made from all organizational levels of the military medical community of Tidewater, one general theme that's not working with TRICARE is the flow of information. The flow of information between the patient, the care finder, and the provider needs to be improved.

This chapter will address the information flow process of providing access to the health care system and, through a variance analysis, identify the key variances. When these variances are controlled, the information flow will improve and ultimately improve the system as a whole. The TRICARE

Service Center is the hub of the information flow. Therefore, the analysis is concentrated on this operation. Finally, in Chapter V, we will draw conclusions and provide recommendations to control the flow of information and process it more effectively at the TRICARE Service Center and the clinics.

E. VARIANCE ANALYSIS

> "Effective organizations are those which produce excellent results by any measure of costs, quality, or efficiency while simultaneously enhancing the energy and commitment of organizational members to the success of the enterprise." [Ref 16:p. 1]

Our objective is to analyze the TRICARE Service Center concept and operations and identify more effective ways of processing information from the patient through the service center to the provider. As the TRICARE project faces increasing pressures from other competitive health delivery systems, escalating pressures from government regulations and their own internal problems, our objective is not to suggest that the Service Center needs improvement, but more importantly what can the TRICARE Service Center do to improve the overall delivery of health care. The usefulness of this analysis will not be limited to the Tidewater TRICARE project, but to any community that is aggressively pursuing a better way to deliver health care to its beneficiaries.

The sociotechnical systems approach to organizational design will be the underlying framework for our analysis. The sociotechnical systems theory implies that every organization is made up of people (the social system) using tools, techniques and knowledge (the technical system) to produce a service valued by its customers. [Ref 16:pp. 55-56] The TRICARE Service Center is a new organization placed in the constraint of the military culture, powerful leadership, and bureaucracy. It is a mixture of labor relying on a sophisticated technical system to acquire inputs, and it must transform these inputs into outputs and provide services to beneficiaries. Health care delivery is an industry with a significantly complex mixture of technical and social components, one particularly suited for sociotechnical system analysis. [Ref 17:p. 315]

The degree of impact that technical arrangements have on the TRICARE Service Center's organizational performance is significant. The TRICARE Service Center's technical system is intensive and requires interdependence among various providers to complete the required tasks. This demands coordination of accurate information and communications. Higher technological complexity requires higher levels of communication [Ref 19:p. 56]. The health care finders in the service center rely on the constraints of the computer system and telephone system to satisfy the needs of the beneficiaries. It is for these reasons that our analysis of the Service Center will focus on

only the technical system design principles of the social technical systems analysis.

The primary objective of our technical system analysis is to discover factors which, acting singularly or in concert with one another, detract from the effective operation of the technical system. [Ref 16:p. 68] Once we have discovered these factors we will then develop innovative ways to control these variances.

Our analysis of the TRICARE Service Center's technical systems will follow the following work flow stages:

1. Analyze the work flow and list the major steps in the transformation process in the order in which they occur
2. Conduct interviews and determine variances that occur in the transformation process
3. Construct a variance analysis matrix which identifies the interrelations among the variances
4. Use the variance matrix to identify key variances
   - impact on success criteria
   - effect on other variances, particularly in other operations
5. Construct a key variance control table
6. Suggest technical changes using sociotechnical system design principles

STEP 1: WORK FLOW ANALYSIS. The work flow process is based on the employee interviews that we conducted at the TRICARE Service Center and the Medical Treatment Facilities in the Tidewater community during our research visit in September 1993. We divided up the work flow into three explicit phases. We traced a call from the patient's initial contact with the

service center to the facility where the patient will receive treatment.

The information work flow process consists of three phases (See figure 11). Each phase is arranged in chronological order. There are technological or work transitions that define the boundaries between each of the phases. The boundary between phase I and phase II is a technological one. The boundary between phase II and phase III is a work transition boundary.

WORK FLOW PROCESS

PHASE I **INITIAL PATIENT CONTACT PHASE**
PHASE II **PROCESS PATIENT'S REQUEST FOR HEALTH CARE**
PHASE III **PROVIDE TREATMENT**

Figure 11

Phase I is the initial beneficiary contact phase. It consists of the initial contact made by the service center's Health Care Finder (HCF) and the beneficiary requesting health care. Basically, the beneficiary telephones the TRICARE Service Center requesting an appointment. The care

finder makes initial contact with the beneficiary and obtains background data, for example: "what type of care are you requesting?" The beneficiary may also call in to the service center and ask questions pertaining to the Medical Treatment Facilities and Network care in the Tidewater area. These calls do not require booking appointments.

Phase II is where the patient's request for care is processed. This phase consists of booking the appointment for the patient. This phase begins with the care finder accessing the CHCS computer to begin to book an appointment for the beneficiary at a Medical Treatment Facility. It includes the Health Care Finder's process for finding availability of an appointment which will satisfy the beneficiary's needs. The Health Care Finder may offer other options of health care to the beneficiary should an appointment not be available at the time or location requested. These options include:

1. Offering an alternative time and or location within the direct care system.
2. Making an offer to the beneficiary to utilize the network (PPO) system.

Should the beneficiary decline primary care either with the direct care system or through the network, the patient is considered "handled" and no working file is generated. Should the beneficiary accept the primary care option, the Health Care Finder books the appointment using the CHCS

computer system. The beneficiary is given an appointment place, date, time, and any special instructions. Additionally, the Health Care Finder has the option to contact the clinic and book the appointment by means of a teleconference call if the request is complex.

Phase III is the period where the patient receives care from the provider. This phase starts at the time when the appointment is booked by the service center. The phase is completed after the patient receives care from the provider and leaves the medical facility.

STEP 2: CONDUCT INTERVIEWS AND DETERMINE VARIANCES. After the steps in the work flow were identified, we then conducted interviews with personnel in the work flow process and determined the variances within the transformation process. Variances are defined as unexpected or unwanted deviations from standard operating conditions or specifications. [Ref 19:pp. 73-74] Within the three major work flow phases, we have identified 13 incongruities that could lead to disruptions in the process of channeling the patient through the system effectively and efficiently. We also identified the key criteria which can be used to judge the success of the health care system. The following are the variances:

1. With a phone call from a prospective patient to the TRICARE Service Center the patient has taken the first step in accessing the TRICARE health care delivery system. This

initial contact can lead to some misunderstandings. For instance, the patients, unsure of what is wrong with them, may not convey what they need to the care finder and obtain the wrong appointment. One care finder claims that:

> . . .[it] happens a lot. They don't know exactly what's wrong with them. And then you have to sit there and keep asking and asking and pulling out.

The patients must tell the care finder what kind of appointment they need. The patient must also give the care finder other information that may be useful in finding an appropriate provider. For instance, the patients must inform the care finder if it is a trauma that occurred within the previous 24 hours. They must inform the care finder if they're pregnant. They must inform the care finder if they are having menstrual irregularities. They must inform the care finder if they are having problems breathing. These are some examples of information that the patient can give the care finder to make it easier to find the appropriate provider.

For instance, a woman may call up and ask for an appointment because she is feeling nauseous but does not tell the care finder that she is pregnant. The care finder then books her for a regular appointment with a doctor or with a clinic that doesn't see pregnancy related problems. The clinic or provider is then forced to either find someone else who can treat the patient or treat the patient themselves. Sometimes the patient may not mention when an

injury occurred and may be sent to a wrong location. When a patient is injured and requests an appointment, they must tell the care finder what part of their body is injured. They must tell the care finders when the injury occurred and how it occurred. This are examples of information that would make it easier for the care finder find to find an appropriate provider for an injured patient. One nurse says that many patients will call up and:

> . . .say I need an appointment and the health care finder says what happened, they'll say my foot. A lot of them just give you the part of the body. . . .then I go well what about your foot? Well, it hurts. Well, did you injure it? Well yes, yesterday I was playing basketball, and I twisted it.

This same nurse says that they have had a couple of patients come in for regular appointments that were emergency situations. They were given a regular appointment because the parents did not convey to the care finder that their children were having extreme difficulty breathing and were not given an immediate appointment or told to take the children to the emergency room. She says that:

> We have had a couple of patients come in, one that we had--was almost coded on as a matter of fact--that had come in and parent said "My child is wheezing." So TRICARE wrote "child is wheezing." And, you know, we'll schedule them an appointment for later on today. I don't know who was at fault here. Parents should know if their child is having that much trouble breathing, that they should be taking them to the emergency room. But, when TRICARE says "Okay, you've got an appointment in, you know, an hour and a half," then they wait that hour and a half and the child almost dies.

There are also occasions when a patient may want the request to be misunderstood to secure an appointment they may otherwise not obtain. Many beneficiaries learn what to say to the care finder to ensure they receive an appointment. They learn what the care finder is listening for and know what to say and what not to say. A nurse says that:

> . . .patients call, and I've been guilty of that too; I know what punches their buttons so I don't say a word. And I get into the clinic without being in the criteria they set. I have a wheezing child. I know it's not bad so I tell them they're not wheezing. Then I go in, they say there's wheezing, they give them medicine and they go home. . .And that causes the big discrepancies which it causes now.

The care finder will schedule the patient with a provider based on the inaccurate information. The assigned provider may be a suitable doctor. However, without accurate information, the care finder will have a difficult time accurately matching the patient with an appropriate provider. The provider assigned to the patient may not have the capabilities needed to treat the patient.

2. Another misinterpretation may occur if the health care finder does not ask appropriate and sufficient questions, and thus assign the patient to an incompatible provider. Currently, the appointment making process is patient driven. The care finder only asks basic questions such as: "Who is this care for?"; "What type of care do you

need?"; "Where and when would you like to schedule the appointment?" Care finders are not permitted to ask triage questions that could assist them in matching the patient with the right provider. Triage questions are basic medical questions used to ascertain the specific medical condition of the patient. Examples of such questions are: "How high is your child's fever?"; "How many times have you vomited in the last few hours?"; etc.

One care finder said that she booked a:

> . . .I booked a lady for a medical problem--[and] because I didn't do any triage, I didn't ask her any questions except the basic--[and] they don't see women that are pregnant. Well, this lady was seven months pregnant. But, that wasn't a question that needed to be asked.

Another example came from a nurse who told a story about a pregnant lady who was assigned to her clinic inappropriately as a result of not asking triage questions and how the situation became a crisis:

> . . .like this is an example that happened today. A woman called up, she said I need an OB/GYN appointment. She said I'm vomiting. I have nausea. . .So they gave her an appointment at our sick call. She's the one who's now being hydrated in the emergency room because when we got her. We said we don't see pregnant ladies with any kind of pregnancy related problem. She should not have been booked in. [Now] The OB doc sees her and decides whoa you know she's sick she needs to be in the urgent care with, getting IV hydration. That's somebody that should not even have been in this clinic. . .She needed to go through Portsmouth.

If the care finder had asked some triage questions the woman may have been assigned with an appropriate provider.

3. Many patients may not be enrolled in the program for various reasons. Therefore, during the initial patient contact, the health care finder may not have access to the patients' history. If the history is not present in the computer system, the care finder may not know if the patient is eligible for care. This may make it difficult to provide quick service to the patient or it may cause the care finder to turn down an eligible patient from receiving care.

4. As part of their quality control, health care finders are allotted ten minutes per phone call. Most care finders average five minutes per call. One way the TRICARE Service Center measures their effectiveness is by using time per phone call. Their goal is to process as many claims and requests for appointments as possible. However, at times the complexity of a patient's call may require more time to provide better service to the patient. Some calls will become lengthy "going-nowhere" calls. These calls must be controlled and terminated. But other calls will require legitimate, intensive research. For instance, one care finder told about a call she received:

> . . .the other day, I had a patient she called me, she was active duty and got out of military and went into the reserves and had a baby a month ago. She was

> calling to get care for her baby. The baby and the mother were showing up on our network as ineligible.

This forced the care finder to devote extra time to call a couple of places for information. She called the Personnel Support Detachment and the woman's previous command to find out whether she was eligible to receive care or not. The care finder found out that:

> Someone had misinformed [the patient] that once she was released from the military and 1 month after she had the baby that both of them would still be eligible for care. But this did not necessarily mean 7 months down the road. So she got out of the military when she got pregnant. So she was informed by her command that she would receive care, when in fact her time had run out.

This caused the care finder to research the case to determine that the patient was not eligible for care. The care finder exceeded the allotted ten minutes, but she provided quality assistance to the patient.

5. After obtaining information such as who the appointment is for, why the patient needs to be seen, and where and when the patient would like the appointment, the care finder attempts to process the patient's request. However, sometimes the health care finder may be unsure as to which provider the patient needs to see. For instance, a mother calls for an appointment for her 15 year old daughter in pediatrics. The care finder than looks at the *Directory of Military Clinical Services* to determine what pediatric clinic will take her. Some pediatric clinics will

treat children up to the age of 12 or 13. Other clinics will take them up to the age of 18. However, most pediatric clinics will not take a female patient for "female problems." So these patients must be referred to the OB/GYN clinics. Since the care finders' job is patient-driven and can't ask simple triage questions, the care finder may be unsure if she can make an appointment for the patient at the pediatric clinic that will see children up to the age of 16 or not. What if the patient wants to be seen for "female problems," and the care finder cannot ask the appropriate question to assist in matching the patient with the appropriate provider? She may assign the patient to the pediatric clinic as the mother requested, but in fact, the patient needed to be seen at an OB/GYN clinic.

Another example is when a patient calls and says "I have a cut in my arm. I need an appointment to see a doctor." Does the care finder direct the patient to the emergency room or can the care finder steer the patient to an acute care clinic that takes care of minor lacerations? The care finder may be unsure where to direct the patient because she is not allowed to ask simple triage questions such as "Is this a small cut or are you bleeding profusely?" If it's a small cut the care finder may refer the patient to the nearest acute care clinic. However, if the cut is large and the patient is bleeding profusely the care finder may refer the patient to the nearest emergency room. These are

examples of situations that can cause the care finder to be confused about where to send the patient and can lead to inappropriately matching the patient with the wrong provider.

6. As with any new program, beneficiaries may be unclear about the newly established procedures. In Tidewater, patients may be unclear about how the new TRICARE managed care program works. Unfamiliarity alone does not detract from a patient effectively accessing the health care system. Incongruities occur when, through ignorance, patients refuse to acquiesce to the new system and cause disruptions by fighting the system.

a. For example, unfamiliarity with the appointment booking system in the Tidewater area may lead to some confusion. One care finder says that:

> A lot of people still don't understand the concept of booking the appointments and scheduling appointments with the clinics. . .I had a young lady call about an hour ago. She called to make an appointment for her child, and the clinic she wanted to go to, there wasn't an appointment available, and I offered her another clinic.

The care finder went on to explain that the patient didn't believe her, so she called the clinic herself. The clinic didn't have an appointment available; however, the clinic treated her anyway. By squeezing the patient into the full day's schedule, other patients were forced to wait for their scheduled appointment. This is where the deviation occurs.

There is no deviation from assigning the patient to an appropriate provider because the patient does not understand the system. The deviation occurs when the clinic does not refer the patient to the Service Center and treats the patient.

Many beneficiaries ignore the new appointment booking procedures altogether and call the clinics directly. Many clinics are not equipped to handle incoming calls for appointments, however. As a result, these calls will disrupt the clinics' main mission, to provide quality care to the patients. Many times what results is an unsatisfied customer who blames their inability to secure an appointment on the service center. One care finder says that these unsatisfied patients can become "very upset, sometimes outrageously rude and start yelling at you."

b. Another example is when beneficiaries insist on receiving care within the MHSS. They insist on receiving care through the military because they believe that they rate free health care and don't understand the military health care system in the Tidewater area. However, military health care is only guaranteed to active duty personnel. Dependents and retirees are not guaranteed access to free care. The military will attempt to provide free care when ever possible. But, if care is not available through the MHSS, dependents and retirees are encouraged to seek care with providers who accept CHAMPUS or belong to PPO network.

Also people may insist on receiving care through the MHSS because they like the quality of care the military offers. Or, some retirees insist on receiving care through the MHSS because that is the only thing they know; they are unwilling to change.

These people make it difficult for the care finder to provide quick, dependable access to health care. If people insist on seeing only military providers, the system breaks down when they are forced to wait until an appointment is available. However, if they were willing to utilize the PPO network, they could be guaranteed an appointment almost immediately. These people cause an unnecessary disruption in channeling the patient to an appropriate provider.

c. Still another example is when patients are confused about the TRICARE health care options and what they offer. Many patients turn down the PPO option and insist on receiving care through the MHSS because they are unsure of what they're getting into. They don't know what options they are eligible for (i.e., TRICARE Prime, TRICARE Extra, or standard CHAMPUS as mentioned in Chapter III). They don't know how much each option will cost them. For instance, they may not know that TRICARE Prime will require an annual enrollment fee instead of paying the normal CHAMPUS deductible. One care finder mentioned that she had a beneficiary walk in one day that refused to use the provider network. He "would much rather prefer to go to the

naval hospital," than receive care from a non-military provider. The care finder went on to say that this beneficiary had been using the MHSS for over 20 years, and he just did not understand the new options and refused to try them. Again, these beneficiaries detract from the effective operation of the TRICARE managed care program by placing a burden on the booking system and the military providers. As mentioned before, the MHSS does not have the capacity to provide health care to the beneficiaries in the area. If patients insist on being treated by military providers instead of civilian providers participating in the PPO network, they will make it extremely difficult for system to provide quick, dependable access to health care. It is extremely difficult to provide beneficiaries access to care when they refuse to utilize the PPO network.

7. As the care finders attempt to process the patients' request, they may be unfamiliar with the clinics' services and booking criteria. A clinic's booking criteria are conditions that patients must meet to receive an appointment in that particular clinic. These booking criteria are generated at the clinics and made available to the Service Center for the care finders to use when scheduling appointments. All the clinics' booking criteria are held in a document called Directory of Military Clinical Services. Each care finder has a copy of this document by his or her terminal.

For instance, Boone Clinic's pediatric department has 8 pages of booking criteria. It does not treat patients with serious illnesses and injuries requiring emergency evaluation. These patients should be directed to the nearest emergency room. The booking criteria goes on to list 12 examples of emergencies that are not treated there. The booking criteria lists five pediatric doctors and two pediatric nurse practitioners available to treat patients. The booking criteria also lists 12 symptoms or complaints that are not to be assigned to a nurse practitioner. The booking criteria lists 15 special requests and instructions for booking a "well baby" appointment at their clinic. Finally, the booking criteria lists 16 general booking information.

Some clinics' booking criteria are extremely complicated and make it difficult for the care finder to understand the clinics' rules. To circumvent this problem, one OB/GYN clinic has established a screening appointment where all patients requesting an OB/GYN appointment will be sent. During this screening, the provider will determine what kind of care the patient requires. This removes the need for the care finder to ask triage questions or for complicated booking criteria.

Here is an example of a patient being assigned to the wrong appointment because of complicated booking criteria; a woman calls for an appointment for a mammogram. This woman

has had breast implants. A care finder sets an appointment with a clinic for a mammogram. However, the care finder doesn't know that the clinic will not perform mammograms on women that have had implants. Or, the appointment is set for 20 minutes. However, it requires the clinic one hour to perform a mammogram on women that have had breast implants. Another example is that the care finder does not realize that independent duty corpsmen do not do pelvic exams and assign a female to one. Another example is that a care finder may assign a female for a pap exam at one of the clinics. Whenever a pap exam is given, a female must be present. However, the care finder may not know that the clinic has no available females to be present during the pap exam. This changes on a daily basis. The clinics may have other commitments for that day ,and therefore, may not have the available staff to conduct a pap exam. The deviation occurs when the clinics' booking criteria are so complicated it causes the care finder to misunderstand them and assign patients to wrong providers.

Care finders do have the ability to talk to providers while talking to the patient if the request is too complex. Many times the care finder does not know whether a specific provider can provide the services the patient is seeking. Or the care finder is instructed to contact the clinics if the patient presents certain ailments. The care finder can then conference call and talk to the provider as well as the

patient. For instance, one nurse says that "if the people present. . .problems [such] as chest pain, wheezing, bleeding from any orifice, they should conference call with the nurse" at the clinic. Conference calling allows the care finder the flexibility to ensure the patient is being directed to the appropriate provider.

However, many times this option is not used by the care finder. One reason is that the care finder is pressured into keeping the calls down to ten minutes. If the care finder takes the time to conference call, the call will more than likely take longer than ten minutes. Another reason the care finder does not conference call is that she may not realize it is needed. This may cause some disruptions in matching the patient with the right provider. By not conference calling when a care finder is unsure whether a provider can treat the patient, the care finder is running the risk of sending the patient to a provider who does not treat that particular ailment.

8. Lack of knowledge of the health care system or unfamiliarity of the area may lead the patient to misinterpret the appointment. One nurse states that patients have been showing up at her clinic recently that do not have an appointment. When they check the computer, they find that the patient has an appointment at one of the other clinics. She says:

They're showing up at (our clinic). We show no record of them having an appointment and we look at TRICARE, or in the computer CHCS and they actually have the appointment at Navcare or another site.

This may occur because the patient may get the wrong time and place for the appointment. Or, they may not know what clinic they have their appointment in. For instance, in the Tidewater area there are two NAVCARE clinics. Many times the patient may not know that there are two clinics and may show up at the wrong one. Many beneficiaries don't realize how many clinics there are in the area. They don't know the clinics' names. All they know is that there is a clinic close to where they live or work. And when they call for an appointment and they're told that they have an appointment at Boone clinic, it is possible that they will assume that they just made an appointment at the clinic close to where they live or work such as Oceana which is 20 miles away from Boone Clinic. Again, this can impede the channeling of the patient to an appropriate provider.

9. Many times, appointments require special instructions. Some examples are:

"Do not eat anything after 10 pm the night before your lab work-up."

"Please bring any medication that you are currently taking with you to the appointment."

"Bring your medical and shot records with you to the appointment."

"Please ensure that you have all the forms that need to be filled out and signed for your physical examination."

"Please bring appropriate clothing for your physical therapy appointment, such as shorts and a T-shirt."

"Please bring in a urine specimen for your appointment."

And many times, these special instructions are misunderstood by the patient or just not communicated well by the care finder. The care finder may also forget to give these special instructions to the patient. This causes some disruptions if the patient does not follow the instructions. It can either prolong the appointment or delay the appointment until the instructions are carried out.

10. As the health care finder attempts to process the patients' request, problems may arise as a result of the patient being unaware that the illness is an emergency. For example, one nurse stated that a young mother had called in for an appointment for her baby because the baby wasn't taking the bottle. Well, as it turned out, the baby was dehydrating and needed to be taken to an emergency room. Another patient called in to see a doctor. He had been in an automobile accident the day before and had hurt his head. He was now feeling dizzy and wanted to see a doctor. This man didn't need an appointment; he needed to go to the emergency room. One mother called for an appointment because her son had a cold and was having problems breathing. As it turned out, this boy was having extreme

problems breathing. When he showed up for his appointment a couple of hours later, he was immediately evacuated to the nearest emergency room. These are examples of how not knowing the illness is an emergency can cause the care finder to match the patient with the wrong provider.

11. There are times when the patient, after receiving an appointment, will have to wait for service. One administrator mentioned that this is especially true in the specialty clinics. For example, the ears, nose, and throat clinic has approximately 100 appointment slots available per month. However, in any given month, there may be as many as 200 patients being referred to this specialty clinic. The care finders are forced to squeeze these 200 patients into the 100 available slots. As a result, the specialty doctors are now forced to treat 200 patients and will inevitably fall behind schedule. This will force the patients to arrive at an appointed time and sit at the clinic waiting for service. This is definitely an interruption in the process of channeling the patient through the health care system efficiently and effectively. Also, the orthopedic clinic treats roughly 5,500 patients per month. However, there are about 6,300 patients needing appointments leaving a backlog of 800 patients.

There are a couple of reasons why these two specialty clinics are overloaded with patients. One reason is that these clinics have a set amount of appointments per month.

However they are not regulated. These set amount of appointments are not distributed to the clinics. The clinics are not aware how many patients they can refer to these specialty clinics in a given time frame. These clinics are not restricted on the amount of patient they can refer to the specialty clinics. The clinics acting as gate keepers for these specialty clinics need to know how many appointment slots are available for them to refer patients to. In the case of the complex orthopedic clinic, patients are referred to the clinic without specifying what kind of orthopedic subspecialty is required (i.e., hand, back, leg, etc.). This causes the patient to be seen more than once to accurately treat the problem, and subsequently, causes a backlog in the system. Most of the 5,500 patients being seen and the 800 waiting to be seen are revisits. The clinics referring these patients to the orthopedic clinic need to specify what subspecialty is required to treat the patient.

12. Once the appointment is made, sometimes care may not be available at the facility. Perhaps after the appointment was made, the doctor is not available. For instance, a nurse at a clinic described how a doctor walked up to her at 1000 one day, told her that he had to run to court and that he was going to be back after noon. When the patients showed up there was no care available for them.

Another nurse described an incident concerning a flight surgeon. Not every clinic has a flight surgeon available. Therefore, when service men and women assigned to their clinic need to be seen by a flight surgeon, the clinic calls the nearest place with a flight surgeon and books an appointment. In this case, an appointment to see a flight surgeon was made for a particular day. However, the flight surgeon was not available on that day. The flight surgeon had failed to inform the staff that he was not going to be in that particular day. According to one nurse, these situations happen almost every day. One nurse describes how every day the available staff changes. Maybe someone had to take emergency leave; maybe someone had to go to court; or just maybe someone had to attend a last minute meeting. These situations may cause the care not to be available for the patients when they show up for their appointments.

If an appointment is made with a wrong provider, that patient may show up for his appointment to find that there is no care available for him. For example, one day a boy was scheduled for an appointment with a doctor who specializes in internal medicine. This provider, however, does not treat children. When the mother arrived with her son for her appointment, there was no care available for him. The clinic had to squeeze him in with another doctor. This of course causes other problems. The doctor who sees

this patient will now be running behind schedule, and all his assigned patients will not be seen on time.

The clinic must inform the Service Center when there are changes in the ability to provide the care they advertise. If it is a permanent change, the clinics must revise their booking criteria. If it is a temporary, planned change, the clinics must inform the Service Center with plenty of time to respond to the change. If it is a last minute change, the clinic must inform the Service Center immediately to prevent any patient from being assigned a provider or care that is not available.

13. We determined that the critical success in channeling the patient through the health care system is when the patient receives care. The whole reason the clinics exist is to provide care to the beneficiaries. The main mission of these clinics is to provide quality care to the patient. Therefore, the actual treatment received by a patient can be used to judge the success of channeling the patients through the health care system.

14. After the care is given, the provider will make a follow-up appointment for the patient if necessary. The service center at this time makes few appointments for follow-ups. The providers prefer to make their own follow-up appointments to ensure continuity of care for the patient. This system can break down when the clinic books the patient for a follow-up appointment and fails to inform

the TRICARE Service Center that a particular slot is no longer available. What can happen is that the Service Center will book a patient in a slot that was reserved by the clinic for someone else.

Another example given by a care finder is when older people call to set an appointment for chronic problems such as diabetes they tend to ask for a follow-up appointment. Every time a person calls for an appointment for a chronic problem, he or she must be given a routine, non-follow-up appointment. Many times, months go by before a person with a chronic problem requests an appointment. In these cases, the doctor needs to review with the patient what has been the problem in the months that passed since the last appointment. These appointments take longer than the follow-up appointments.

Still another example are those people who call for a follow-up appointment months after they were suppose to make an appointment. A person will call and say "I'm suppose to follow-up." However, it has been three months since he was treated. In this situation, the patient needs a regular appointment. The doctor needs to review the patient's entire case. These cases require regular appointments not follow-up appointments. These situations will interfere with the process of matching the patient with the right appointment and providing quick, dependable access to the health care system.

The above variances were identified through interviews with people at the TRICARE Service Center and at the clinics. These are the people who ensure that the patient has access to health care in the Tidewater area.

STEP 3: CONSTRUCT A VARIANCE ANALYSIS MATRIX. In step 3 we constructed a variance analysis matrix. Again, variances for each phase were identified through discussions and interviews with supervisors and employees at the Service Center and the clinics who actually perform the work. As mentioned before, variances are defined as unexpected or unwanted deviations from standard operating conditions or specifications. [Ref 16:pp. 73-74]

Exhibit 1 displays the variance analysis matrix. The purpose of the matrix is to display all the variances that will occur within each phase. The matrix will also assist in identifying and controlling variances at their source. All of the variances listed are in the order in which they would occur.

On the left of the matrix, listed I-III, are the three phases of the work flow process. On the right in descending order are the 14 variances. These are the variances identified in the interviews that are the main factors which cause the work flow process to change. The (X)'s within the matrix correspond to the variances that interact with other variances. Similar to a mileage chart on a road map; each cell in the matrix represents the relationship between one

VARIANCE ANALYSIS

UNIT OPERATIONS		VARIANCES														
		1 *The patient's request is unclear														
			2 *Unclear contact by Health Care Finder (HCF), unable to triage													
I	Initial Patient Contact Phase	X	X	3 Incomplete patient history												
		X	X	X	4 Call takes HCF longer than ten minutes (Contracted response time)											
	Process	X	X	X		5 HCF is not sure where the patient needs to go for care										
	Patient's	X	X	X	X		6 Patient is unclear about the TRICARE managed care program									
II	Request for	X	X	X	X	X		7 *HCF is unfamiliar with the clinic's services & booking criteria								
	Health Care	X	X	X	X		X		8 Patient misinterprets the appointment time or place							
			X			X		X	X	9 HCF's special instructions to the patient are unclear						
		X	X	X	X	X		X	X		10 Patient is unaware that his illness is an emergency					
		X	X	X				X	X	X		11 Patient waits for service at Clinics				
	Provide	X	X	X		X	X	X	X			X	12 Care not available at Clinic			
III	Treatment	X	X	X	X	X	X	X	X	X	X	X		13 Treatment received - CRITICAL SUCCESS		
		X		X		X	X		X	X					14 Follow-up treatment not booked by Service Center	
		I				II						III				

HCF = Health Care Finder

* = Key Variance

EXHIBIT I

variance and another. The absence of an (X) in a cell indicates that the two variances in question are unrelated. [Ref 16:pp. 73-74]

The first step in the construction of the matrix was to list the phases along the left side of the matrix. Boundaries are then drawn to identify and separate the variances. This also denotes barriers that must be overcome to engage in interdependent problem solving in those cases where a variance in one phase results in a variance occurring in another.

The second step was to list from left to right all 14 variances in descending order within the work flow process.

The third step was to fill out the matrix and ascertain whether the variance in question causes other variances to occur. [Ref 19:p. 74] If the variance effects other variances, then an (X) was placed in the appropriate box. For example; under variance 1 (Request by the patient is unclear) there are (X)'s that correspond to variance numbers 3-11, 13 and 16-18. This implies that if variance 1 occurs than all these corresponding variances will also be effected. The critical success is identified on the matrix as number 13. The critical success is when the patient receives treatment. It is identified on the matrix to show if the variance will singulary effect the critical success. As shown in Exhibit I, all variances within the information flow effect the critical success.

STEP 4: IDENTIFY KEY VARIANCES. The fourth step was to identify the key variances within the matrix. Once each variance had been evaluated, we judged which variances are most detrimental to accessing health care. Our judgments were based on:

1. The impact of the variance on the success criteria; (the success criteria is identified on the matrix as number 13, treatment received)
2. The extent to which the variance causes other variances to occur.

Those variances which we judged as the most significant are categorized as a "key variance" and in exhibit 1 are denoted with an asterisk next to the number in the matrix.

STEP 5: CONSTRUCT KEY VARIANCE CONTROL TABLE. Stage 5 was to construct a key variance control table. The objective of this stage in the technical analysis was to discover how key variances are currently controlled in the system. Refer to Exhibit II for the Key Variance Control Table. The occurrence of key variances were traced to:

1. The unit operation in which the variance occurs (Service Center, Clinic or Network).
2. Where in the unit of operation does the variance occur.
3. The unit operation in which the variance can be controlled or otherwise corrected.
4. By whom in the unit operation is the variance observed.
5. What control activities are the unit operation currently undertaking.

KEY VARIANCE CONTROL TABLE

KEY VARIANCE	WHERE OCCURS	WHERE OBSERVED	WHERE CONTROLLED	BY WHOM	CONTROL ACTIVITIES	INFORMATION RELATED TO CONTROL	CHANGES JOB DESIGN
(I) -Patient's request is unclear	Service Center	Service Center	Service Center	Health Care Finders	-HCF limited to 10 minutes on the phone with the current call distribution system -HCF limited on triage of patients to determine illness or treatment	-Better marketing program aimed at educating the patients & increasing their medical awareness	-Allow HCF situational variations on the time line of phone calls
(II) -Unclear contact by HCF -HCF hasn't asked the right questions & is not qualified to triage	Service Center	Service Center & Clinic	Service Center	Health Care Finders	-HCF limited on triage of patients to determine illness or treatment -Teleconference call with clinical staff	-Feedback from Clinics on procedures to book accurate appointments -Regular meeting between Service Center & Clinics	-Place a Nurse or Clinical triage team on duty at the Service Center
(III) -HCF is unfamiliar with clinic's services & booking criteria	Service Center	Service Center & Clinic	Clinics	Clinic Admin-istrators	-Accurate booking sheets & teleconference between service center & clinics	-Clinic patient administrator provide feedback regularly -Work group meetings on a regular basis between clinics & Service Center HCF's	-Standardize services & booking criteria at some of the clinics

EXHIBIT II

6. What data, technologies, or special skills are needed to engage in controlling the variances.

7. What changes in job design are necessary to control the variances.

The key variance control table (Exhibit II) clearly shows whether or not the health care finder or patient administrator at the clinic who creates the variances in the operation is capable of identifying and controlling the incongruities at their source. [Ref 16:p. 78]

The person creating the key variances has the ability to identify them but not the authority to correct them. Therefore, our objectives are not only to identify the key variances but also to move the authority to the point where the variances occur. If this is not possible, innovative ways for other personnel to identify the variances and control them from their position must be developed. In the next chapter, we will discuss step six and identify the variances which have the greatest impact on the success criteria and make recommendations to help control or prevent these key variances.

V. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

In Chapter IV we identified 13 variances that occurred in the information flow between the patient and the provider of health care. All these variances were then compared against each other to determine how often they occur and how significant their impact is on the critical success (Treatment received by the patient). A careful study of the variance analysis identified three key variances that occur frequently throughout all phases of the operation. These variances as shown in the variance matrix have a significant impact on the critical success. (Refer to Exhibit I).

The three key variances were evaluated using the Variance Analysis Control Table. This control table allowed us to develop conclusions and make logical recommendations.

The results indicate that the following three key variances significantly interfere with the information flow. (1) The Patients request is unclear, (2) Unclear contact by the Health Care Finder, (3) The Health Care Finder is unfamiliar with the clinic's services or booking criteria. For the overall information system to be more effective, these variances must be controlled at the TRICARE Service Center. Applying the Technical Systems Design Principles

regarding the control of key variances, we conclude the following:

1. The patients request is unclear. This variance occurs when a patient calls the Health Care Finder (HCF) at the TRICARE Service Center and is not sure what is medically wrong with them. The patient cannot clearly explain what their ailment is. It can also occur when the patient exaggerates and in some cases does not divulge all the information concerning their illness or injury to the Health Care Finder. In many cases this information is crucial to the Health Care Finder in order to book an appointment with the right provider at the right clinic or treatment facility. The HCF is also limited to the type and degree of questioning that can be asked of the beneficiary. A strictly enforced policy at the service center prohibits triaging a patient. Due to the number of beneficiaries calling the service center, the HCF is also limited to spending only ten minutes with the patient on the telephone. All these factors singularly or in concert with each other cause this key variance to occur.

The Health Care Finder has the knowledge and the technical references to identify the variance but cannot control it. During our interviews with several Health Care Finders and clinicians, a patients request that is unclear can cause serious consequences. For example; a HCF sent a women who was pregnant to a physician at a clinic who cannot

see pregnant women; patients with emergency conditions requiring urgent care were given an appointment by the Health Care Finder and was sent to a clinic when they should have been directed to the nearest acute care facility. This variance can cause a breakdown in the effectiveness of the system. Social tension builds between the clinic and the service center. The clinical staff question the ability of the Health Care Finders in booking appointments for the clinic. Alternatively, the patient becomes confused as to the effectiveness of the TRICARE Service Center. For these reasons this key variance must be controlled so as not to interfere with the information flow, causing breakdowns to occur and ultimately effecting the overall critical success of the system; which is receiving treatment.

2. Unclear contact by the Health Care Finder. This key variance occurs because the HCF is confined to the type and the degree of questioning that can be asked of the beneficiary. The HCF cannot diagnose a patient's illness or injury properly without consulting a clinician via a teleconference call. Without the ability to field medical questions to accurately diagnose the patients illness or injury can result in the patient going to the wrong provider for treatment.

The current system for booking appointments at the TRICARE Service Center is patient driven. The Health Care Finder is limited to the information the patient provides

and then makes an appointment with the provider. By contract, The Health Care Finder can only ask basic questions such as: "what type of care do you need; where would you like to go for your appointment." Health Care Finders are not permitted to triage the patient on the telephone. Telephone Triaging implies asking basic medical questions used to ascertain the specific medical condition of the patient. Currently, the contract between the TRICARE Service Center and the military Health Service System specifically states that the Health Care Finder will not triage or attempt to diagnose a patient's illness on the telephone. These rules are strictly enforced by the supervisors who randomly monitoring the Health Care Finder's telephone calls. The consequences resulting from an unclear contact by the Health Care Finder can become very serious and life threatening. For example, an incident occurred where a pregnant women was sent to a clinic on a routine sick call appointment. The Heath Care Finder did not know that she was pregnant and extremely ill. This patient should have been sent to the urgent care facility or the hospital emergency room. The concern is that the Health Care Finders are not medically trained and lack the knowledge to correctly triage a patient's illness, especially via a telephone. Therefore, telephone triage questions must be fielded by expert clinicians. The Health Care Finder must conduct a teleconference call when there is

doubt concerning the patient's illness. Then the clinician will decide when and if the clinic will see the patient. This variance occurs at the TRICARE Service Center by the Health Care Finder and the only mechanism to control this variance is by a teleconference call from the Health Care Finder to the clinical staff at the treatment facility.

3. The third and final key variance in the information flow process is when a Health Care Finder (HCF) is unfamiliar with the services or the booking criteria at the clinic. This variance can occur when a HCF books an appointment for a patient with a provider who is not trained, knowledgeable or available to treat the patient. For example, an instance occurred where a Health Care Finder booked a 20-minute mammogram appointment at a clinic for a women. This particular clinic does not have equipment or personnel available to conduct mammograms. Another instance occurred when a Health Care Finder booked a female for a pap exam at a clinic. The clinic requires a female clinician to be present during pap exam. However, the clinic had a shortage of female clinicians that day for pap exams and the service center or the HCF were not informed of this situation. These clinical staff changes occur on a daily basis and can effect various types of appointments.

This variance can also occur if the HCF is uncertain about the booking criteria at the clinic. The more complicated the booking criteria is for a given appointment,

the more difficult it is for a Health Care Finder to schedule an appointment at the clinic. Booking criteria are generated at the clinic and forwarded to the service center to assist the HCF when scheduling appointments. All the booking criteria is then compiled regularly in a book called the Directory of Military Clinical Services. This book is on the desk of every Health Care Finder and assists them in scheduling appointments for any military treatment facility in the Tidewater area. It contains all detailed instructions for booking appointments at each treatment facility.

Complicated booking criteria can be very difficult to follow and HCF's have misunderstood the booking criteria at certain clinics. For example, pediatric appointments at Boone Clinic contain 16 general conditions that must be reviewed by the HCF prior to making a pediatric appointment. Then if the pediatric appointment is a well baby examination, there are 15 additional conditions that must be satisfied prior to scheduling the appointment. Should the appointment be made for a Pediatric Nurse Practitioner, then the HCF must review an additional 12 conditions. If any one of the conditions are met, then the HCF must go through another clinic's pediatric booking criteria in order to schedule the child for the appointment. Booking criteria can also vary between each clinic. Booking criteria for Oceans Pediatric appointments unlike Boone clinic has 14

conditions for pediatric appointments. These variances occur when the Health Care Finder fails to check the booking criteria for that particular clinic. It can also occur when the clinic does not update the service center on changes to the Directory of Military Clinical Services booking criteria. This variance will also occur if the clinic should change their booking criteria and fail to inform the service center. The HCF is unable to completely control this variance from occurring without adequate feedback from the clinics. The clinic are also responsible for this variance occurring because they generate the booking criteria. The current process in place to control this variance at the TRICARE Service Center are accurate and easy to read booking sheets or teleconference calls to the clinic from the Health Care Finder.

B. RECOMMENDATIONS.

1. The following actions are recommended to control the key variance; a patient's request is unclear.

a. A marketing program aimed at educating the patient on answering health related questions that the Health Care Finder must know to accurately determine the patients necessities without triaging. As new personnel arrive in the Tidewater area, educate them on the operation of the TRICARE Service Center. Conduct monthly tours through the TRICARE Service Center for all new personnel

arriving in the Tidewater Community. Classes could be conducted on training beneficiaries on how to self diagnose illnesses or injuries. assist the Health Care Finder in booking the appointment.

b. We also recommend the time constraint become situational and not limited to a ten-minute phone conversation between the HCF and the patient. A Health Care Finder's measure of effectiveness should not be determined on how quickly they can find an appointment for a beneficiary. It should measure how effectively the Health Care Finder can accurately booking appointments. The critical success is based on the beneficiary receiving the required care. Health Care Finders should have the ability to work with a patient and identify exactly what the illness is so that the appropriate provider can be chosen to treat the illness.

c. By allowing the Health Care Finder the opportunity to exhaust all resources and educate the beneficiaries through an effective marketing program are two avenues that will foster better communication between the HCF and the beneficiary. This will lead to a better control over this variance.

2. The following actions are recommended to control the key variance; unclear contact by the Health Care Finder.

a. We recommend assigning a clinical triage team headed by a nurse to work at the TRICARE Service Center.

This team would be comprimised of personnel knowledgeable and experienced with triaging patients. They would work at the service center and assist the Health Care Finder book appointments when triaging a patient is necessary. This recommendation was also surfaced by some of the Health Care Finders during our interviews at the Service Center. For example, one Health Care Finder said during an interview...

> I can't triage--I'm limited. I think the clinics wish that we could triage. And maybe some day they will--if they get a **nurse** here, I think that would be a big improvement. When you get somebody that calls--and it's like--gut feeling, and that's a lot of my problem--I get these gut feelings.'This isn't the appropriate clinic for you, but we can't triage--so, I have to either recommend you call that clinic and talk to the nurse; or, try and encourage you to go to maybe the Emergency Room--to where you're going to get better treatment.'

b. A clinical triage team working with the Health Care Finders can assist in controlling this variance and ultimately reduce the need to conduct teleconference calls to the clinic every time a patient must be triaged.

3. The following actions are recommended to control the key variance; Health Care Finders are unfamiliar with the clinic's services or booking criteria.

a. We recommend that a patient administration team consisting of about four personnel with medical experience in scheduling appointments. Additionally they would need to know the clinics departmental capabilities to include personnel staffing requirements. Their mission would be to

work at the service center and assist the HCF's develop high quality, easily to understand booking criteria. They would act as a liaison between the service center and the clinics. They could keep abreast of the changes in services, personnel and booking criteria and feed this information to the service center on a regular basis.

b. We also recommend that work group meetings be held to provide continuous feedback between the clinics and the service center.

c. We recommend standardizing the booking criteria at certain clinics that have the same departments as in other clinics throughout the Tidewater area. Standardizing the booking criteria will control the variance caused by complicated booking criteria. For example, there are at least three clinics in the Tidewater area that have a pediatric department. Currently, each pediatric clinic has different set of booking criteria. We recommend having one standardized set of booking criteria that can apply to all the pediatric departments. The Health Care Finders could then learn these standard conditions and know that they apply to all other pediatric departments when scheduling appointments for the clinics.

C. THESIS SUMMARY

Department of Defense health care costs are rising extremely fast. Even though the military is downsizing,

health care costs will continue to escalate as military hospitals and treatment facilities close and the use of civilian care increases. The managed care approach is one way of effectively controlling costs and increasing the quality and accessibility of care. The TRICARE Demonstration Project in the Virginia Tidewater community is a working example of the managed care approach to quality cost-effective health care; using the combined resources of the Army, Navy and Air Force. The service center is the focal point of the operation, directing over 400,000 beneficiaries to the closest available provider in the military direct care system. TRICARE also has a network of Preferred Providers readily available in the civilian community at a reduced cost to increase accessibility of care to the community.

The Department of Defense understands that to effectively run a leaner more efficient medical system a strategy that promotes inter-service cooperation is imperative. This is what three of the top military health care leaders said in an article in the *Army Times*, dated 6 December, 1993...

> We cannot afford to cannibalize each other and be overly parochial (Army Surgeon General Lt. Gen. (Dr.) Alcide LaNoue)
>
> We've got to train as a team and will win as a team on the battlefield or in the medical marketplace. (Air Force MG (Dr.) Edgar Anderson, commander of Wilford Hall AF Medical Center,

> You must get fear out of the system... We shouldn't be afraid of getting smaller. Navy Surgeon General, Vice Admiral (Dr.) Donald Hagen,

Our thesis analyzed the successful approach to the delivery of health care by the TRICARE Project Office in the Tidewater Community. We explained in Chapter II the history of medicine as a backdrop to show how the practice of medicine has changed over the years. We described in Chapter III how the military has moved towards joint operations and this movement is being spearheaded by programs such as this TRICARE Project. Tidewater area was chosen to demonstrate these managed care objectives. As described in Chapter III, Tidewater was the most viable choice to test a managed care approach.

Through interviews with members of all levels in the military medical community of Tidewater, we determined which aspects of TRICARE were working and which were not. We examined what was not working with TRICARE and identified a reoccurring information flow problem seen by all levels. This led us to determine the cause and focus our efforts on the hub of the information flow, the TRICARE Service Center.

The TRICARE Service Center is well designed and executed with an objective to bring the patient close to the provider of health care. We analyzed this process using a Sociotechnical systems approach with emphasis on the technical design principles. We created a variance matrix

which assisted in determining the root causes of the information flow problem. By using the Variance Analysis Control Table we could identify where the variances existed and any system in place to control them. The table also provided a crosswalk where we could develop conclusions and recommendations.

D. AREAS OF FURTHER RESEARCH

We recommend three follow-on research projects be conducted on the TRICARE Demonstration Project.

1. A study which focuses on a cost-benefit analysis of a contracted Service Center versus a military "in-house" service center. The military service center would be operated exclusively by the military medical services.

2. A study which focuses on the quality of care. Has the quality of care improved with the introduction of the TRICARE Project?

3. A study to determine the practicality of using family practitioners as "gatekeepers" at the clinics in the Tidewater area?

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