

Running Head: ORGANIZATIONAL-FOCUSED OUTCOMES OF PATIENTS

Organizational-focused Outcomes of Patients

Age 65 and Over Admitted to Department of Defense

Health Care Facilities

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Abstract

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This study described three organizationally focused outcome measurements for this population; mortality rate, length of stay, and readmission rate for the 3 most prevalent Medicare diagnostic related groups (DRG). Admission information was obtained from the MHS Standard Inpatient Data Repository for patients, age 65 and older, who were admitted to the MTF for DRG 88, 89, and 127 during fiscal year 2001. Of the 49 MTFs reviewed, over 87% are performing at or below Medicare averages for lengths of stay and mortality. The facilities that exceeded Medicare averages tend to have lower numbers of admissions for the DRG. Results of this study can be used to assist policymakers and leaders in monitoring the quality of care and establishing benchmark goals for the clinical management of this population, assessing the effects of its education programs and developing policies for Medicare reimbursement. Further analysis at the local level is recommended to assess patient severity and clinical processes.

Table of Contents

Introduction..... 5

 Conditions which prompted the study..... 5

 Statement of the problem.....11

 Literature review.....11

 Purpose.....17

Methods and procedures.....18

Results.....21

Discussion27

Conclusions and Recommendations32

References.....36

Appendix A42

Appendix B44

Appendix C46

Introduction

The purpose of this study is to describe and compare organizational-focused outcome measurement of Department of Defense (DoD) hospitals for selected high admission categories of patients over 65 years of age. Throughout the 20th century, the Military Health System (MHS) has provided medical care for servicemen and women during and after military service. With a return of rising healthcare costs, emerging medical technology and an aging beneficiary population, the MHS, like many other health care systems, continues to delicately balance enhancing accessibility and improving the quality of care delivered, while controlling costs. When TRICARE was created, over age 65 beneficiaries had limited options on where to receive care. Today, the choices for this population have increased with the implementation of TRICARE for Life and TRICARE Plus. Because beneficiaries over age 65 utilize a disproportionate share of health care resources, the tracking of outcome metrics to assess the quality of inpatient care delivered to this specific group can help identify areas for the development of specific clinical practice guidelines and benchmark goals to manage this specific population.

Conditions which prompted the study

The Military Health System (MHS) is unique from other healthcare organizations because of its dual mission of providing medical support for contingency and combat operations and providing health care for its eligible beneficiaries in its fixed facilities. This complex organization costs \$16.3 billion annually, employs 99,500 military medical personnel, 39,600 civilian employees, and serves a population of over 8.2 million beneficiaries (Ramsaroop, Ball, Beaulieu, and Douglas, 2001). The DoD consists of the

three separate Services each with its own separate command structure, resources, installations, and medical facilities.

Patient care has been primarily delivered through each Service's military treatment facilities (MTFs) which were originally designed to treat the active duty servicemembers assigned to the installation. Family members and retirees were eligible for care on a "space-available" basis. During the Korean War, the deployment of medical personnel resulted in many non-active duty beneficiaries being unable to access this "space available" care. As a result, the Dependant's Medical Care Act of 1956 and Military Medical Benefits Amendments of 1966 allowed active duty families and retirees to receive limited care in the civilian market at the government's expense. This led to the creation of the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). Rapid growth of CHAMPUS costs in the late 1980s became a concern for the MHS and led to the creation of the TRICARE program in 1995.

Available to active duty personnel, family members, retirees and eligible survivors under age 65, TRICARE is a regional partnership of MTFs and civilian contractors that allow beneficiaries the choice of fee-for-service, preferred provider, or primary care managed health plans (Ramsaroop, et al, 2001). Although the Services retain command and control of their respective MTFs, healthcare is coordinated through regional Lead Agents. The Lead Agents have managerial oversight responsibility for the delivery of care for both active duty and non-active duty beneficiaries, coordinating care and ensuring appropriate referrals between MTF-based care and civilian network providers (Stoloff, 1999).

With TRICARE, active duty military personnel receive the highest priority of access to the MTF. Beneficiaries enrolled in the TRICARE Prime program receive the next level of priority and those who were not enrolled in Prime were seen on a space available basis in the MTF. Retirees and their family members under age 65 paid an annual fee to enroll in TRICARE Prime. Retirees and family members age 65 and older could not participate in Prime, but were eligible for Medicare, which required out-of-pocket expenses for outpatient visits, medications, and non-Medicare covered care services (Gilmore, 1998). MTF care for this group was still limited to a space available basis.

However, during the 1990s, this “space available” care had become more limited. As Prime enrollment increased, space available care decreased (Farley, Harris, Ashwood, Dydek, and Carleton, 2000). Another contributing factor was the Defense Authorization Amendments and Base Closure and Realignment Act of 1988 and the Defense Base Closure and Realignment Act of 1990, which required the closing of several military bases. In turn, this led to the closure of several military hospitals and clinics. Because of the reduced availability of space available care and the expenses associated with Medicare and Prime, the TRICARE program was under fire from many retirees and retiree advocate groups, claiming that the federal government “broke their promise” to provide free health care for life to military retirees (Porter, 1998).

An intense lobbying effort resulted in congressional action to enhance the military retiree health care benefit. In 1997, Congress directed the DoD and the Health Care Financing Administration (HCFA) to conduct a demonstration program to test the feasibility of providing Medicare-covered health services to the over age 65 through the

MTFs and TRICARE program. This Medicare-DoD subvention demonstration was known as TRICARE Senior Prime and was tested at several MTFs. Preliminary information showed participants in TRICARE Senior Prime were satisfied in the improved access and increased benefits available to them. Although the savings to Medicare were modest, the DoD costs increased by 30% at the demonstration sites (Farley, et al., 2000). The demonstration sites also reported concerns regarding the administrative requirements for Medicare certification and decreasing availability of access to non-enrolled patients.

The National Defense Authorization Act of 2001 led to the creation and implementation of TRICARE for Life (TFL), expanding TRICARE coverage to all retirees and spouses aged 65 or older that enrolled in Medicare Part B. For these beneficiaries, TFL becomes a second payer to Medicare, which eliminates all deductibles and co-payments incurred from Medicare and covers most of the costs of certain non-Medicare-covered services. This new entitlement program will be funded through an accrual fund with revenues from the U.S. Treasury and appropriations from each Service (TRICARE Management Activity, 2001). Through a series of complex calculations, the MHS would be allowed to receive reimbursement for the care they provide to their over age 65 beneficiaries.

The TRICARE Plus program was implemented in 2001, which allowed non-TRICARE Prime beneficiaries the opportunity to enroll for primary care with a MTF without paying an annual enrollment fee. Enrollees would be able to access primary services in the MTF with a similar priority to Prime enrollees, but services outside the MTF would be subject to TRICARE reimbursement procedures for non-Prime enrollees.

It remains to be seen what the impact of these new programs will have on utilization rates and expenses of the MHS with the over age 65 population.

Since its inception, TRICARE has had an impact on the cost of delivering inpatient care to eligible beneficiaries age 65 and over. Inpatient care costs for over age 65 patients have decreased by 30% from fiscal year (FY) 1994 to 1999, while the inpatient utilization of this group decreased by only 1.5% in the same time period (Stoloff, Lurie, Goldber, and Almendarez, 2001).

Other mechanisms for providing care to the growing military retiree population are currently being investigated. One alternative receiving some attention is the utilization of the Veterans Health Administration (VHA). Because of the broad similarities between the MHS and VHA, many have felt that the two organizations could combine their efforts to deliver care and reduce the federal government's costs of operating two large federal health systems. The creation of the DoD/VA Executive Council and the President's Task Force to Improve Health Care Delivery for Our Nation's Veterans, seek to identify ways to improve benefits for VA beneficiaries and military retirees and reduce the redundancies between the two organizations (Executive Order No. 13214, 2001). A proposal in the FY 2002 President's Budget would have required the estimated 700,000 military retirees who are eligible for VA medical care to select only one program (MHS or VHA) as their primary health program (Executive Office of the President of the United States, 2001).

Yet there are some organizational differences that complicate efforts. Because VHA is limited by the funds allocated by Congress each year, VA health care is not an entitlement (Ramsaroop, Ball, Beaulieu, and Douglas, 2001). VHA beneficiaries are

assigned to priority groups based on the degree of Service related disability and financial status. Enrollees are eligible for primary, specialty, and preventive care and co-payments are required for care based on the priority group assigned (Simonis, 2001). Family members who qualify for TRICARE are not eligible for VHA services, unless the VA facility is a member of the TRICARE managed care network (Murphy, 2001).

Some have questioned whether the MHS, with its focus on readiness and force health protection, is properly designed to provide quality care to its over 65 beneficiary population (Chargois and Sumter, 2001). Others suggest that organizations, such as the VHA, which are more experienced with caring for an older population with chronic conditions or long-term care needs, may be better suited to provide this care (Fihn, 2000; General Accounting Office, 2000; Kizer, 1999; Simmons, 1989).

Even though the MHS direct care system was initially designed to care for active duty service members, there is a value in providing inpatient care for over age 65 beneficiaries. Most notably is the value this group has on graduate medical education (GME) programs. Ensuring residents have the opportunity to treat older patients, who are more likely to be sicker and have multi-system diseases, is important for their training experience (Salerno, Cash, Cranston, and Schoomaker, 1998). Likewise, the older patients also allow staff physicians to maintain and enhance their skills in managing higher acuity patients. Many medical personnel feel a sense of duty in providing care to those who served before them (Sturtz, 2001).

Current initiatives, such as TFL eliminate the financial barriers to receive care in the civilian environment, while programs like TRICARE Plus, attempt to attract and manage care inside the MTF. Investigating the quality of care received by these

beneficiaries in the MTF setting can guide future program and policy development in providing care for this growing population.

Statement of the Problem

As the policymakers and legislators look for ways to improve delivery of these federal health care benefits to an increasingly older population, a description and analysis of the effectiveness and efficiency of the care provided should be made to identify those facilities that produce more favorable outcomes. These results could be used to identify those MTFs that have developed an expertise in treating certain conditions of a specific population.

The MHS will be required to provide care for an aging population. Because older patients tend to have a higher acuity of illness and will generally consume more resources, health care systems should monitor this population closely to assess the effectiveness and efficiency of the care they deliver. Further studies can help identify those patient care processes that contribute to these outcomes and then can be shared between both systems. This could result in sharing agreements between nearby federal facilities and influence policymakers in alleviating some of the burdens that hamper sharing agreements. Finally, for the Medicare-eligible MHS beneficiary, comparing outcome data could assist them in making an informed choice of where to receive their care.

Literature Review

The phrase “You can’t manage what you can’t measure” is a common belief among today’s healthcare executives (Jennings and Staggers, 1999). Managing the cost, accessibility, and quality of healthcare requires mechanisms that can accurately measure

these constructs. Some theorize that these components have a “zero-sum” relationship, that improvements made in one component result in a decrease in the other two.

Managed care, in its truest form, attempts to find the ideal point of equilibrium to enhance all three components, providing affordable and appropriate quality care to the patient and community.

Although most of the attention in the early years of managed care was on containing healthcare costs, quality has now become an important construct to manage. Governmental regulations, increasing consumerism, and legal implications are requiring healthcare organizations to take an active approach in ensuring quality of care along with controlling costs (Kongstevdt, 2001, Griffith, 1999).

Quality has been a difficult concept to define. The Institute of Medicine proposed that quality of care be defined as the “degree to which health services increase the likelihood of desired health outcomes and are consistent with current professional knowledge” (Jennings & Staggers, 1999). Others describe it as an “attribute of the healthcare process having to do with whether the right thing is done and whether it is done well” (Aday, Begley, Lairson, and Slater, 1998). There is no universally agreed upon definition for quality. Assessing quality is challenging since it requires judgment and is therefore subjective.

Donabedian categorized medical care into terms of structure, process, and outcome, in which to identify those aspects that might be indicators of quality (Aday, 1998). Structure relates to the context in which care and services are provided. Methods used to evaluate structure allow inferences to be made on the organization’s ability to provide the services they offer. Examples of structural measurements include licensure,

accreditation, physician certifications, and compliance with governmental regulations (Konstevdt, 2001). The second criterion, process, evaluates the “causes and conditions that repeatedly come together in a series of steps to transfer inputs into outcome” (Konstevdt, 2001). Examples of process measurements include health screenings, follow-up rates, and clinical algorithms. Outcomes refer to the changes in health status that occur as a result of the care given (DeHarnais, McMahon, and Wroblewski, 1991). Measurements in this category include infection rates, mortality, and unscheduled readmissions.

It is important to note that the measures used to examine quality will vary, depending on the perspective of the stakeholder being examined. What a provider or healthcare executive may view as quality may differ from that of the patient or family member (Jennings and Staggers, 1999; Kongsetvdt, 2001; Tucker and Munchus, 1998). Jennings, Staggers, and Brosche (1999) provided a framework for classifying outcome indicators based on the focus from four various stakeholders: the patient, the caregiver, the organization, and population health. Thus, it is important to identify not only what aspect of quality the researcher wishes to measure, but also from which stakeholder’s perspective.

Many of the performance measures used in a health care organization are business or administrative based, since they are pre-existing, quantifiable, and easily retrievable (Jennings and Staggers, 1999; Meyer and Krakauer, 1998). These indicators, however, have limitations due to their operational definitions and reporting and collection methods. The need for standardized measures of quality is recognized by the President’s Advisory

Commission on Consumer Protection and Quality in the Health Care Industry as a critical step to advance quality in health care (President's Advisory Commission, 1998).

Three commonly used indicators that measure quality from the perspective of the health care organization are mortality rates, length of stay averages, and readmission rates. Inpatient mortality rates are a popular measure of health outcomes that can offer some perspective on organizational quality. Inpatient mortality includes "deaths that occur during inpatient hospitalization, after admission and before discharge" (Franklin and Legault, 1999). Part of its attractiveness is the wide availability and consistency of the data, since facilities are required to report in-house mortality data to government databases (Graves and Owings, 1997). Among providers, executives, and laypersons, it helps quantify the risk between desired and undesired outcomes. Yet, it has its limitations as a measurement of quality. Mortality information conveys little information about the majority of patients who do not expire. Death is ultimately inevitable and patients in an acute care setting are at the greatest risk of death. Since hospital deaths are relatively infrequent, small changes can cause large alterations in the mortality rate especially in smaller facilities (Franklin and Legault, 1999). Mortality rates are heavily influenced by the patient's health status as well as demographic factors. Inpatient mortality rates only account for patients who die in the facility, not after discharge or during transfer to another setting. Yet DesHarnais, McMahon, and Wroblewski (1991) found a strong correlation between hospitals' inpatient mortality rates and their inpatient plus 30 day mortality rates ($r=.97$) to allow the use of inpatient mortality as an indicator of performance.

Inpatient length of stay is another outcome measurement used to assess quality as well as efficiency. It became an important indicator in 1983 when Medicare adopted the federal prospective payment system for reimbursement. Under this new system, hospitals were reimbursed a relatively fixed amount for each patient. Because hospitals were no longer reimbursed on a per diem basis, this gave facilities an incentive to reduce duration of inpatient admission (Aday, 1999). Thus, monitoring lengths of stay is an indicator of utilization. Lower lengths of stay can result in decreased expenses and charges per discharge, which can contribute to an increase in revenues (Chen, Radford, Wang, Marciniak, and Krumholz, 1999). Lengths of stay measures can help identify variations in processes and structures of care (Markson and Nash, 1995), but can also be influenced by patient population, risk factors, and other underlying conditions. The mean, or average length of stay (ALOS) is the common statistic used to evaluate this outcome. Murphy and Noetscher state that it can be highly sensitive to outliers and recommend that the median length of stay be observed as well to obtain a better picture of the “typical patient” (1999).

Non-elective readmission rates are useful to managers in assessing quality due to ease of collection through records as well as the being available to management. Some have suggested that readmissions within 2 months of discharge account for 25% of all Medicare inpatient expenditures (Anderson and Stienberg, 1984). A meta-analysis of 16 studies showed that low quality care increased the risk of non-elective readmissions by as much as 55% (Ashton, Del Junco, Soucek, Wray, and Mansyur, 1997). It has been noted that readmissions may be unresolved acute care problems and presence of chronic conditions (Kossovsky, Sarasin, Perneger, Chopard, Siguard, and Gaspoz, 2000; Franklin,

Noetscher, Murphy, and Lagoe, 1999) and offer hospitals a unique opportunity to assess its clinical management and processes. Like other outcome metrics, readmissions can be affected by the patient's clinical, demographic, and socioeconomic characteristics (Kossovsky, et al., 2000; Philbin, Dec, Jenkins, and DiSalvo, 2001; Smith, Giobbie-Hurder, Weinberger, Oddone, Henderson, Asch, Ashton, Feussner, Ginier, Huey, Hynes, Loo, L., Mengle, 2000).

These measures are only a small part of a healthcare system's quality improvement system, which is used by healthcare institutions and systems to insure value of the services they provide. One popular tool of the quality improvement program is the benchmarking process. Czarnecki defines benchmarking as "the sharing of performance information to identify operational and clinical practices that lead to the best outcome" (1996). The process begins with identifying the best performers of a group and then adopting those processes that contribute to these top performances. Many healthcare providers, facilities and systems have adopted the benchmarking process to set goals for single (Health Care Advisory Board, 1998) or multiple performance indicators (Lagoe, Noetscher, and Murphy, 2000).

General systems theory recognizes that no one component can truly measure quality. It has been discussed in much detail that examining multiple components of quality and the interrelationships between them can provide a more integrated view of quality (Jennings and Staggers, 1999). Likewise, mortality rates, readmission rates and ALOS should not be viewed in a vacuum, but studied together to see the interaction that they have on each other and on overall quality.

Purpose

The purpose of this study is to describe organizational-focused outcomes among DoD hospitals in the high volume conditions of patients over age 65. This study proposes to answer several questions: (a) What are the morality rates for high volume DRGs of over age 65 patients in the selected DoD hospitals? (b) What is the ALOS for high volume conditions of over age 65 patients admitted to DoD hospitals? (c) What is the 30-day readmission rates for high volume conditions of over age 65 patients in the selected DoD hospitals? (d) How do these outcomes compare to non-military facilities?

Method and Procedures

This descriptive study investigated conditions, or diagnostic related groups (DRGs), that were high-volume admissions for patients age 65 and older. DRGs are the basis for the prospective payment system for Medicare and other third-party payer reimbursement and are categories of clinically similar illness that require the same type of hospital resources to treat (HCIA-Sachs, 2001). For this study, the top three DRGs in terms of volume of Medicare admissions for the year 2000 were selected for analysis. They are congestive heart failure (DRG 127), simple pneumonia with complications and/or comorbidities (DRG 89), and chronic obstructive pulmonary disease (DRG 88).

The study was performed utilizing data from the DoD Standard Inpatient Data Record (SIDR), an electronic administrative database used for health services research and quality measurement. The SIDR tracks MTF inpatient episodes of care, providing detailed information on the patient demographics, diagnostic codes, procedures, and other administrative data from MTF admissions throughout the world. Several studies have suggested that outcome measurements are valid indicators of quality of care (Ashton, et

al., 1997; DesHarnais, et al., 1990). Measuring outcomes is a “self-validating” approach, since the researcher is measuring the “item of ultimate interest”, the patient outcome (DesHarnais, et al., 1990). Using outcome measures from a large data repository also leads to reliability concerns, questioning the “accuracy or precision of the measuring instrument” (Kerlinger, 1988). Although there is an inherent risk of incomplete or incorrect coding, Meyer and Krakauer (1998) found that the SIDR is a reliable source of administrative data that compares favorably to similar civilian healthcare data sources.

SIDR data was obtained through the All-Regions Server Bridge, a MHS wide data repository that is centrally located in Denver, Colorado. Using Business Objects 4.0, a general query was made for admission data related to patients age 65 and older who were admitted to a MTF for each of the investigated DRGs during fiscal year (FY) 2001 (October 1, 2000 through September 30, 2001). Data fields of the query results included general patient demographic information, admission DRG, treatment MTF, ICD-9 diagnosis and procedure codes, and admission and disposition status. In order to maintain confidentiality of patient information, the SIDR produced a pseudo-social security number, which was unique to each individual patient, but allowed for identification of additional episodes of care. Patients who were admitted to MTFs outside the U.S. (to include Alaska and Hawaii) were eliminated from the study. Patients who were transferred to the MTF from another healthcare facility as an inpatient were also removed.

Outcome measures investigated include mortality rates, lengths of stay and readmission rates for each of the conditions. Mortality rates were calculated by dividing the total number of dispositions by the number of deaths that occur between admission

and discharge during the hospitalization for the specific DRG. The average lengths of stay were calculated by dividing total inpatient days by the number of patients admitted for the selected DRG.

Readmission rates were defined as the number of readmissions divided by the total number of dispositions for each investigated DRG. This study followed the Lagoe, Noetscher, and Murphy (2000) criteria for identifying an inpatient encounter as a readmission. To be identified as a readmission, the admission must be (a) to a MTF within 30 days of discharge, (b) non-elective, and (c) the admission is for the same DRG or related DRG as the previous admission. The purpose of this third condition was to ensure that the rehospitalization was related to the initial admission. This was done to prevent the inclusion of an admission for an unrelated condition to count as a readmission; such as patient discharged with COPD and admitted 20 days later for a broken leg.

Because the SIDR has no field designating whether a hospitalization is the result of a readmission, a series of queries and conditions were constructed to identify and remove those incidents of care which did not fit the readmission definition. This process was similar to the method used by Franklin, et al. (1999). The first step was to identify patients who were discharged for DRG 88 during FY 2001 and list all MTF hospitalizations they received throughout reference period, by MTF. These other hospitalizations were limited to those admissions for DRGs that are contained in the major diagnostic category (MDC) 04: Diseases and disorders of the respiratory system. Admission dates and disposition dates were identified and cross-referenced with all other hospitalizations for each individual patient. Days between discharge date associated with

DRG 88 and admission date were calculated. Those dispositions that had 1 to 30 days between discharge and admission, for which the initial hospitalization was for DRG 88, were identified as readmissions. These admission dates were screened to insure multiple admissions within a 30-day period were only counted against the most recent admission. This process was then repeated with DRG 89. For DRG 127, readmitting diagnoses were screened using MDC 06: Diseases and disorders of the circulatory system.

Comparing patient outcomes to national benchmarks allows each facility to view where they exist in quality outcomes in relation to the nation and other similar organizations. Two information resources that were utilized in this study are the Medicare Provider Analysis and Review File (MEDPAR) and the HCIA-Sachs' All-Payer Database. Both sets of information were obtained from HCIA-Sachs' The DRG Handbook: Comparative Clinical and Financial Benchmarks (HCIA-Sachs, 2000). The MEDPAR contains records of all Medicare beneficiaries using inpatient hospital services. Because 87 percent of Medicare enrollees are aged 65 or older (Health Care Financing Administration, 2000), this database was used as a national benchmark reference for this population. Unlike the SIDR, which is an event based data repository, the Medicare information is claims driven.

The HCIA-Sachs' All Payer Database, also obtained from The DRG Handbook, is comprised of inpatient data from a variety of sources, which, when aggregated, represent the universe of all short-term, non-federal hospital admissions. Information from the All Payer Database can be useful to compare the proportion of patients age 65 or older admitted for each investigated DRG at each federal facility against similar, non-federal hospitals. Although MTFs deliver health care to an exclusive group of beneficiaries,

Jackson, Cheng, Jones, and Meyer (1999) state that the overall demographic composition of MTF inpatients, along with discharge diagnosis frequency and procedure rates are similar to those in the national civilian community.

Because the volume of cases for a specific condition can relate to the level of quality, special emphasis will be placed on the top five facilities with the highest number of dispositions for each DRG.

Results

There were a total of 4,841 admissions for patients age 65 and older admitted to MTFs during FY 2001 for the three investigated DRGs. A total of 308 cases were removed due to being admitted at an overseas MTF or because the patient was transferred from another inpatient facility (Table 1). There were a total of 1,481 dispositions for inpatients age 65 and older for DRG 88 at U.S. MTFs for FY 01; for DRG 89 and DRG 127, 1,328 and 1,724 dispositions, respectively. Age distribution for each DRG is displayed in Appendix A. The five MTFs with the highest number of over age 65 dispositions for the reference period were identified and are displayed in Table 2.

Mortality rate

The overall MTF inpatient mortality rate for the investigated DRGs were 1.22% for DRG 88, 3.77% for DRG 89, and 2.48% for DRG 127. These were well below both the Medicare and HCIA-Sachs' All-payer Summary inpatient death rates. Individual rates for the five MTFs with the highest volume of dispositions for each respective DRG was at or below the Medicare level. The graphic display of this information is shown in Figures 1 through 3. When assessing individual MTF performance with this outcome measure, 12.5% of the MTFs had mortality rates above the Medicare level for DRG 88

Table 1.

Number of dispositions of patients age 65 and older for investigated DRGs (FY 2001).

	DRG 88	DRG 89	DRG 127
Total number of cases (all MTFs worldwide)	1593	1399	1849
Overseas MTFs	103	65	116
Inter-facility transfer	9	6	10
(Removed cases)	(112)	(71)	(125)
Number of cases used for study	1481	1328	1723

Table 2.

Top five MTFs with the highest count of dispositions of patients age 65 and older for investigated DRGs (FY 2001).

	DRG 88	DRG 89	DRG 127
MTF A	155	103	193
MTF B	140	152	156
MTF C	99	60	127
MTF D	91	92	122
MTF E	73	*	*
MTF F	*	75	149

Note: The above MTFs are military medical centers with an internal medicine GME program

* MTF was not in the top five dispositions for this DRG.

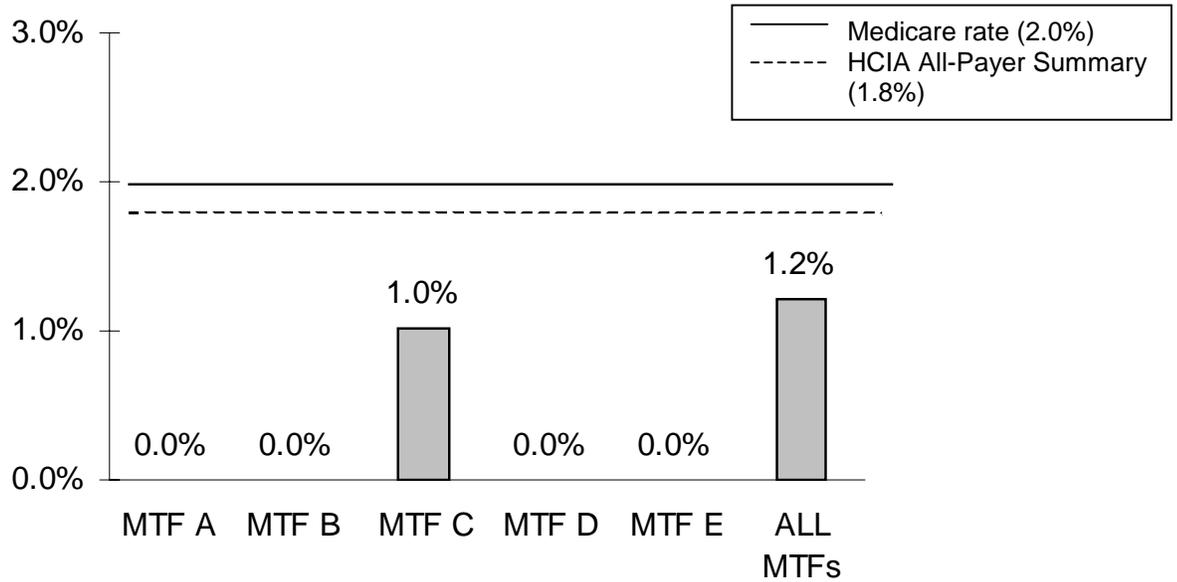


Figure 1. Mortality rates for patients age 65 and older for DRG 88 for the top five MTFs and all MTFs (FY 2001).

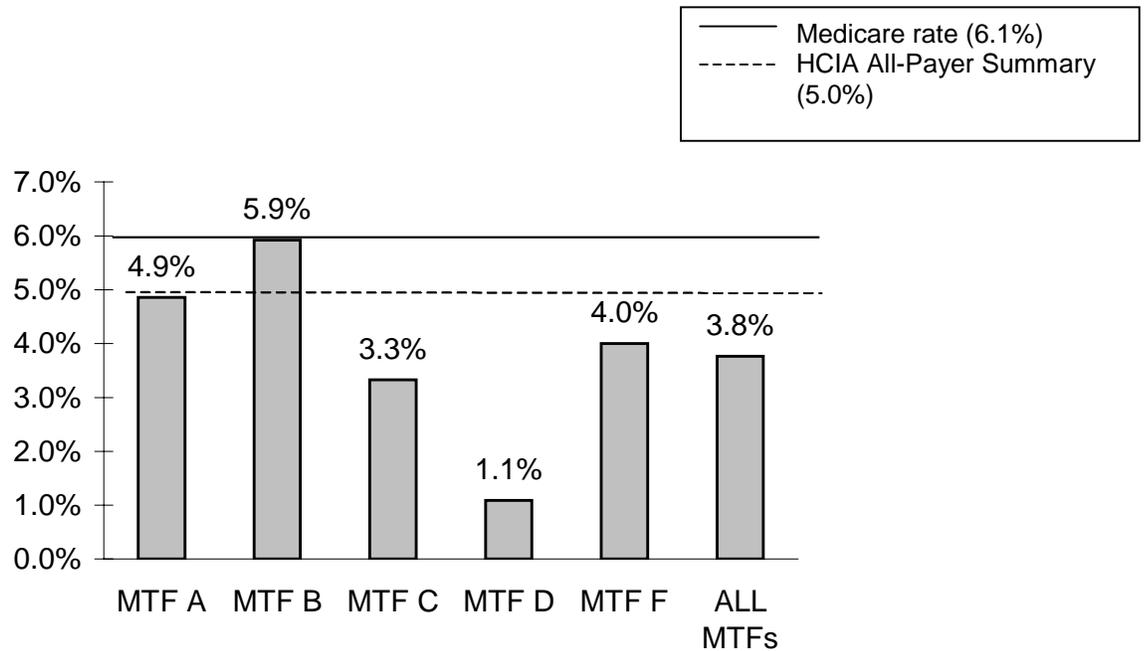


Figure 2. Mortality rates for patients age 65 and older for DRG 89 for the top five MTFs and all MTFs (FY 2001).

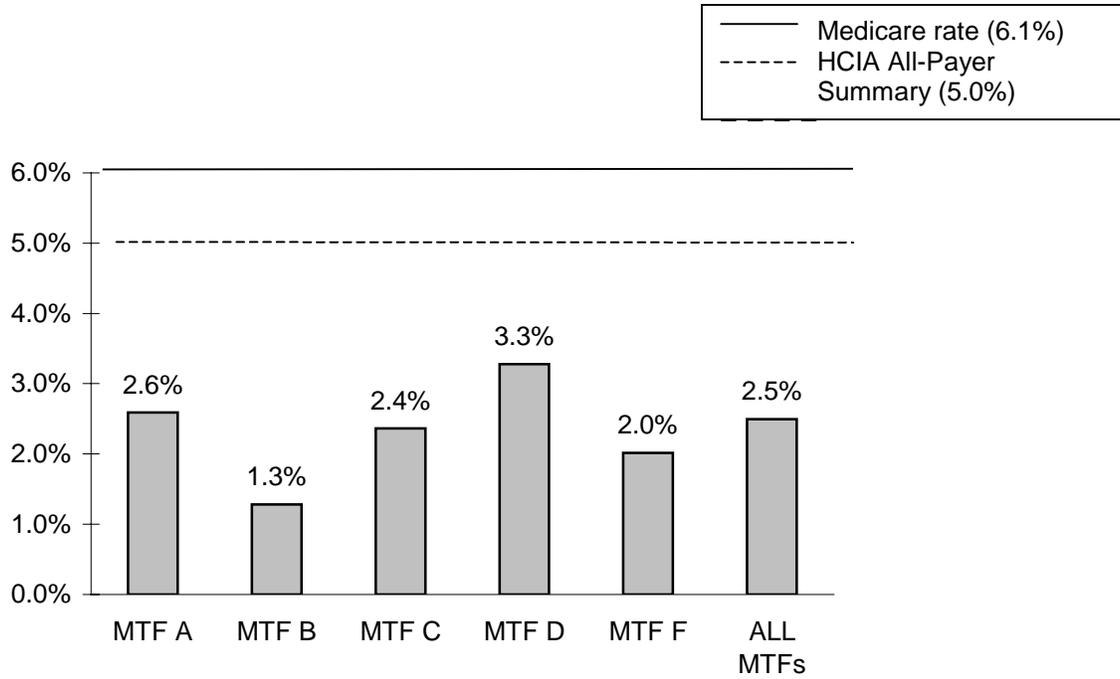


Figure 3. Mortality rates for patients age 65 and older for DRG 127 for the top five MTFs and all MTFs (FY 2001).

Table 3.

Summary of MTFs exceeding Medicare outcome measures by DRG (FY 2001).

	DRG 88	DRG 89	DRG 127
MTFs with at least one over age 65 admission	48	48	46
MTFs exceeding Medicare inpatient mortality percentage	6	6	6
% of MTF exceeding Medicare mortality percentage	12.5%	12.5%	13.0%
MTFs exceeding Medicare ALOS	4	3	3
% of MTFs exceeding Medicare ALOS	8.3%	6.3%	6.5%

and 13% for both DRG 89 and DRG 127. Of the facilities that exceeded the Medicare mortality rates, 36% were military medical centers that had an internal medicine GME program and had at least 50 admissions for that DRG during the reference period. The non-GME facilities had less than 45 admissions for that DRG (Appendix B).

Average length of stay

The overall MTF ALOS for all three DRGs were well below that of the Medicare and HCIA All-payer Summary information. All five of the high volumes MTFs were at or below this level, as displayed in Figures 4 through 6. Only 8.3% of the MTFs exceeded the Medicare ALOS for DRG 88, and 6.5% for both DRG 89 and DRG 127 (Table 3). Only one had an internal medicine GME program and 60% of these facilities had less than 10 dispositions for the investigated DRG for the reference period (Appendix C).

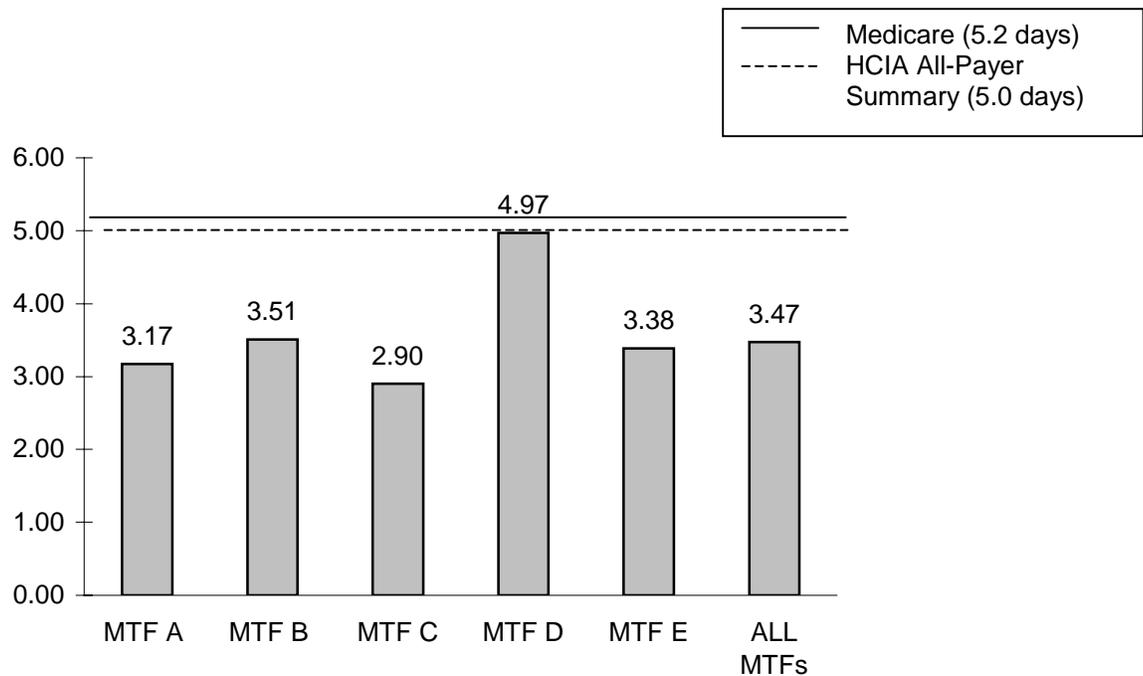


Figure 5. Average lengths of stay (in bed days) for patients age 65 and older for DRG 88 for the top five MTFs and all MTFs (FY 2001).

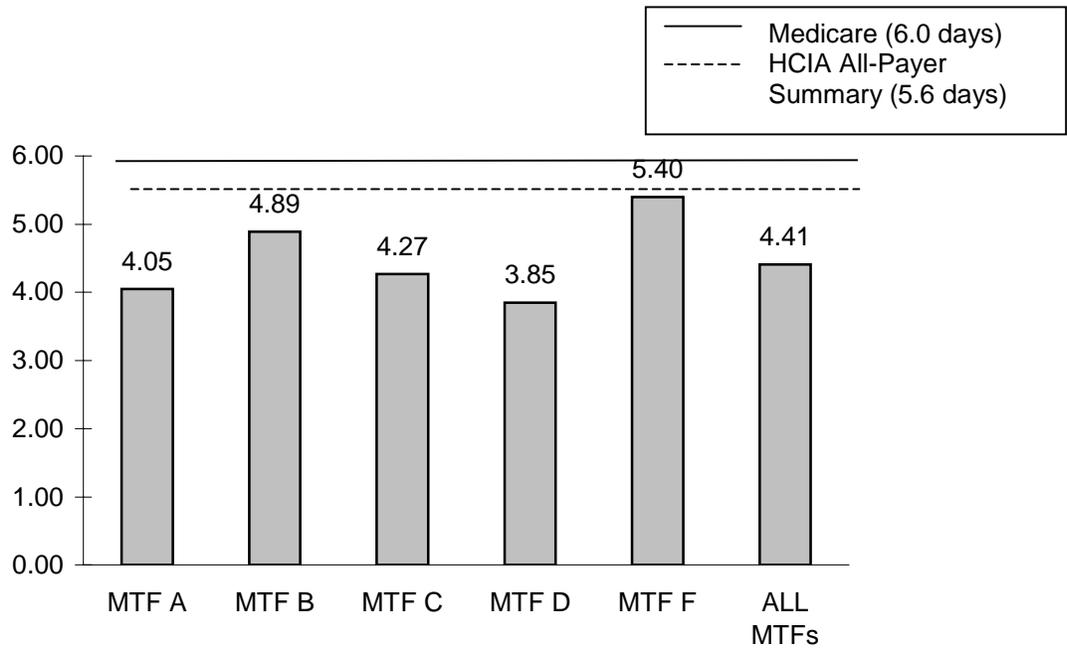


Figure 6. Average lengths of stay (in bed days) for patients age 65 and older for DRG 89 for the top five MTFs and all MTFs (FY 2001).

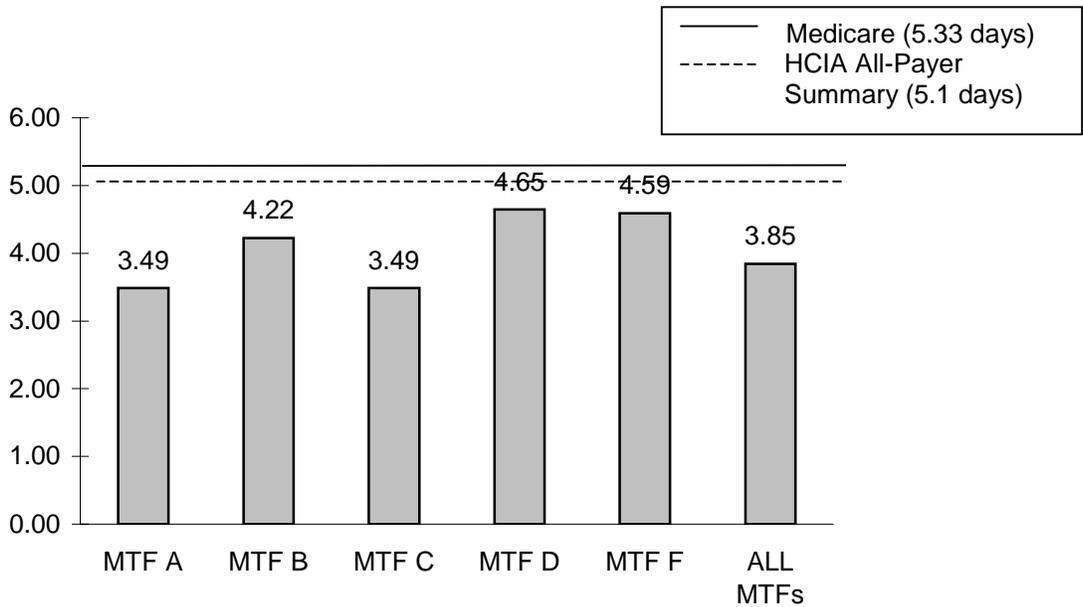


Figure 7. Average lengths of stay (in bed days) for patients age 65 and older for DRG 127 for the top five MTFs and all MTFs (FY 2001).

Readmission rates

Readmission information for each of the high-volume MTFs as well as all U.S. MTFs is summarized in Table 4. The over age 65 readmission rate for all MTFs was 9.3% for DRG 88, 5.6% for DRG 89, and 11.20% for DRG 127. Because Medicare readmission information was unavailable from the HCIA-Sachs' reference, the readmission rate for the "All MTFs" group was used as a reference for comparing the individual MTFs. Analysis of means (ANOM) charts were constructed for each DRG to determine if a MTF's readmission rate is significantly different than the "All MTF" readmission rate. The ANOM method creates an upper common cause limit (UCCL) and a lower common cause limit (LCCL) based on each individual facility's performance and reduces the risk of identifying a MTF whose high admission rate is due to low volume. Individual means that fall above the UCCL or below the LCCL indicate the variation may be due to special cause and require further investigation (Lighter and Fair, 2000). Figures 8 through 10 indicate that none of the top five MTFs fell outside of the upper and lower common cause limits.

Discussion

For two of the three DRGs, the age distributions for the over age 65 patients admitted to the MTFs are skewed more towards the lower ages than the Medicare summary group (Appendix A). This is important to note, since the severity of the condition may be affected by the patient's age (Smith, et al., 2000; Kossovsky, et al., 2000); thus Medicare patients may be more ill and have poorer outcomes than MTF patients. The benefits provided to military retirees and retiree spouses or survivors, such as pay and access to health care, influence their socioeconomic and health status. It is not

Table 4.

Readmission rates of over age 65 patients for each investigated DRG (FY 2001).

	n	30-day readmits	%
DRG 88			
MTF A	155	12	7.7%
MTF B	140	13	9.3%
MTF C	99	8	8.1%
MTF E	73	6	8.2%
MTF D	91	11	12.1%
ALL MTFs	1481	137	9.3%
DRG 89			
MTF A	103	9	8.7%
MTF B	152	5	3.3%
MTF C	60	2	3.3%
MTF D	92	6	6.5%
MTF F	75	3	4.0%
ALL MTFs	1328	74	5.6%
DRG 127			
MTF A	193	33	17.1%
MTF B	156	19	12.2%
MTF C	127	17	13.4%
MTF D	122	22	18.0%
MTF F	149	17	11.4%
ALL MTFs	1724	193	11.2%

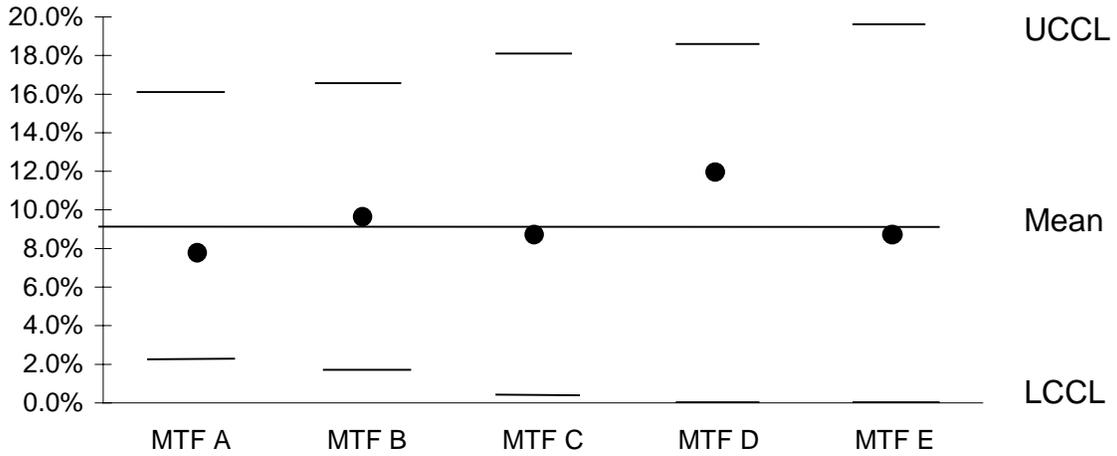


Figure 8. Analysis of means of readmission rates for over age 65 patients admitted for DRG 88. Referenced mean is readmission rate for all U.S. MTFs.

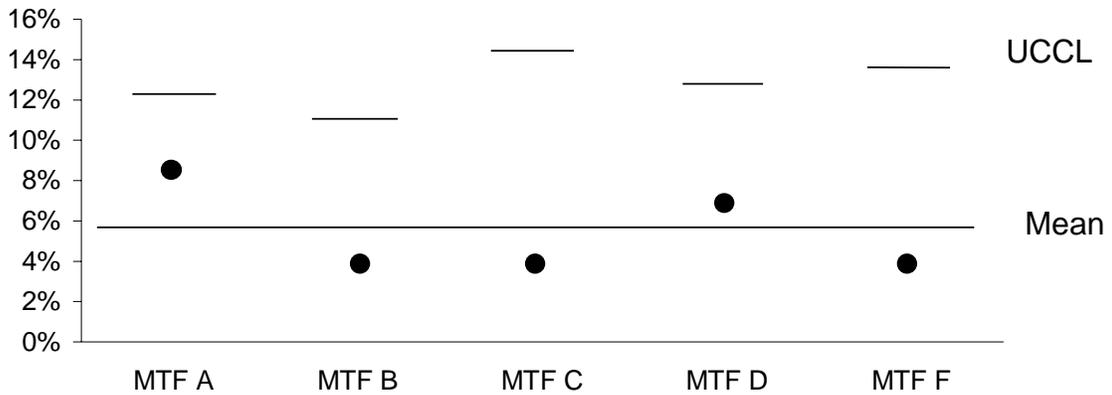


Figure 9. Analysis of means of readmission rates for over age 65 patients admitted for DRG 89. Referenced mean is readmission rate for all U.S. MTFs. Calculated lower common cause limits were less than 0

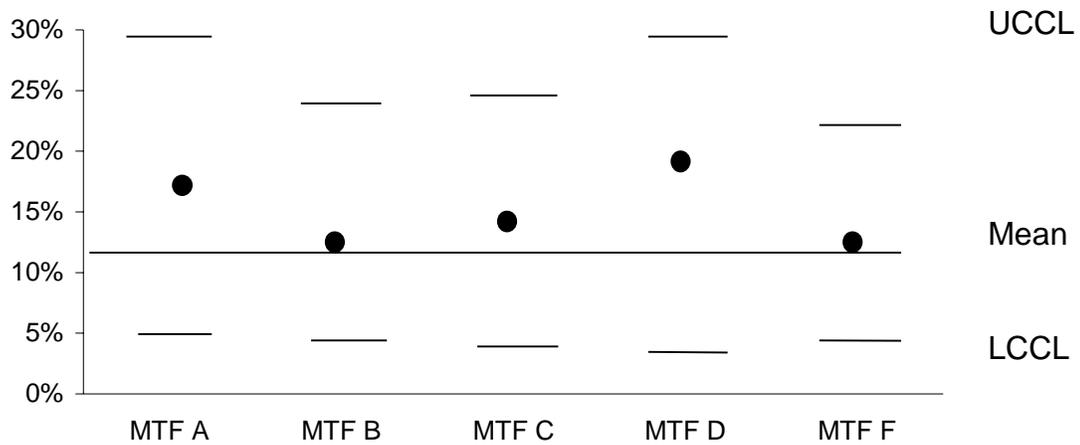


Figure 10. Analysis of means of readmission rates for over age 65 patients admitted for DRG 89. Referenced mean is readmission rate for all U.S. MTFs.

fully known how it compares to socioeconomic and health status of the overall Medicare population.

Concentrating on the five MTFs with the highest number of FY01 dispositions for each DRG allows for a simple comparison of relatively like facilities. Each of the five facilities is a military medical center with at least one intensive care unit and an internal medicine GME program, which allows for making broad comparisons between these MTFs. Each of these “high volume” facilities performed below the Medicare average in length of stay and inpatient mortality.

Of the few facilities that were above the Medicare ALOS or inpatient mortality, most of the MTFs were medium-to-small military community hospitals with limited capabilities and few over age 65 dispositions. For these facilities, one poor outcome can result in a volatile swing in ALOS or mortality rates.

The process used to identify readmissions attempted to utilize a systematic method to calculate readmission rates from the SIDR database, which has no readmission-identifying field. There are some drawbacks in using this method with such a large database. One is the loss of dispositions that occur outside the study time frame. Patients who were admitted towards the end of the time period may have a readmission that occurred outside that period. Likewise, admissions at the beginning of the period may be the result of a readmission from a hospitalization prior to the start of the study's time period. Franklin, et al. recognized that a small number of patients would be separated from the results, but advise that the amount is negligible (1999).

Another drawback to this process was that it only counted readmissions to the same MTF. It did not take into account a patient who is discharged from one MTF and then admitted to another facility (military or civilian) within 30 days. Finally, it was recognized that a patient's readmission may be related to the previous admission and not be coded in the same MDC as the previous admission. Multi-system complications or treatment side effects may result in a readmission being coded under a different DRG. Although there are drawbacks to using large data systems to identify readmission, such as the SIDR, it does provide an indicator of patient outcomes that when used consistently, allow for comparisons between time and facilities.

From the readmission rates calculated in this study, patients admitted for DRG 127, heart failure and shock, are readmitted within 30 days at a higher rate than the other two DRGs. Indeed, the probability of readmission for these patients is high; some studies suggest that 29% to 47% of these patients are readmitted within 3 to 6 months (Krumholz, Parent, Tu, Vaccarino, Wand, Radford, and Hennen, 1997). Although the

ANOM charts revealed the absence of any special cause variation in the individual facilities, a more thorough analysis at the local level is recommended to determine the root causes of the readmission.

This study used Medicare and HCIA All-Payer Summary information as an initial reference mark to compare outcomes with non-federal healthcare facilities. Although both of these sources include a small percentage of patients under the age of 65, these figures allow MHS leaders and MTF commanders to compare their facilities' performance against national level data. Further analysis with adjustments for demographic information along with socioeconomic and health status should be performed at the local level to allow for valid comparisons. The data elements of the SIDR database are very limited in this regard; thus it is recommended that follow-on studies be performed locally utilizing other data sources or record sampling.

Another caveat to consider is that this study is limited to the care delivered at the MTFs. As mentioned earlier, these beneficiaries are restricted to MTF care on a space available basis. If the MTF does not have the necessary bed space or services available, these patients would receive care from outside sources utilizing their Medicare benefit. It may be that more acute patients may bypass the MTF and be admitted to a local hospital. Again, SIDR-level data is limited in this regard and more local study is required before making a valid comparison.

Conclusions and Recommendations

This study has presented a snapshot of the quality of care received by patients age 65 and older. Although eligible for Medicare, many of these dual-eligible beneficiaries continue to seek care at MTFs for reasons that are financially, locality, or customer

loyalty based. MTFs continue to provide care to this population, primarily for training and educational opportunities, but also out of obligation and duty. Monitoring the outcomes of this patient population can provide several benefits for MTFs and the MHS.

Because older patients utilize more healthcare dollars, quality improvement processes, such as benchmarking, are important to assess the quality of the care being delivered and to identify areas for improvement. High volume and high cost areas should be targeted, which makes emphasis on this population relevant. Identifying those facilities of best practice is the first step of the benchmarking process. Once identified, goals and practices from that best practice can be adopted to improve facility and system-wide performance (Czarnecki, 1996). Benchmarks and clinical practice guidelines for these high-volume DRGs can help reduce practice variance and inefficiencies and improve the quality of care delivered (Jennings and Staggers, 1997).

With the closure of the TRICARE Senior Prime demonstration project, MTFs are still unable, by law, to receive Medicare reimbursement for the care provided to Medicare-eligible beneficiaries. MTFs continue to provide “free care” to this population. Medicare would have had to pay these healthcare costs if the patient had been cared for at a non-federal facility. As resources become more limited, MTFs may be forced to see less of this over age 65 population in order to ensure access standards are met for TRICARE Prime enrollees, thus shifting the costs of care to Medicare. Comparing the healthcare outcomes of MTF over 65 patients against Medicare ALOS and mortality rates can add support to policymakers and legislators in their efforts to allow MTFs to receive Medicare reimbursement for the care they provide.

With the recent implementation of TRICARE for Life and the proposed FY 2002 President's Budget to require those who are authorized DoD and VA health services to choose a primary source of care, MHS beneficiaries over 65 have many choices where to receive their healthcare. Information related to the quality of care provided to this group can support marketing efforts of MTFs that wish to attract older beneficiaries, either for GME or financial purposes. Information regarding the quality of care for similar or neighboring institutions can allow beneficiaries to make an informed choice on where to receive their health care.

Further investigation is required to assess the quality of care for this sub-population, to include assessment of outcomes for additional DRGs, and the quality of primary and follow-up care for this group. Although this study focused on organizational-focused quality indicators, it is recognized that the patient's perception of quality maintains a different perspective. Whereas organizations and providers associate quality in relation to outcomes, cost, and appropriateness of care (Jennings, et al, 1999), patients assess quality in "non-technical, human dimensions" related to their experiences in healthcare systems (Tucker and Munchus, 1998). Because patients tend to "vote with their feet", this patient perspective should not be underestimated.

The MHS, as well as the nation in general faces an aging population that will lead to a growing demand for health care resources. Although the MHS is designed to first provide care first to its active duty population and its Prime enrollees, providing care to this dual eligible population is important in terms of educational opportunities as well as taking care of those who served their country. Along with assessing access and cost implications of providing care to this group, MHS leaders and healthcare policymakers

must assess the quality of care that is provided to ensure that the MHS continues to provide world-class healthcare to this growing population.

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Appendix A

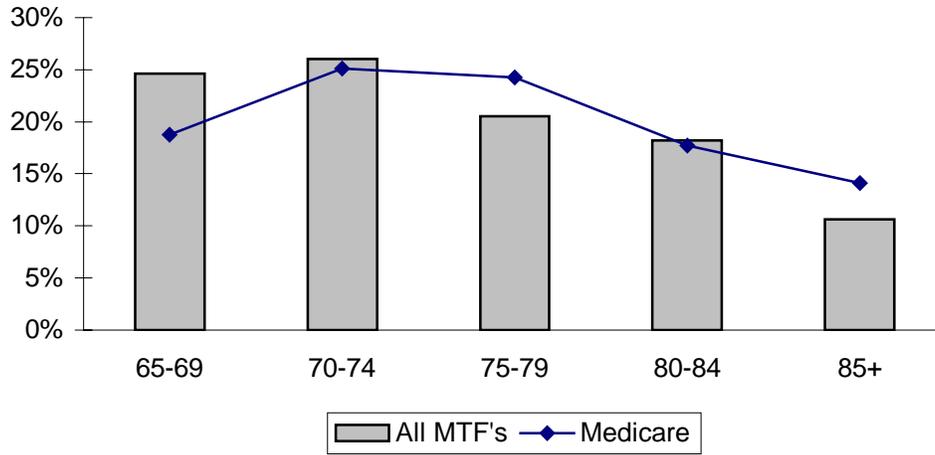


Figure 11. Patient distribution by age for patients admitted to U.S. located MTFs for DRG 88 in FY 2001 (age 65 and over).

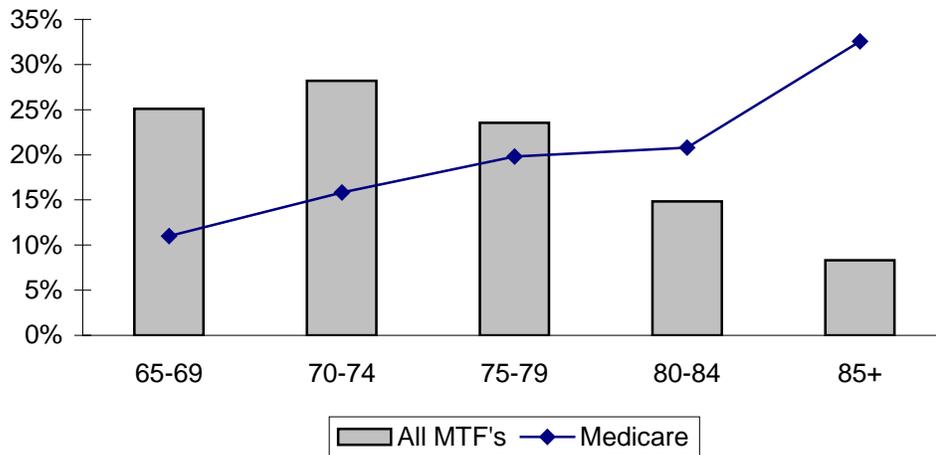


Figure 12. Patient distribution by age for patients admitted to U.S. located MTFs for DRG 89 in FY 2001 (age 65 and over).

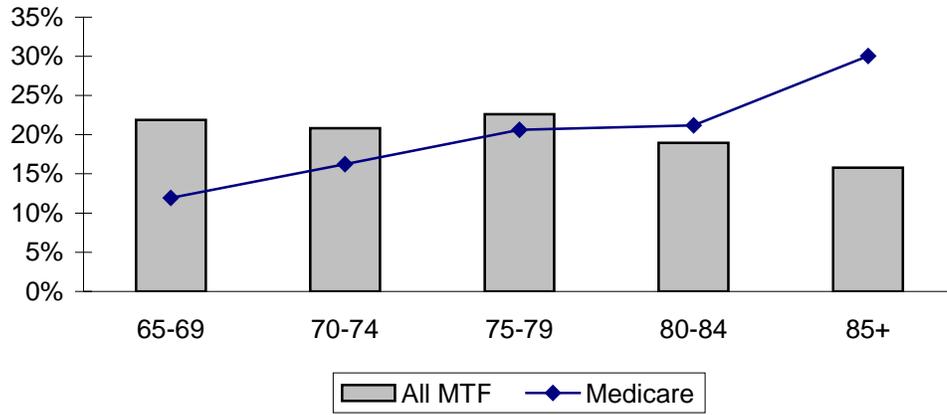


Figure 13. Patient distribution by age for patients admitted to U.S. located MTFs for DRG 127 in FY 2001 (age 65 and over).

Appendix B

Table 5.

MTFs exceeding Medicare inpatient mortality percentage for investigated DRGs (FY 2001).

Facility	n cases	Inpatient deaths	%
DRG 88 (Medicare mortality = 2%)			
MTF G *	62	3	4.84%
MTF H *	60	3	5.00%
MTF I *	51	2	3.92%
MTF J	27	2	7.41%
MTF K	24	1	4.17%
MTF L	19	1	5.26%
DRG 89 (Medicare mortality = 6.1%)			
MTF Q *	58	4	6.90%
MTF R *	50	4	8.00%
MTF H	42	3	7.14%
MTF S	20	2	10.00%
MTF T	13	2	15.38%
MTF U	13	1	7.69%

Table 5 (continued).

Facility	n cases	Inpatient deaths	%
DRG 127 (Medicare mortality = 4.9%)			
MTF I *	56	3	5.36%
MTF G *	50	3	6.00%
MTF K	39	2	5.13%
MTF X	16	3	18.75%
MTF Y	10	2	20.00%
MTF W	8	2	25.00%

Note: * Facility is a military medical center with an internal medicine GME program.

Appendix C

Table 6.

MTFs exceeding Medicare average length of stay (ALOS) for investigated DRGs (FY 2001).

Facility	n cases	ALOS (days)	S.D.
DRG 88 (Medicare ALOS = 5.19)			
MTF M	20	5.30	5.21
MTF N	2	6.50	3.50
MTF O	1	9.00	.00
MTF P	1	9.00	.00
DRG 89 (Medicare ALOS = 6.0)			
MTF H *	42	6.05	4.60
MTF V	12	6.67	5.54
MTF W	2	11.50	13.43
DRG 127 (Medicare ALOS = 5.33)			
MTF J	48	5.33	3.68
MTF Z	6	6.83	4.96
MTF N	1	7.00	7.00

Note: * Facility is a military medical center with an internal medicine GME program.

