Provider Profiling: Specialty Referral Patterns of Primary Care Providers at Dwight David Eisenhower Army Medical Center

by
Linda Wiley Fisher

Submitted in partial fulfillment of the requirements for the degree of Masters in Health Care Administration, Baylor University

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Provider Profiling: Specialty Referral Patterns of Primary Care Providers at Dwight David Eisenhower Army Medical Center

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13. ABSTRACT (Maximum 200 words)
Dwight David Eisenhower Army Medical Center (DDEAMC), Fort Gordon, Georgia, is the United States military's major referral center for the Southeast Region. The Southeast Regional Medical Command (SERMC) and Region 3 of the TRICARE Network consist of approximately 1.02 million beneficiaries in seven states. Facilities within the region have voiced concern about perceived difficulty of access to specialty referral appointments.

The objective of this study was to utilize provider profiling as a tool in order to answer three primary questions. First, is the difficulty in obtaining referral appointments at DDEAMC real or perceived? Secondly, are the referral patterns of the providers a contributory factor in the region's perceived inability to meet the demand for specialty appointments? And third, if the providers' referral patterns are a contributing factor, which provider behaviors need to be modified?

The variables studied were the number of: 1) internal referrals and total visits by Primary Care Provider. 2) internal referrals by specialty. 3) external referrals, by Military Treatment Facility (MTF). 4) external referrals by specialty. 5) network contract referrals, by specialty referred to, and the referring MTF. Among the major findings, the study found that the referral rate of the Primary Care Providers, Department of Primary Care, DDEAMC was 8% compared to the national average of 7.5%. Interns and residents were outliers with referral rates of 11.7% and 13.5%, respectively. Of the 32,182 referral appointments requested by staff physicians, residents, interns, nurse practitioners, and physician assistants during Fiscal Year 1999, slightly less than 2.4% were disengaged.

Data analysis indicates opportunities for improvement in the Department of Primary Care referral rates by addressing the referral practices of residents and interns; therefore, decreasing the number of disengaged patients. Based on observations during data collection, other opportunities for improvement are suggested.

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Most of all, I would like to thank my loving husband Stephen and my two wonderful sons Alexander and Zachary for their sacrifices and never ending understanding. It has been through their love and support that I have been able to accomplish so much in such a short time.
ABSTRACT

Dwight David Eisenhower Army Medical Center (DDEAMC), Fort Gordon, Georgia, is the United States military’s major referral center for the Southeast Region. The Southeast Regional Medical Command (SERMC) and Region 3 of the TRICARE Network consists of approximately 1.02 million beneficiaries in seven states. Facilities within the region have voiced concern about perceived difficulty of access to specialty referral appointments.

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- internal referrals and total visits by Primary Care Provider.
- internal referrals by specialty.
- external referrals, by Military Treatment Facility (MTF).
- external referrals by specialty.
- network contract referrals, by specialty referred to, and the referring MTF.
Among the major findings, the study found that the referral rate of the Primary Care Providers, Department of Primary Care, DDEAMC was 8% compared to the national average of 7.5%. Interns and residents were outliers with referral rates of 11.7% and 13.5%, respectively. Of the 32,182 referral appointments requested by staff physicians, residents, interns, nurse practitioners, and physician assistants during Fiscal Year 1999, slightly less than 2.4% were disengaged.

Data analysis indicates opportunities for improvement in the Department of Primary Care referral rates by addressing the referral practices of residents and interns; therefore, decreasing the number of disengaged patients. Based on observations during data collection, other opportunities for improvement are suggested.
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INTRODUCTION

Conditions which prompted the study

Rising health care costs coupled with shrinking budgets are forcing health care executives to evaluate business practices within their organizations with increased scrutiny. In keeping with these practices, the United States Army Medical Department (AMEDD) continually looks for ways to make itself more efficient. The AMEDD, overall umbrella for Army medicine and one of the largest health care organizations in the world, divides its worldwide coverage into regions. The command center of the Southeast Regional Medical Command (SERMC) is co-located with Dwight David Eisenhower Army Medical Center (DDEAMC) at Fort Gordon, Georgia. Included in its major functions are the dual-hatted positions of the SERMC/DDEAMC Commander and Chief-of-Staff who oversee areas of operations within the region. Other operational functions located at SERMC are Information Management, Logistics, Resource Management, and Readiness.

Dwight D. Eisenhower Army Medical Center is the U.S. military’s major referral center for the Southeast Region. The SERMC and Region 3 of the TRICARE Network consists of approximately 1.02 million beneficiaries in seven states (Georgia, Florida, South Carolina, Tennessee, Alabama, Mississippi, and Louisiana). Although, referrals come to DDEAMC from all over the world, the 17 Army, Navy, and Air Force Military Treatment Facilities (MTF) within its region are
DDEAMC’s major customers. Facilities within the region have voiced concern about perceived difficulty of access to specialty referral appointments. If a referral appointment at DDEAMC is unavailable within 30-days, patients must be given the option of being seen by a local TRICARE Network Contract provider. Because the referral of patients within the Military Health System (MHS) is more cost effective than referral to network contract providers, access to regional referral assets must be optimized. Any referral that is sent to a contract provider is an additional cost to the SERMC and; therefore, should be avoided (Dexter, 1999).

Statement of the Problem

Inability to access specialty care by external customers is a perceived problem that needs to be addressed. Very little analysis has been performed on the referral patterns of the DDEAMC (internal) and regional (external) providers. Specialty referral data collected at DDEAMC is presently used only as a quantitative metric to measure how many patients are seen and in which specialty clinics. There are several metrics collected but they are not analyzed with a systems approach. As an example, regional data that is collected on each regional (external) referral encounter is recorded in a database. This database contains the patient demographics and clinic data, but has not been used to evaluate effectiveness of the system. Understanding the demand on the system is necessary to adequately plan for specialty referral support. Identifying providers’ specialty referral patterns at DDEAMC’s Primary Care
Clinics will provide information about internal demand on the system. Information about internal demand can help identify problem areas, such as, specialties with the heaviest demands and which specialties may need to be evaluated closer due to low utilization. Identification of the specialties, which are unable to meet demand within the 30-day requirement for referrals, will help in planning for both external and internal demand. Therefore, this study will focus first on the specialty referrals through DDEAMC Primary Care providers and secondly, on the regional facility profiles. The information obtained from the analysis should be useful for strategic planning purposes.

The strategic plan for DDEAMC is presently under revision with a focus on data-based goals. One of the goals of the strategic plan is to distribute resources to the most essential missions and services. The information obtained by this study could be utilized to aid in identifying workload that could be recaptured from the contract civilian providers; therefore, lowering cost. The information could also be used to determine which services are over-staffed and which services are in need of additional resources to best meet the mission of the organization.

Literature Review

The ability to control cost has been an issue in health care since early in the development of the healthcare industry. In order to control cost, the specific dynamics of health care needed to be understood (Wennberg & Gittelsohn, 1973). There have been many attempts to understand the dynamics of the
healthcare industry. One of those attempts was to understand provider patterns through profiling. Provider profiling was utilized as early as 1969. The state of Vermont implemented a data system to monitor health care in 251 towns that were grouped into 13 geographic catchment areas. Price controls in medical services and insurance were provided by Phase 3 of the Wage and Stabilization Act of 1970. Professional Standard Review Organizations were created by a 1972 amendment to the Social Security Act. All of these actions were aimed directly at cost control.

The initial focus of provider profiling was on hospital care because the majority of the financial revenues were obtained from inpatient resources. According to Wennberg (1993), small area analysis has at least four characteristics: 1) provides population based rates, 2) focuses on local provider communities, 3) can provide a comprehensive description of the health care delivery system, 4) and finally, seeks answers to policy-relevant questions. Provider profiling has now expanded to include outpatient care with the migration of patients to the outpatient setting. Provider profiles have been used to detect fraud and abuse, to measure productivity, and to determine how to focus utilization management programs. One of the most important uses of provider profiling is for provider feedback in order to help the providers modify their own behavior. The profile tool must be easily understood, reliable, measurable, and foster true quality improvement in order to be effective (Blais, 1994; Kongstvedt, 1997; Bindman, 1999).
Gaining physician’s trust in profiling has not been an easy task. There are numerous cases of physicians whose economic and professional well-being have been damaged by the use of provider profiles. Blue Shield for the National Capital Area deselected 3000 physicians from the Federal Blue Shield Program on January 1, 1993. The deselecting action was taken based on information from a physician profiling computer system called ProFile. This action lead many physicians to seek profiling regulatory relief through the Department of Medical Devices of the Food and Drug Administration (Lossing, 1994).

Historically, provider profiling has been based on data drawn from reimbursement claims rather than collection of data on provider performance. Data collection should be tailored to answer the appropriate question under study. Some commercial vendors use as few as 30 patients to create profiles on a provider. It is accepted practice in statistical circles that a sample size \( n \geq 30 \) needs to be evaluated in order to gain meaningful data. If \( n=30 \) is utilized consistently to evaluate data there is minimal at best confidence in the results. Despite all the controversy that surrounds provider profiling some providers are open-minded and ready to help with the development of profiling tools. These providers want to ensure that the tools used to evaluate them reflect the variety of their patients, the processes of care, and the outcomes of the providers’ decisions (Dans, 1993; Kassirer, 1994; Sackett, & Wennberg, 1997; Wennberg, 1999).
One of the major complaints of providers is that comparisons of individual providers are not fair. Avoiding this controversy can be achieved through case-mix-adjustment. Case-mix-adjustment utilizes statistical adjustment to account for the differences in age, gender, and severity within the population. Failure to apply case-mix-adjustment may lead to overestimates of variation and misidentification of outliers (Rutledge & Osler, 1998). Adjustments to large populations with large numbers of variables remain difficult at best to profile.

The National Committee for Quality Assurance (NCQA) has been testing a standardized set of performance measures, the Health Plan Employer Data and Information Set (HEDIS), since January 1994. Under the current 3.0 version, HEDIS remains unable to adjust for differences in population health risk (Spoeri & Ullman, 1997). Kaiser Foundation of the Mid-Atlantic States used the inconsistencies of HEDIS to motivate their physicians to become involved in provider profiling. Kaiser pointed out that HEDIS was here to stay and unless the providers could get their metrics to make sense they would be judged by the HEDIS standards. Most of the physicians chose to work to improve the profiling process (Eichelberger, 1997).

Current literature suggests that in order for provider profiling to be effective and reliable, it must be focused on specific problems in order to avoid confounding the findings. A recent study, by Grumbach et. al., found that dissatisfaction with access to specialty care was the strongest predictor of
patients’ reasons for leaving managed care plans. In the study of 8,394 patients, 94% agreed that they valued having primary care physicians to monitor their care and 89% wanted their primary physicians to participate in referral decisions (Grumbach, Selby, Damberg, Bindman, Quesenberry, Jr., Truman, & Uratsu, 1999).

Primary Care Providers (PCP) are the basis of referral to specialists. This is based on the function of the PCP as the manager/coordinator of patients’ health care. They have an important role in ensuring that referrals are both appropriate and timely. The PCP is attempting to provide the best care for patients but must also be aware of and aid in containment of referral costs. Donohoe, et al. conducted a study of 222 patients referred from PCPs to specialists, one third of the patients had been referred unnecessarily, while another one third failed to keep the referral appointment (Donohoe, Kravitz, Wheeler, Chandra, Chen, & Humphries, 1999); (Laine & Turner, 1999). In a study, utilizing data from the National Ambulatory Care Survey and adjusted for patient and physician factors, 7.5% of HMO patients were referred by their PCPs (Franks & Clancy, 1997).

Purpose of the Study

Utilizing provider profiling as a tool, the purpose of this study is to answer three primary questions. First, is the difficulty in obtaining referral appointments at DDEAMC real or perceived? Secondly, are the referral patterns of the providers a contributory factor in the region’s perceived inability of
DDEAMC to meet the demand for specialty appointments? And third, if the providers’ referral patterns are a contributing factor, which provider behaviors need to be modified? In addressing these questions it is necessary to determine what referral demands are placed on DDEAMC and who generates those demands from both an internal and external perspective.

Specifically, this study will utilize provider profiling of specialty referrals as a quantitative exploratory tool in the DDEAMC Primary Care Clinics and within the SERMC in order to:

1) Identify referral patterns of individual providers in DDEAMC’s Primary Care Clinics.
2) Identify referral patterns of different provider groups (physicians, nurse practitioners, and physician assistants).
3) Identify external demands on specialty providers, by Military Treatment Facility (MTF).
4) Identify internal demands on specialty providers.
5) Identify the number of patients disengaged to the Network contract providers by specialty and MTF.
6) Supply feedback, based on data, to providers for modification of individual behavior.

The administrative and physician leaders of the SERMC and DDEAMC will be able to utilize this information in order to make decisions related to the obligation of scarce and valuable resources. This could be accomplished by placing more resources in direct support of areas in high demand or decreasing resources to areas that are under-utilized.
METHODS AND PROCEDURES

Based on the literature, it was decided to utilize focused provider profiling to analyze the specialty referral activity of DDEAMC and the SERMC. The providers’ specialty referral patterns at DDEAMC were evaluated both individually and by provider groups. The SERMC specialty referral patterns were reviewed by MTF. It was expected that the analysis of the providers’ profiles would demonstrate a significant difference in the referral patterns of the providers. The difference expected would either be between provider groups or between the national average and the aggregate average of the DDEAMC providers. Any significant differences could be viewed as an area for exploration in correcting the perceived problem of a lack of referral appointments within the region. The MTFs included in this review are listed in Appendix B.

The limitations associated with this study were primarily related to time and information systems. The study was to be completed within a one-year time frame, in order that conclusions and recommendations could be provided to the study participants prior to anticipated turnovers. Because the study was exploratory, the major focus was to identify possible reasons for the perceived problems in attaining specialty referral appointments. Although several problem areas were identified, there was not sufficient time to thoroughly explore each possible problem. Even though an enormous amount of data was collected, it resides in several different systems, each
with a different systems manager. Several of the information management systems utilized were legacy systems that were separately acquired and designed. The systems utilize different computer languages and do not share information, frequently resulting in duplication of data entry and limited access. Considering the time and collection restrictions, the study procedure was directed towards specific variables.

The plan for this project was to: 1) identify the data variables needed to support the purpose of the study, 2) identify the data systems and the appropriate means of collecting the data, 3) develop a profile tool or report to support the study, 4) collect the data, 5) analyze the data, 6) discuss findings with the providers. Based on the initial investigation, the following variables were identified: the number of

- internal referrals and total visits by Primary Care Provider.
- internal referrals by specialty.
- external referrals, by MTF.
- external referrals, by specialty.
- network contract referrals, by specialty referred to and the referring MTF.

Data collection utilized the Composite Health Care System (CHCS), the Specialty Referral Database (maintained by the Department of Managed Care, DDEAMC), Primary Care Department personnel, Patient Administration personnel, and Quality Management personnel. The Composite Health Care System (CHCS)
is an integrated hospital information system that supports multiple outpatient and inpatient functions. Included in these functions are data storage of patient care and ancillary services; directing physician orders to all concerned clinical and administrative services; collecting data from all work centers; recording results of all patients' tests and treatments; and allowing authorized users immediate access to shared data (DDEAMC, 1997).

The data pulled from CHCS included all referrals entered in the system by Class 1-5 providers (Class 1 = physicians (physicians refers to staff physicians for the purpose of this study), residents, interns; Class 2 = nurse practitioners, physician assistants; Class 3 = registered nurses; Class 4 = licensed practical nurses; and Class 5 = technicians) for Fiscal Year 1999. The data were used to determine the internal Specialty Referrals generated by providers within the Department of Primary Care, DDEAMC. The external Specialty Referrals were extracted from the Regional Specialty Referral Database administered by the Department of Managed Care, which included patients referred from both DDEAMC and other MTFs from throughout the region. These data included all Specialty Referrals that were seen at DDEAMC or disengaged to the TRICARE Contract Network.

The provider profile tool utilized was reported in a series of charts with three charts per provider group. These charts were numbered along the X-axis to represent each provider. The Y-axis represents the number of referrals, the number of visits,
and the percentage of referrals to visits. This tool was intended to provide a graphic depiction of both the relationships of referrals to visits for each provider and the comparison of those relationships between providers (Appendix C).

The inferential statistical analysis of the provider data included an Analysis of Variance (ANOVA), which determines if there is a significant difference between the means of the selected populations. A Multiple Comparisons between Provider Groups, which compares all possible pairs of group means, is included. And also included is a Regression Analysis of Referrals to Visits, which determines the pattern and strength of the relationship between the variables. Descriptive and Frequency statistics are provided for a comprehensive statistical picture. The level of significance for this study is .05, unless otherwise noted. Also, there is a variable “VPERCEN” that occurs on several tables, this variable is the value of the percentage of referrals to visits.

The last step in this study is to discuss the findings with the providers. This will be accomplished by presentation of the study findings to the Department Chief, and Branch Chiefs for the Department of Primary Care, DDEAMC.

Ethical considerations in this project included confidentiality of patients’ and providers’ names and identifying data. Data allowing identification of patients or
providers were only utilized by persons related to the study for purposes of the study. All presentations and the final paper excluded this data.

RESULTS

The results of this study revealed a total of 47,680 referrals to DDEAMC for Fiscal Year 1999. The outlying SERMC MTFs externally generated 7,142 of the referrals, leaving 40,538 referrals internally generated, by DDEAMC. Further analysis of the data revealed, Class 1 and 2 Providers (physicians, residents, interns, nurse practitioners, and physician assistants) wrote 25,040 of the internal referrals, representing the internally generated workload to Specialty Clinics. The total number of referrals written by the DDEAMC PCPs was 16,516. These 16,516 referrals were generated by a total of 160 Class 1 and 2 providers, who were the focus of the provider profiling, utilized in this study. The diagram provided (Figure 1) shows how the data were collected and organized for this study.
Figure 1. Diagram for Data Collection of Specialty Referral: Provider Profiling Study.
The top ten utilized clinics are shown in Table 1. This data was evaluated based on the referrals generated by DDEAMC Primary Care providers. The analysis shows the top ten utilized clinics are all DDEAMC internal specialty clinics.

Table 1

<table>
<thead>
<tr>
<th>Referred To Clinic</th>
<th># of Referrals</th>
<th>Cum %</th>
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<tr>
<td>GI Outpatient</td>
<td>2455</td>
<td>9.80%</td>
</tr>
<tr>
<td>Dermatology Outpatient</td>
<td>2072</td>
<td>8.30%</td>
</tr>
<tr>
<td>Ophthalmology Outpatient</td>
<td>2013</td>
<td>8.00%</td>
</tr>
<tr>
<td>Orthopedics Outpatient</td>
<td>1940</td>
<td>7.70%</td>
</tr>
<tr>
<td>Nutritional Outpatient</td>
<td>1332</td>
<td>5.30%</td>
</tr>
<tr>
<td>General Surgery Outpatient</td>
<td>1304</td>
<td>5.20%</td>
</tr>
<tr>
<td>Cardiology Outpatient</td>
<td>1267</td>
<td>5.10%</td>
</tr>
<tr>
<td>ENT Outpatient</td>
<td>1169</td>
<td>4.70%</td>
</tr>
<tr>
<td>Gynecology Outpatient</td>
<td>1148</td>
<td>4.60%</td>
</tr>
<tr>
<td>Podiatry Outpatient</td>
<td>1057</td>
<td>4.20%</td>
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</table>
Referral percentages were calculated for each of the providers by dividing the number of referrals by the total visits for that provider. The visits were calculated by adding together appointments that were listed in CHCS as “kept”, “walk-in”, and “sick-call”. This number does not include telephone consults that often result in resolution for the patient, who would otherwise need an appointment.

The results for the five provider groups (physicians, residents, interns, nurse practitioners, and physician assistants) are reported in percentages for both descriptive and inferential statistics. It was expected that the analysis of the providers’ profiles would demonstrate a significant difference in the referral patterns of the providers. This hypothesis was accepted based on \( p < .002 \) (Table 2.).

Table 2
Comparison between Groups of Providers in Department of Primary Care, DDEAMC

*Table taken from SPSS.

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
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<tr>
<td>Between Groups</td>
<td>1832.915</td>
<td>4</td>
<td>458.229</td>
<td>4.371</td>
<td>.002</td>
</tr>
<tr>
<td>Within Groups</td>
<td>16248.500</td>
<td>155</td>
<td>104.829</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>18081.415</td>
<td>159</td>
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However, even though there is a significant difference, further investigation of the groups reveals that the significance actually lies between residents and physicians at $p < .028$ and between residents and physician assistants at $p < .014$. The next comparison which just misses the .05 significance level was between the residents and the nurse practitioners at $p < .051$. (Table 3).
Table 3
Comparisons of Providers by Provider Group Between Groups
Department of Primary Care, DDEAMC
*Table taken from SPSS.

Multiple Comparisons

<table>
<thead>
<tr>
<th>(I) type</th>
<th>(J) type</th>
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<th>Std. Error</th>
<th>Sig.</th>
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*. The mean difference is significant at the .05 level.

Note: nur = nurse practitioner, phy = staff physician, pa = physician assistant, res = resident
There was an expected positive correlation of referrals and visits at $r=.486$ (Figure 2., Table 4a,b,&c.). The positive correlation is a ratio/percentage increase. This expectation is based on the fact that the national average was 7.5% of visits result in referrals; therefore, whatever the number of visits in this study the referrals should be approximately 7.5% of that number. The 8% finding in this study parallels the national average; therefore, it is expected that as visits increase, referrals will also increase.

![Figure 2. Scatter Diagram for number of Referrals and Total Visits.](image)
Table 4a

Regression Analysis of Referrals to Total Visits for Department of Primary Care Providers, DDEAMC

*Table taken from SPSS.

Model Summary

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<th>Std. Error of the Estimate</th>
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a. Predictors: (Constant), REFERRAL

Table 4b

Regression Analysis of Referrals to Total Visits for Department of Primary Care Providers, DDEAMC

*Table taken from SPSS.

ANOVA b

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a. Predictors: (Constant), REFERRAL
b. Dependent Variable: VISITS
Table 4c

Regression Analysis of Referrals to Total Visits for Department of Primary Care Providers, DDEAMC

*Table taken from SPSS.

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Coefficients*

The population’s descriptive statistics are shown in Tables 5 and 6. There is an adequate number of providers for analysis; however, when divided into groups, the nurse practitioners and physician assistants drop below the preferred n=30 for sample size. It would have been ideal to have had at least n=30 for the nurse practitioners and physician assistants. However, even though the population size is small for these two groups the standard deviations are also small (pa/sd=6.9, nur/sd=7.4) in comparison to the other three groups (phy/sd=8.5, res/sd=12.7, intern/sd=13.1) (Table 5). The standard deviation for the groups as a whole was sd=10.7 (Table 6).
Table 5
Descriptive Statistics of Providers by Provider Group
Department of Primary Care, DDEAMC

*Table taken from SPSS.

Descriptives

<table>
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<th>VPERCEN</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>95% Confidence Interval for Mean</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
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<th>Maximum</th>
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Table 6
Frequency Statistics of Providers by Provider Group
Department of Primary Care, DDEAMC

*Table taken from SPSS.
The provider groups are compared by number of referrals, total visits and percent calculated of referrals in Table 7. Again, this comparison demonstrates the disparity among the residents and interns, versus the physicians, nurse practitioners, and physician assistants.

Table 7

Referrals, Total Visits, and Percentages of Referrals by Provider Groups Department of Primary Care, DDEAMC

<table>
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<th>Provider Group</th>
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<th>Percent</th>
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<tr>
<td>Intern</td>
<td>710</td>
<td>6046</td>
<td>11.70%</td>
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<tr>
<td>Nurse Practitioner</td>
<td>1078</td>
<td>16856</td>
<td>6.40%</td>
</tr>
<tr>
<td>Physician</td>
<td>8414</td>
<td>108581</td>
<td>7.70%</td>
</tr>
<tr>
<td>Physician Assistant</td>
<td>3408</td>
<td>53873</td>
<td>6.30%</td>
</tr>
<tr>
<td>Resident</td>
<td>2906</td>
<td>21502</td>
<td>13.50%</td>
</tr>
<tr>
<td>Totals</td>
<td>16516</td>
<td>206858</td>
<td>8.00%</td>
</tr>
</tbody>
</table>
The final result reported is the number of patients that are disengaged. A disengaged patient is a patient that is referred to the TRICARE Contract Network due to the inability for that patient, whatever the reason, to be seen at DDEAMC. A total of 770 patients were disengaged in Fiscal Year 1999. Surgery patients were disengaged most frequently, 552 of the 770 patients or 72%. The second largest group was medicine patients, 90 of the 770 patients or 12%. These numbers and types of specialty referrals that were disengaged to the TRICARE Contract Network represent workload that might possibly be recaptured.

DISCUSSION

The Southeast Regional Medical Command, as one of six Army Regional Medical Commands, is continually in the process of self-examination. In addressing efficiency efforts, through a systems approach, the command has brought about increased efficiency in several different areas. An example of this increased efficiency is the regional contract’s standardization of materials that allows financial savings for regional facilities. One current task to be accomplished within the SERMC is to evaluate alternative business processes that may result in higher productivity levels and cost efficiency, without sacrificing quality within the organization. This study was focused on Specialty Referrals within the SERMC in order to gain an understanding of the workload generated and possible patterns in referral activity that would provide opportunities to improve productivity.
The greatest impact in improved productivity can be realized by addressing referral activities within the Department of Primary Care. The referrals were studied by a capture of data from the Department of Primary Care Providers contained in CHCS. These providers were selected because their area of operation was the major portal of entry for patients into the system. This was supported by an analysis of the data that determined this group of providers accounted for 41% of the internal referral workload and 35% of the total regional referral workload.

Prior to formulation of the study, the Department of Managed Care echoed concerns from supported regional facilities that they were experiencing difficulty in obtaining specialty referral appointments at DDEAMC. As the major referral center for the region DDEAMC processed a total of 47,680 referrals. Of this total, 40,538 were internally generated, 15,498 by Class 3, 4, and 5 providers that would not be disengaged and 25,040 generated by PCPs within the Department of Primary Care, DDEAMC. Regional facilities generated the remaining 7,142 referrals processed by DDEAMC. Of the 47,680 total regional referrals generated, 770 were disengaged. Of the 25,040 internal referrals by PCPs 151 were disengaged. Referrals disengaged from regional MTFs numbered 619 of their total 7,142 referrals generated. By comparison 1.6% of the regions total referrals were disengaged: .31% from DDEAMC PCPs and 1.29% from regional MTFs. Of the 770 total patients disengaged, DDEAMC patients
accounted for 19.6% while regional MTFs patients accounted for 80.4%. Regional MTF patients were disengaged approximately 4 times as frequently as DDEAMC internal referrals (Figure 1).

In analyzing the referral patterns within the Department of Primary Care, a number of important trends were identified. The standard referral rate, according to the National Ambulatory Care Survey, is 7.5%. The aggregate referral rate for Department of Primary Care, DDEAMC was 8.0%. Staff physicians, nurse practitioners, and physician assistants referred patients at a collective rate of 7.2%. Respectively, staff physicians referred at a rate of 7.7%, nurse practitioners at a rate of 6.4%, and physician assistants at 6.3%. Significantly, residents within the Department of Primary Care referred patients at a rate of 13.5%, while interns in the same department had a referral rate of 11.7%. The limitations of the study prevented the collection of data that could provide further insight into more specific referral patterns.

In analyzing the collective provider behavior patterns, modification may be appropriate in two areas. Within DDEAMC, the referral rates of residents and interns are significantly higher than those of staff physicians, nurse practitioners, and physician assistants. The organizational behavior patterns result in the disengagement of regional patients at a rate approximately 4 times as frequently as DDEAMC internal referrals. Data collection prohibits an analysis of possible resident and intern patterns within regional MTFs. Further analysis may indicate similar referral patterns among other
resident and intern populations. Possible modifications of organizational behavior patterns were not supported by the variables investigated; however, relevant but not scientific information obtained during the study warrants additional consideration.

During the initial phase of this study, while attempting to answer the three primary questions addressed above, problems contributing to the disengagement of patients were observed. Provider templates from DDEAMC and Winn Army Community Hospital, Fort Stewart, Georgia, were compared to evaluate availability of appointments. Through interviews with the appointment personnel at both facilities, it was determined that the greatest flexibility for scheduling appointments was offered by a six week rotating schedule. This schedule allows the appointment personnel to book appointments with a provider six weeks ahead of time by progressively adding a week at the end of the schedule to maintain a six-week appointment window. The design is intended to provide continuous visibility of six weeks of future appointments. In reality, the providers’ schedules are frequently opened one month (4 weeks) at a time and the previous month’s scheduled appointments may be nearly exhausted before the next schedule calendar is opened for appointments. This one-third reduction in available appointments may prematurely disengage patients to the TRICARE Contract Network in order to meet access standards of 30 days for an appointment.

In discussing appointment availability and the disengagement of patients, DDEAMC primary care providers
indicated that inadequate support systems were the primary cause of production inefficiencies. Many specialty care providers voiced frustrations with physical plant layout and staffing support that hampers productive patient flow. This investigator frequently observed both primary and specialty care providers locating their next patient in the waiting room, escorting them to their exam room, setting up rooms and instruments, initiating routine paperwork, and performing standardized patient teaching duties. This indicates that procedural processes and staffing ratios within the organization may be a contributing factor to the disengagement of patients within the system.

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to perform an exploratory quantitative analysis of specialty referrals within the Southeast Regional Medical Command. Utilizing provider profiling as a tool, the study was designed to answer three primary questions concerning perceived difficulty in obtaining specialty referral appointments at Dwight D. Eisenhower Army Medical Center. The data collection was performed as designed and the variables were subjected to statistical analysis as described. Several conclusions can be drawn from this analysis and utilized for strategic planning purposes.

First, was the perceived difficulty in obtaining a referral appointment at DDEAMC supported by this study? Based on the data collected and analyzed in this study, 619 or 80.4% of the 770 disengaged patients were referred from external regional facilities. These patients were disengaged to the TRICARE
Contract Network at a rate four times greater than internal referrals at DDEAMC. The perception was justified by the data.

Second, were the referral patterns of providers a contributory factor in the region’s perceived inability to meet the demand for specialty appointments? Internal referrals generated by DDEAMC Class 1 and 2 providers represented 77.8% of the total specialty referrals processed by all regional PCPs during Fiscal Year 1999. The competition for 22.2% of all available specialty referrals at DDEAMC by all other regional facilities most assuredly contributes to a perceived inability to meet the demand for specialty appointments.

Third, if the providers’ referral patterns are a contributing factor, which provider behaviors need to be modified? The DDEAMC residents referred at a rate of 13.5%. Interns in the same area referred at a rate of 11.7%. Staff physicians, nurse practitioners, and physician assistants referred at a combined rate of 7.2%, which is 0.3% lower than the national average. When the residents and interns rates were included, the overall specialty referral rate within the DDEAMC Department of Primary Care was 8.0%. This indicates that referral rates improve with experience and the higher referral rates of residents and interns will self adjust over time, but may be modified through teaching coupled with presentation of the provider profiling data analysis.

Based on this analysis, it is recommended that the organization address four issues when developing a strategic plan. 1) Recapture disengaged patients within the system by
modifying referral patterns and correcting scheduling problems. 2) Present the findings of this study (Appendix C) and continue to use physician profiling as a modification tool, with a concentration on modifying residents' and interns' referral patterns. 3) Conduct a study on the impact of staffing ratios, clinical processes, and physical layout on departmental productivity. 4) Address the problems of information systems integration that prevent data from being efficiently accessed. By addressing these issues in business practice, the organization will more effectively control internal costs in an era of shrinking budgets.
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Appendix A

List of Abbreviations

CHCS  Composite Health Care System
DDEAMC  Dwight D. Eisenhower Army Medical Center
HEDIS  Health Plan Employer Data and Information Set
MHS  Military Health System
MTF  Military Treatment Facility
NCQA  National Committee for Quality Assurance
PCP  Primary Care Provider
SERMC  Southeast Regional Medical Command
Appendix B

List of Military Treatment Facilities

(External Referrals)

Atlanta, USAHC, Fort McPherson, GA
Winn Army Hospital, Fort Stewart, GA
Martin Army Hospital, Fort Benning, GA
Moncrief Army Hospital, Fort Jackson, SC
Beaufort Naval Hospital, SC
Charleston Naval Hospital, SC
363rd MEDGRP, Shaw AFB, SC
Robins AFB, GA
Atlanta NAS
BAH, Fort Campbell, KY
U.S. Navy Hospital, Jacksonville, FL
Noble Army Hospital, Fort McClellan, AL
FACH, Redstone Arsenal, AL
LAMC, Fort Rucker, AL
Walter Reed Army MEDCEN, DC
U.S. Navy Hospital, Pensacola, FL
Orlando Naval Hospital, FL
ASAFL Regional Hospital, Eglin AFB, FL
325 Medical Group, Tyndall AFB, FL
31 Medical Group, Homestead AFB, FL
56 Medical Group, MacDill, AFB, FL
AFSC Hospital Patrick, Patrick AFB, FL
Gilleon, USAHC, Forest Park, GA
Dahlonega, USA Troop MC, GA
Tuttle AHC, HAAF, Savannah, GA
347th Medical Group, Moody AFB, GA
MAH, Fort Leavenworth, KS
Ireland Army Hospital, Fort Knox, KY
Bethesda NNMC
Keesler AFB, MS
Womack Army Hospital, Fort Bragg, NC
Kings Bay, GA
Roosevelt Roads, Naval Hospital, PR
Bayne-Jones AH, Fort Polk, LA

*Referrals were also listed from all 50 states without association to an MTF.