Running head: PROVIDER PROFILING

Provider Profiling:
A Population Health Improvement Tool
for the
Southeast Military Health System

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14. ABSTRACT
Appropriate utilization of health care is the crux of managed care. It is also a key to success for the Southeast Military Health System (SEMHS). Profiling with Provider Perspectives, a Primary Care Management Tool, provides the SEMHS with a standardized performance measurement system that offers feedback in a user friendly and non-threatening format. This is accomplished without undue hindrance on patient care, through the maximization of automation, and requires minimal management overhead by the military treatment facility (MTF). The tool graphically displays opportunities to achieve efficiencies at the provider decision node: the point in the health care delivery continuum that has the greatest impact on where limited resources should be allocated to provide the most benefit. Profiling Primary Care providers at Martin Army Community Hospital (MACH) at Fort Benning, Georgia, effectively addressed the three essential components required to modify provider decision making and utilization management behavior: motivation, information, and a structured process. MACH, by empanelling beneficiary populations to individual Primary Care providers, is placing the onus on these providers to ensure more appropriate utilization of services such as emergency room visits and inpatient admissions, while maximizing preventive services, such as mammography screening and immunizations. The initial results indicate providers have enthusiastically embraced the population health/disease management profiling and the educational aspects of the tool. Additionally, analysis of selected preventive and efficiency performance measures suggests significant variation in the practice behavior between groupings of providers.

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Abstract

Appropriate utilization of health care is the crux of managed care. It is also a key to success for the Southeast Military Health System (SEMHS). Profiling with *Provider Perspectives*, a Primary Care Management Tool, provides the SEMHS with a standardized performance measurement system that offers feedback in a user friendly and non-threatening format. This is accomplished without undue hindrance on patient care, through the maximization of automation, and requires minimal management overhead by the military treatment facility (MTF). The tool graphically displays opportunities to achieve efficiencies at the *provider decision node*: the point in the health care delivery continuum that has the greatest impact on where limited resources should be allocated to provide the most benefit.

Profiling Primary Care providers at Martin Army Community Hospital (MACH) at Fort Benning, Georgia, effectively addressed the three essential components required to modify provider decision making and utilization management behavior: motivation, information, and a structured process. Providers must ensure their patients do not overutilize some aspects of care and underutilize others. To support this effort, *Provider Perspectives* has been successfully deployed to MACH, the beta test site. MACH, by empanelling beneficiary populations to individual Primary Care providers, is placing the onus on these providers to ensure more appropriate utilization of services such as emergency room visits and inpatient admissions, while maximizing preventive services, such as mammography screening and immunizations.

The initial results indicate providers have enthusiastically embraced the population health/disease management profiling and the educational aspects of the tool. Additionally, analysis of selected preventive and efficiency performance measures suggests significant variation in the practice behavior between groupings of providers.

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Introduction

The Department of Defense (DoD), since the end of the Vietnam era, has experienced many of the same challenges confronting other elements of the nation's health care system: escalating costs, the deployment of expensive and often duplicative services and technology, and uneven access to services by beneficiaries. In response to these challenges, DoD initiated, with congressional authority, demonstration programs to explore various means by which it could more effectively manage the health care it provides. These experiences led the Department, in 1993, to begin a nationwide managed care program known as TRICARE (Baine, 1995).

TRICARE is designed to coordinate and manage beneficiary care on a regional basis using military hospitals supplemented by civilian services. The TRICARE program offers beneficiaries alternatives when selecting a health care plan which are similar to the options offered by civilian health maintenance organizations (HMOs). This has placed a demand on the DoD military health system (MHS) to demonstrate its acceptability to beneficiaries and its utility to Congress, or risk the prospects of more alternatives being offered, such as the Federal Employees Health Benefits Program (FEHBP). Alternatives such as FEHBP may erode the infrastructure of the DoD MHS, as it exists today, by allowing beneficiaries to choose health plans that do not optimize the resources available at the MTF.

The 1996 implementation of TRICARE in the Southeast Military Health System (SEMHS) has challenged health care providers to demonstrate their ability to generate value and add utility. This challenge can be met via two pathways. First, and foremost, it is assumed that every provider encounter with a patient improves the health of the SEMHS beneficiary population. In this capacity, a provider's obligation is broader than just treating a patient's condition; he or she must emphasize health promotion and wellness while managing the delivery

of all health care resources to individuals. Second, providers' judicious distribution of these limited resources contributes to the organization's health by saving dollars that can be invested into facility upgrades and modernization projects; functions critical to the survival of the SEMHS. One such modernization initiative is the recently dedicated Health and Wellness Center at Fort Gordon, GA. The awareness, education, and motivation activities offered at the center will facilitate behavior that optimizes health and prevents disease or injury resulting in a reduced utilization of services by beneficiaries.

Generating value in this manner cannot be accomplished by simply managing costs; it requires leveraging clinical, financial, and human resources to optimize health status and create a positive experience for the patient. Accountability for this requirement must extend to the providers. The American Hospital Association (AHA) has identified principles of health care accountability based on the following four quality dimensions: delivering quality care, operating an internal performance improvement system, providing useful information to purchasers and consumers, and contributing to the community's health (Green, 1995). Success in each of these areas will greatly enhance the viability of the SEMHS.

The SEMHS includes two major health care delivery sub-systems: five Army hospitals imbedded in the TRICARE Health Services Region 3, to include Dwight David Eisenhower Army Medical Center (DDEAMC), and the Southeast Regional Medical Command (SERMC). DDEAMC is the tertiary care referral medical center for the SEMHS and Region 3, which encompasses Georgia, South Carolina, and most of Florida. To implement TRICARE, the DoD reorganized its medical facilities into health care regions and established a new administrative structure, the Lead Agent (LA). The LA is responsible for managing the delivery of care, coordinating services, and ensuring the continuity of care within the region (Baine, 1995).

This author's opinion is that mission success for the SEMHS can be measured by the value it adds to the DoD MHS. Vital to this success is the education of providers and beneficiaries within the SEMHS on the principles of managed care. Managed care reflects an enhanced focus on population health improvement and measurements to assess provider performance, that is provider profiling. The Acting Assistant Secretary of Defense for Health Affairs (HA), in Policy Memorandum 98-031, defines provider profiling as:

> the collection, collation, and analysis of clinical utilization data to develop provider specific information for resource consumption and outcomes for episodes of care. These profiles should be used to produce provider feedback reports to help providers modify their own behavior, to determine which specialist should handle specific types of cases, to detect fraud and abuse, to help focus the utilization management system, to produce performance based incentive systems and to perform resource or economic modeling. (Christopherson, 1998, 9)

The investment of time, money, and effort in this educational process will be returned many fold to the MHS in the form of increased beneficiary satisfaction, better clinical outcomes, and improved population health. Lead Agents and MTF commanders are encouraged to use profiling to make management decisions within the scope of Managed Care (Christopherson, 1998).

Conditions Which Prompted the Study

The nation's health care system continues to evolve at a rapid pace as governments, employers, and consumers address significant increases in medical care costs and limited access to specialty care. A component of this system, the DoD MHS, is also confronting significant challenges and change. A primary goal of the MHS is to optimize the health of all its

beneficiaries: active duty, retired, and family members. Downsizing of the active duty force and shrinking military budgets continue to apply pressure on the MHS to reduce expenditures. Simultaneously, the beneficiary population is getting older and consuming an increasing proportion of the Defense Health Program (DHP) budget.

Although the DHP Fiscal Year (FY) 99 budget was not reduced in constant dollars compared to FY 98, medical inflation and increasing pharmacy costs resulted in less buying power in 1999 for the SEMHS. Similar decreases in buying power can be expected in the out years. Accordingly, the Army Surgeon General, Lieutenant General (LTG) Ronald Blanck (1998), stipulated that the Army Medical Department (AMEDD) must continue to work hard to find system efficiencies, increase prevention/health promotion, and reduce the variation in how medical care is delivered. Moving the MHS towards population health improvement represents a major paradigm shift from the traditional “medical model” which focuses on the clinical care of our beneficiaries (MHS Optimization Plan, 1999). Provider profiling is one strategy that supports utilization of performance metrics that emphasize and reward population-based health improvement.

Profiling began with hospitals in the 1980s, when the Health Care Financing Administration (HCFA) began paying hospitals fixed case rates for Medicare patients to control costs. This led to hospitals studying the practice habits of physicians. Physician orders for services for Medicare inpatients (IP) determined whether or not the hospitals profited from the care delivered (Ruffin, 1995). During this early period, physician profiling was limited to inpatients in their care; and most of the profiling was kept from the purview of the physicians profiled. Also, the information collected was rarely distributed to the large corporate purchasers of health care or the general public.

In the mid 1980s interest in profiling emerged in the employer community. It focused on the performance of physicians, hospitals, and HMOs (Ruffin, 1995). Corporate purchasers began requesting that HMOs furnish general performance indicators to employer coalitions before contracting for a health plan. This evolved, in the early 1990s, to requests for specific information about HMOs performance as accountability and buying quality health care became priorities to purchasers. The Health Plan Employer Data and Information System (HEDIS), created by the National Committee for Quality Assurance (NCQA) in 1993, was the first major attempt to collect standardized performance data on the quality of care furnished by HMOs (Backhus, 1996).

DoD Utilization Management (UM) policy gives the LA the authorization to develop processes which are cost efficient, consistent with NCQA standards, and which improve patient care (Christopherson, 1998). DoD estimated that, by applying focused UM, its facilities could save over $480 million nationwide over 5 years (Backhus, 1996). UM is intended to ensure necessary and appropriate care is delivered in the most cost-effective manner. Provider profiling is a fundamental component of UM and can help focus the UM system and improve its efficiency.

Statement of the Problem

The survival of the SEMHS, as currently organized, will depend in part on finding efficiencies through better clinical and business practices. Current management processes within the SEMHS are frequently top-down driven in orientation. Although Brigadier General (BG) Robert Griffin, the SERMC Commander, encourages innovative ideas that integrate the delivery of care throughout the region, his subordinate commanders have proposed few plausible courses of action. The SERMC Commander must continue to maintain a financial break-even focus in

the near term, while attempting to develop a long-term budget strategy with new initiatives that enhance value through a more cost effective delivery of care.

Clinical initiatives that reduce inappropriate or inefficient care and eliminate redundancies support this tenet. The prudent application of provider profiling, as an educational tool, is one such initiative that can lead to improved population health, higher quality care, and better financial performance in the region. Providers, by controlling productivity and utilization, hold the key to obtaining the efficiencies necessary for ensuring the viability of the direct care system as we know it today. Fuchs (1974) states that "…it is the patient, who, in most instances, must initiate the care process and consent to its continuance….It is the physician who sends the patient to the hospital and sends him home, who recommends surgery, who orders tests and X-rays, and who prescribes drugs."

The SEMHS is lacking in three essential components required to affect provider decision making and utilization management behavior: motivation, information, and a structured process. First, strong motivating factors that encourage efficient resource utilization are not present. Next, accurate performance metrics are either not available or disseminated to the provider. Finally, even with motivated providers and reliable data, there may be no improvement without a structured process (Goldfield & Boland, 1996).

The intent of this project is to assist Region 3 in the development of a provider profiling instrument for Primary Care. This is to be done using current MHS information management systems and will address the three essential components mentioned previously. Additionally, the tool will incorporate common managed care measures and offer enhanced population health measures. Upon satisfactory development, the tool is to be deployed to a regional MTF, Martin Army Community Hospital (MACH) at Fort Benning, Georgia, which is designated as the beta

test site. This tool will provide the opportunity to achieve efficiencies at the *provider decision node*. This is the point in the health care delivery continuum that has the greatest impact on where limited resources should be allocated to provide the most benefit.

Literature Review

Research in provider profiling began shortly after Diagnostic Related Groups (DRGs) research efforts in the mid 1970s. The ability to conceive hospital outputs as a system of identifiable processes led to the development of DRG inpatient case mix system. The DRG research process identified the use of hospital length-of-stay (LOS) as an effective surrogate measure of resource use (Goldfield & Boland, 1996). The challenge of developing an ambulatory system that effectively measures resource consumption and acceptable case mix methodologies still exists. Several different case mix formulas, namely ambulatory care groups (ACGs), ambulatory patient groups (APGs), and the Kaiser Permanente Ambulatory Prescription Drug (KPARx) case mix system, are currently utilized in the management of ambulatory care services (Goldfield & Boland, 1996).

The KPARx case mix system serves as an excellent example of how this process works. It classifies outpatient drug data into therapeutic groups and subgroups to denote greater clinic specificity than in general pharmaceutical classification systems such as the American Hospital Formulary System. However, a challenge greater than the management of ambulatory care services will be the development of performance metrics that focus on process indicators reflecting how well the health care system functions in an integrated fashion. This is the current focus of accrediting bodies such as the Joint Commission on Accreditation of Healthcare Organizations (JACHO). JACHO's 1996 standards relate to system-wide integration, coordination, and accountability for health care networks (Fuchs & Hopkins, 1998).

Building on the LOS metric through benchmarking was the thrust of Evans, Hwang, and Nagarajan's (1995) study comparing physician resource consumption to a benchmark figure. Analysis of data, including disease category and patient severity level, collected over a 42-month period produced two noteworthy results. First, LOS reductions occurred primarily at intermediate severity levels and in DRGs with a large economic impact for the hospital. Second, the reduction in LOS resulted in an increase in the number of procedures performed per patient per day. Again, this suggests that process quality improvement initiatives combined with profiling, are necessary to achieve true efficiencies.

Feedback is probably the most widely recommended intervention for continuous quality improvement programs. Since the early works of Deming and others, feedback has been emphasized as the key to changing service processes. Balas, Boren, Brown, Ewigman, Mitchell, and Perkoff (1996) conducted a multilevel meta-analysis that addressed the issue of peer-comparison feedback on the utilization of various clinical procedures. Changing the inappropriate utilization of clinical procedures is one way to control costs and improve the quality of health care. The study concluded that profiling with peer feedback has a statistically significant, but minimal effect on the utilization of clinical procedures. Additionally, the authors recommended a need for controlled clinical evaluations before subjecting providers to profiling interventions.

However, a study by Kerr, Mittman, and Hayes (1995) concluded that physicians are subjecting themselves to unproven interventions. As provider groups assume increased financial risk associated with capitation, cost control becomes critical. Surveying independent practice associations (IPAs) and medical group practices revealed that 79% of the groups used profiling of utilization patterns. Furthermore, 61% of these groups did not adjust for case mix, an integral

component of any profiling instrument. In other words, physicians are utilizing questionable profiling instruments to impose interventions on their peers. What is the true objective of this process, high quality care or cost control? According to these researchers, this physician-initiated management approach represented a fundamental transformation in the practice of medicine.

Further study by Spoeri and Ullman (1997) indicated the objectives of profiling are twofold. First, some health plans consider physicians to be simply another audience and reporting performance metrics to them should be an essential part of the relationship. Second, the transmission of physician-level performance measures is becoming an important part of programs designed to improve the efficiency and effectiveness of the delivery system itself. Absences of these measures at the national and regional levels within the MHS were apparent in the GAO report on Defense Health Care by S. Backhus (1996). The report stated that while regional officials had begun creating their own sets of performance measures to assess the delivery of health care services within their region, DoD was separately developing a set of performance measures to monitor health care delivery. Furthermore, the report states the appropriateness and effectiveness of these performance measures remain to be seen.

As evidenced in the literature review, case mix, benchmarking, peer comparisons, and feedback are critical components of profiling. All are used in the pursuit of modifying undesirable behavior by both the patient and the provider. Therefore, behavior must be examined from the standpoint of total health care consumption and outcomes. This involves examining episodes of care and outcomes as opposed to groupings of single visits. The true metric of an episode of care is linking all the health care resources utilized into a single defined event. In other words, it must be a patient-based analysis rather than a provider-based one.

Kongstvedt (1996) aptly describes this process as the analysis of the behavior of providers being a product of what happens to their patients.

Purpose

As the SEMHS further integrates its delivery network, the utilization of resources must be maximized. The development and implementation of provider profiling will contribute significantly to this effort. Several variables must be taken into consideration to proceed with a study of this type. The independent variable is defined as physician behavior and the dependent variables are the metrics, identified in the methodology, used to develop the profiling instrument. Testing of the null hypothesis, comparing the equality of rates, associated with their empanelled population, between and within providers, specialties, and MTFs will be performed on select variables. It is beyond the scope of this proposal to validate if a cause and effect relationship between profiling and provider practice behavior would occur in the SEMHS.

The primary objective of this project is to develop a Primary Care Management Profiling Tool. It can then be used for educational purposes, incorporating both common managed care measures and offering enhanced population health improvement measures, such as preventive and disease management services, by providers and commanders within the SEMHS. A secondary objective is to apply the profiling tool to analyze physician practice behavior in a practical and non-threatening way at MACH.

Two enabling objectives are to develop proficiency with current MHS information systems, such as the Corporate Executive Information System (CEIS), and mastery of interpersonal communication skills with providers. First, familiarity with MHS information system architecture, understanding its capabilities and limitations, and generating ad hoc reports are fundamental to this project. Second, communicating the value of profiling to physicians is

critical to the tool's success.

The project will attempt to embody many of the key tactical points necessary for provider profiling according to Holman (1998):

- Data must be current, correct, and severity-adjusted
- Confidentiality and dignity must be respected
- Performance and feedback should be presented by a physician peer in a non-threatening, informative manner
- Data must be ongoing and presented at least once a quarter
- Attempt to measure and trend clinical quality indicators, resource consumption, and patient/customer satisfaction
- When management embarks on system-wide efficiency and quality improvement strategies, attempts to change physician practice behavior toward cost efficiency and value through feedback are viewed much more favorably by suspicious physicians

Using this approach will underscore the belief that provider profiling is the most effective way to improve quality and value in the processes involved in the delivery of health care services.

Methods and Procedures

Metrics Development

This applied management-research project (Cooper and Emory, 1995) was conducted as a four-phased process: first, the profiling instrument was developed, next, real-time data was collected, the results were studied, and finally the information was communicated to MACH providers. During the first phase, identifying efficiency and cost variables (e.g. per member per month (PMPM), and preventive service variables, labeled as effectiveness of care (EOC) services) for the construct of the profiling instrument was paramount. The variables consisted of outpatient, inpatient, pharmacy, laboratory, radiological, and Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) workload data. Consequently, the development of the Primary Care Management Profiling Tool, *Provider Perspectives*, was a partnership effort among the Region 3 LA, Vector Research Incorporated (VRI), the CEIS Program Management Office (CEISPMO), and Humana Military Health System (HMHS), the managed care support contractor (MCSC) for the SEMHS.

The efficiency and cost performance measures currently incorporated in the tool are specified in Table 1. Several of these are commonly utilized by managed care organizations (MCOs) and four were selected as variables for analysis purposes. The HMO actuarial benchmarks chosen for the workload driven metrics, that is PMPY, ALOS, and so forth, were derived from a moderately managed, commercial for-profit MCO in the southern United States (U.S.). The formula for determining each efficiency and cost measure, to include the variables in the numerator and denominator, is listed in Appendix B.

Table 1

Summary List of Efficiency and Cost Measures Profiled

Performance Measure	**Benchmark**
Total Enrolled Panel	Industry Standard
Outpatient visits (OPV) PMPM/per member per year (PMPY)	HMO Actuarial
Emergency Department visits (EDV) PMPM/PMPY	HMO Actuarial
Referrals to civilian providers (outside the direct care system)	HMO Actuarial
Laboratory OP orders PMPM/PMPY	HMO Actuarial
Radiological orders OP procedures PMPM/PMPY	HMO Actuarial
Same day surgery (SDS) PMPM/PMPY	HMO Actuarial
Average Length of Stay	HMO Actuarial
Inpatient (IP) costs PMPM/PMPY	HMO Actuarial
Pharmacy (Rx) orders PMPM/PMPY	HMO Actuarial
Rx Cost PMPM/PMPY	HMO Actuarial
Prime OPV as % of Primary Care Manager (PCM) total workload	User Defined
Non Prime OPV as % of PCM total workload	User Defined

The EOC performance measures and their associated clinical descriptions were developed in accordance with (IAW) HEDIS 3.0 guidelines (NCQA, 1997). The available benchmarks were regionally based on the HEDIS 3.0/1998 Commercial Product Lines for Region 4 and published in a memorandum by P. Torda (1999). Region 4 consists of Alabama, Georgia, Mississippi, South Carolina, Florida, Kentucky, North Carolina, and Tennessee. These benchmarks are utilized extensively in the accreditation of MCOs in the commercial sector. Table 2 summarizes the EOC measures incorporated in the tool:

Table 2

Summary List of Effectiveness of Care Measures Profiled

Performance Measure	**Benchmark**
Cervical Cancer Screening	HEDIS 3.0 (1998)
Mammography Screening in Women over 52	HEDIS 3.0 (1998)
Mental Health Follow-up	HEDIS 3.0 (1998)
Eye Exams for Diabetics	HEDIS 3.0 (1998)
Beta Blockers Prescribed After Heart Attacks	HEDIS 3.0 (1998)
Preferred Rx for Childhood Ear Infections	HEDIS 3.0 (1997)

The precise Current Procedural Terminology, Fourth Edition (CPT-4) codes, International Classification of Disease, Ninth Revision, Clinical Measures (ICD-9-CM) codes, and DRGs used to calculate each EOC measure are specified in the HEDIS guidelines.

Each EOC and Efficiency performance measure profiled is described in detail in Appendix B. The listing includes the benchmark, measure name, summary, and the definition of the numerator variable and denominator variable. Figure 1 is an example of one measure, *Mammography Screening in Women over 52*, and includes the reporting criteria.

Benchmark	HEDIS 3.0 (1998)
Measure Name	**Mammography Screening in Women over 52**
Summary	Percent of enrolled female patients between the ages of 52 and 69 who have had a mammogram within the previous two years.
NUMERATOR	Number of enrolled female patients between the ages of 52 and 69 who had a mammogram with the previous two years.
DENOMINATOR	Number of enrolled female patients between the ages of 52 and 69 with no history of breast cancer.
Criteria	Mammograms are identified by the presence of one of the following CPT-4 codes: 76090, 76091, 76092. Radial mastectomies are identified by the presence of a CPT-4 code from: 19200 through 19259. Mammogram claims are excluded for any beneficiary who has ever received a radial mastectomy.

Figure 1. Effectiveness of Care Measure: *Mammography Screening in Women over 52*

Additionally, all metrics were adjusted for severity, intensity, age, and sex using the appropriate case mix systems. Severity is defined as the extent of physiologic decompensation or organ system loss of function. Intensity refers to the relative volume and types of diagnostic, therapeutic, and bed services used in the management of a particular disease (3M Health Information Systems, 1995). Risk adjustments for age and sex were actuarially based and obtained from a moderately managed, civilian for-profit managed care company in the southern U.S. The Age/Sex Factor adjustment values are listed in Table 3.

Table 3

Age Sex Factor Adjustment

Age Range (yrs)	**Male**	**Female**
0-19	0.63	0.63
20-24	0.52	0.52
25-29	0.67	0.67
30-34	0.67	1.30
35-39	0.83	1.24
40-44	0.99	1.24
45-49	1.05	1.44
50-54	1.29	1.55
55-59	1.94	1.64
60-+	2.10	1.95

Severity and intensity adjustments for inpatient workload were accomplished utilizing the 3M APR (All Patients Refined)-DRG grouping. The 3M Ambulatory Procedure Grouper (APG) was used for severity and intensity adjustments for outpatient workload. The 3M patient classification algorithms are designed and applied within the CEIS architecture.

Research on profiling suggested the use of a hierarchical approach for statistical analysis purposes. According to Christiansen and Morris (1997), some advantages of a hierarchical approach are that units of measurement are based on medically relevant standards and that

providers with small sample sizes may remain in the analysis. Thus, hierarchical models use information from the available data obtained from all providers being examined. These models apply to situations with two or more levels of random variation.

For this study, variation concerned the difference in rates within three levels of groupings. Peer group norms for level 1 analysis were defined as the cumulative mean measurement between Primary Care providers with like specialties, for example all Family Practice, Internal Medicine, or Pediatric providers. Peer group norms for level 2 analysis applied to the rate variation between all Primary Care providers at MACH. Level 3 analysis compared the mean rates between each specialty and included Residents in training as an individual subset. Therefore:

H_0: the population (level of analysis grouping) cumulative mean rates were equal.

or: $H_0 = \mu 1$ (Family Practice) = $\mu 2$ (Internists) = $\mu 3$ (Pediatricians) = $\mu 4$ (Residents)

H_1: the population cumulative mean rates were not equal, that is variation exists in the practice behavior of providers.

A 0.05 level of significance was chosen and one-way analysis of variance (ANOVA) performed using the SPSS $_{tm}$ Statistical Software Package, Version 8.0. The decision rule was to reject H_0 and accept H_1 if the p value was less than 0.05. Residents were included for analysis only in the preventive service measures. The assumption was that provider experience should not be weighted as much in these measures, such as compliance versus noncompliance, when compared to efficiency or cost variables.

Typically, within the MHS, the following area of concentration (AOC) specialties are considered to be Primary Care providers: 60P- Pediatricians, 61F- Internal Medicine, 61H- Family Practice, 61N- Aviation Medicine, and 65D- Physician Assistants. MACH empanels

patient populations to individual providers in the following groups: Family Practitioners, Internists, Pediatricians, Residents, and 66H- Family Nurse Practitioners. However, the two 66H Primary Care providers were excluded from analysis due to the unavailability of workload data. Appendix C lists the 69 Primary Care providers assigned to MACH that were profiled by their current pseudo identification number and specialty.

Data Mining

Utilizing the current MHS data systems to their fullest potential in conjunction with accurate data input and processing were the keys to success in this project. The objective of the discovery process during the second phase was to use CEIS to gather and analyze data at the provider level. However, with great assistance from VRI, Region 3 developed a functionally specific, standalone data mart in Microsoft Access for MACH. The data is automatically updated monthly and a rolling average calculated based on the data collection period requirements for each metric. The time periods for data collection vary and are listed in Appendix B for each metric. An overlay to this data mart, *Provider Perspectives*, is the application that allows user interface to create and extract reports on an ad hoc or predefined basis. This allowed for the collection of productivity and performance data in both MACH and the CHAMPUS network. Figure 2 indicates the mapping of data from input to output.

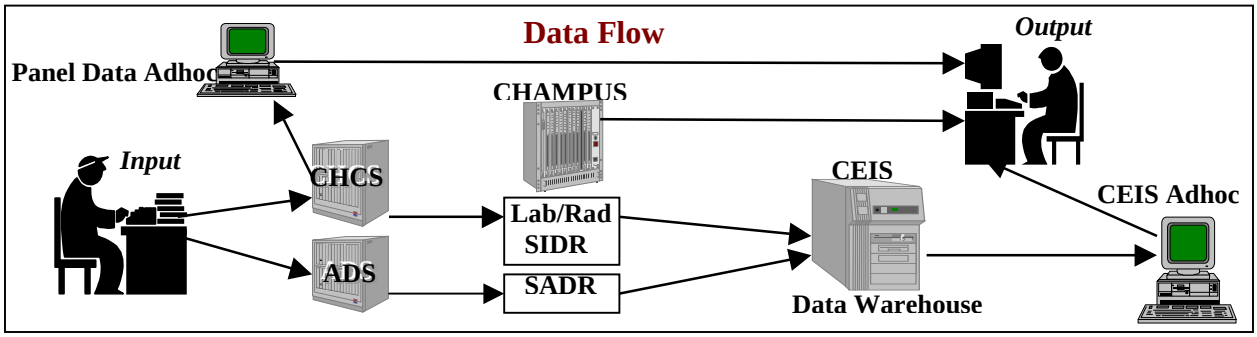


Figure 2. Mapping of *Provider Perspectives* Data Flow

Provider Perspectives extracted data from several sources. CHAMPUS workload data, via paid claims, was provided by HMHS. CEIS architecture supported mining tools that culled direct care workload data. The OP and SDS data source was the Ambulatory Data System (ADS). CEIS pulled IP data from the Composite Health Care System (CHCS) through the Standard Inpatient Data Record (SIDR). Laboratory and radiological data were supplied through CHCS ancillary modules. Pharmacy data were obtained through CHCS. Provider enrollment data were provided from CHCS via an ad hoc file generated by the LA.

A critical component to the project's success was the linkage of patient data to a specific provider. The enrollment methodology implemented at MACH involved creating provider panels by assigning each TRICARE Prime patient to an individual Primary Care provider. A provider enrollment file was generated. The data was linked by the Family Member Prefix (FMP)-Social Security Number (SSN) of the patient between the panel listing and CHCS and/or CHAMPUS data. Providers with less than 50 empanelled members were excluded from the profiling instrument. This is the minimum panel size for HMHS and generally accepted as the industry standard.

Limitations

The results may be affected by limitations in the data that included completeness, accuracy, and manipulation. Necessary for data completeness was capturing all the procedures and diagnoses that corresponded to the provider's empanelled population. This required combining data from both the direct care system and the civilian network. The electronic collection of events within the direct care system is only as good as the data input; which appeared to be incomplete at times. Additionally, the data collection period for certain HEDIS measures, such as *Cervical Cancer Screening* (previous three years), was longer than the period

the TRICARE contract has been in place. Consequently, the data collection period is limited to the previous two years as HMHS was awarded the contract in 1996. Also, incomplete data may have resulted if the provider failed to enter the coding on the appropriate record or if the record was not scanned into the system.

Accuracy errors with respect to the correct coding of procedures may have occurred. Without verifying data input recorded electronically against a patient's medical record or some other source, it is difficult to estimate the accuracy. Data manipulation may have occurred due to the fact that many patients were enrolled to the group or clinic rather than the individual provider. In addition, some patients were enrolled to non-Primary Care providers. These issues were brought to the attention of the MACH staff and many have been corrected.

Validity and Reliability

Reliability and validity of this project were dependent on the accuracy of the data collected. Raw data were obtained from current MHS information systems. The results accurately represented the population since the sample was the population. Thus, the sample was a valid representation of population measures. However, for some preventive measures many of the provider populations consisted of less than 20 members. Reliability concerned the amount of error in the measurement process. Each measure profiled is reliable only to the degree that it supplies consistent results. The reliability of the profiling tool was verified by repeating queries and obtaining the same results during each trial.

Ethical Considerations

Provider profiling in managed care settings raises serious ethical questions regarding confidentiality and data integrity. Due to provider and patient confidentiality considerations, names, social security numbers, and medical conditions were not requested, recorded or discussed. Pseudo identification numbers were utilized for all analyses. Additionally, information proprietary in nature, for example CHAMPUS data and risk adjustments for age and sex, was not disclosed to third parties.

Data integrity is always an issue in the MTF. If data integrity is suspect, then attempting to modify behavior patterns based on inadequate and possibly erroneous data may result in serious harm to patients. Accurately tracking productivity data was not feasible if providers failed to enter the evaluation and management (E&M) codes on the ADS record. Leadership must emphasize the need to correctly document the care provided. The Chief of Family Practice at MACH, Colonel (COL) Karl Kerchief, has taken the lead on this issue.

Results

The results addressed both the qualitative and quantitative objectives. First, Region 3 has developed and deployed the beta version of a Primary Care Profiling Tool, *Provider Perspectives*, to MACH. Second, statistical analysis using ANOVA of selected performance measures indicated significant variation in the practice behavior between groupings of providers for certain measures, both preventive and efficiency. Third, providers at MACH have enthusiastically embraced the population health/disease management profiling and educational aspects of the tool.

The development and initial deployment of the tool has generated considerable interest at the highest levels of the MHS. To this point there has been an ongoing dialogue between the Region 3 LA and the TRICARE Management Activity (TMA) Reengineering Coordination Team (RCT). According to the RCT, *Provider Perspectives* is the "best of breed" when compared to similar commercial profiling tools that have been demonstrated to leaders at TMA. A business proposal has been submitted to TMA by the LA for the migration of the tool throughout the MHS. There is strong indication that funding will be made available to support this deployment on a regional scale.

Profiling at MACH focused on the analysis of six preventive services, four efficiency variables, and on provider education opportunities. The universal key to making profiling data meaningful and productive is transforming sophisticated, detailed data into user friendly formats that can be easily communicated to providers. *Provider Perspectives* accomplishes this through a "point and click" application. Appendix D is an example of the provider profile report. All measures were adjusted for age, sex, intensity, and severity, which provided meaningful comparative data.

Quantitative results of the preventive services at level 3, providers grouped by specialty and residents, are depicted in Table 4. Family Practice, Internists, Pediatricians, and Resident groupings consisted of 23, 9, 4, and 31 providers respectively. EOC scores are listed by percent compliance by specialty with the required procedure. The variables utilized in the denominator and numerator for each metric are specified in Appendix B. HEDIS reports provide 90th, 75th, 50th, and 25th percentile scores by region for commercially insured and Medicare populations. The 50th percentile score for Region 4 was selected as a prudent and reasonable benchmark for providers at MACH. These results were indicators of process rather than outcomes. They focused on the use of certain procedures versus the clinical endpoints of the care delivered.

Table 4

Comparing Effectiveness of Care Scores by Specialty and Residents to HEDIS Benchmark

Specialty **EOC Measure**	**Family Practice**	**Internists**	**Pediatricians**	**Residents**	**HEDIS 50th Percentile Score**
Cervical Cancer Screening	29	41	56	59	72
Mammography Screening	31	47	N/A	25	74
Mental Health Follow-up	**76**	57	**83**	58	62
Preferred Rx for Childhood Ear Infections	29	11	26	25	N/A

The table highlights four observations worth mentioning. First, it demonstrates the disparity between groups and indicates the fact that only 2 values (76 and 83) of 15 total or 18% of the MACH EOC scores met or exceeded the HEDIS 50th Percentile benchmark. Next, Pediatricians were not empanelled with members meeting *Mammography Screening* reporting criteria. Also, a HEDIS benchmark for the *Preferred Rx for Childhood Ear Infections* measure was not available, as this measure is no longer a reportable measure by NCQA. However, the MCSC for the SEMHS currently tracks this measure. Finally, two originally designated

performance measures, *Beta Blockers Prescribed After Heart Attack* and *Eye Exams for Diabetics* were not reported due to questionable content validity of the data. The next section provides the hierarchical analysis, beginning with level 3, of the EOC measure *Cervical Cancer Screening*, followed by a summary of the three remaining preventive measures.

Selecting the variable, *Cervical Cancer Screening*, for level 3 analysis using ANOVA led to the rejection of H_0 at the 0.05 level of significance (P = .002). The results are depicted in Table 5. Data checked for large differences in group variances using Levene's test with a corresponding probability of 0.027. Although the population mean rates for the Pediatrician and Resident provider groups resulted in similar values, that is 57.42 and 56.01; the corresponding population mean rates for Family Practitioners and Internists were 33.17 and 27.78. The conclusion that population mean rates were not equal between all four groups invites the opportunity for provider education on the importance of performing this service.

Table 5

Analysis of Variance between Family Practice, Internist, Pediatrician, and Resident Groups

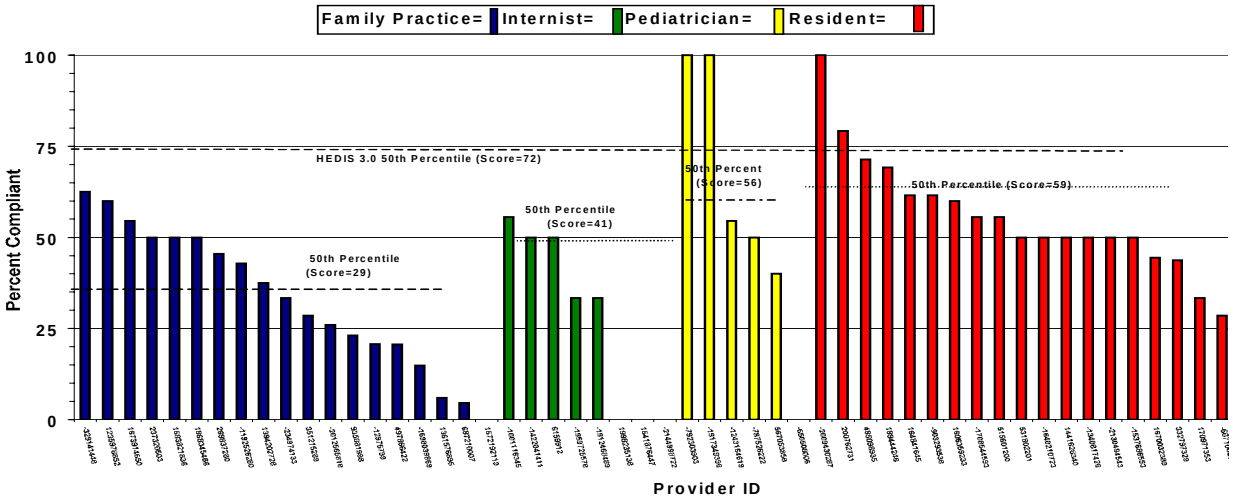
Source	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between	8138.709	3	2712.903	5.712	0.002
Within	22795.953	48	474.916		
Total	30934.663	51			

Table 6 illustrates compliance rates at the provider level for the *Cervical Cancer Screening* measure. A provider pseudo identification (ID) with no associated rate indicated the provider's panel comprised members meeting the reporting requirement but this service had not been performed. The individual provider profile reports do not display a measure unless one or more enrolled patients populate the denominator. Of the 69 providers profiled, 52 met the scoring criteria for this performance measure. Again, this chart illustrates the need for provider

education in that only 4 of 52 or 8% of the providers met or exceeded the HEDIS benchmark score of 72.0 for this specific measure.

Table 6

Comparison of Cervical Cancer Screening Panel Compliance Rates Within Provider Groupings



The results of *Cervical Cancer Screening* level 2 analysis, comparing all MACH Primary Care providers, are depicted in Table 7. H_0 was accepted (P = .976) at the at the 0.05 level of significance. The population mean rate was 43.48. The comparison of population mean rates between all providers, regardless of specialty, indicated that variation in provider behavior did not exist at this level. However, the MACH population mean rate was still significantly lower than the selected HEDIS benchmark score of 72.0.

Table 7

Comparison of *Cervical Cancer Screening* Panel Compliance Rates Between All Providers

	t	df	Sig. (2-tailed)	Mean Difference	95 percent CI of the Difference Lower	Upper
Compliance Rate	.03051	51	.976	.1040	-6.7526	6.9606

Level 1 analysis, comparison of providers within the same group, is generally the most significant to clinicians. The results are provided in Table 8. Accept H_0 when comparing the rate of each provider within the same group to the cumulative mean rate for that group. Although this suggests the provider rates are equal and discounts wide variation within each specialty, it does not imply that individual providers are performing the service at a satisfactory rate.

Table 8

Level 1 Comparison of *Cervical Cancer Screening* Panel Compliance Rates

Specialty	**t**	**df**	**Sig. (2-tailed)**	**Mean Difference**	**95 percent CI Lower**	**Upper**
Family Practice	.947	18	.35	.356	-6.7526	6.9606
Internists	-1.539	7	.168	-13.222	-33.5434	7.0989
Pediatricians	.091	5	.931	1.4242	-38.6470	41.4955
Residents	-.805	18	.431	-2.9940	10.806	4.8185

A summary of level 3, level 2 and level 1 analysis for the three remaining preventive measures, *Mammography Screening*, *Mental Health Follow-up*, and *Preferred Rx for Childhood Ear Infections*, reflected acceptance of H_0. The level 3 one way analysis of variance resulted in *P* values of .739, .384, and .511 values respectively. However, checking large differences in group variances for *Preferred Rx for Childhood Ear Infections* using Levene's test resulted in a *P* value of .009 and did not support this conclusion. Correspondingly, level 2 *t*-test values were .999, .444, and .617. Level 1 results were of a similar nature and are listed in Table 9. A significant observation was that not one pediatrician had an empanelled member meeting *Mammography Screening* criteria which has a HEDIS 50th Percentile score of 74.0.

Table 9

Summary of Level 1 *P* Values for *Mammography Screening*, *Mental Health Follow-up*, and *Preferred Rx for Childhood Ear Infections*

EOC Measure **Specialty**	**Family Practice**	**Internists**	**Pediatricians**	**Residents**
Mammography Screening	.905	.746	N/A	.742
Mental Health Follow-up	.625	.824	.743	.502
Preferred Rx for Childhood Ear	.787	.510	.767	.560

The four efficiency/cost measures analyzed were selected based on their proposed inclusion as a reportable measurement in the Army Surgeon General's Dashboard Metric System. Unlike Effectiveness of Care measures that were compared to HEDIS benchmark scores, these measures were compared to HMO actuarial data. Quantitative results of the services at level 3 are depicted in Table 10. Family Practice, Pediatrics, and Internal Medicine providers demonstrated significant variation between groups for each measure except SDS PMPY. In addition, OPV PMPM, Rx Costs PMPY, and EDV PMPM were significantly higher in MACH than the comparable HMO benchmark.

Table 10.

Summary of Level 3 *P* Values for Efficiency Measures

Measure	**Mean**	**F**	**Sig.**
OPV PMPY	6.982	7.204	.003
SDS PMPY	0.038	.917	.410
Rx Costs PMPY	$123.90	35.287	.000
EDV PMPY	.5270	3.861	.031

Discussion

The results addressed the fundamental objectives of the project: to assist in the development and deployment of a Primary Care Management Profiling Tool in the SEMHS, analyze the practice patterns of providers with respect to preventive and efficiency performance measures, educate providers on the value added benefits of profiling with *Provider Perspectives*, and enhance my understanding of MHS information systems. Each has been achieved with varying degrees of success.

According to COL Jeff Harris, the Medical Director for Region 3, if providers are not managing the health of their empanelled population then no one else is. That is the message the Region 3 Lead Agent is advocating to the Primary Care providers at MACH. The time for profiling providers in the SEMHS has arrived. COL Harris indicated to the MACH providers that tracking provider performance against benchmarks for quality and cost effectiveness is becoming the rule under managed care, not the exception. *Provider Perspectives* is a promising new profiling tool that has the potential to improve the health of the beneficiary population by allowing providers to analyze the behavior patterns of their empanelled population regardless of where they are seen. This shift in emphasis from scrutinizing providers to examining patient behavior contributed greatly to the acceptance of profiling by the MACH staff.

A major success has been the attention this initiative has received at TMA. Senior leadership recognized that profiling with this tool supports population health improvement strategies. Strategies that better serve the SEMHS beneficiaries by preventing illnesses and injuries while reducing demand for the more costly and sometimes less effective tertiary treatment services. This is directly attributable to a diligent team effort involving many stakeholders. From the outset, caregivers, administrators, technical analysts, military, and

civilian organizations have been actively involved in the development process. Partnering and cooperation was paramount to the delivery of a value-added product that has the potential of being deployed throughout the SEMHS following the results of the preliminary study at the beta test site.

Effective profiling requires empanelling providers with member populations. The SEMHS is currently drafting a policy that will direct the regional MTFs to do so. Discussions with TMA have indicated that such a policy is likely forthcoming for the entire MHS. The goal of profiling Primary Care providers at MACH was to include only those TRICARE Prime patients for whom the provider is responsible, his or her empanelled population, and to exclude patients who see the provider only incidentally.

MACH accomplished empanelling populations to providers through a two-step process. First, beneficiaries were asked to specify the clinic and team of their choice for Primary Care services on the TRICARE Prime Enrollment Form at the TRICARE Service Center (TSC). The next step required visiting the Health Benefits Office, located in another building, to complete a MACH physician selection form specifying their choice of provider in that clinic/team. The process could be more user friendly for the beneficiary. A possible solution is to allow the TSC to perform this task. However, a modification to the current managed care contract may be required.

Provider Perspectives contains some unique features that call for elaboration, as the application was the basis for the extraction of raw data from the MHS information systems. Its capabilities are many and include risk adjustment, based on severity, intensity, age and sex; profiling at the provider, specialty, clinic/team, and MTF levels; the availability of pre-defined reports or query agents to develop custom reports in a graphical or text format; and the masking

or unmasking of sensitive information. In addition, the user selects the appropriate benchmarks, while online decision support links and a resource library are at the provider's fingertips. Perhaps its most important attribute is bridging the disconnect between the direct care and civilian workload by including CHAMPUS paid claims information in the database. Total workload analysis can now be performed from one portal.

Detailed inspections of the first generation profile reports revealed several items of interest. Inconsistencies in the information presented, such as inaccurate definitions or benchmarks, were discovered and have subsequently been corrected or improved upon. Often times the solution was in the formatting or presentation of information; other times the discrepancies required more in-depth assessment. If the information appeared not to be logical, such as observed values that greatly exceeded those expected, then investigation of the formulary employed to arrive at a specific result was conducted and adjustments were made.

Some adjustments are still necessary. Analysis of the preventive service measures revealed that data were flawed for two of the current measures. *Eye Exams for Diabetics*, for instance, revealed that only 3 of 38 providers with eligible panel members performed the required services. Research led to the possibility that MACH was accounting for the procedure in the ancillary module of CHCS rather than in the ADS record. Thus, *Provider Perspectives* was not capturing the CPT-4 coding in the data pull of the ADS. Study is currently underway to identify the root cause of the problem and implement a workable solution that ensures the required services performed are accurately captured in the profiling instrument.

Further examination of the EOC measures brought to light that variation between and a low panel compliance rate among providers exists. This trend was very evident when comparing MACH provider rates to the HEDIS 50th Percentile benchmarks. Noteworthy is that the Center

for Disease Control (1999) states in the Behavioral Risk Factor Surveillance System that the chronic diseases, cardiovascular disease and cancer, account for almost two-thirds of deaths among Americans. In many cases, the underuse of known prevention strategies, such as breast, cervical, and colorectal cancer screening, is the root cause. A focus of the SEMHS profiling effort is to educate providers on the behavior of their patients and create an opportunity to modify undesirable behavior leading to an increased use of these strategies.

One approach to this educational process is illustrated in Figure 3. Providers are able to retrieve preventive services information on their panel members with a "point and click." The response to this feature has been very positive. This is a standard report that can be quickly generated by the provider. Not only does the report inform the provider of patients that require preventive services, but it also specifies the service that is necessary. A future objective is to link this element to the appointment and mailing system whereby an appointment is scheduled and a notification automatically sent to the beneficiary.

Martin Army Community Hospital

Provider Perspectives - Mammography Services

Primary Care Manager: **1998235138** ***Clinic/Team:*** INTERNAL MEDICINE
PCM SSN:
PCM Specialty: INTERNIST

Member Name	Gender	Age	Risk	Required Service
MS. PATIENT A	FEMALE	56	2	Mammography Screening in Women over 52

The CPS profile identifies the patients empanelled to the PCM, who require the above recommended service according to our data. These are conditions of risk or prevalence as identified by NCQA's HEDIS 3.0 measures.

Figure 3. *Members Requiring Services* Report

The most recent addition to the tool offers information and guidance in the field of disease management. The *Asthma Provider Support* Report, a section of which is displayed in Figure 4, was designed to profile the provider panel's asthma medication use as well as identify high risk patients requiring targeted disease management interventions. Although this report is not yet available to practitioners through *Provider Perspectives*, its potential as a disease management tool is significant. This Asthma Management Report educates providers by focusing on preventive strategies such as the use of anti-inflammatory medications rather than rescue medications, thus reducing the need for costly acute care interventions. The benchmarks for this report are based on the industry standard for asthma episodes of care, the Lovelace Index.

ASTHMA PROVIDER SUPPORT REPORT

Provider Perspectives *For the period Apr 98 - Mar 99*

PCM:	-12975799
Specialty:	FAMILY PRACTICE PHYSICIAN
# of Asthma Pts:	25
% of Clinic Visits:	0.20%
% of ED Visits:	0.79%

Asthma pt is defined as having a principal ICD9 diagnosis of 4931, 4934*, or 4939*. One goal is to reduce the use of rescue meds (bronchodilators) & increase the use of preventive meds (anti-inflammatories). An index was created to measure this and is defined as the % of inhaled bronchodilators (BD) filled compared to all inhaled asthmatic meds, both anti-inflammatories (AI) and bronchodilators (BD).*
INDEX = (BD/BD+AI)
GOAL RX INDEX - .33 or less (This means that 33% or less of all inhaled asthma meds are BDs)

		# PTS	DISP	EDV	OPV	BD	AI	Index	RX COST
Age Group	A (AGES 0-4)	2	1	2	1	2	0	1.00	$1
Age Group	B (AGES 5-14)	4	0	2	7	1	3	0.25	$139
Age Group	D (AGES 18-24)	6	0	1	8	1	2	0.33	$16
Age Group	E (AGES 25-34)	8	0	2	6	2	0	1.00	$6
Age Group	F (AGES 35-44)	5	0	1	3	4	1	0.80	$51

Figure 4. *Asthma Provider Support* Report

Although the cost/efficiency measures were not an area of emphasis of profiling at MACH, each efficiency measure in the visit and cost category was significantly higher than the civilian benchmark. Another observation was that providers with high Rx cost and OPV rates were empanelled with members having the highest age/sex factors. Following this trend, Internists had the highest mean age/sex factor among each of the specialties and their mean pharmacy costs PMPY were $151 above the average for MACH, $112. Comparing the practice patterns of military providers to their civilian peers with respect to select quantifiable measures and benchmarks provides a tremendous opportunity for provider education and possible behavior modification in the delivery of quality health care within the SEMHS.

Conclusions and Recommendations

Conclusions

The development of *Provider Perspectives* combined with the testing at the beta site, MACH, effectively addressed the three essential components required to affect provider decision making and utilization management behavior: motivation, information, and a structured process. First, the motivational aspect is best exemplified by a comment from an audience member during the initial presentation of *Provider Perspectives* by the Region 3 staff to the MACH Primary Care staff. A provider remarked that this is the first time there may be a real reason to care about filling out the ADS forms correctly. Next, information, such as educational pathways and accurate performance metrics, is now available to individual providers, the Chief of Family Practice, and the MACH command group via the touch of a button through *Provider Perspectives*. Finally, there may be no improvement in population health or provider performance without a structured process. To this end, the LA and MACH have implemented an action plan requiring periodic performance and progress updates on issues with respect to the utilization of the application. Additionally, a timeline has been established for deployment of the tool throughout the SEMHS.

Appropriate utilization of health care is the crux of managed care and a key to success for the SEMHS. This can be accomplished by making providers responsible for ensuring their patients do not overutilize some aspects of care and underutilize others. MACH, by empanelling beneficiary populations to individual Primary Care providers, is placing the onus on these providers to minimize services such as emergency room visits and inpatient admissions, while maximizing preventive services, such as mammography screenings and immunizations. This mandates that providers receive meaningful clinical data in a snapshot view.

Profiling with *Provider Perspectives* provides the SEMHS with a standardized performance measurement system that offers feedback in such a view and in a non-threatening format. This is accomplished without undue hindrance on patient care, with the maximum use of automation, and requires minimal resources by the MTF for management. This tool graphically illustrates opportunities to achieve efficiencies at the *provider decision node*: the point in the health care delivery continuum that has the greatest impact on where limited resources should be allocated to provide the most benefit.

Recommendations

Four recommendations address the processes in which the project may have been improved both in the development phase and in the deployment phase of *Provider Perspectives*. First, a profiling tool is necessary in developing a comprehensive system for measuring population health improvement and improving the quality of care provided at MACH and the SEMHS. The only way to evaluate whether profiling can achieve its potential is by conducting a systemic dissemination of profiles to providers and gauging if there are measurable improvements in the health of their empanelled populations once the providers have been exposed to their own practice profiles. A more effective approach to developing and implementing a provider profiling tool may have been to initially contract with an established commercial managed care organization specializing in this area. Once preliminary research has verified the utility of profiling, deployment of the software application should progress throughout the region.

Second, profiling in the SEMHS will demonstrate its utility by measuring simple interventions and processes. Focus must be on data quality, and that requires cooperation from providers. In turn, providers have to see that their time is well spent and that they get back

useful information. If not, they are subject to more work with no perceived advantage. Therefore, a concerted effort should be made to locate a provider within each facility who will be the champion for data quality.

Next, upon greater provider awareness of the value-added potential of profiling, the performance measurements should be expanded to incorporate more disease management and “hot button” issues. Just as in the development of the tool itself, inclusion of additional performance measurements should be a team effort consisting of providers, administrators, and technicians, both military and civilian. Identifying and benchmarking disease management strategies that have successfully been deployed, measured and sustained versus those that have failed, and then integrating the best practices into the tool is an excellent opportunity to educate providers on the most recent pathways utilized by civilian providers. "Hot button" issues such as pharmacy utilization are always of concern to all commanders in the SEMHS. This tool has the potential to address these concerns through accurately assessing measures such as the percent formulary and generic utilization of pharmaceuticals.

Finally, before profiling is migrated throughout the SEMHS, attempt to obtain provider buy-in long before it is forced upon the MTF. This can be accomplished by sending preliminary surveys and requesting their opinion about the kind of information they would like to see in a report. Another method would be to conduct small workshops or provide self-study programs. Eventually, a buy-in must occur when providers take an active role in understanding and responding to the measurement processes arising from the managed care environment in which the SEMHS operates. Only then will the potential of provider profiling be realized; this is a step along that path.

Appendices

Appendix A

Terms and Definitions

AOC	Area of Concentration
ADS	Ambulatory Data System
AHA	American Hospital Association
APR	All Patients Refined
ASD (HA)	Assistant Secretary of Defense (Health Affairs)
CEIS	Corporate Executive Information System
CHAMPUS	Civilian Health and Medical Program of the Uniformed Services
CHCS	Composite Health Care System
CPT-4	Current Procedural Terminology, Fourth Edition
DHP	Defense Health Program
DoD	Department of Defense
DRG	Diagnostic Related Group
EAMC	Eisenhower Army Medical Center
EOC	Effectiveness of Care
HCFA	Health Care Financing Administration
HEDIS	Health Plan Employer Data and Information Set
HMO	Health Maintenance Organization
ICD-9-CM	International Classification of Disease, Ninth Revision, Clinical Measures
IPA	Independent Practice Association
LOS	Length of Stay
MCOs	Managed Care Organizations

MCSC	Managed Care Support Contractor
MHS	Military Health System
MTF	Military Treatment Facility
NCQA	National Committee for Quality Assurance
PCM	Primary Care Manager
PMPM	Per Member Per Month
PMPY	Per Member Per Year
SADR	Standard Ambulatory Data Record
SIDR	Standard Inpatient Data Record
SDS	Same Day Surgery
SEMHS	Southeast Military Health System
SERMC	Southeast Regional Medical Command
TSC	TRICARE Service Center
UM	Utilization Management

Appendix B

Performance Measures Summary

Benchmark HEDIS 3.0 (1998)

Measure Name **Beta Blockers Prescribed After Heart Attacks**

Summary Percent of enrolled patients over 35 years of age who were prescribed beta blockers subsequent to discharge from a hospital after a heart attack and having no contraindications to the use of beta blockers.

NUMERATOR	Number of enrolled patients over 35 years of age who were prescribed beta blockers within seven days of discharge.
DENOMINATOR	Number of enrolled patients over 35 years of age who were to the use of beta blockers.

Benchmark HEDIS 3.0 (1998)

Measure Name **Mammography Screening in Women over 52**

Summary Percent of enrolled female patients between the ages of 52 and 69 who have had a mammogram within the previous two years.

NUMERATOR	Number of enrolled female patients between the ages of 52 and 69 who had a mammogram with the previous two years.
DENOMINATOR	Number of enrolled female patients between the ages of 52 and 69 with no history of breast cancer.

Benchmark HEDIS 3.0 (1998)

Measure Name **Cervical Cancer Screening**

Summary Percent of enrolled female patients between the ages of 21 and 64 who have evidence of having had a Pap test within the previous three years.*

NUMERATOR	Number of enrolled female patients between the ages of 21 and 64 with evidence of having had a Pap test within the previous three years.
DENOMINATOR	Number of enrolled female patients between the ages of 21 and 64.

Benchmark HEDIS 3.0 (1998)

Measure Name **Eye Exams for Diabetics**

Summary Percent of enrolled diabetic patients who have had a retinal examination during the preceding 12 months.

NUMERATOR	Number of enrolled diabetic patients over 30 years of age having had a retinal exam within the preceding 12 months.
DENOMINATOR	Number of enrolled diabetic patients over 30 years of age.

Benchmark HEDIS 3.0 (1998)

Measure Name **Mental Health Follow-up**

Summary Percent of enrolled patients six years of age and older who were seen on an ambulatory basis or were in day/night treatment within 30 days of discharge subsequent to hospitalization for treatment of selected mental health disorders.

NUMERATOR	Number of enrolled patients six years of age and older who were seen on an ambulatory basis or were in a day/night treatment program within 30 days of hospital discharge subsequent to hospitalization for treatment of selected mental health disorders.
DENOMINATOR	Number of enrolled patients over six years of age who were hospitalized for selected mental health disorders.

Benchmark HEDIS 3.0 (1997)

Measure Name **Preferred Rx for Childhood Ear Infections**

Summary Percent of enrolled children six weeks to five years of age who were diagnosed with a first episode of uncomplicated episode of acute otitis media and were prescribed an antibiotic other than a preferred antimicrobial agent.

NUMERATOR	Number of enrolled children six weeks to five years of age who were diagnosed with a first episode of uncomplicated episode of acute otitis media and were prescribed an antibiotic other than a preferred antimicrobial agent.
DENOMINATOR	Number of enrolled children six weeks to five years of age who were diagnosed with a first episode of acute otitis media.

Benchmark INDUSTRY STANDARD

Measure Name **TOTAL ENROLLED**

Summary For each PCM, the total number of enrolled patients assigned to that PCM for the reporting month. Calculated monthly.

NUMERATOR	Not applicable
DENOMINATOR	Not applicable

Benchmark HMO ACTUARIAL

Measure Name **AGE/SEX FACTOR**

Summary Adjustment factor to used to compensate for variations in the severity of illness due to the age and gender distributions of enrollees. Calculated monthly and based on the characteristics of the patient population for the given month.

NUMERATOR	Not applicable
DENOMINATOR	Not applicable

Benchmark INDUSTRY STANDARD

Metric Name **# PCM VISITS**

Summary For a given month, the total number of times enrolled patients were seen on an

outpatient basis by the PCM. Calculated monthly.

NUMERATOR	Not applicable
DENOMINATOR	Not applicable

Benchmark MILLIMAN & ROBERTSON

Measure Name **# CIVILIAN REFERRALS**

Summary Total number of individual claims generated for enrolled patients for this PCM. Calculated monthly

NUMERATOR	Not applicable
DENOMINATOR	Not applicable

Benchmark HMO ACTUARIAL

Measure Name **OPV PMPY**

Summary Annualized, risk-adjusted ratio of the total number of times enrolled patients were seen on an outpatient basis by the PCM to the total number of enrolled patients. Calculated monthly, annualized, and risk-adjusted.

NUMERATOR	Annualized total number of times enrolled patients assigned to this PCM that were seen on an outpatient basis.
DENOMINATOR	Risk-adjusted number of enrolled patients assigned to this PCM.

Benchmark HMO ACTUARIAL

Measure Name **EDV PMPY**

Summary Annualized, risk-adjusted ratio of the total number of emergency room visits by enrolled patients to the total number of enrolled patients for this PCM. Calculated monthly, annualized, and risk-adjusted.

NUMERATOR	Annualized total number of times enrolled patients assigned to this PCM were seen in the emergency room.
DENOMINATOR	Risk-adjusted number of enrolled patients assigned to this PCM.

Benchmark HMO ACTUARIAL

Measure Name **LAB OP PMPY**

Summary Annualized, risk-adjusted ratio of the total number of outpatient lab procedures ordered for enrolled patients to the total number of enrolled patients for this PCM. Calculated monthly, annualized, and risk-adjusted.

NUMERATOR	Annualized total number of outpatient lab procedures ordered for enrolled patients assigned to this PCM.
DENOMINATOR	Risk-adjusted number of enrolled patients assigned to this PCM.

Benchmark HMO ACTUARIAL

Measure Name **RAD OP PMPY**

Summary Annualized, risk-adjusted ratio of the total number of outpatient radiology orders for enrolled patients to the total number of enrolled patients for this PCM. Calculated monthly, annualized, and risk-adjusted.

NUMERATOR	Annualized total number of outpatient radiology orders for enrolled patients assigned to this PCM.
DENOMINATOR	Risk-adjusted number of enrolled patients assigned to this PCM.

Benchmark HMO ACTUARIAL

Measure Name **SDS PMPY**

Summary Annualized, risk-adjusted, ratio of the total number of same day surgery procedures among enrolled patients to the total number enrolled patients for this PCM. Calculated monthly, annualized, and risk-adjusted.

NUMERATOR	Annualized total number of same day surgery procedures performed among enrolled patients assigned to this PCM.
DENOMINATOR	Risk-adjusted number of enrolled patients assigned to this PCM.

Benchmark HMO ACTUARIAL

Measure Name **DAYS**

Summary Total number of bed-days occupied by enrolled patients for this PCM. Calculated monthly.

NUMERATOR	Not applicable
DENOMINATOR	Not applicable

Benchmark HMO ACTUARIAL

Measure Name **DAYS PMPT**

Summary Risk-adjusted ratio of the total number of Bed-Days occupied by enrolled patients to the total number of enrollees for this PCM. Calculated monthly, risk-adjusted, and expressed per 1000 enrollees.

NUMERATOR	Total number of Bed-days occupied by enrolled patients assigned to this PCM, expressed per 1000 enrollees.
DENOMINATOR	Risk-adjusted number of enrolled patients assigned to this PCM.

Benchmark HMO ACTUARIAL

Measure Name **DISP PMPT**

Summary Risk-adjusted ratio of the total number of patients removed from the reporting hospital census to the total number of enrollees for this PCM. Calculated monthly, risk-adjusted, and expressed per 1000 enrollees.

NUMERATOR Total number of enrolled patients assigned to this PCM who were removed from the reporting hospital census, expressed pper 1000 enrollees.

DENOMINATOR Risk-adjusted number of enrolled patients assigned to this PCM.

Benchmark INDUSTRY STANDARD

Measure Name **LAB IP PMPY**

Summary Annualized, risk adjusted ratio of the total number of inpatient lab procedures ordered for enrolled patients to the total number of enrolled patients for this PCM. Calculated monthly, annualized, and risk adjusted.

NUMERATOR Annualized total number of inpatient lab procedures ordered for enrolled patients assigned to this PCM.

DENOMINATOR Risk-adjusted number of enrolled patients assigned to this PCM.

Benchmark INDUSTRY STANDARD

Measure Name **RAD IP PMPY**

Summary Annualized, risk-adjusted ratio of the total number of inpatient radiology orders for enrolled patients to the total number of enrolled patients for this PCM. Calculated monthly, annualized, and risk-adjusted.

NUMERATOR Annualized total number of inpatient radiology orders for enrolled patients assigned to this PCM.

DENOMINATOR Risk-adjusted number of enrolled patients assigned to the PCM.

Benchmark HMO ACTUARIAL

Measure Name **IP COST PMPY**

Summary Annualized, risk-adjusted ratio of the total cost for services associated with all inpatient episodes by enrolled patients to the total number of enrolled patients for this PCM. Calculated monthly, annualized, and risk-adjusted.

NUMERATOR Annualized total cost for services associated with all inpatient episodes for enrolled patients assigned to this PCM.

DENOMINATOR Risk-adjusted number of enrolled patients assigned to this PCM.

Benchmark HMO ACTUARIAL

Measure Name **RX PMPY**

Summary Annualized, risk-adjusted ratio of the total number of prescriptions ordered for enrolled patients to the total number of enrolled patients for this PCM, calculated monthly, annualized, and risk-adjusted.

NUMERATOR Annualized total number of prescriptions ordered for enrolled patients assigned to this PCM.

DENOMINATOR Risk-adjusted number of enrolled patients assigned to this PCM.

Benchmark HMO ACTUARIAL

Metric Name **RX COST PMPY**

Summary Annualized, risk-adjusted ratio of the total cost for all prescriptions ordered for enrolled patients to the total number of enrolled patients for this PCM. Calculated monthly, annualized, and risk-adjusted.

NUMERATOR Annualized total cost for all prescriptions ordered for enrolled patients assigned to this PCM.

DENOMINATOR Risk-adjusted number of enrolled patients assigned to this PCM.

Benchmark USER DEFINED

Measure Name **PRIME OPV**

Summary The total number of patients seen on an outpatient basis by this PCM who were enrolled in TRICARE PRIME for the reporting period. Based on data from the CHCS MCP module.

NUMERATOR Not applicable

DENOMINATOR Not applicable

Benchmark USER DEFINED

Measure Name **NON PRIME OVP**

Summary The total number of patients seen on an outpatient basis by this PCM other than those who were enrolled in TRICARE PRIME for the reporting period. Based on data from the CHCS MCP module.

NUMERATOR Not applicable

DENOMINATOR Not applicable

***** Collection of clinical data for this item began in FY97.

Appendix C

Martin Army Community Hospital Primary Care Provider Identification and Specialty List

Pseudo	Specialty	Resident	Pseudo	Specialty	Resident
1394202728	Family Practice	No	-1917349396	Pediatrician	No
-12975799	Family Practice	No	-650508006	Pediatrician	No
237320503	Family Practice	No	531802201	Family Practice	Yes
-1698039869	Family Practice	No	-1708544593	Family Practice	Yes
69837280	Family Practice	No	-1640210723	Family Practice	Yes
2113738936	Family Practice	No	1441628340	Family Practice	Yes
1572192119	Family Practice	No	2127241738	Family Practice	Yes
-2012565818	Family Practice	No	170971353	Family Practice	Yes
1164478258	Family Practice	No	-1340817426	Family Practice	Yes
1349165576	Family Practice	No	-1966374951	Family Practice	Yes
-546502547	Family Practice	No	1670032389	Family Practice	Yes
935881998	Family Practice	No	-2055152253	Family Practice	Yes
497866422	Family Practice	No	1791659251	Family Practice	Yes
1583821836	Family Practice	No	745255892	Family Practice	Yes
1235978852	Family Practice	No	-1791713355	Family Practice	Yes
1361576895	Family Practice	No	164841645	Family Practice	Yes
-329141448	Family Practice	No	515601200	Family Practice	Yes
351215289	Family Practice	No	-1981279214	Family Practice	Yes
-1192526280	Family Practice	No	332797329	Family Practice	Yes
1673914650	Family Practice	No	-363613397	Family Practice	Yes
1868345466	Family Practice	No	-903293538	Family Practice	Yes
687210007	Family Practice	No	1606359233	Family Practice	Yes
-234974133	Family Practice	No	200762731	Family Practice	Yes
-1422041411	Internist	No	-920601053	Family Practice	Yes
1998235138	Internist	No	-2130494543	Family Practice	Yes
-1001116345	Internist	No	-607108230	Family Practice	Yes
1541876447	Internist	No	-1537686553	Family Practice	Yes
-713878040	Internist	No	-1104364830	Family Practice	Yes
1340403981	Internist	No	2121673235	Family Practice	Yes
-1959725578	Internist	No	485098935	Family Practice	Yes
-1912468489	Internist	No	-2009430287	Family Practice	Yes
6159912	Internist	No	189444246	Family Practice	Yes
-1243164619	Pediatrician	No	123123123	Family Practice	No
567053858	Pediatrician	No			

Provider Perspectives

Martin Army Community Hospital
Provider Profile

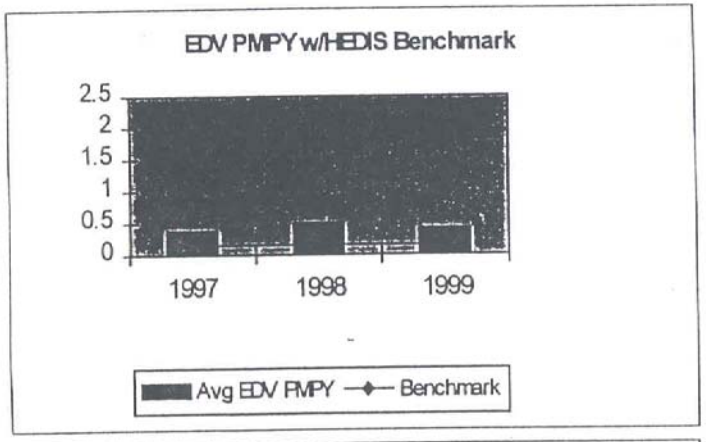
Primary Care Manager: 237320503 *Clinic:* MARTIN ARMY FAMILY PRACTICE
PCM SSN:
PCM Specialty: FAMILY PRACTICE PHYSICIAN

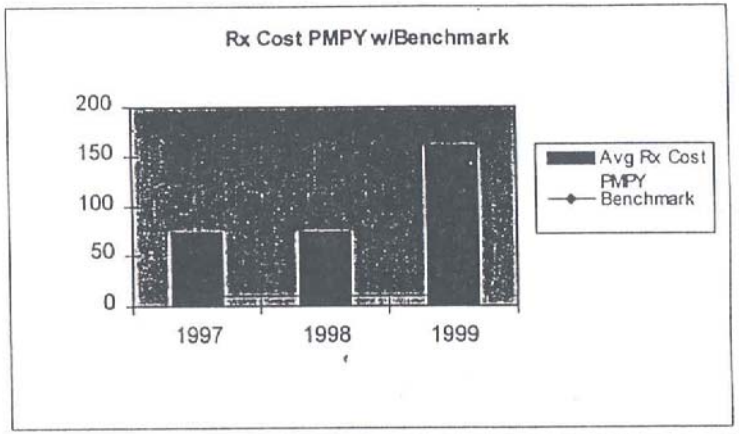
MO/YR	Total Enrolled	Age/Sex Factor	# PCM Visits	# Civ Referrals	OPV PMPY	EDV PMPY	Lab OP PMPY	Rad OP PMPY	SDS PMPY	# DAYS	ALOS	Days/ 1000	Disp/ 1000	Lab IP PMPY	Rad IP PMPY	IP Cost PMPY	RX PMPY	RX COST PMPY
Oct 1997	188	1.07	138	3	8.20	0.475	5.228	2.376	0.059	0	0.00	0.00	0.00	0.000	0.000	$0.00	7.72	$68.82
Nov 1997	207	1.07	116	2	6.27	0.378	4.349	1.622	0.054	0	0.00	0.00	0.00	0.000	0.000	$0.00	5.46	$57.30
Dec 1997	222	1.07	166	5	8.41	0.253	8.101	3.291	0.051	2	2.00	0.00	0.00	0.000	0.000	$120.51	7.85	$90.93
Jan 1998	244	1.06	206	4	9.54	0.371	9.544	4.402	0.000	2	2.00	0.00	0.00	0.000	0.000	$123.61	6.76	$70.87
Feb 1998	245	1.06	189	11	8.72	0.323	5.769	1.292	0.046	2	2.00	0.00	0.00	0.000	0.000	$123.14	6.00	$81.01
Mar 1998	257	1.06	208	13	9.14	0.747	6.154	3.077	0.088	2	2.00	0.00	0.00	0.000	0.000	$108.53	5.10	$64.83
Apr 1998	287	1.07	260	9	10.20	0.784	7.176	4.000	0.039	1	1.00	0.00	0.00	0.000	0.000	$101.41	7.29	$73.47
May 1998	332	1.07	222	7	7.53	0.373	4.610	1.153	0.034	0	0.00	0.00	0.00	0.000	0.000	$0.00	6.31	$65.82
Jun 1998	357	1.08	227	10	7.09	0.719	5.969	2.250	0.031	15	3.00	0.00	0.00	0.000	0.000	$863.72	6.97	$74.94
Jul 1998	410	1.07	209	5	5.71	0.219	5.412	2.050	0.027	2	2.00	0.00	0.00	0.000	0.000	$137.11	5.11	$64.94
Aug 1998	447	1.07	252	7	6.30	0.425	3.325	1.375	0.000	4	2.00	0.00	0.00	0.000	0.000	$145.65	5.83	$65.74
Sep 1998	473	1.08	294	5	6.93	0.731	5.564	2.570	0.047	15	3.00	0.00	0.00	0.000	0.000	$384.31	5.59	$54.84
Oct 1998	482	1.07	325	25	7.53	0.510	6.417	2.085	0.046	4	2.00	0.00	0.00	0.000	0.000	$126.69	7.09	$89.81
Nov 1998	493	1.08	260	14	5.86	0.474	3.474	2.008	0.000	16	3.20	0.00	0.00	0.000	0.000	$485.41	6.25	$63.58
Dec 1998	498	1.08	280	15	6.22	0.444	2.600	0.956	0.022	0	0.00	0.00	0.00	0.000	0.000	$0.00	6.36	$103.23
Jan 1999	504	1.09	332	6	7.28	0.395	4.629	2.698	0.022	10	3.33	0.00	0.00	0.000	0.000	$447.55	14.22	$221.69
Feb 1999	511	1.09	330		7.12	0.540	6.669	3.151	0.022	4	4.00	0.00	0.00	0.000	0.000	$181.08	14.42	$208.68
Mar 1999	515	1.08	343		7.39	0.452	5.408	2.348	0.065	5	2.50	0.00	0.00	0.000	0.000	$99.79	8.45	$105.94
Apr 1999	522	1.08	87	1	1.85	0.213	1.936	0.660	0.000	0	0.00	0.00	0.00	0.000	0.000	$0.00	7.02	$104.88
May 1999	525	1.07		2							0.00							
Jun 1999	507	1.07									0.00							
CYTD Avg	392	1.07	234	8	7.23	0.465	5.402	2.282	0.034	4	2.71	0.00	0.00	0.000	0.000	$181.50	7.36	$91.11
Spec Avg	479	1.07	273	8	6.739	0.505	5.047	2.414	0.027	4	2.25	0.00	0.00	0.000	0.000	$151.53	7.05	$85.11
Civilian Benchmark					3.89	0.160	0.930	0.900	0.340		3.30	226.00	69.00					$11.01

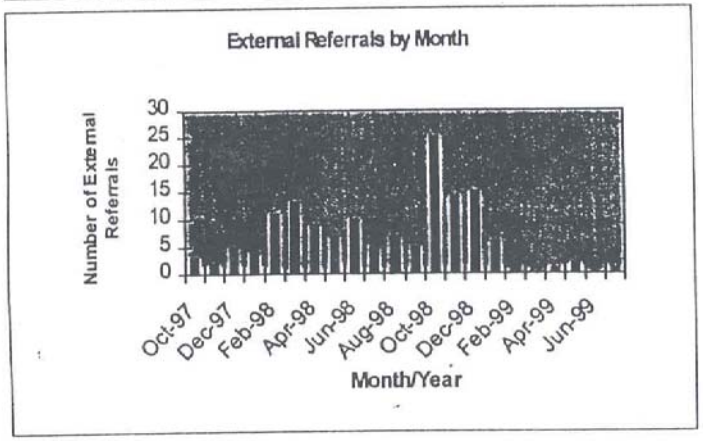
For Official Use Only
May Contain Medically Regulated Data

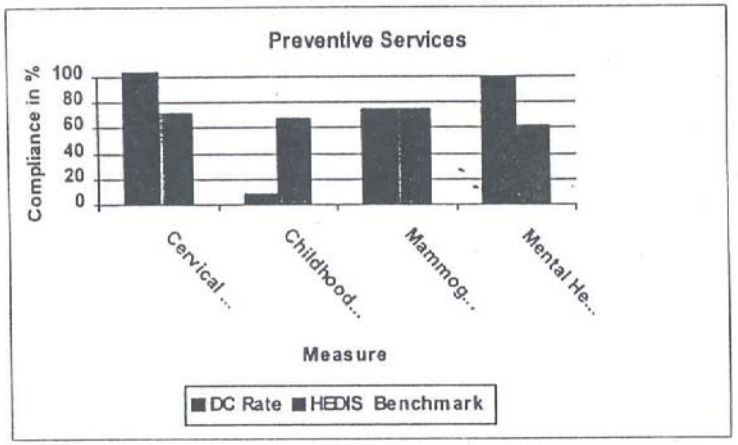
Provider Perspectives

Martin Army Community Hospital
Provider Profile









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