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TRICAREs Impact on Emergency Department Use at the National Naval Medical Center

Captain Richard J. Prior II

U.S. Army-Baylor University

Graduate Program in Healthcare Administration

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14. ABSTRACT
The author performed a retrospective, comparative analysis of the impact of a wide-scale managed care program (TRICARE) on Emergency Department use at the Nation Naval Medical Center. Patients included in the study presented to the ED during either or both of two six-month study periods, before and after TRICARE. Patients were compared by demographics, urgency of visits, number of visits, and principle diagnosis. Although ED use decreased in the comparision period, more patients presented with greater frequency and with case-manageable diseases. Several recommendations are offered to reduce the number of unecessary ED visits. They are; improve access to Primary Care, implement ED case management, triage more patients out of the ED, implement co-pats, and improve education and training.

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ABSTRACT

Objective: To determine the impact of TRICARE on emergency department use at the National Naval Medical Center.

Methods: The author performed a retrospective, comparative analysis of the impact of a wide-scale managed care program on ED use. Patients included in the study presented to the ED during either or both of two six-month periods. The pre-TRICARE period covered 10,435 visits and the comparison period included 9,542 visits. Patients were compared by demographics, urgency of the visit, the number of visits, and the principle diagnosis.

Results: Emergency department visits decreased in the period after TRICARE started. The number of adult visitors, less than age 65, decreased 19 percent, however, the age 65 and older population increased their use nearly 40 percent. The percent of visits by triage categories remained relatively the same for both periods. Nearly 84 percent of the patients presented with nonurgent conditions. Although ED use decreased in the comparison period, more patients presented with greater frequency and with case-manageable diseases according to the data.

Conclusions: TRICARE affected ED use at the NNMC. While the managed care program greatly reduced the average number of visits, other indicators refute its efficacy. Namely, the increase of elderly visitors, "frequent flyers," and patients with case-manageable disease states. Several recommendations are offered to reduce the number of unnecessary ED visits. They are improve access to primary care, implement ED case management, triage more patients out of the ED, implement co-pays, and improve education and training.

Key words: Emergency department, utilization, TRICARE, managed care

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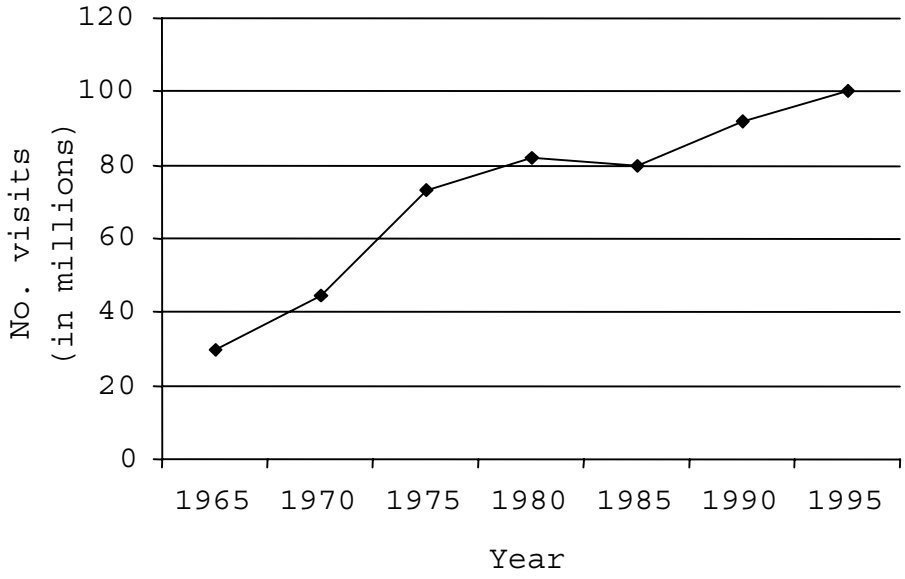
INTRODUCTION

The emergency department (ED) provides around-the-clock, comprehensive care for a growing number of patients in the United States. As illustrated in Figure 1 (AHA, 1999), the number of patients who show up at the ED has risen more than 230 percent in the past several decades. Visits have increased from 30 million in 1965, to more than 73 million in 1975, and 80 million in 1985. In 1995, nearly 100 million visits were made to U.S. EDs.

Figure 1.
ED visits in the U.S. (1965-1995)



Although managed care organizations regulate utilization and the subsequent cost of healthcare services, the ED remains a vital community link to care and a safety net for many patients who would otherwise go without medical attention. Legislation ensures that patients presenting to the ED are medically screened, regardless of their ability to pay. The hospital emergency department is an appropriate entryway to care for those seeking convenient access to extensive and well-coordinated healthcare services. Or is it?

Many healthcare experts argue that the ED is not the best source of care for the majority of patients seeking medical attention. Several studies report widespread abuse of the intended use of the emergency department. Unfortunately, the definition of what constitutes a medical emergency is vague and there is seldom a solid consensus among the experts. The explicit function of any emergency department is to provide treatment for patients who present with an episodic, life threatening injury or illness that warrants immediate and extensive medical attention. The American College of Emergency Physicians (1994) defines a bona fide emergency as one which necessitates evaluation and treatment of medical conditions of "recent onset and severity that would lead a prudent layperson, possessing an average knowledge of medicine and health, to believe that urgent and/or unscheduled medical care is required."

According to various statistical sources, patients with less than emergent medical needs often misuse the ED. Although several explanations are offered for the large volume of nonurgent visitors, the consequences of treating them may undermine the quality of care delivered. Many providers would agree that using the ED as the primary source of care is neither efficient nor the ideal way to ensure quality care.

Although the ED may be the "fastest" service, there is poor continuity of care and without follow-up the visit may be fruitless in the long run. Furthermore, an ED overcrowded with nonurgent visitors can detract from the limited resources available for those patients with imminent care needs. In addition to impacting the ability to provide quality health

care, using the ED for nonurgent problems may carry weighty financial consequences. Inevitably, the goal of managed care is to manage the cost of care, the quality of care, and access to that care (Kongstvedt, 1996) by coordinating healthcare services at the appropriate place and time across the continuum of care. Is the ED the right entry port for a growing number of patients?

Under the auspices of managed care, many beneficiaries who routinely visit the ED for nonurgent conditions should be redirected to a primary care setting. The primary care manager (PCM), acting as a gatekeeper, is responsible for identifying potential "frequent flyer" patients, patients with low-acuity problems, and patients with chronic conditions, then providing the necessary treatment to keep them out of the ED in the future. The medical needs of these patients can be managed in a primary care setting offering access to coordinated and, ostensibly, less costly healthcare services.

Moreover, the primary care manager can ensure better quality care by offering patient education, providing preventive medicine measures, coordinating specialty referrals, and if necessary, providing case management rather than the episodic and disjointed care particular to the ED. The efficacy of a healthcare organization's access to care policies and practices are evident by the usage patterns of its ED. This study addresses the impact of managed care on the use of an organization's emergency department services.

Much has been written on the U.S. emergency department. The common areas of research include the demographics of ED users, why patients visit the ED, the impact of ED misuse and its contribution to the cost of healthcare services, the control

measures to mitigate excessive utilization and cost, and the legal and ethical ramifications of referring care away from the ED.

Among the 96.5 million U.S. ED visits recently reported in the annual survey by the National Center for Health Statistics (Strussman, 1997), men and women used the ED about the same. The National Hospital Ambulatory Medical Care Survey (NHAMCS) recorded an average of 36.9 visits per 100 persons per year. Visits by black persons was 70 percent higher than for white persons overall. Persons 75 years of age and older had a much higher ED visit rate (60.9 visits per 100 persons) than persons of all other ages. Researchers have endeavored to understand the ED visitor's motives for seeking emergency care.

Young, Wagner, Kellermann, Ellis, and Bouley (1996) concluded that most ambulatory patients seek care in the ED due to "worrisome symptoms" or other nonfinancial barriers to care. Shesser, Kirsch, Smith, and Hirsch (1991) showed that patients primarily choose the ED because of its convenience, their lack of a previous provider relationship, or their inability to make a prompt appointment with their regular provider. Kellerman (1994) submits that EDs are a primary source of care for the poor and uninsured. Although many patients value the convenience of the ED's 24-hour access to a wide range of medical services, misuse by nonurgent visitors and overcrowding are common. Many studies estimate the number of visitors seeking care with nonurgent needs.

Federal reports conclude that between 40 and 55 percent of all ED visits involve nonurgent problems (McCaig, 1994). Young et al. (1996) discovered that 37 percent of ED visits were

triaged as a nonurgent condition. Jacoby and Jones (1982) compared ED use between patients who repeatedly used the ED with those who did not. They found that 63 percent of the visits by the repeaters were considered nonurgent versus 40 percent by non-repeaters.

Pisarcik (1980) studied why patients would present to the ED for an apparent nonurgent condition rather than seek treatment in another healthcare setting, such as a clinic, a health center, or a private doctor's office. She noted such factors as a growing population, an increase in the incidence of chronic disease, higher accident rates, and a more mobile population to be important. Derlet, Kinser, Ray, Hamilton, and McKenzie (1995) argue that providing care to patients with nonurgent conditions results in the diversion of resources intended for the care of the critically ill and injured. Selby, Fireman, and Swain (1996) contend that ED use for nonemergency care contributes to overcrowding and is also costly.

While the ED provides a healthcare security blanket for chronic worriers or the disenfranchised who have no other means of access, misuse by nonurgent visitors is often cited as one of the reasons for overcrowding and escalating U.S. healthcare costs. According to Steinbrook (1996), such inappropriate care is wasteful and expensive and is an opportunity for cost-cutting efforts. President Clinton (1993), during his address to the joint session of Congress and the nation, referred to emergency departments as "the most expensive place of all." Young (1997) contends that the widespread abuse of emergency care results in avoidable increasing healthcare costs. Spillane, Eileen, Cobaugh, Wilcox, Clark, and Schneider (1997) also contend that

ED use for nonurgent problems contributes substantially to the high cost of medical care.

Although ED use by patients whose problems are not true emergencies has become a fashionable scapegoat for the ills of the U.S. healthcare system, several recent studies have challenged this conventional thinking. Williams (1996a) investigated the cost of ED visits at six Michigan community hospitals and showed that the average cost of a nonurgent visit is much lower than commonly believed. Williams further argues that the rising cost of ED visits is not attributed to the volume of nonurgent visits, rather the growing number of uninsured patients. In a related work, Williams (1996b) used the same study to determine the distribution of ED costs and found that the costs of nonurgent ED services are comparable to a doctor's office visit.

In another study, Tyrance, Himmelstein, and Woodhandler (1996) report that misuse of the ED and its impact on rising national healthcare expenditures is over exaggerated. According to the authors, ED use accounts for only a small share of U.S. healthcare costs. Moreover, the researchers contend that managed care efforts to constrain ED use cannot generate substantial savings but may punish those who rely on the ED for most of their care. With so many patients who have nowhere else to go, questions Kellermann (1994), is it fair to label nonurgent visits to the ED inappropriate?

Inappropriate or not, many managed care organizations have sought to reduce skyrocketing healthcare costs by incorporating the ED into the managed care framework. Although few studies chronicle the impact of managed care on ED use, a number of

researchers have studied the impact of managed care on overall health care use and cost. Freund, Rossiter, Fox, Meyer, Hurley, Carey, and Paul (1989) studied the impact of managed care initiatives on Medicaid utilization and costs of care, among other factors, at several demonstration sites. By introducing primary care gate keeping and case management, all sites experienced sharp decreases in ED use.

Kravitz, Zwanziger, Hosek, Polich, Sloss, and McCaffrey (1998) analyzed the effect of a large managed care program on emergency department use. The study addressed ED use within 11 military hospital catchment areas in California and Hawaii that covered more than 1.2 million lives. By using a control group, the researchers were able to analyze the number of ED visits, both before and after the introduction of managed care.

The significant finding of the study was that the experimental group experienced a 40 percent reduction in the number of ED visits relative to the control group. The reductions in ED use were primarily concentrated among repeat users and patients with less severe conditions. The researchers further showed that a managed care program coupled with improved access to primary care resulted in a reduction of allowable charges and cost to the government.

Goldman, McCulloch, and Sturm (1998) studied the cost and use of mental health services before and after managed care was introduced. The authors evaluated the effect of a private-sector employer's shift to a managed behavioral care health plan for approximately 179,000 covered lives located mostly in the western U.S. between 1988 and 1996. Prior to the inception of

the managed care plan, the employer's healthcare costs were increasing annually by 30 percent.

During the first year after the employer switched to the carve-out managed behavioral care plan, costs dropped more than 40 percent and continued to steadily decline during the six follow-up years of the study. Rather than decreased access to care, the researchers attributed the cost reduction to fewer outpatient sessions per user, reduced probability of an inpatient admission, and reduced length-of-stay for an inpatient episode. Although delivering behavioral health care differs somewhat from emergency medicine, the point of interest in the study is the impact of managed care on both the cost and use of healthcare services.

In addition to the utilization and cost implications of managed care, legal and ethical considerations are tantamount to the discussion on ED use. The 1985 Consolidated Omnibus Budget Reconciliation Act (COBRA) included the enactment of the Emergency Medical Treatment and Active Labor Act (EMTALA). In essence, hospitals and emergency departments are required to evaluate all patients without regard to financial status in order to determine whether an emergency medical condition exists. If an emergency medical condition does exist, the ED is required to treat the patient until the condition is stabilized.

The dichotomous missions of managed care and emergency medicine often create an ethical conflict for healthcare providers. Emergency department care focuses on episodic crises, necessitating open access and standby readiness. Managed care, on the other hand, is concerned with primary and preventive health care and the planned use of available

resources. Thus, balancing the managed care pressures of preauthorization for treatment, economic credentialing, capitation, and incentives to limit care, often place emergency medicine professionals at odds with their duties of providing for patients' needs. Moreover, the vices of managed care may threaten patient trust on a new level. Notwithstanding the legal and ethical considerations, understanding the utilization and cost implications of providing ED care is essential in the rapidly growing managed care environment.

The purpose of this study is to determine the impact of TRICARE, the uniformed services' managed care plan, on emergency department use at the National Naval Medical Center (NNMC) in Bethesda, Maryland. The NNMC is one of the 102 hospitals in the military health system (MHS) that provides comprehensive inpatient and outpatient healthcare services to the Department of Defense's (DOD) more than 8 million eligible beneficiaries.

TRICARE is a regionally managed healthcare program for active duty and retired members of the uniformed services, their families, and survivors. The goal of TRICARE is to "maintain the medical combat readiness while providing the best health care for all eligible beneficiaries" (TRICARE, 1998). Three options are available under the TRICARE umbrella to accommodate individual preferences and lifestyles, and ensure efficient use of military healthcare resources. The TRICARE Prime option provides the most comprehensive healthcare benefit at the lowest cost compared to the other two options. Prime enrollees receive the benefits similar to civilian HMOs, including preventive care and the assignment of a PCM.

TRICARE Standard is the new name for the healthcare option formerly known as CHAMPUS, the Civilian Health and Medical Program of the Uniformed Services. Similar to a civilian point-of-service plan, eligible beneficiaries under TRICARE Standard may choose any physician they want for health care, and the government will pay a percentage of the cost. The third option is TRICARE Extra, comparable to a preferred provider organization where the beneficiary may choose care from a pre-established network of providers.

The hypothesis tested in this study is that TRICARE affects ED use in four areas: volume, acuity, frequency, and diagnosis. First, TRICARE should reduce the overall number of ED visits ($h_1 = VISIT_{total98} < VISIT_{tota97}$). Second, after TRICARE access to the ED should be limited to sicker patients with urgent or emergent needs ($h_2 = VISIT_{nonurgent98} < VISIT_{nonurgent97}$). Third, the number of "frequent flyers" should be less with a managed care program ($h_3 = VISIT_{frequent98} < VISIT_{frequent97}$). Finally, the number of patients presenting to the ED with selected chronic diagnoses, namely, diabetes, hypertension, and asthma should be less in the second period relative to the first period ($h_4 = VISIT_{disease98} < VISIT_{disease97}$). The null hypothesis is that TRICARE has no impact on ED use.

METHODS AND PROCEDURES

Study Design: This was a retrospective, comparative study on the impact of a wide-scale managed care program on emergency department use. The comparative analysis in the study addresses ED visits during two six-month periods, before and after the implementation of TRICARE in the Northeast Region. The baseline period covers June 1 through November 30, 1997. The comparison period covers the same time frame one-year later. This period begins with the activation of TRICARE on June 1 and ends November 30, 1998. Using the same time frame for both periods discounts the need to adjust for seasonality.

Setting: The study was conducted using secondary data from a large teaching hospital and tertiary care center with approximately 15,000 annual ED visits. The Emergency Medicine/Acute Care Departments are subordinate to the Directorate for Occupational and Community Health that coordinates primary and preventive health services. The mission of the Emergency and Medical Acute Care (EMAC) Department is to provide emergency and acute care services to all DOD beneficiaries.

The EMAC is comprised of two interrelated departments with distinct missions. The ED provides the breadth and depth of emergency medical services typical of most EDs. The Medical Acute Care Clinic (MACC) is the NNMCs version of a step-down or "fast-track" unit where patients with lesser severe conditions can be sent. The MACC operates on an appointment-only basis, however, walk-ins and same day appointments are permitted. This study addresses only the ED.

Study Population: All patients who presented to the ED during either or both of the six-month periods are included in the data analysis. Patients are identified according to various data regarding their visit. Informed consent of the subjects was not required because no sensitive information was disclosed. The demographics of the study population are presented in Appendix A (CHCS, 1999).

Measurements: Patients in each period are compared for demographics, the number of visits, urgency or acuity of the condition, the number of visits, and the diagnosis of the visit. Frequent ED users are defined as those with four or more visits during one of the study periods. The data addressing the urgency of the visit are delineated into three categories.

Patient visits to the ED are triaged as emergent, urgent, or nonurgent according to a series of standardized criteria (NNMC, 1995). Patients with critical or life threatening injuries or illnesses who must receive immediate treatment to prevent loss of life or limb are classified "emergent." Examples include cardiac or respiratory arrest, severe chest pain, severe trauma or burns, and excessively high temperature (over 105 degrees Fahrenheit). Patients are considered "urgent" who have major injuries or illnesses that must be treated within 30 minutes to two hours. Typical conditions considered urgent include an open fracture, acute abdominal pain, severe pain or headache, back injury or trauma, and allergic reaction.

The third category of triage and highest percentage of visit classification is "nonurgent." Patients who present to the ED with nonurgent symptoms may have a variety of injuries and illnesses for which treatment can be delayed for several

hours. Examples include mild burns, earaches, lower back pain, sore throat with fever (102 degrees), urinary tract infection symptoms, and rashes.

The data comparison includes patients visiting the ED with a commonly case managed chronic condition, namely diabetes, hypertension, and asthma. The data is analyzed to correlate ED visits linked to these conditions. The diagnosis-related group (DRG) code used for asthma was 493.90; diabetes-related codes used were 250.00, 250.01, and 250.80; and hypertension-related codes used were 401.00, 401.1, and 401.9.

Data Analysis: Data analysis was done using a single factor Analysis of Variance. A p-value of less than 0.05 was considered significant. The Ambulatory Data System (ADS) captures various information related to an outpatient visit, such as patient demographics, reason for the visit, and the specific diagnosis identified by Current Procedural Terminology Version Nine (CPT-9) codes.

An initial review of the data and reports from the organization's performance evaluation and improvement program, reveal that many ADS forms were not adequately filled out by providers. The incomplete data detracts from the validity of the study. The data were also collected using Composite Health Care System (CHCS). Both the ADS and CHCS provide a uniform methodology for collecting, analyzing, and reporting workload and patient visit data. The widely used and accepted systems lend reliability to the study.

RESULTS

Analysis of ED visit characteristics between the two study periods, by and large, yielded similar results. Several findings described herein, however, are noteworthy. The probability (p) values and F-test results of the single factor Analysis of Variance (ANOVA) for the hypothesis are reported in Table 1 below. The complete summary tables of ANOVA for the results are listed in Appendix B.

Table 1.
P-value and F-test ANOVA results

Element	P-value	F
Number of visits	0.0096	10.2064
Adult (18-64 years)	0.0056	12.3151
Pediatric (0-17 years)	0.6258	0.2531
Elderly (65+ years)	0.1402	2.5670
Acuity	0.0318	6.2207
Frequency	0.6210	0.2862
Diagnosis (chronic disease)	0.5561	0.4116

Overall ED visits decreased by more than 8.6 percent after the introduction of managed care where the change in total visits to the ED is statistically significant ($p<.05$). The adult population's ED use accounted for most of the overall decrease in visits. In fact, adult visits decreased by almost 19 percent in the comparison period. Elderly visitors, on the other hand, increased their ED use by nearly 40 percent. While the change in the number of elderly visitors is not statistically significant, the p-value at .14 indicates practical significance. The elderly population accounted for nine percent of the total visits in the 1997 study period and

more than 14 percent in the 1998 period. Parallel to this finding is a seven percent increase in retiree use. Alternatively, the number of retiree dependents decreased dramatically (21 percent).

As shown in Table 2 (CHCS, 1999), the number of ED visitors according to the triage category remained relatively constant between the two periods. The number of patients retrospectively determined to have a nonurgent condition was nearly 84 percent for both periods, higher than the national average. Recent national studies identified the number of nonurgent visitors to be approximately between 40 and 50 percent. Also, patients treated and released during each period remained relatively high (approximately 90 percent) and consistent with the 1995 NHAMCS.

Table 2.
Characteristics of emergency department visits, NNMC,selected periods, 1997, 1998

Characteristic	1997	1998
Urgency of condition (% of visits)		
Nonurgent	83.8%	84.2%
Urgent	15.2%	15.4%
Emergent	1.0%	0.4%
% Treated and released	89.9%	90.8%

Although the number of visits decreased between the two study periods, more patients presented with greater frequency in 1998 relative to 1997, as shown in Table 3 (CHCS, 1999). Despite a more than four percent decrease in the NNMC population eligible to receive care (CEIS, 1999), the number of ED visits per person increased. In fact, the average number of visits per person increased 41 percent during the comparison period.

Interestingly, the highest number of visits recorded by one patient was 16 and 18 for 1997 and 1998, respectively. Both were for the same patient who was enrolled in TRICARE.

Table 3.
Frequency of visits (by percent of total visitors) NNMC, selected periods, 1997, 1998

Number of visits	Percent of total visits	
	1997	1998
2 visits	4.4%	7.7%
3 visits	1.0%	1.9%
4 visits or more	.40%	.75%

According to the distribution of visits by principal diagnosis shown in Appendix C (CHCS, 1999), a notable finding and impediment to a solid analysis is the quality of the data. The number of unknown diagnoses, which includes blank, uncodable, or illegible diagnoses, is almost 50 percent in the baseline period and nearly 20 percent in the comparison period. The high rate of noncompliance in capturing patient diagnoses statistics confounds the ability to make a solid comparative analysis of the data. Nonetheless, the marked improvement in capturing visitor diagnosis statistics from 1997 to 1998 represents both a higher rate of compliance and the marked improvement to make better decisions based on the improved data quality.

Table 5.
Frequency of patient visits by disease state, NNMC, selected periods, 1997, 1998

Diagnosis	1997	1998
Asthma	55	75
Diabetes	10	18
Hypertension	25	38

A significantly higher percentage of visits in the comparison period pertained to one of the three observed case-manageable disease states identified in the study. As illustrated in Table 5 (CHCS, 1999), visits

related to diabetes increased 80 percent. Visits related to hypertension increased 52 percent. Visits related to asthma also increased. Patients with a diagnosis of asthma increased more than 36 percent in the comparison period.

DISCUSSION

The overall decline in the number of ED visits supports the hypothesis that patient volume decreases with the introduction of a wide-scale managed care program. The expected decline in the number of visits holds true for both the pediatric and the adult population less than 65 years old. For the elderly visitors, who are known to have a relatively higher demand for healthcare services, the number of visits increased by more than one-third after the initiation of TRICARE.

The reason for this sharp increase can best be explained by federal legislation which mandates that beneficiaries who turn 65 and become eligible for Medicare are no longer allowed to participate in TRICARE. These individuals are still eligible to receive health care in military treatment facilities (MTF), but only on a "space-available" basis and usually without the benefit of a PCM. With its doors open to all comers around-the-clock, the ED is the best and sometimes the only means of access to care for this population.

Nearly 85 percent of all visitors are classified nonurgent. This means that the majority of visitors present with a "routine" condition that can usually be deferred to a more suitable primary care clinic. Interestingly, Table 2 shows that approximately 90 percent of visitors are treated and released. Apparently, the low rate of emergent visitors (one percent or less for both periods) allows the ED staff to adequately treat the high number of nonurgent visitors. The shortfall of this accepted practice is that the primary care manager, the critical link in the healthcare continuum, is denied the opportunity to

direct and oversee the appropriate level of care at the proper time and place.

Although the number of visits declined after TRICARE started, the data show that patients presented more frequently. This result is contrary to the belief that patients' health needs are being better managed to prevent unnecessary ED visits. Without a more objective analysis of the "frequent flyer" population, it is difficult to determine whether the increased visits per patient were medically necessary. One may suspect that elderly visitors who were "squeezed out" of the mainstream healthcare system turned to the ED as a readily available, although inconvenient, source for care.

CONCLUSION AND RECOMMENDATIONS

TRICARE impacted emergency department use at the National Naval Medical Center. The introduction of TRICARE correlated to a reduction in ED visits. Ostensibly, the interdiction of PCMs better channeled the flow of patients into a primary care setting. Contrary to the study hypothesis, the number of "frequent flyer" patients and patients with chronic disorders increased during the second period.

Although the data collection methods may have improved after TRICARE, the results possibly indicate an opportunity to improve the emergency care to primary care link in the hospital. Furthermore, the trend in increased elderly use in the ED clearly indicates a need to develop an appropriate policy, such as empaneling 65 year and older visitors as "special provision" patients to better manage their healthcare needs away from the ED. Several recommendations are offered to better use ED services at the NNMC and improve patient care. They are improve access to primary care, implement ED case management, triage more patients out of the ED, institute an ED co-pay, and promote education and training.

Improve access to primary care. One recommendation, albeit challenging to implement, is to increase the availability and access to primary care at the NNMC. According to Kellerman, Conway, and Young (1993), access to ambulatory care is an important factor in reducing the rate of preventable hospital admissions.

Improving access to primary care would alleviate the number of ED visits related to one of the chronic diseases addressed in the study. Researchers have determined that communities where

people perceive poor access to medical care have higher rates of hospitalization for chronic diseases, including asthma, hypertension, and diabetes (Bindman, Grumbach, Osmond, Komaromy, Vranizan, Lurie, Billings, and Stewart, 1995). Improving access to care is more probable than changing patients' propensity to seek health care or eliminating the variation in physician practice style to reduce hospitalization rates for chronic conditions.

Recognizing the many resource constraints involved in expanding the primary care capacity, such as human resources, financial, and physical space, the next best alternative is to better utilize the primary care resources currently available. To effectively do this, the administrative barriers to care must be demolished. Such barriers include the perceived difficulty of booking appointments, the inefficiency in getting the patient through the initial screening once at the clinic, and the failure to be proactive by notifying patients when they should come in for a routine or follow-up visit.

Implement ED case management. Case management is popularized by many healthcare organizations' EDs to track and provide the best care for certain populations that visit the ED, especially those with chronic conditions. Case management attempts to manage the path of care across the entire spectrum of patient needs. It readily applies to high volume, high risk, and high cost disease states.

The high percentage of visits that correlated to one of the disease states indicates that case management techniques would well serve these populations at the NNMC. With the proliferation and wide spread acceptance of nationally

standardized clinical practice guidelines for several disease states, many conditions formerly treated episodically in the ED can be monitored, managed, and treated outside of the ED

Moreover, case management of patients with diabetes, hypertension, asthma, and "frequent flyer" patients could make significant inroads to shifting these patients to a primary care clinic, where prevention could be put into practice. One useful tool, illustrated in Appendix D, is a sample ED case management plan (Spillane, et al., Acad Emerg Med, 1997). The plan provides continuity of care and helps close the gap between the ED physician and the PCM.

Triage out of the ED. Often times, "No" is the hardest thing to say to a patient. However, when "No" is followed by a diplomatic explanation of how treatment in another clinic benefits the patient, it's a much easier sell for both the patient and the provider. Another recommendation for improving the quality of care at the NNMC particular to ED visitors is to triage certain patients out of the ED.

Research has shown that many patients with nonemergency conditions can be prospectively identified and triaged out of the ED without significant adverse outcomes provided there is adequate primary care available. Doing this would free up resources in the ED for those patients who require them most. It is evident by the volume of patients who are categorized as nonurgent, but still treated in the ED, that another treatment plan may be more appropriate. The author submits that rather than providing the care at the ED for these patients, they can be deferred to their PCM during regular clinic hours.

Furthermore, implementing a triage policy based on a thorough screening to determine several key indicators (e.g., pulse, respirations, blood pressure, and temperature) that warrant ED treatment is well within the scope of legislation governing ED care. The flowchart shown in Appendix E diagrams the recommended patient flow through the ED.

As shown in the diagram, patients are first "sorted" according to their vital signs and then treated in the ED or referred to the "fast track" clinic, and then referred to their PCM for the necessary follow-up. The linchpin to the success of this model is the end involvement of the PCM who must address the patient's "gestalt" healthcare needs and prevent an unnecessary trip to the ED.

Implement Co-Pays. While not the panacea for an ED overcrowded with nonurgent users, co-pays are shown to be effective in deferring unnecessary use in most cases. One study showed that introducing a small copayment for ED care was associated with a nearly 15 percent decline in use, mostly among patients with nonurgent conditions (Selby, Fireman, and Swain, 1996). In other studies, ED use correlates to cost sharing. Researchers in one such study showed that persons with free care use about 40 percent more ED services than persons with income-related catastrophic coverage (O'Grady, Manning, Newhouse, and Brook, 1985). According to this economic premise, patients who perceive that health care is free will use more services, which may promote unnecessary ED use. The primary concern, of course, is that patients with lesser financial means who have a bona fide emergency care need will be stymied from presenting to the ED. This is a legitimate concern that must be addressed and

continuously monitored to ensure that no one in need of care is turned away.

Improve education and training. Education and training are the cornerstone of any successful customer service organization, especially the dynamic, technology-oriented healthcare industry. An effective training and education program must include patients and providers alike. First, there must be an aggressive effort to educate the providers and support staff, including case managers, appointing staff, and discharge planners, how to match the capacity with the right type of patient and at the right time to prevent an unnecessary ED visit.

Coaching the PCM is essential to raising the level of awareness of the goals of TRICARE, such as appropriate ED use. According to Brigadier General Roudebush, Commander of the Malcom Grow Medical Center, during a recent discussion at the National Capital Area Regional Governing Board meeting, "We don't teach our physicians how to manage (the health care of) a population (1999)." The organization cannot overemphasize the importance of training and education.

Second, and most challenging, is educating the patient. Navigating through the perplexing maze of the military health system can be frustrating for a patient. The patient wants only to be seen quickly, with the least amount of hassle, and by the right provider best qualified to meet his expectations and needs. Therefore, arming the patient with the necessary information, through health fairs, newsletters, town hall meetings, and a friendly, customer-oriented staff, helps the patient achieve this goal.

Healthcare mangers must understand the impact of organizational policies. Policies enacted in one area of the organization may unintentionally and adversely affect another. This holds true for the ED. The ED is often the "pop-off valve" where many patients go or are referred to when they can't gain reasonable access to another clinic or service. The organization is responsible to ensure that patients are afforded the best quality care in the most appropriate and least costly setting, which for many visitors is not the emergency department.

Despite valiant efforts to reduce unnecessary or inappropriate use, the ED will continue to be a common and accepted source for primary care. Former Surgeon General Joycelyn Elders best summarizes the ED as "a part of the healthcare system that the majority of us seldom think about, hope never to use, and yet expect to have available 24 hours when the need arises" (1994).

Appendix A.

Characteristics of emergency department visitors, NNMC, selected periods, 1997, 1998

Characteristic	1997	1998
No. of visits	10435	9542
Gender – % men	47.7%	47.6%
Age – mean (range)	36.76 (1-102 years)	38.69 (1-102 years)
0-17 years	24.5%	25.9%
18-64 years	66.9%	59.5%
65 years and older	8.6%	14.6%
Race/ethnicity		
Black	10.4%	10.0%
Asian-Pacific Islander	1.3%	1.0%
White	50.7%	50.8%
Other	5.5%	4.7%
Unknown	32.1%	33.5%
Beneficiary category		
Active duty	16%	19%
Active duty dependent	28%	38%
Retiree	13%	20%
Retiree dependent	40%	19%
Other	3%	4%

Appendix B.
Summary tables of Analysis of Variance for ED visits

Category	Source	SS	Df	MS	F	P-value
Total Visits	Between Groups	66454.08	1	66454.08	10.2064	0.0096
	Within Groups	65110.17	10	6511.02		
	Total	131564.25	11			
Adult	Between Groups	54002.08	1	54002.08	12.3151	0.0056
	Within Groups	43850.17	10	4385.02		
	Total	97852.25	11			
Pediatric	Between Groups	645.33	1	645.33	0.2531	0.6258
	Within Groups	25493.67	10	2549.37		
	Total	26139.00	11			
Elderly	Between Groups	20833.33	1	20833.33	2.5670	0.1402
	Within Groups	81159.33	10	8115.93		
	Total	101992.67	11			
Acuity	Between Groups	40833.33	1	40833.33	6.2207	0.0318
	Within Groups	65641.33	10	65641.33		
	Total	106474.7	11			
Frequency	Between Groups	25350.00	1	25350.00	0.2862	0.6210
	Within Groups	354337.33	4	88584.33		
	Total	379687.33	5			
Diagnosis	Between Groups	280.16	1	280.167	.4116	0,5561
	Within Groups	2722.667	4	680.667		
	Total	3002.833	5			

Appendix C

Number and percent distribution of emergency department visits by principal diagnosis: United States (percent distribution), 1995 and NNMC 1997, 1998

Major disease category and ICD-9-CM code range[1]		Percent Distribution (U.S., 1995)	No. of visits (1997)	Percent Distribution	No. of Visits (1998)	Percent Distribution
All visits		100%	10435	100%	9542	100%
Infectious and parasitic diseases	001-139	3.5%	374	3.58%	401	4.20%
Neoplasms	140-239	0.3%	4	0.04%	1	0.01%
Endocrine, nutritional and metabolic diseases, and immunity disorders	240-279	1.3%	83	0.80%	97	1.02%
Mental disorders	290-319	2.9%	69	0.66%	62	0.65%
Diseases of the nervous system and sense organs	320-389	5.9%	523	5.01%	651	6.82%
Diseases of the circulatory system	390-459	4.4%	106	1.02%	210	2.20%
Diseases of the respiratory system	460-519	13.2%	602	5.77%	1005	10.53%
Diseases of the digestive system	520-579	5.8%	114	1.09%	186	1.95%
Diseases of the genitourinary system	580-629	4.3%	244	2.34%	314	3.29%
Diseases of the skin and subcutaneous tissue	680-709	2.7%	133	1.27%	275	2.88%
Diseases of the musculoskeletal system and connective tissue	710-739	4.0%	312	2.99%	425	4.45%
Symptoms, signs, and ill-defined conditions	780-799	13.0%	1742	16.69%	2587	27.11%
Injury and poisoning	800-999	31.6%	858	8.22%	1322	13.85%
Fractures	800-829	3.9%	132	15.38%	205	15.51%
Sprains	840-848	6.0%	174	20.28%	192	14.52%
Intracranial	850-854	1.0%	6	0.70%	21	1.59%
Open wounds	870-897	8.6%	205	23.89%	259	19.59%
Superficial	910-919	1.7%	37	4.31%	46	3.48%
Contusions	920-924	4.9%	156	18.18%	334	25.26%
Foreign bodies	930-939	0.6%	7	0.82%	13	0.98%
Burns	940-949	0.7%	10	1.17%	26	1.97%
Complications	958-959	0.9%	25	2.91%	69	5.22%
Poisoning and toxic effects	960-989	1.1%	3	0.35%	2	0.15%
Other injury		2.0%	103	12.00%	155	11.72%
Supplementary classification		3.5%	87	0.83%	103	1.08%
All other diagnoses[2]		1.4%	59	0.57%	68	0.71%
Unknown[3]		2.3%	5138	49.24%	1860	19.49%

[1]Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM) (5).
[2]Includes diseases of the blood and blood forming organs (280-289); complications of pregnancy, childbirth, and the puerperium (630-676); congenital anomalies (740-759); and certain conditions originating in the perinatal period (760-779).
[3]Includes blank diagnosis, uncodable diagnoses, and illegible diagnoses.
NOTE: Numbers may not add to totals because of rounding .

Appendix D

ED Case Management Plan

Patient Name: Doe, Jane **DOB:** 2/3/45

Identification Number: 123-45-6789

Provider Type	Name	Phone #	Beeper #
Primary Care Physician	Dr. Smith	222-2222	15-3333
Primary Nurse	D. Jones, RN	222-3333	
Gynecology	Gynecology Clinic	222-4444	
Psychiatry	Primary Therapist: Dr. Wilson Case Manager: Mr. Farquahr	222-5555	

Social History: Significant other moved away in March 1997. The patient's grandmother, uncle, and cousin all died in the past few months. She lives with her mother, who is very supportive

Background: Ms. Doe is a pleasant woman who presents to the ED extremely anxious, often with a concern that she is pregnant, or that she can't breathe. She does not have asthma. Her lungs are usually clear on examination. Ms. Doe does have obstructive sleep apnea with documented O2 desaturation into the 80s with a baseline room-air blood gas of pH 7.33, Pco2 of 55 torr, Po2 of 59 torr, and 85% saturation. She is currently receiving nocturnal continuous positive airway pressure (CPAP). The patient can be violent if the provider is aggressive or confrontational.

Suggestions for Care:

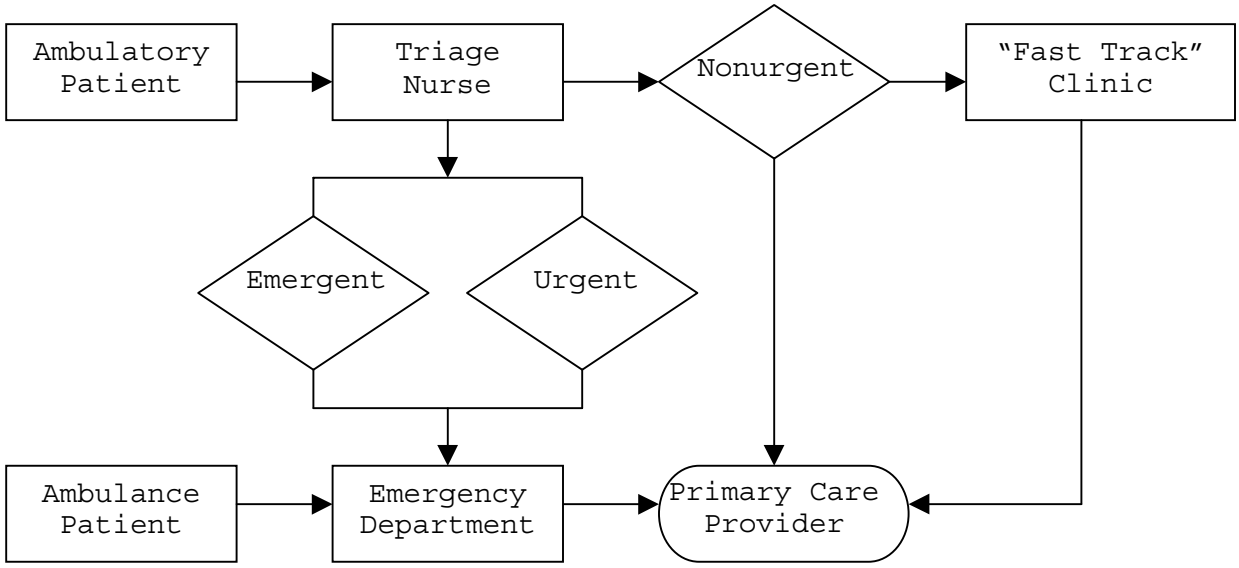
1. Do not order laboratory tests until the patient is seen by a physician or nurse practitioner
2. Do not order a urine pregnancy test if the patient has had one in the last month unless she has abdominal pain or vaginal bleeding or is otherwise medically indicated.
3. If the patient is short of breath, check an O2 saturation
4. Offer reassurance.
5. Encourage the patient to take her prescribed medications. She is often noncompliant with medications.
6. Prolixin, 5 mg PO, is usually effective for severe agitation.
7. FOLLOW-UP WITH HER PCM, DR. FRANK, IN THE FAMILY HEALTH CLINIC.

Disposition/Functional Outcome:

1. Patient less anxious, not hypoxic.
2. Follow-up appointments made with PCM as indicated.

Appendix E.

Patient Flow Through the ED



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