

# REPORT DOCUMENTATION PAGE

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U.S. Army-Baylor University Graduate Program  
in Health Care Administration

**PROPOSED U.S. ARMY MEDICAL COMMAND  
CLINICAL BENCHMARKING MODEL**

Submitted to the Faculty of  
Baylor University  
in Partial Fulfillment of the  
Requirements for the Degree  
of  
Master of Health Administration

by  
Captain Gregory A. Swanson

May 31, 1996

Running Head: MEDCOM Clinical Benchmarking Model

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## ABSTRACT

The primary objective of health care should be to achieve good or improved outcomes for patients in a cost effective manner (Agency for Health Care Policy and Research 1995b). This realization has prompted the health care community to develop new methods of accurately calculating and measuring health care cost and quality. As researchers seek new methods to better quantify the value equation, the Army Medical Command (MEDCOM) is also being asked to justify health care related expenses and demonstrate quality outcomes as the command transitions to a managed care environment. To improve the processes of care provided in its Medical Treatment Facilities (MTFs) from both cost and quality perspectives, the MEDCOM must exploit effective utilization management techniques whenever possible by identifying benchmark clinical procedures and processes and adopting these best practices at other MEDCOM facilities.

The clinical benchmarking model developed in this project allows MEDCOM decision makers to ensure the Military Health Service System (MHSS) remains the health plan of choice for military beneficiaries and assists with utilization management (UM) by providing efficient benchmarks for comparison. The greatest benefit from this project will come from the ability to objectively demonstrate, through cost and quality outcomes measures, that the MHSS provides better health care value than civilian competitors and that it remains the best health care choice for beneficiaries.

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## CHAPTER 1

### INTRODUCTION

While the primary objective of health care should be to achieve good or improved outcomes for patients in a cost effective manner (Agency for Health Care Policy and Research 1995b), Americans are finding that quality of care is not a given. This realization prompted a movement toward public accountability by health care providers for outcomes of care. Accountability requires measurement of the quality of care provided to populations of patients and policies that promote continuous improvement of quality of care. In concert with this new accountability, recent changes in the political environment have put the civilian health care community under increasing pressure to become more efficient and reduce costs. The relative improvement in health care outcomes compared to the cost of the health care services used to achieve them are the components of the health care value equation. Stated another way, health care value is high quality care provided cost efficiently (Manus, Werner and Strub 1994). Increasing competition among health care providers and the spread of managed care have required improved methods of defining and measuring health care value. In response to the changing environment, the health care provider community has developed new methods of accurately calculating and measuring health care cost and quality.

The Military Health Service System (MHSS) has also experienced similar pressure to become more efficient. As researchers seek new methods to better quantify

the value equation, the Army Medical Command (MEDCOM) is also being asked to justify health care related expenses and demonstrate quality outcomes as the command transitions to a managed care environment. The result is that the MEDCOM is now, more than ever, accountable to Congress and the American people for not only the cost of military health care, but for the efficiency, quality and value as well.

### Background

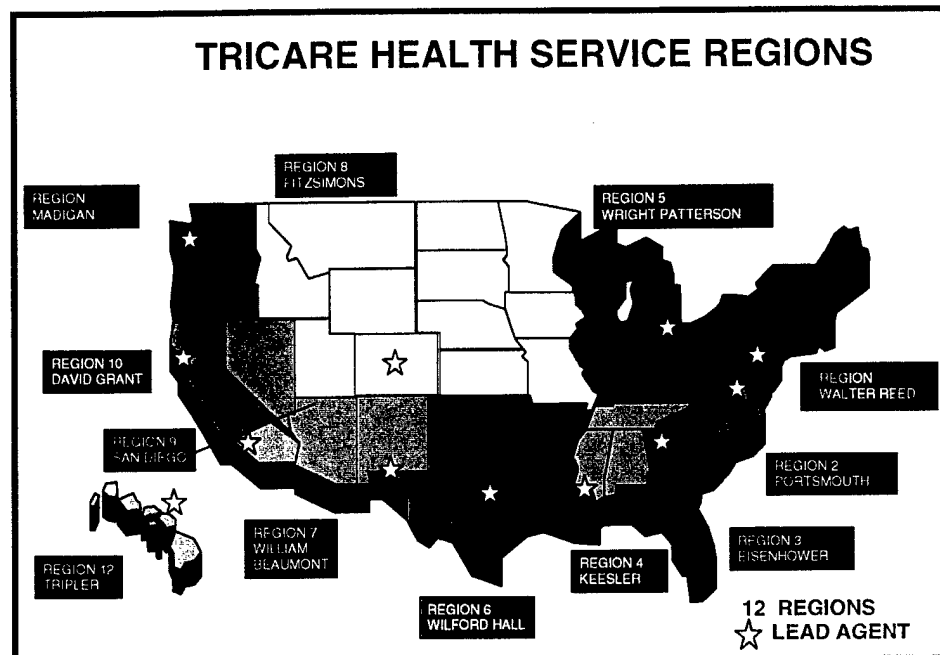
Several factors have influenced the transition to managed care at the MEDCOM. Factors such as the national health care reform initiative, continuing military strength reductions and the desire at all levels of government to improve efficiency have combined to create a strong impetus for change in the MEDCOM. The result is that the MEDCOM must now examine how it provides care in its Medical Treatment Facilities (MTFs) and determine how the care delivery processes can be improved from both cost and quality perspectives.

In response to the changing environment, the MEDCOM began to improve the efficiency of the care delivery process through establishment of regional referral networks. These referral networks were the first step in transforming the MEDCOM into a managed care network instead of a loose affiliation of hospitals. As the other military services began to develop similar health care referral systems, geographical and mission similarities prompted the decision to merge the health care facilities of the three services into one managed care system.

As part of the tri-service health care reorganization, the Office of the Assistant Secretary of Defense for Health Affairs (OASD(HA)) was given responsibility for oversight of military health care operations in the Continental United States (CONUS) and Europe. Although the MTFs were still under the operational control of the three military services, OASD(HA) implemented programs designed to coordinate and oversee a comprehensive, coordinated health care benefit for active duty military, their dependents, retirees and other beneficiaries. This coordination was accomplished by organizing the MTFs of the three services into one Military Health Services System (MHSS) divided into twelve geographic health care regions (Figure 1). Each region is managed by a Department of Defense (DoD) Lead Agent responsible for coordinating all health care delivery to military beneficiaries within their region.

To assist Lead Agents in managing care provided outside the MTFs by civilian providers, OASD(HA) developed and awarded contracts to augment MTF care by providing services not available at the MTF. As the contracts were awarded, only rudimentary mechanisms were in place to evaluate the quality and efficiency of care provided by the contracted providers. As MHSS resources became more constrained and MTF efficiency became more critical, Lead Agents and Hospital Commanders were required to evaluate MTF operations against the civilian contract providers to determine which provided the better value. This became a difficult process due to the lack of good health care value measurement tools available to assist in the decision process.

During this same period, the MEDCOM organization underwent one of the most extensive reorganizations since the 1940s. Many factors influenced the need to

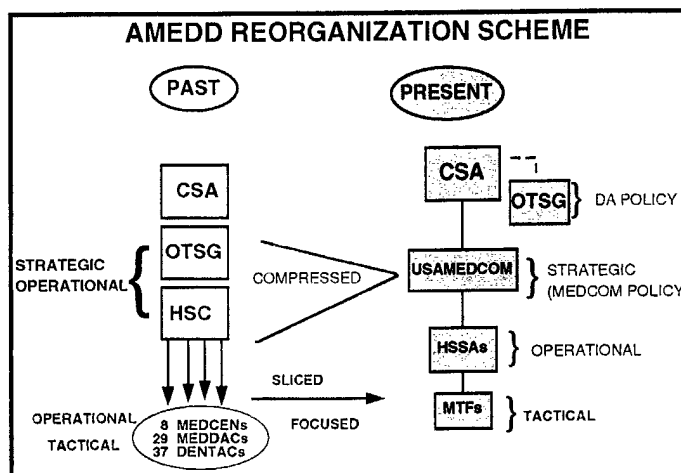


Hurt and Cyr 1996

Figure 1. DoD TRICARE Regions

reorganize, such as the reduced need for a large military force and Army downsizing, fundamental changes in the conduct of military operations, changing battlefield scenarios, increased lethality, increased technology and a shift to a power projection platform strategy. Internal to the MEDCOM, the previous structure did not adequately identify the types of work to be done at each level of the organization, confusing strategic, operational, and tactical roles. The intent of the reorganization effort was to separate the organization into clearly defined strategic, operational, and tactical levels to enhance efficiency and eliminate redundancy, and to reengineer the organization to be more responsive to the changing environment.

In July 1993, Army MTFs, their command entities and other associated agencies and activities were, at the direction of the Army Surgeon General, restructured in to what is presently known as the Army Medical Command (Figure 2).



Hurt and Cyr 1996

Figure 2. AMEDD Reorganization Model

The new MEDCOM organization consists of 37 Medical Treatment Facilities (MTFs) organized into seven Health Service Support Areas (HSSAs) or regions located in CONUS and Europe. In addition to the seven HSSAs, the MEDCOM has five other Major Subordinate Commands (MSCs), responsible for medical research and medical materiel development, health care promotion and preventive medicine, food inspection and animal health issues, education and doctrine development, and dental health of soldiers (Figure 3). The MEDCOM is no longer subordinate to the Office of the Surgeon

General (OTSG), which is now responsible for providing liaison with policy makers in the National Capitol Region and for communicating Army Medical Department (AMEDD) policy to other Department of the Army staff.

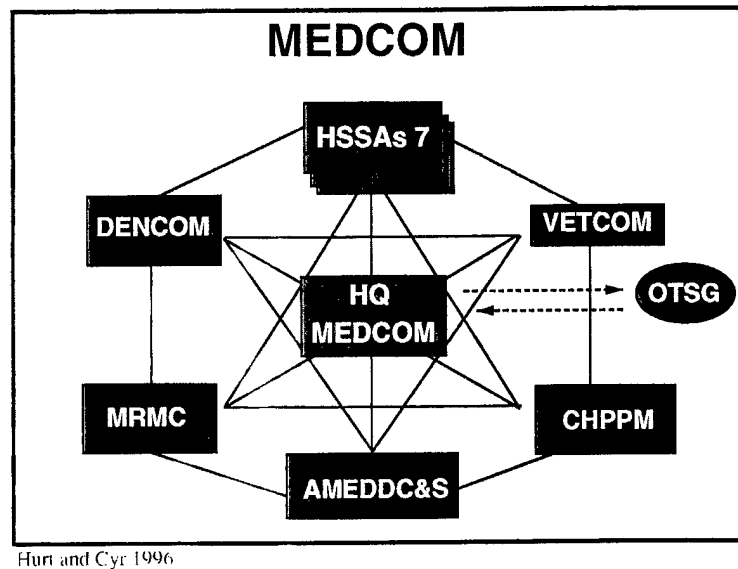


Figure 3. MEDCOM Organizational Chart

The MEDCOM has assumed the strategic management role for the AMEDD, passing operational level functions previously done at Health Services Command (HSC) down to the newly created HSSAs. These organizational changes empowered the newly appointed HSSA commanders to efficiently manage their regions, and for the first time held them accountable for health care delivery and readiness operations of Army MTFs located within their regions. As the HSSAs assumed the operational responsibility to

employ health care assets efficiently, few tools existed to assist them in managing their assets.

During the period of AMEDD reorganization and the transition to TRICARE, the Department of Defense (DoD) Inspector General (IG) conducted an audit of the current state of utilization management (UM) in DoD MTFs. Results of the audit indicated that while many opportunities existed to manage more efficiently, few MTFs had put effective UM measures in place (Department of Defense Inspector General 1995). Subsequent analysis conducted by OASD(HA), the DoD Program Analysis and Evaluation (PAE) office, and the Congressional Budget Office (CBO) confirmed these findings to varying degrees (Office of the Under Secretary of Defense (Comptroller) 1995). As a result of these studies, the MEDCOM received a directive from OASD(HA), to develop UM policies and practices for MEDCOM MTFs (Office of the Assistant Secretary of Defense for Health Affairs 1995a). OASD(HA) also organized working groups to address specific issues identified by the DoDIG Report.

To further incentivize the MTFs to implement effective UM measures, OASD(HA) incorporated a UM decrement as part of the Defense Health Plan (DHP) budget process. The proposed OASD(HA) decrement was intended to be progressive, reducing the DHP budget one percent in Fiscal Year 1997, increasing to four percent in 1999 (Office of the Under Secretary of Defense (Comptroller) 1995). Following submission of the budget plan, the DoD Comptroller modified the proposal to increase the decrement to five percent per year for four years beginning in Fiscal Year 1997 (Office of the Under Secretary of Defense (Comptroller) 1995). This threat of significant

budget reductions added an increased sense of urgency to the MEDCOM Headquarters staff as they began the process of developing effective measures of health care quality, efficiency, and value.

### Conditions Which Prompted the Study

Historically, MEDCOM performance measures have monitored aspects of the organization related to cost and workload (Appendix 1). With the changing environment and organizational mission, cost and workload performance measures are of decreasing value. As the MEDCOM, like the rest of the Federal Government, finds that resources continue to shrink and demand for quality products and services continues to grow (Financial Management Service 1993), structure oriented cost and workload performance measures do not provide information adequate to efficiently manage military health care organizations.

Environmental and organizational changes have created turbulence within the MEDCOM Headquarters and MSCs as they attempt to redefine their roles and missions, evaluate their performance, and meet the expectations of their customers. Although the MEDCOM and MHSS organizations are evolving to keep pace with the environment, the current performance indicators are not. At the MEDCOM headquarters level, the need to develop strategic level performance measures accurately depicting the relationship between health care cost, quality and value provided by the HSSAs and civilian sector contracted providers prompted this study. The current quality management indicators do not accurately measure progress toward attainment of key MEDCOM and MHSS

strategic goals, and the indicators are not strategic in scope as they should be under the reorganization.

In September 1995 the MEDCOM staff began evaluating potential quality management indicators. The staff sought indicators which would measure progress toward attainment of the strategic goals of the new MEDCOM organization, would facilitate comparisons with civilian organizations, would meet OASD(HA) guidelines for developing new indicators (Table 1) (Office of the Assistant Secretary of Defense for Health Affairs 1995a), and would be compatible with existing data systems.

**Table 1. DoD Health Affairs Clinical Performance Indicator Requirements**

| <b>DoD Health Affairs Clinical Performance Indicator Requirements</b>                                      |
|------------------------------------------------------------------------------------------------------------|
| Measure Both Process and Outcome                                                                           |
| Address High Risk, High Volume, and/or Problem Prone Areas                                                 |
| Address Both Clinical Quality and Service Issues                                                           |
| Are Systemic in Design                                                                                     |
| Are Carried Out Uniformly Across Components                                                                |
| Have Appropriate Breadth and Frequency                                                                     |
| Include Areas of Prevention, Physiological Function, Functional Status, Physical and Psychological Comfort |
| Provide Data Useful for Continuous Measurement and Assessment                                              |
| Impact on Quality Outcome                                                                                  |
| Impact on Patient Satisfaction                                                                             |
| Rigor of Development and Testing                                                                           |
| Ease of Implementation                                                                                     |
| Vulnerability (Resistance) to "Gaming"                                                                     |
| Interpretability as a Measure of Quality                                                                   |

Office of the Assistant Secretary of Defense for Health Affairs 1995a

In defining new performance measures, the staff had difficulty identifying measures which would accurately measure progress toward the goals of becoming the managed care system of choice and becoming a learning organization that were obtainable through existing data systems. To develop these measures, and to adhere to OASD(HA) guidelines, the staff began to review measures currently in use in the civilian health care sector that measure key clinical processes and outcomes, and that were compatible with existing information systems. When evaluating new performance measures, the MEDCOM staff searched for methods of measuring not just the cost of health care, but health care quality and value as well. Applying the value definition of best quality for the most reasonable cost (Manus, Werner and Strub 1994), the staff determined that the MEDCOM needed to develop better methods of measuring health care quality and cost for specific key procedures and product lines.

#### Statement of the Problem

Performance measures currently in use at the MEDCOM do not provide the information required to evaluate progress toward the Health Affairs and MEDCOM strategic goals, do not measure UM and health care value, do not facilitate effective collaboration and comparisons with civilian sector health care benchmark organizations, and do not meet OASD(HA) requirements for health care clinical performance measures.

## Literature Review

### Performance Measures

Historically, health care performance measures have been retrospective, lacking the “predictive ability” sought by industry leaders today (Birchard 1995). The MEDCOM is not alone in its quest for better performance measures. As many as 80 percent of American businesses are currently exploring ways to change their performance measurement systems to better reflect the changing goals of the organization (Birchard 1995). This movement toward new measures in industry is a result of the tremendous effort expended in reorganizing and re-engineering organizations, both within government and in the civilian sector, to provide products and services in the most efficient manner possible (Birchard 1995). Restructured businesses and organizations must now find new measurement tools to evaluate progress toward revised corporate goals.

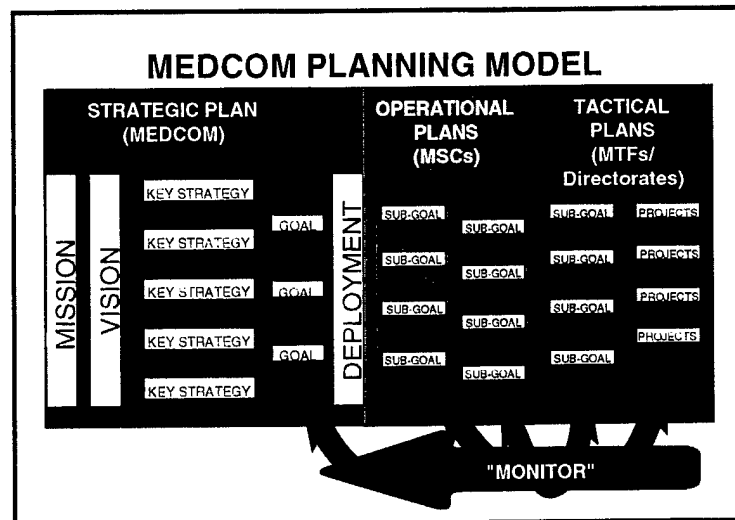
Performance measures can be constructed to measure a variety of attributes of an organization (Appendix 2). The purpose of management indicators is to objectively monitor how well an organization performs its core business processes and accomplishes its strategic objectives through the delivery of products, and services, and how efficiently it manages the essential processes of delivering those products and services (Financial Management Services 1993). These measures can then be used to refine decision

making, to facilitate process improvement, and to evaluate effects of previous changes (O'Leary 1993).

Performance measures should be meaningful to managers and customers, should be simple, logical, repeatable and timely; should show a trend, be clearly defined, be economical to collect and tell how well an organization meets its goals and objectives (Office of the Assistant Secretary of Defense for Health Affairs 1995b). When defining performance measures it is important to think in terms of stakeholder and customer needs and desires, as well as organizational needs, and to evaluate their satisfaction with your efforts (Financial Management Service 1993). Developed properly, performance measures can be a valuable tool for organizational self-assessment, goal setting, and progress monitoring (Financial Management Service 1993).

Performance measures provide information regarding progress toward organizational goals. To be effective, performance measures must be tied to strategic goals at all levels of the organization, corresponding to the organizational level which controls that particular aspect of the organization (Financial Management Service 1993).

Performance measures should be limited to the minimum number necessary to measure progress toward organizational goals at each level of the organization, with measures and goals at each level supporting measures and goals of the next higher level (Figure 4).



Williams 1996

Figure 4. Strategic Planning Model

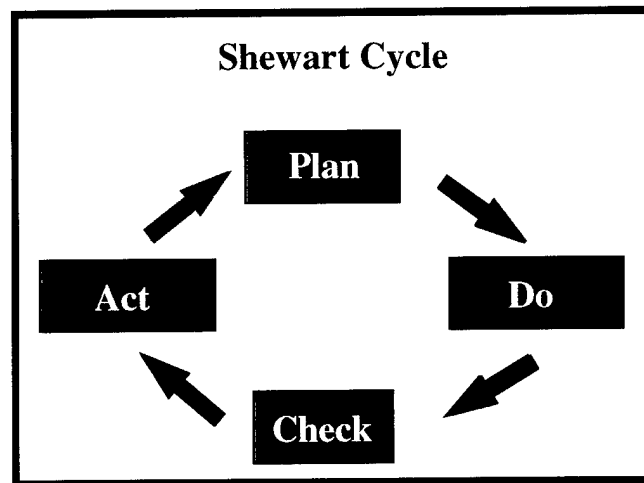
### Quality Measures

Performance measures have become increasingly important to health care organizations seeking to improve quality, ensure accountability, formulate policy, plan and budget, and assure equitable distribution of services (Harris 1994). As the American health care industry has embraced the teaching of Demming, Juran and others and begun practicing Total Quality Management (TQM), whole sectors of the industry have begun to develop better process and outcomes related performance measures. For the health care industry, the shift to process and outcomes related performance measures is as much a competitive necessity as a quest for quality (Harris 1994). As managed care plans become more efficient and as price and cost become more standardized throughout the industry, civilian health care plans are increasingly being evaluated by customer and payors on their value and outcomes quality and not just low cost (Hale and Weiner 1994).

Quality measurement has become a critical issue in almost all sectors of business and industry. It is now recognized that error, waste, and rework lead to higher costs and less customer satisfaction. This recognition has prompted a new interest in formally adopting quality improvement and management techniques in industry in general and in the health care sector in particular (Berwick 1989). This is especially true as health care organizations attempt to become more competitive and seek better ways to measure not just cost, but quality and value as well.

At the heart of the quality improvement methodology is the quality management cycle (Figure 5) or Shewart cycle. In its simplest form this cycle consists of planning a new or improved process that is expected to yield an improved outcome, doing or implementing the process, checking to determine if the process is working as planned and is having the expected outcomes, and then acting on the information that has been obtained to reassess the plan or continue implementing it (Agency for Health Care Policy and Research 1995b).

In assessing and monitoring the quality of health care, the health care industry is using TQM principles to move toward a broader population based perspective of health care quality. The roots of population based health care quality improvement and measurement extend to the time of the Crimean War and Florence Nightingale's introduction of nutrition, sanitation and infection control initiatives in field hospitals.



Agency for Health Care Policy and Research 1995b

Figure 5. Shewart Cycle

Her quality initiatives contributed to a reduction in the death rate from 43 to 2 percent (Agency for Health Care Policy and Research 1995a). Today's new quality measurement tools measure the processes of care provided to patient populations to determine if the processes achieved good outcomes. These new criteria emphasize the health experience of populations instead of individual episodes of care and focus on health care process management, customer satisfaction, and health care outcomes. This shift in focus is an attempt to institutionalize total quality management principles in health care delivery and to require medical institutions to adopt a total quality focus in their operations.

When defining health care quality, most health care organizations refer to Donabedian's health care quality model composed of structure, process, and outcome (Donabedian 1980). Structural characteristics consist of the settings in which care takes place and have a propensity to influence the process of care so that its quality is diminished

or enhanced. Process refers to the interactions which take place as medical transactions are conducted. Changes in the process of care, including variations in delivery, influence the effect of care on health status, or outcomes (Donabedian 1980). Outcome is the end result of the structure/process interaction, and can be either immediate and deferred. A change in one aspect of the structure, process, outcome triad will necessarily affect the others because of the fundamental functional relationship among the three elements.

Quality can also be defined in terms of the interactions between the provider's technical skills, the provider's interpersonal communication skills, and the amenities of the environment (Greenfield and Nelson 1992). Technical skills refer to the mechanics of administering care, such as equipment availability and efficacy of treatment protocols. The interpersonal element addresses what is often termed the art of medicine, the types of social interactions between providers and between providers and patients. The amenities dimension addresses factors at the institutional level such as cleanliness of the facility and comfort of the surroundings.

The Typology of Quality Dimensions (Stiles and Mick 1994) defines health care quality initiatives in terms of both sets of parameters (Table 2). This approach defines aspects of health care in terms of structure, process, and outcomes and in terms of technical, interpersonal, and amenities aspects of care. The model classifies quality initiatives into one of nine quadrants relating to the intersection of the two quality definition axes. Classifying initiatives with the model is useful in identifying potential improvement opportunities and clarifying decision criteria. The model is also useful as a

planning tool to ensure a facility addresses all of the levels of quality expected by provider customers and other stakeholders (Stiles and Mick 1994).

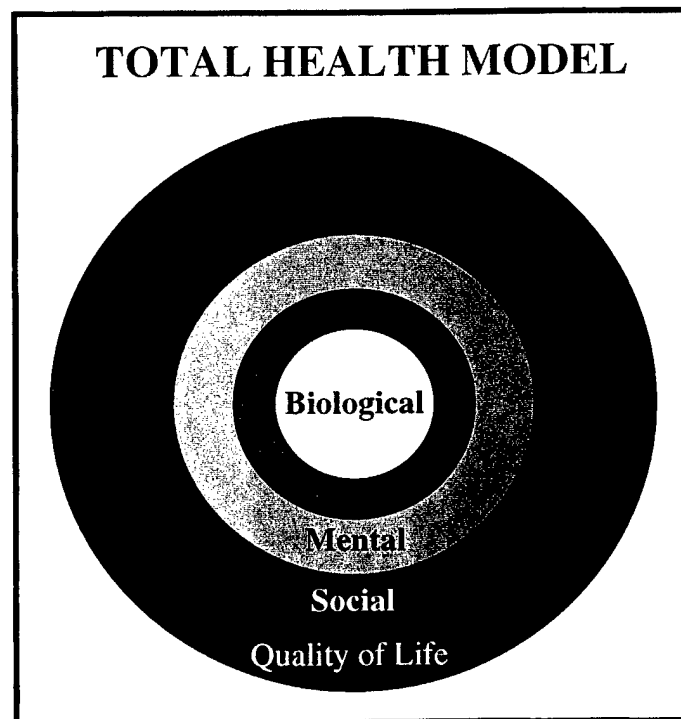
**Table 2. Typology of Quality Dimensions**

|                      | <b>Structure</b>                                                                                                                              | <b>Process</b>                                                                                                                              | <b>Outcome</b>                                                                                                                                                            |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Technical</b>     | Equipment<br>Staffing<br>Training Programs<br>Size, Volume, Ownership                                                                         | Accuracy of Diagnosis<br>Appropriateness of Treatment<br>Treatment Skillfully Applied<br>Treatment Plans, Sequencing<br>Practice Guidelines | Morbidity, Mortality<br>Increments or Decrements in Health or Functional Status<br>Palliation<br>Frequency, Distribution of adverse Incidents<br>Malpractice<br>Donations |
| <b>Interpersonal</b> | New Technology's Impact on Roles and Role Relationships<br>Building Design, Signage<br>Presence of Chaplains, Advocates, Social Workers, etc. | Collegiality<br>Nature of Communication<br>Honest, Forthright<br>Treatment of Patients<br>Sensitivity and Compassion                        | Patient Satisfaction<br>Emotional, Spiritual Peace<br>Family Satisfaction<br>Referrals<br>Compliance<br>Returns for Future Care<br>Malpractice<br>Donations               |
| <b>Amenities</b>     | Cleanliness<br>Presence of Conveniences<br>Ease of Access, Parking<br>Appearance of Staff                                                     | Efficiency in Patient Flow<br>Short Waiting Periods                                                                                         | Patient Satisfaction<br>Family Satisfaction<br>Referrals<br>Donations                                                                                                     |

Stiles and Mick 1994

Historically health care organizations have been unable to measure the total health of populations because many organizations provided only one aspect of care in the continuum of care. As the increasing number of managed care organizations expand their scope of responsibility to manage health care settings other than the acute care setting, businesses are increasingly holding their health plan accountable not just for high quality treatment of acute episodes, but for wellness and prevention of disease or illness also.

Definitions of health are quality are increasingly shifting away from uni-dimensional measures focused on the presence or absence of specific biologic conditions to more comprehensive measures (Greenfield and Nelson 1992). These definitions of health and health care look beyond physiological and biological factors to lifestyle, emotional, and environmental aspects as well. While traditional definitions of health and health care focus on the treatment of disease and illness, new definitions encompass concepts such as patient functional status, emotional well-being and quality of life (Figure 7), and measure quality according to all aspects of health (Greenfield and Nelson 1992).



Greenfield and Nelson 1992

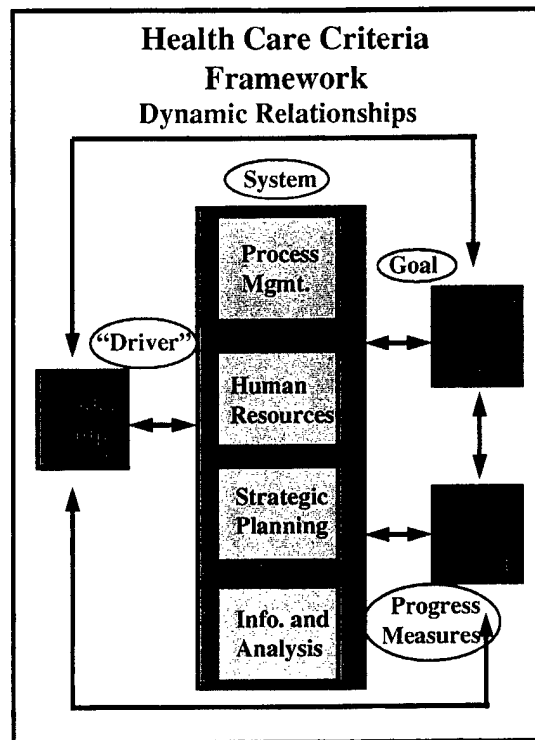
Figure 7. Health Status Target Model

Other innovations include defining quality of care in terms of change in health status as a result of intervention. This new focus on overall health instead of episodic care has placed a greater emphasis on preventive medicine and the quality of life of covered populations, as well as the individual patient role and accountability for health status.

Peer review organizations and accrediting organizations are also using Total Quality Management (TQM) oriented measures of quality and quality improvement. Changes in the accreditation requirements of organizations such as the Joint Commission for the Accreditation of Health care Organizations (JCAHO) and the National Center for Quality Assurance (NCQA), as well as the development of other quality recognition processes such as the Malcolm Baldrige National Quality Award for Health Care emphasize the need for systemic measures of quality as opposed to traditional structural measures (Figure 6). In the future, health care systems can expect customers to evaluate not only individual health care intervention appropriateness, efficiency and effectiveness (efficacy), but the management of the health care processes as well.

### Process Measures

Processes of care include elements such as preventive measures, diagnostic tests, treatments, and other patient care activities. In the aggregate, these processes account for most of the cost of care, and they are an important component of patient satisfaction or dissatisfaction with care as well. Process-oriented health care quality improvement initiatives focus on two major areas: better definition of the processes involved, and evaluation of the efficiency and efficacy of the processes.



Malcolm Baldrige 1993

Figure 6. Malcolm Baldrige National Health Care Quality Award Criteria Framework

Several organizations have begun compiling information and creating databases related to process measurement. Perhaps the most well known database is the Healthcare Employer Data Information Set (HEDIS) created by the National Center for Quality Assurance (NCQA). HEDIS was established in 1989 as a first attempt at quantifying for employers and consumers those key quality process measures attributable to membership in managed care organizations that reflect efficient, effective care management (National Committee for Quality Assurance 1995a). While the list of quality indicators covered in the most recent version of the data set, HEDIS 2.5(Appendix 3), is too large to discuss in

detail, the measures contained in the data set generally address the frequency of inputs to the health process, such as childhood immunizations, or specific procedures, such as mammograms (National Committee for Quality Assurance 1995b).

As health care quality performance measurement methods become more sophisticated, employers and managed care organizations have begun to criticize the HEDIS measures because of difficulties in data gathering and interpretation and the lack of outcome and clinical appropriateness measures in the data set (Harris 1994). HEDIS examines the frequency of selected processes as proxies for outcomes and good practice, but does not measure the efficiency, efficacy, or appropriateness of the processes and procedures. HEDIS is now losing favor among health care purchasers as a measure of managed care organizational performance because it is not results oriented (Burns 1995).

Another process-oriented health care quality measurement endeavor is the Joint Commission for the Accreditation of Healthcare Organization's (JCAHO's) Indicator Management System (IMS). JCAHO's IMS is similar to HEDIS in many regards, but has the added capability of continuously monitoring a facility's processes through on-line computer systems (Nadzam et al. 1993), while HEDIS measures are monitored via periodic reports. Like HEDIS, IMS measures process frequency without capturing process outcome, efficiency, or efficacy information.

The IMS has implications for JCAHO health care facility accreditation in the future as the system becomes more wide spread. After testing and fielding, JCAHO intends to use the system in the accreditation process, and will use indicators from the system to

signal follow-up or focus reviews. Facilities not subscribing to the IMS in the future will not be accredited by the JCAHO (Nadzam et al. 1993).

### Outcomes Measures

Outcome-oriented measures typically consist of mortality data, complication rates, improvements in health and functional status, overall quality of life, and patient and provider satisfaction (Mitchell 1993). Many providers and purchasers now regard patient health outcomes as the gold standard for measuring health care quality, and consider good patient outcomes the ultimate goal of health services (Agency for Health Care Policy and Research 1995b). Medical outcomes measurement is a relatively new endeavor, although medical outcomes studies have been conducted since the days of Florence Nightingale (Stiles and Mick 1994).

Historically, health care organizations have not used health care outcomes-oriented quality measures due to difficulties with definition and measurement (Harris 1994). To adequately measure outcomes and improve the care delivery process, a large volume of information concerning patients and the care delivery process is needed. Although few automated systems exist that adequately evaluate multi-dimensional health status, the advent of computers and the ability to share and process large amounts of data, have increased the development and use of outcomes-oriented performance measures.

One successful automated outcomes measurement effort is the Maryland Hospital Association's Quality Indicator (QI) Project. The QI Project measures selected clinical occurrences such as hospital acquired infections, inpatient mortality, and unscheduled

returns to the operating room (Kazandjian et al. 1993). These measures, collected quarterly and adjusted for severity, are compared by participating hospital and identify each hospital's rate for each measure, the target or benchmark rate for each occurrence and opportunities for improvement (Kazandjian et al. 1993).

Another outcomes-oriented measurement tool which is less resource intensive is the Short Form 36 (SF-36) Health Survey developed by John Ware and Cathy Sherbourne (Appendix 4), which measures multiple aspects of a patient's health and wellness. The SF-36 is outcomes-oriented in that it measures improvements in patient functionality following medical episodes. The SF-36 measures aspects of eight different health indicators, and can be completed by clinic personnel or by the patient (Ware and Sherbourne 1992). The SF-36 is less expensive to manage than an outcomes-oriented database, yet retains comparable accuracy.

As process and outcomes-oriented health care performance measures proliferate, health care provider's clinical practice variation has come under increased scrutiny. Clinical practice variation occurs when patients with the same basic condition receive different evaluations and treatments. These practice pattern differences contribute to undesirable variation in the cost of care and, more importantly, contribute to variation in the quality of the care outcome.

The health care clinical practice variation phenomena is well documented. Wennburg's variation study, published in 1973, found that variations in the delivery of health care could be attributed to the provider's geographic region of practice, and that providers were treating essentially the same cases with different modalities, often with

significant differences in cost and quality (Wennburg and Gittelsohn 1973). Subsequent studies have found variations due to provider enthusiasm for a particular procedure (Chassin 1993) and variation influenced by patient preferences and physiology (Kasper, Mulley and Wennburg 1992).

The impact of practice variation on both health care cost and quality is illustrated by the Useful Additions to Care Diagram (Mohlenbrock 1995) (Figure 8). The diagram describes care in term of two axes, resource use (cost) and health benefit (quality).

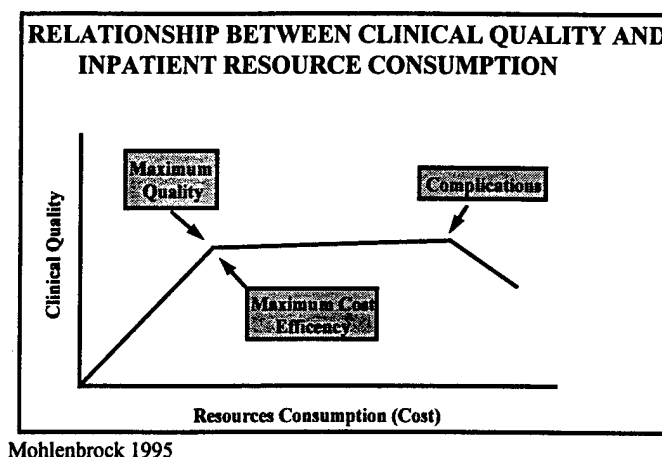


Figure 8. Useful Additions to Care Model

As resources are consumed and costs rise, the health benefit also rises to the point of maximum cost/benefit efficiency. Beyond this point, the health benefit is only improved marginally although resources are still consumed at the same rate, reducing the utility of additional resource inputs and overall efficiency. Eventually continued resource inputs

will cause health complications, offsetting the incremental health benefits of added inputs, and will result in a decreased health status for the patient. The challenge to health care providers is to provide enough resource inputs to improve health status to the maximum cost efficiency point, without over utilizing resources and negatively influencing cost and quality (Mohlenbrock 1995).

One method to control variation is to implement practice guidelines (Agency for Health Care Policy and Research 1995b). Practice guidelines are usually developed through clinical trials and specify the most efficient processes of care known to produce good outcomes. Because they measure both cost and quality of clinical processes, guidelines address the efficiency and efficacy aspects of health care delivery.

To use practice guidelines as a basis for quality indicators, the guideline and indicators must meet three conditions: the relationship between the care process and health outcome must be known, that relationship must form the basis for the guideline, and the quality indicators must be derived from the guideline (Agency for Health Care Policy and Research 1995b). Practice guidelines can be broad or narrow in scope but must be adapted to the local environment and adhered to locally if they are to be effective. Large scale efforts to develop practice guidelines, such as the Agency for Health Care Policy and Research's (AHCPR) recent practice guideline development projects, have had mixed success in that, by attempting to capture all the elements of specified health care delivery processes, the guidelines become too broad to affect cost and quality locally.

Practice guideline enforcement can be strict or general depending on the specificity of the guideline and management philosophy. The biggest negative associated with strict

practice guidelines is that many providers perceive them as “cookbook” medicine and a threat to their professional autonomy. Consequently, precise practice guidelines are not widely accepted among medical professionals (Ellrodt et al. 1995).

Implementing practice guidelines to control variation is becoming increasingly easier as computers become more ingrained in the health care environment. Practice guidelines can be designed on a computer and then the computer can be used to send care reminders regarding the most efficient practices to health care providers at critical junctions in the care delivery process. Computers can also be used to monitor provider compliance with guidelines and to illustrate to care providers how their practice patterns impact quality and cost of care (Ellrodt et al. 1995).

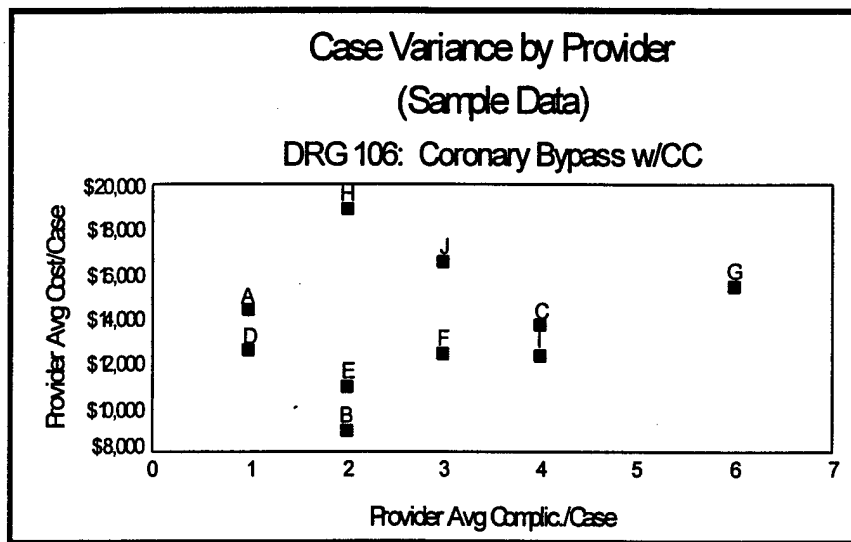
Often practice guidelines are developed by adopting the key clinical processes of other providers to the current environment, a process known as clinical benchmarking. Clinical benchmarking methods compare provider cost and quality performance indicators to others in a peer group. While some managed care organizations have begun to benchmark network provider's performance, for the most part clinical benchmarking has been conducted by individual facilities assisted by a growing industry of technical consultants (Anderson-Miles 1995). Because clinical benchmarking is often an individual effort, there is little standardization among approaches used by facilities and consultants as each user modifies or develops benchmarking procedures to match their environment.

The origins of benchmarking in industry can be traced back to Xerox in 1979 when they evaluated their delivery processes against those of L.L. Bean Company (Patrick and Alba 1994). Benchmark best of practice examples can be found within an organization

(internal benchmarking), from other organizations within the industry (external benchmarking), or from organizations outside the industry (generic benchmarking).

Although most clinical benchmarking efforts concern clinical practices, many health care organizations also benchmark administrative functions which detract from quality and add cost through external benchmarking techniques. These organizations benchmark against best in class medical organizations as well as against generic functions of companies outside the health care industry (Patrick and Alba 1994).

Clinical Benchmarking measures health outcomes and cost data of providers or processes for specific disease categories or procedures. These measures can then be compared against a standard (Bellile 1995). Data used includes mortality, morbidity, length of stay, charges, DRGs and severity indices for homogeneity. Part of the process of defining clinical benchmarks is to identify the profile of physicians relating to particular procedures, diagnoses or disease codes. These profiles must then be adjusted according to patient severity to allow equal comparison among providers (Bellile 1995). Provider performance can then be plotted on a scatter plot diagram using quality indicators along one axis and cost indicators along the other (Figure 9). This method demonstrates central tendency among the providers concerning cost and quality behaviors and will facilitate discussion concerning who is providing the best care at the least cost.



Patrick and Alba 1994

Figure 9. Clinical Benchmarking Scatter Plot

Clinical benchmarking is gaining acceptance as a way to improve the efficiency of care delivery while at the same time improving outcomes. Clinical benchmarking, like TQM, requires management support and provider interest to be successful. Clinical benchmarking also reduces an organization's cost of providing health care by eliminating waste and rework and by reducing adverse outcomes related to unnecessary or duplicate procedures and tests. Clinical benchmarking, when done correctly, is a continuous process of looking for improvement opportunities and incorporates many principles of TQM (Patrick and Alba 1994).

While methodological approaches for developing clinical benchmarks vary widely, most approaches rely heavily on automated data systems to identify provider resource usage and clinical outcomes patterns and then use statistical programs to identify best practices. Most health care organizations initiating a clinical benchmarking program

develop their methodology through trial and error as they work with their existing data system.

Many health care organizations have dismissed the feasibility of clinical benchmarking due to inaccuracies in the information contained in their clinical databases. Although it is always desirable to have perfect data, it is still possible to evaluate providers and facilities performance using mildly flawed or inaccurate data through the technique of gap analysis (Czarnecki 1995). Gap analysis uses benchmarking methods to identify performance "gaps" between providers. Although the magnitude of the gap in these circumstances is uncertain, often verification of the existence of a gap is enough to stimulate process improvement (Czarnecki 1995).

Another barrier to performing clinical benchmarking is the lack of detailed information concerning health outcomes and cost. Most managed care plans do not capture detailed outcomes information or accurate cost data (Hale and Weiner 1994). Managed care plans do not have the information systems to support detailed data retrieval, and most managed care organizations still see outcomes management and quality guidelines as less important than price and patient satisfaction (Hale and Weiner 1994). For those that desire to capture the information manually by extracting it from medical records, the task is tedious and expensive, and the validity of extracted information is often questionable due to inaccuracies in the medical records.

To overcome the data deficit problems and begin assimilating the large amounts of information required, several health care corporations are now collaborating to share information and identify common best practices within the organizations. These

companies are usually affiliated through a managed care system and are rarely competitors in the same market. A good example of such a corporation is the SunHealth Alliance, a group of 260 nonprofit hospitals located in 15 states. SunHealth has worked to share information among the facilities in the alliance and to define and measure benchmark processes (Patrick and Alba 1994). Additionally, there are several third party vendors and consultants now offering product line comparison information and developing databases for comparisons. Two example are Iameter, Inc. and APACHE Systems, both of which market their patented benchmarking products to health care networks interested in benchmarking performance.

Clinical benchmarking can be done at the aggregate level such as hospital or clinic, or at the individual provider level. To apply clinical benchmarking methodology to hospitals and other health care facilities, outcomes and expense data are aggregated to service or facility level and are adjusted for severity according to the case mix of the facility. Determinations about the efficiency of processes or outcomes are affected by the individual and collective characteristics of the patients who receive care, the inputs to care, such as demographic and risk factors and the patients baseline functional or health status. Severity adjusting of data ensures that like patients are being compared and that similar results should be expected. Without severity adjustment, there can be not comparability of procedures, outcomes or patients (Bellile 1995).

Although benchmarking facilities is effective at controlling cost and ensuring quality, the greatest impact made by benchmarking is at the provider level, as the provider is the single largest cost driver in the organization (Manus, Werner and Strub 1994). By

comparing individual providers severity adjusted performance, however, the hospital or health care corporation runs the risk of potentially embarrassing or alienating some providers (Ellrodt, Conner, Reidinger and Weingarten 1995). To preclude this, comparisons are usually blinded, with only the individual provider aware of their score. This convention allows providers to objectively discuss cost and outcomes performance and to map out best of practice processes without fearing reprisals, defensiveness, or hidden agendas. Physicians are more likely to accept care guidelines and clinical benchmarking if they are implemented with a mixture of education, financial incentives and disincentives, and appropriate timely feedback concerning their performance (Ellrodt, Conner, Reidinger and Weingarten 1995).

Clinical benchmarking is consistent with new process and outcomes oriented accreditation requirements of the JCAHO and NCQA. Clinical benchmarking also supports Malcolm Baldrige National Quality Award criteria for health care by evaluating health care providers based on patient focus and value criteria. Because clinical benchmarking is a continuous process, it also supports the Baldrige goals of continuous quality improvement and organizational learning. The clinical benchmarking process involves the staff of the health care facility in defining clinical best practices, which meets the Baldrige requirements for employee and health care staff involvement in planning care. Because clinical benchmarking usually utilizes historical medical data from facility medical information systems, it is fact based and can be considered results oriented in that it focuses on patient outcomes as opposed to structure or processes.

## Military Medical Information Systems

Civilian health care providers, especially managed care providers, are investing heavily in health care information systems to support their process and outcomes performance measurement efforts. Examples of innovation were sought from civilian and military sources in an effort to improve the methods for gathering data on areas such as outcomes quality, customer satisfaction, and complexity of processes. Military medical information systems, while capable of supporting limited outcomes oriented quality performance measures, have for the most part been used to provide structure oriented health care information. The military medical information systems currently in use do not adequately accommodate retrieval of provider level data. They do however, support retrieval of service and facility level diagnostic, procedure and cost data, and can compute clinical severity indices as well.

The MEDCOM has several medical information systems available at the MEDCOM Headquarters to support a MEDCOM Clinical Benchmarking effort. The primary financial management system used by the MEDCOM and the MHSS is the Military Expense Performance Reporting System (MEPRS). MEPRS data is driven by employee workload reports generated by the MTFs. These employee man hour reports are gathered in a centralized database and converted to dollar equivalents using accepted algorithms. These manpower expenses are combined with other cost data from supply and equipment use to develop aggregate cost reports. MEPRS can report cost data by

cost center such as a clinic or ward, or by a clinical service or department. MEPRS generates full cost financial reports, allocating overhead from non-patient care centers to patient care centers according to Medicare step down rules (Defense Medical Systems Support Center 1994).

The primary military medical information system for capturing clinical data is the PASBA2 system, which captures inpatient clinical data only. PASBA2 data is extracted from individual inpatient medical records coded at the MTFs, and then transmitted electronically to a central repository where it is severity adjusted and combined with data from other MTFs. PASBA2 contains a variety of clinical indicators and can be accessed through either standard reports or ad-hoc queries of the data base (Patient Administration Systems and Biostatistics Activity 1993).

Another clinical information system available at the MEDCOM Headquarters is the Retrospective Case Mix Analysis System (RCMAS). RCMAS is different from PASBA2 in that it also contains CHAMPUS claims data, to include outpatient CHAMPUS claims data. Unlike PASBA2, RCMAS does not contain individual encounter data, but rather aggregates data for CHAMPUS providers, MTFs, and patient demographic categories. RCMAS is driven by input from the PASBA2 system and from CHAMPUS claims data processed at the central CHAMPUS claims processing center. RCMAS is a flexible system that supports many standard reports and menu driven ad-hoc queries (Defense Medical Systems Support Center 1993).

Anticipated future upgrades to the military information systems include refinement of the MTF level information system, the Composite Health Care System

(CHCS), and development and fielding of a new Computer Executive Information System (CEIS). CEIS is an executive level decision support system designed to provide managers with visibility of their organization's operations. CEIS will utilize data from the PASBA2 and MEPRS databases and will not, in the near term, supply provider level information (CEIS Program Office 1995).

Another future information system upgrade is the Clinical Information System (CIS) which is expected to be a computerized patient record. With the fielding of the CIS, a greater amount of patient and provider level data will be available through electronic databases. Detailed information regarding procedures and processes, in addition to provider level data, will support accurate MEDCOM clinical benchmarking efforts in the future. These new information system projects will begin fielding to Army MTFs in Fiscal Year 1997 and will not be completely fielded until after the year 2000 (CEIS Program Office 1995).

#### Purpose of the Study

The purpose of this study is to develop a clinical benchmarking model for possible use by the MEDCOM Headquarters staff to measure the core business of the MEDCOM, providing health care. The model should measure health care value, support the strategic goals of the MEDCOM and MHSS, facilitate effective utilization management, facilitate comparisons with performance of similar civilian organizations, be relatively easy to use and understand and make use of existing military medical data systems to the maximum extent possible.

## CHAPTER 2

### METHOD AND PROCEDURES

#### Research Plan

The case study methodology (Yin 1989) was used as a framework from which to identify and classify candidate clinical benchmarking models which could be adapted for use by the MEDCOM. Candidate models were identified through literature review, personal interviews with knowledgeable individuals at the MEDCOM and other facilities, and by attending seminars and conferences relating to clinical benchmarking and health care performance measure design. Each of the candidate measurement sets and models was evaluated to determine if it was value oriented, supported the strategic goals of the MEDCOM and MHSS, facilitated effective utilization management, provided comparisons with civilian organizations, was easy of use, and was adaptable to existing military medical data systems.

Prior to evaluating the clinical benchmarking models, available military medical information systems were evaluated to determine input requirements, processing characteristics and output capabilities of the information systems. In addition to the above literature review and personal interviews, MEDCOM MSCs and MTFs were surveyed by mail questionnaire to determine if they were currently using or developing

measures or models and to identify potential models or sets already in use that could be adapted for use by the MEDCOM Headquarters.

### Procedures

The research plan consisted of 5 steps intended to identify existing military medical information system capabilities, identify and classify candidate benchmark models, evaluate models for adaptability to the MEDCOM environment and develop a MEDCOM clinical benchmark model. The first phase of the plan involved a detailed review of the medical and business literature to determine how health care facilities were performing process and outcomes measurement and clinical benchmarking. This phase also included personal interviews and conferences with individuals in the MEDCOM Headquarters and civilian health care industry knowledgeable in health care quality management. This phase also included attendance at several managed care and performance measurement conferences. The personal interviews and conferences were used as additional resources from which to locate applicable information not available through the literature.

Review of the medical literature was accomplished using the MEDLINE and HEALTH databases. Keywords searched in the databases include: clinical benchmarking, practice guidelines, utilization review and physician practice patterns. Results for the above searches were limited to years 1992-1996, and were further narrowed to review articles and abstracts. The years were limited to ensure information regarding only current practices was retrieved. The search was limited to review articles

to ensure a global perspective and to prevent retrieval of articles dealing with a particular disease or medical specialty. The search was further limited to articles abstracted in the database to assist in the initial review process of selecting appropriate articles. After initially reviewing the articles obtained through the literature search, related information concerning practice variations was retrieved by searching the HEALTH data base for articles by the author Wennburg.

Attendance at the clinical benchmarking seminar following the initial literature review provided an overview of current business practices in the health care industry related to clinical benchmarking. Other conferences relating to health care performance measurement and transition to managed care provided similar results. The conferences were an integral part of the research and provided detailed information regarding current clinical benchmarking and performance measurement practices that was not available through the literature. The conferences also provided the opportunity to discuss the various clinical benchmarking models and performance measurement sets with vendors and users. Input from MEDCOM staff officers directly involved in evaluating the MEDCOM strategic plan and performance measures directed the research effort to health care performance measures seminars and numerous medical performance measurement consultants. Consultants were queried about their products and about particular criteria related to operating in the MEDCOM environment.

The second step or phase involved a critical evaluation of the numerous military medical information systems available to MEDCOM Headquarters staff to identify input requirements, processing characteristics and output capabilities. Whenever possible,

interviews with key personnel responsible for the operation of the systems were used to verify system characteristics, and hands-on demonstrations were used to provide examples of input requirements and output capabilities.

The third phase consisted of development of a survey instrument to survey the MEDCOM MTFs and MSCs concerning their use of performance measures and benchmarking models in their commands. This step consisted of identifying an existing valid survey instrument for use in the project, adaptation of the instrument for the target audience, dissemination of the instrument to subordinate MSCs and MTFs and consolidation and analysis of the returned surveys. Adaptation of an existing survey instrument was preferable to developing an instrument for this project to maximize reliability and validity of the instrument, minimize the time required to design and disseminate the survey and provide some measure of comparability of the results with the results of other survey efforts.

The instrument chosen to survey MEDCOM organizations for this project was initially developed and used by the Government Accounting Office (GAO) in a 1992 project which surveyed government agencies about their use of performance measures (GAO 1992). The GAO instrument was not available in its entirety for inclusion in this report. The instrument was modified by the Department of the Treasury in 1993 for use in a project to survey civilian corporations about their use of performance measures (Appendix 5) (Project USA 1993).

Reliability for both the GAO instrument and the Treasury Department instrument were reported by the respective agencies to be very good, with consistent responses from

the surveyed parties of both studies. Validity of both instruments has been determined by the respective agencies to be adequate. The GAO reported minor discrepancies in reported information received via the instrument and actual follow up inspection findings, but none serious enough to flaw the study or discredit the instrument. The Treasury Department did not report any discrepancies in data received, nor did they audit the respondents to determine validity.

The instrument used in the current project was not substantially modified from the instrument used in the Department of the Treasury study, except to substitute MEDCOM specific information where applicable (Appendix 6). The validity and reliability of the current project's instrument is considered comparable to those instruments. A potential problem with inter-rater reliability manifested shortly after the instrument was disseminated throughout the organization, as three surveyed MTFs requested additional instructions in completing the survey. Additionally, a minor item numbering flaw was discovered in the instrument after it was sent out to the respondents, however there were no contacts requesting clarification since the flaw was discovered.

The instrument was sent to respondents electronically via the military CC mail system and facsimile. Several facilities reported that the electronically transmitted instrument became distorted and illegible in transmission. There were no complaints concerning the quality of the facsimile copies. Reliability of the instrument used in this study was determined to be good with all facilities answering questions similarly. Validity was established through follow up contacts regarding performance measures and

benchmarking efforts and reflected that the questions did accurately reflect the actions of the facilities.

The fourth step involved evaluating the models identified in phase one according to the selection criteria of value orientation, congruence with the strategic goals of the MEDCOM and MHSS, utilization management focus, comparability with other health care organizations, ease of use and compatibility with military medical data systems. Step four also involved evaluating the results of the MEDCOM MTF/MSC survey for potential models which met the above criteria.

To ensure compatibility with MEDCOM information systems, in the fifth phase the proposed MEDCOM clinical benchmarking model was tested with actual MEDCOM data to prove the validity and reliability of the model at identifying a benchmark facility. To test the model, individual case data from Fiscal Year 1995 relating to the MEDCOM's 10 most costly DRGs was retrieved through the PASBA2 system for each of the MEDCOM's MTFs. No patient identifier data was retrieved with the cases.

MTF average cost per DRG was calculated by sorting the data by DRG category and MTF, then averaging the case cost reported in PASBA2 for all cases of a particular DRG at each MTF. Cost data was not split by service or clinic specialty, but was aggregated for the MTF. Lower cost data indicates better cost performance.

The quality indicator data was developed from secondary diagnoses and procedure codes reported through PASBA2 for each MTF and for each DRG category. Secondary diagnoses and procedure codes were examined to identify potential adverse outcomes, such as lacerations to internal organs and infections acquired while in the

hospital. These potentially adverse diagnoses were recoded as “1”, summed for each case and averaged for each MTF. This number provides a mean number of potentially adverse diagnoses or procedures per case per MTF. A higher MTF adverse diagnoses and procedures score indicates poorer average quality outcomes. The secondary diagnoses and procedures selected for this indicator are defined in the International Coding and Diagnoses manual, version 9. Inclusion of a particular diagnosis or procedure as an adverse outcome or quality indicator should be determined by competent medical authority, preferably by a panel of senior specialists in the field, and then codified as MEDCOM policy.

## CHAPTER 3

### RESULTS

The first phase yielded detailed information concerning numerous process and outcomes measures and clinical benchmarking methods. Information procured through the literature search is accepted as complete and reliable. Results of the initial search of clinical practice guidelines yielded 1,434 articles in the database. Results were narrowed to 119 articles using the year of publication, review article and abstract limits. The search of utilization review articles resulted in 1,348 articles related to utilization management in the literature. A similar search of physician practice patterns resulted in 1,948 articles in the database. The search of Wennburg articles resulted in 103 articles. Articles were then reviewed for applicability to the research problem and study purpose, resulting in 5 articles related directly to performance measurement or clinical benchmarking. These articles were then subjected to the evaluation criteria to determine their applicability to the MEDCOM environment.

The literature search results adequately represent the available literature concerning health care oriented performance measures. This became apparent as the information retrieved through the searches began to develop definable characteristics of the performance measures which facilitated classification into the three elements of health care quality: structure, process, and outcome (Donabedian 1980). Structure oriented measures and articles were discarded as inappropriate to the research problem and study

purpose. Process and outcomes measures were evaluated and classified according to the evaluation criteria. Validity and reliability of the measures and methods reported through the literature were verified by reviewing each method's methodological approach to the problem and evaluation of the repeatability of the results. Sources were also considered adequately valid if the source reporting was the primary source of the data, and if the source was reporting actual results achieved through implementation of the methods or measures.

Evaluation of the existing health care performance measures described in the literature found several possible models that could be potentially adapted to the MEDCOM environment. All models were reviewed according to the evaluation criteria, which were not weighted and considered equally important. Models were evaluated as mutually exclusive, however elements from each type can and probably should be used together to gain a more complete picture of the organization.

The process oriented health care performance measures identified through the literature were the HEDIS 2.5 and the JCAHO IMS indicator sets. Of these two, only the HEDIS measures were further evaluated, since the JCAHO indicator set is not yet complete and indicators have not been decided (Nadzam et al. 1993). HEDIS measures the number of health care processes an organization performs as proxies of outcomes, such as measuring mammograms instead of number of late stage breast cancer patients (National Committee for Quality Assurance 1995). For this reason, the HEDIS measures failed the first criterion of value oriented. The HEDIS measures generally support the MEDCOM and MHSS strategic goals, especially as they relate to patient satisfaction and

market share issues. The HEDIS measures are not good measures of utilization except where they calculate the amount of administrative overhead and medical loss ratios. HEDIS measures are frequency counts of procedures, and do not measure the appropriateness of the procedures (Harris 1994). HEDIS measures provide a great deal of comparability with other health care organizations. HEDIS data is published annually by the NCQA for nearly 50 organizations, and the acceptance of the measures by other health care organizations is growing (Hale and Weiner 1994). HEDIS measures are extremely difficult to calculate for an organization that is not capturing the required information through automated systems. Non-automated systems require extensive audit of both inpatient and outpatient medical records to calculate required ratios and measures (National Committee for Quality Assurance 1995). For organizations with automated systems that can capture the required information, HEDIS measures are very easy to use, as the computer can be used to capture and calculate the required ratios and measures. The measures are very easy to use once they are calculated and are easily adapted to simplistic charts and graphs, facilitating comparisons and evaluation.

The military medical systems currently in use are not compatible with capturing and reporting HEDIS measures. The denominator for most HEDIS measures, the number of enrolled beneficiaries, is not defined in the MEDCOM information systems, and most HEDIS outpatient quality measures, such as number of immunizations and mammograms, are not captured by the military medical information systems. Some inpatient information, such as the number of angioplasties performed, can be computed from data contained in the medical information systems if the procedure in question is

coded as a principle procedure or diagnosis for the patient. Procedures done as a intermediate step of another procedure are not always captured unless they impact the primary diagnosis of the patient.

Review of the literature identified six indicator sets which can be considered outcomes oriented measures. Of the six indicator sets, four are benchmarking models. The two non-benchmarking models are the Clinical Practice Improvement (CPI) methodology and the SF-36 Health Survey. The CPI model involves applying the scientific process to day-to-day patient care scenarios (Horn 1995). The system looks at each component step or process of a particular care delivery process to determine the best content and timing to maximize good medical outcomes and minimize cost. The CPI model does not benchmark providers, rather it examines established processes of care to maximize the efficacy of the care processes (Horn 1995). The system relies on voluntary compliance by providers as it does not provide benchmarking feedback nor provider profiles to individual providers. The process uses patient factors to severity adjust processes and outcomes and provide standardization. In this regard CPI benchmarks patients, not providers (Horn 1995).

CPI uses the scientific process to objectively measure changes in patient status as a result of interventions (Horn 1995). Because the system measures the effects of treatment on patients, CPI is value oriented. CPI is congruent with some of the strategic goals of the MEDCOM and MHSS it that it facilitates the learning organization (adaptability), and identifies technology needs, but does not provide benchmark comparisons with other health care organizations.

CPI does support utilization management from the perspective that processes components are discussed in term of efficacy and efficiency, however it was not clear how the tradeoff between the two was affected, and there appear to be few controls established to monitor provider compliance with established protocols. CPI does not provide a formal comparability mechanism to benchmark performance against other facilities and systems, although best practices concerning a particular disease or injury process could certainly be shared among hospitals or systems (Horn 1995).

CPI appears to be quite complex and time consuming in that it requires collection of very detailed patient information to provide severity indices, required collection and discussion of detailed process information, not just for the best practices, but for all practices relating to a particular process, and then requires collection of outcomes which must be attributed to a particular intervention or process change. Results are not easily displayed in graphs and charts, and require a great deal of technical explanation regarding the patients, the processes, and the effects on outcomes.

CPI is not compatible with existing MEDCOM information systems. Patient level information regarding indicators such as temperature, blood pressure and lab results are not available at the aggregate level (Patient Administration Systems and Biostatistics Agencies 1993). Additionally processes in the MTFs vary widely from facility to facility and are not captured in any one area for review. Outcomes measures such as patient functional status and satisfaction are not currently available, nor are long term medical outcomes since our systems only capture inpatient clinical information.

The SF-36 Health survey developed by John Ware and Cathy Sherbourne is a multi-item questionnaire that measures eight different health domains relating to health and functionality (Ware and Sherbourne 1992). Responses to the survey questions are provided by the patient and can be obtained through the mail, by telephone, or in person. The survey can be administered to patients shortly after and acute treatment episode or several months later to determine the impact of treatment on health status. Because the survey measures health status and functionality following interventions it is considered value oriented. Because the instrument is relatively new, there is not enough information available to determine if it provides the required level of detail to effectively manage outcomes.

The SF-36 meets some of the strategic goals of the MEDCOM and MHSS in that it is health and fitness focused and, when combined with utilization data, provides information on the effectiveness of treatment. The SF-36 does not measure patient satisfaction (Ware and Sherbourne 1993). The SF-36 is not a particularly good utilization management tool, in that it does not provide information regarding the efficiency of the care delivery process. When combined with the treatment specific information, it does provide a good indication of the efficacy of the treatment.

The SF-36 makes no provisions for benchmarking performance or for profiling providers. In the broadest sense, the SF-36 provides some comparability to other health facilities and systems, should they adopt the form. Because the questions are answered subjectively by patients rather than objectively by researchers, the reliability and credibility of the data is questionable. The survey alone does not provide a clear enough

picture of the patient population or care process characteristics. Output is clear and concise and is easily trended with graphs and charts.

The largest benefit of the tool is that it is very easy to use and adapts well to automated data input devices such as scanners and light pens. Because the form captures data first hand from patients there is a requirement to initially set up a data base and information management hardware system to support compilation of the data. This is the same for all organizations however, since the form does not draw from automated data systems.

The other four outcomes oriented measurement sets are all varieties of clinical benchmarking models. The models are the APACHE medical cost management system, the Maryland Hospital Association's QI Project, The SunHealth Alliance clinical benchmarking model and the Iameter clinical benchmarking model. All of these systems work similarly to compare severity adjusted facility cost and quality data across facilities or providers. The focus and processes associated with each model are slightly different from model to model, as are the input requirements. The APACHE model is cost focused rather than quality focused, and benchmarks facility's severity adjusted inpatient cost center performance (APACHE Medical Systems Inc. 1995). The Maryland QI Project model is value oriented, and benchmarks facility's severity adjusted medical outcomes indicators for selected clinical occurrences (Kazandjian et al. 1993). The SunHealth Alliance model, like the APACHE model, focuses on cost rather than outcomes as it benchmarks processes of care as opposed to outcomes of care. SunHealth data is not severity adjusted as it does not measure the outcomes of the processes, only the cost and

the components of the process (Patrick and Alba 1994). The Iameter benchmarking model incorporates both clinical outcomes data and cost data to provide a total value profile for a facility. Iameter has several methods of severity adjusting their data based on the need of a particular client or facility (Mohlenbrock 1995).

All of the benchmarking models are consistent with MEDCOM and MHSS strategic goals in that they benchmark to find best of class performance and then change the organization's behavior to adopt those processes and procedures. All models, through the review of practice guidelines and treatment protocols, can assist the organization in identifying new technology and processes to assist in the adaptation to the environment. There were no clear cut differences between the models in this regard, except the Iameter model which benchmarks both cost and quality data to provide a complete picture of the organizations performance.

The systems were different in their approaches to utilization management. The APACHE system and SunHealth system monitor the efficiency of the system through cost analysis, while the QI Project model measured the effectiveness or efficacy of treatment but not the efficiency. Only the Iameter model captured data on the clinical appropriateness of processes, the efficiency of the organization, and the efface of the treatments.

All of the systems provide excellent comparability. All models are in wide use throughout the United States, are employed in a variety of facilities and measure many key processes and procedures. Because of differences in types of data gathered, focus of analysis, and differences in severity adjustment processes, the models do not facilitate

comparison with other models data. Each of the models has a large central data repository and is capable of generating periodic reports.

Reports generated by the models are all relatively easy to use and adapt well to graphical presentations. The models provide clear data that can be trended internally or benchmark against other facilities. The data from the Iameter model can be more complex since it calculates length of stay and cost together on a scatter plot diagram by deviations from the mean rather than by absolute numbers. This results in a diagram where the best demonstrated performance is in the upper right of the graph as opposed to a graph of actual numbers, which would place the benchmark in the lower left corner.

All of the systems have some degree of compatibility with military medical information systems. The APACHE system uses length of stay and inpatient cost center level cost data to measure performance (APACHE Medical Systems Inc. 1995), both of which are available through MEDCOM information systems. The QI Project model uses a variety of inpatient and outpatient indicators to measure clinical performance (Kazandjian et al. 1993). Ambulatory measures are not captured in existing data systems although inpatient indicators, such as mortality, infections, and unscheduled readmissions are captured (Patient Administration Systems and Biostatistical Activities 1993). The SunHealth model requires cost data by hospital department for a particular Diagnosis Related Group (DRG) or procedure (Patrick and Alba 1994). Most of the data required is available through existing MEDCOM information systems. Aggregate information regarding average cost per DRG is available through both PASBA2 and MEPRS. The Iameter model measures outcomes with mortality data and length of stay, both of which

are available through the military medical information systems. The Iameter model measures cost performance by average charges or cost per Medical Diagnostic Category and DRG (Mohlenbrock 1995), information which is available through the military medical information systems.

Attendance at the two seminars provided first hand accounts of health care personnel responsible for implementing and using the systems at their facilities. In general, results obtained from the measures, models, and systems were positive. The most obvious result from the conferences was the visible increased interest in health care performance measurement. This was evident from the number of speakers representing a variety of organizations, as well as from first hand accounts of experiences from the attendees. Attendance at the seminars illustrated the widespread acceptance of the need to benchmark in health care and the variety of performance measures available to facilities.

Results from the MEDCOM survey illustrated the need within the MEDCOM for an effective benchmarking tool. Although many MTFs responded that they had clinical benchmarking measures in place, few facilities could quantify them. Most performance measures used by the MTFs are outdated MEDCOM structure-oriented measures which do not reflect process and outcomes. Several MTFs reported having clinical practice guidelines published but response was not constant across the MEDCOM and compliance with the guidelines is generally not required or measured. AMEDD practice guidelines appear to be only loosely coordinated within MTFs and appear to be more suggestions for care rather than absolute criteria.

One facility was noteworthy in that it captured and trended performance of emergency room process improvements, benchmarking internally. These measures were not exportable to the MEDCOM Headquarters however, since the measures were developed with information systems not available at the headquarters. Several respondents conveyed frustration with the current MEDCOM management indicators, reinforcing the headquarters staff's conclusions that the measures were out of date. Others indicated that while they gathered and analyzed a large amount of data, most of their efforts had little impact on the organizations effectiveness.

Results from the review of the military medical information systems indicate that information reliability and validity varies from poor to very good. Information from the PASBA2 system in most instances has been proven reliable and valid by extensive use and testing and is monitored through rigorous quality checks prior to inclusion in the data base (Patient Administration Systems and Biostatistical Agencies 1993). Reliability and validity of the MEPRS data was not perceived by users as good due to the high potential for input errors by MTF personnel. MEPRS is reflective of manpower allocations to work centers, and currently there is poor enforcement of accurate reporting across the MEDCOM (Defense Medical Systems Support Center 1994). This was verified during the course of interviewing individuals associated with quality measurement in the military medical system. Several individuals related anecdotal information concerning input errors which raised questions about the reliability and validity of the data. Reliability and validity of RCMAS data, which comes from PASBA2 for the MTF portion and from CHAMPUS claims for the CHAMPUS portion, was determined to be very good. PASBA2 quality procedures have already been reported, and CHAMPUS

claims data is drawn from the actual claims filed by the beneficiaries and providers (Defense Medical Systems Support Center 1993). CHAMPUS data is not reflective of the entire universe of civilian care provided to military beneficiaries, but only for those episodes for which a beneficiary files a claim and a payment is made. Therefore, care must be taken in comparing the data from the two sources as the CHAMPUS data should be considered incomplete.

## CHAPTER 4

### DISCUSSION

Results indicate several viable alternatives meeting the MEDCOM MTF clinical performance measure criteria. Comparison of the performance measures identified through the literature search indicate that some models are better suited for MEDCOM application than others although all models met the selection criteria to some extent. Results are summarized in Table 3.

**Table 3. Performance Measure Model Comparison**

|                       | Value Oriented | Meets Strategic Goals | Supports UM | Comparability | Ease of Calculation | Compatibility with MEDCOM Info. Systems |
|-----------------------|----------------|-----------------------|-------------|---------------|---------------------|-----------------------------------------|
| <b>HEDIS Measures</b> | no             | yes                   | yes         | yes           | yes                 | no                                      |
| <b>CPI Model</b>      | yes            | yes                   | yes         | no            | no                  | no                                      |
| <b>SF-36 Survey</b>   | yes            | yes                   | no          | no            | yes                 | no                                      |
| <b>APACHE</b>         | no             | yes                   | yes         | yes           | yes                 | yes                                     |
| <b>QI Project</b>     | yes            | yes                   | yes         | yes           | yes                 | yes                                     |
| <b>SunHealth</b>      | no             | yes                   | yes         | yes           | yes                 | yes                                     |
| <b>Iameter</b>        | yes            | yes                   | yes         | yes           | yes                 | yes                                     |

Of the models presented in the literature, the Iameter and QI Project models seem to best meet the criteria established for evaluation. They provide value data, are congruent with MEDCOM and MHSS strategic goals, provides good comparability to other health care organizations, are reasonably easy to use and prepare, and are compatible with the existing military medical information systems.

The CPI model, QI Project model and Iameter benchmarking model all fulfill the first criteria of measuring health care value, as does the SF-36 survey. The HEDIS measures, APACHE model and SunHealth benchmarking model do not measure value. The HEDIS indicator set measures measure the activity of processes which are presumed to be indicators of outcomes, but doesn't measure the result or outcome of the process. The APACHE and SunHealth models are cost focused and do not measure the outcomes of the clinical procedures. The SF-36 survey is the only instrument or model that looks at long term outcomes in terms of functionality. The CPI model, Iameter benchmarking model and the QI Project model all examine mortality and complications as outcomes, which are relatively short term outcomes related to episodic delivery of care. While appropriate in the acute care setting, these models do not accurately measure the impact of the continuum of care on a patient population's health status or wellness.

All of the measures discussed in the literature support measurement of progress toward MEDCOM and MHSS strategic goals to some extent. The HEDIS measures provide measures of patient satisfaction, but do little to facilitate the learning organization or to evaluate managed care processes. Although process measures are currently in use by many managed health care organizations, the literature indicates that acceptability and

enthusiasm for the measures is waning and their ability to accurately reflect an organizations performance is questionable (Burns 1995). CPI supports the learning organization and assists in the identification of appropriate uses for new technology, but does not measure patient or provider satisfaction, disease prevention or market share and penetration.

The APACHE, SunHealth and Iameter benchmarking models support strategic goals of a learning organization and identification and application of new technology. They also support sharing of best clinical practices based on quality and cost control within the MEDCOM and with other health care organizations. The SF-36 survey instrument supports the strategic plan by measuring the effectiveness of the entire military health care system at managing the populations health and wellness, an overarching principle of the strategic plan. The SF-36, like the HEDIS measures do little to support the learning organization and technology related goals, and do not provide good utilization management data. Both models require additional analysis to decide if the services used are in fact appropriate.

The HEDIS model identifies the frequency of use of modalities of care perceived to be effective, but is not flexible enough to recognize more efficient modalities as they are identified or to identify appropriateness of the modalities when they are used. The SF-36 identifies the end product of the health care process, but does not measure the efficiency of the process. The CPI model could potentially be useful for UM, but is not clear in its presentation of efficiency versus effectiveness. The QI Project identifies key outcomes to evaluate the effectiveness of treatment, but does not provide feedback

concerning the efficiency of the delivery process. The other benchmarking models all provide excellent cost effectiveness and clinical efficacy information, however only the Iameter model has a clinical effectiveness component to evaluate the health care value.

All of the models with the exception of the SF-36 and CPI model are currently being used by the civilian health care sector and offer a variety of benchmarking partners and comparisons. Although HEDIS measures are the most well known, the literature indicates that they are losing favor as more organizations move to outcomes oriented models and clinical benchmarking models. All of the benchmarking models provide excellent comparability to other facilities and providers in the industry, and most are national in scope with several facilities throughout the United States. The SF-36 and CPI are, by design, individual facility or system oriented measures which make comparisons among facilities difficult. The SF-36 could potentially be benchmarked against other facilities, but there are currently no established databases of this information, and comparison of SF-36 data would require developing a case mix adjustment methodology. The CPI model does not provide performance comparisons, although it does facilitate sharing of best processes. Measurement of the cost and quality results of the processes are not a part of the model, although they could be captured and shared as well.

Output from the CPI model is by far the hardest to prepare and understand. Because the model focuses on defining the best processes of care, extensive discussion related to all possible care modalities is required to effectively identify the best processes. Implementation of these processes requires another extensive training period, and

measurement of the effectiveness of the revised procedures is dependent upon the complexity of the process and the number of intermediate steps altered.

HEDIS measures and SF-36 survey data are the easiest to compute and understand since they consist of simple ratios and are easily displayed in graphs and charts.

Likewise, the benchmarking model's data is also easy to compute and lends itself well to graphic display, however these measures are slightly more difficult to explain as they involve variations in care processes and, in some cases, discussion of outcomes measures.

With the exception of the SF-36 data, outcomes measures are more difficult to compute and require a fair amount of initial education to use effectively. HEDIS measures are vulnerable to wrong interpretations and miscalculations, especially if the measures are calculated by hand. Benchmarking models are sensitive to the severity adjustment criteria, and care must be taken to ensure like items are compared.

HEDIS, CPI and SF-36 models all require information that is not currently available through MEDCOM information systems. The benchmarking models all use information that is available to some degree through existing information systems. The QI Project, to be fully compatible, requires ambulatory data which is not available. The SunHealth model requires department level cost data which is available as clinic work center cost data.

## CHAPTER 5

### RECOMMENDATIONS

The MEDCOM should explore development of a clinical benchmarking model similar to the Iameter benchmarking model. While Iameter would certainly agree to establish and maintain a measurement system for the MEDCOM, it is possible to develop a comparable system internally.

Another recommendation is to combine aspects of several of the outcomes models to look at outcomes data relevant to the MEDCOM environment. Such a model could incorporate quality elements from the QI Project model and compare these with cost data from the Iameter model to establish internal benchmarks for the MEDCOM MTFs. Utility of this model would be expanded if the MEDCOM could identify facilities or systems from the civilian sector using a similar method not discussed in the literature from which to draw external benchmarking data. If such a partner could not be located, then it is possible to identify external benchmarks for each axis, quality and cost, independently.

Using the existing data bases to design a MEDCOM specific benchmarking model to evaluate cost and quality has other benefits as well. The large clinical and financial data bases make the MEDCOM an attractive benchmarking partner for other military and civilian health care organizations. The databases also support internal benchmarking efforts since most MEDCOM MTFs perform similar procedures and contribute data to the data bases.

In implementing a clinical benchmarking model, the first step should involve identification of the MEDCOM's ten most costly DRGs to identify where the greatest potential savings exist. Benchmarking by DRG category negates the requirement to severity adjust the data since all diagnoses and procedures within a particular DRG category are considered equally resource intensive. These DRGs should then be evaluated by the specialty consultant responsible for that DRG to identify quality indicators. Potential quality indicators available through existing systems are mortality, complication, or re-admission data.

After identifying the quality criteria, MTF cost and quality performance for each DRG can be plotted on a scatter-plot graph to identify high and low performers. The benchmark facility is the facility with the lowest average cost per procedure and the best average quality per procedure. Thresholds for quality indicators should be decided by the clinical specialty consultant responsible for that particular DRG prior to benchmarking to prevent benchmarking a facility with unacceptable quality. Following identification of best performers, each "best of class" facility can document their procedures and processes for other MEDCOM facilities to allow them to adopt the "most efficient" practices. Implementation of the best practices at other MTFs is easily verified by periodically reviewing updated benchmarking cost and quality data. Facilities that fail to improve or that improve beyond the benchmark performance process can discuss their efforts with others in the command and possibly redefine the best practice procedures.

Figure 10 illustrates the application of the proposed MEDCOM benchmarking model. After examining all MEDCOM inpatient workload for Fiscal Year 1995, DRG 373, Vaginal Delivery Without Complicating Diagnoses, was identified as the most costly DRG

performed by the MEDCOM in Fiscal Year 1995. Using information available through MEPRS and PASBA2, each MTF's average cost and quality performance during Fiscal Year 1995 for DRG 373 was plotted on a graph. To reduce the potential for anomalies and outliers, MTFs performing fewer than 35 DRG 373 procedures were not plotted. Cases were grouped by MTF, not by clinical specialty, so that points on the graph for MTFs with more than one clinical service performing DRG 373 reflect the aggregate performance of the MTF, not the performance of a particular specialty or clinic.

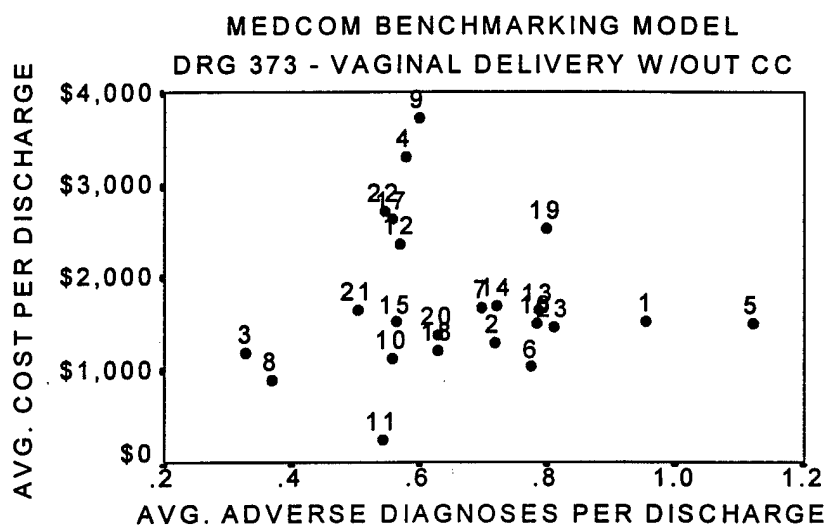


Figure 10. MEDCOM Benchmarking Model

To protect the identities of the facilities, each facility was assigned a sequence number. Only the facility commander or their representative should know their facility's sequence number to ensure anonymity. Averages for each axis, cost and quality, were not

calculated in the model. While the averages may be useful for comparing facilities, this is not the intended purpose of the model. Rather, the model is intended to identify the MTF providing the best health care value, which would be the MTF with the lowest average cost and fewest average adverse diagnoses. MTF performance relative to an average is irrelevant.

Three MTFs, numbers three, eight, and 11 appear to be potential benchmarks. MTF number three has the best outcomes on average, but is more expensive than the other two. In an environment seeking to maximize quality at any expense, this would be the benchmark facility. MTF number 11 has the lowest average cost, but has a higher number of adverse outcomes, on average, than the other two. In an environment seeking to minimize cost without regard to quality, this could be a benchmark facility. MTF number eight appears to offer a compromise between cost minimization and quality maximization. While MTF eight's average costs are higher than MTF 11's, average quality is better. Conversely, when compared to MTF three, MTF eight has poorer outcomes on average, but offers some cost savings on average.

To decide which MTF is the best benchmark, appropriate MEDCOM medical personnel need to establish minimum quality thresholds. After the thresholds have been established, the benchmark MTF's commander and service chief can then be asked to document the processes of care which led to the benchmark performance, and share them with the other MTF Commanders and service chiefs. After a reasonable amount of time, DRG cost and quality indicators for each of the MTFs should be re-measured to determine if the other MTFs' have been successful at implementing the new processes, and to determine if a new benchmark has been established.

## CHAPTER 6

### CONCLUSIONS

Changes in the health care and military environments require the MEDCOM to better manage health care utilization and quality in MEDCOM MTFs. Effective utilization management is possible by benchmarking key clinical procedures and processes, identifying facilities which are high performers, and adopting best practices at other facilities. By exploring the clinical benchmarking methods used by civilian health care organizations, a similar model can be developed for use in MEDCOM MTFs.

The clinical benchmarking methods developed by this project are useful to MEDCOM decision makers attempting to ensure the MHSS remains the health plan of choice for military beneficiaries. Use of clinical benchmarking measures allows timely identification of deficiencies in policy and practice and facilitates aggressive responses to potential environmental threats.

The clinical benchmarking model developed by this project assists with UM by identifying facilities and procedures incurring unnecessary costs, and by providing an efficient benchmark for comparison. Health care cost can be decreased as duplicate procedures, waste and rework are eliminated and access will be improved as providers increase efficiency by reducing the number of unnecessary procedures and resources are redirected to providing services for other patients. Additionally, clinical benchmarking can improve health care quality as providers adopt the clinical practices resulting in good

outcomes. The greatest benefit from this project will come from the ability to objectively demonstrate, through cost and quality outcomes measures, that the MHSS provides better health care value than civilian competitors, is the best managed care system, and the most logical health care choice for beneficiaries.

## APPENDIX 1.

### CURRENT MEDCOM HEALTH CARE PERFORMANCE MEASURES

#### RESOURCES

Funding Per Beneficiary

#### Human Resources

Officer Assigned Percentage

Enlisted Personnel Assigned

Civilian Workyears

#### Infrastructure

Number of Hospitals over 40 Years Old

Number of Clinics Over 40 Years Old

Average Number of Exam Rooms Per Primary Care Provider

#### PERFORMANCE OUTCOMES

#### Cost

Cost Per RWP

Cost of CHAMPUS/MCS Contracts Per Capita

Cost Per Beneficiary

#### Utilization Management

Bed Days Per 1000 Beneficiaries (D/AD)

Average Length of Stay

Inpatient Case Mix Index

Average Length of Stay/Case Mix Index

Clinic Visits Per Capita (D/AD)

Average Daily Inpatient Load

Admissions Per 1,000 Beneficiaries

#### AREAS OF SPECIAL INTEREST

Catchment Population

## APPENDIX 2.

### PERFORMANCE MEASURES DEFINITION REFERENCE SHEET

1. **Resource Inputs** - Recurring resources provided for your organization's product or service activities (e.g., dollars, staff, materials, etc.).
2. **Work/Activity Level** - Work measures that assess intermediate steps in producing outputs (e.g., number of applications in process, usage rates, inventory levels, etc.).
3. **Complexity of Work Processes** - Measures of level(s) of difficulty associated with work processes or activities (e.g., product refinement vs. new product development).
4. **Internal Measures of Quality of Products or Services** - Measures of quality from internal sources (e.g., quantitative scores by quality reviewers, error rates, etc.).
5. **External Customer Needs** - Measures of product or service expectations and enhancements by users.
6. **External Customer Satisfaction** - Measures of quality and timeliness from external sources (e.g., external customer surveys, levels of complaints, etc.).
7. **Timeliness of Products/Services** - Measures of intervals required to complete a task or measures based on past trends.
8. **Outputs or Final Products** - Products or services produced, distributed, or provided to service population (e.g., number of customers served, number of forms processed, quantity of goods produced, etc.).
9. **Financial Measures** - Comparison of planned vs. actual expenditures, costs, obligations, receipts, allocations, or losses.
10. **Efficiency Measures** - Measures such as cost per unit, productivity measures, ratios of direct to indirect costs, etc.

## APPENDIX 3

### HEDIS 2.5 PERFORMANCE MEASURES

#### Quality/Access

- Childhood Immunizations
- Cholesterol Screenings
- Mammography
- Pap Smear
- Prenatal Care Visit
- Diabetic Retinal Exam
- Major Affective Disorder Follow-up
- Members Visiting Provider
- Asthma Admission Rate
- Low Birthweight Rate

#### Physician Network

- Physician Turnover
- Board Certification

#### Utilization

- Coronary Bypass Rate
- Angioplasty Rate
- Cardiac Catheterization Rate
- Cholecystectomy Rate
- Hysterectomy Rate
- Prostatectomy Rate
- Laminectomy Rate
- Cesarean Section Rate
- Obstetrical Hospital Stay
- Readmission for Chemical Dependency
- Hospital Days/1000

#### Membership/Finance

- Member Disenrollment
- Medical Loss Ratio
- Administrative Loss Ratio
- Revenue Requirements Per Member Per Month

APPENDIX 4

SHORT FORM 36 SURVEY

## Appendix. SF-36 Questions\*

1. In general, would you say your health is:
2. *Compared to one year ago*, how would you rate your health in general now?
3. The following items are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?
  - a. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports
  - b. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf
  - c. Lifting or carrying groceries
  - d. Climbing several flights of stairs
  - e. Climbing one flight of stairs
  - f. Bending, kneeling, or stooping
  - g. Walking more than a mile
  - h. Walking several blocks
  - i. Walking one block
  - j. Bathing or dressing yourself
4. During the *past 4 weeks*, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?
  - a. Cut down the amount of time you spent on work or other activities.
  - b. Accomplished less than you would like
  - c. Were limited in the kind of work or other activities
  - d. Had difficulty performing the work or other activities (for example, it took extra effort)
5. During the *past 4 weeks*, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?
  - a. Cut down the amount of time you spent on work or other activities
  - b. Accomplished less than you would like
  - c. Didn't do work or other activities as carefully as usual
6. During the *past 4 weeks*, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?
7. How much bodily pain have you had during the *past 4 weeks*?
8. During the *past 4 weeks*, how much did pain interfere with your normal work (including both work outside the home and housework)?
9. These questions are about how you feel and how things have been with you during the *past 4 weeks*. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the *past 4 weeks*

- a. Did you feel full of pep?
  - b. Have you been a very nervous person?
  - c. Have you felt so down in the dumps that nothing could cheer you up?
  - d. Have you felt calm and peaceful?
  - e. Did you have a lot of energy?
  - f. Have you felt downhearted and blue?
  - g. Did you feel worn out?
  - h. Have you been a happy person?
  - i. Did you feel tired?
10. During the *past 4 weeks*, how much of the time has your *physical health or emotional problems* interfered with your social activities (like visiting with friends, relatives, etc.)?
11. How TRUE or FALSE is *each* of the following statements for you?
- a. I seem to get sick a little easier than other people
  - b. I am as healthy as anybody I know
  - c. I expect my health to get worse
  - d. My health is excellent

## SF-36 Response Choices\*

1. Excellent. Very Good. Good. Fair. Poor
2. Much better now than one year ago. Somewhat better now than one year ago. About the same as one year ago. Somewhat worse now than one year ago. Much worse than one year ago
3. Yes. Limited a lot. Yes. Limited a little. No. Not limited at all
- 4a-d. Yes. No
- 5a-c. Yes. No
6. Not at all. Slightly. Moderately. Quite a bit. Extremely
7. None. Very mild. Mild. Moderate. Severe. Very severe
8. Not at all. A little bit. Moderately. Quite a bit. Extremely
9. All of the time. Most of the time. A good bit of the time. Some of the time. A little of the time. None of the time
10. All of the time. Most of the time. Some of the time. A little of the time. None of the time
11. Definitely true. Mostly true. Don't know. Mostly false. Definitely false

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APPENDIX 5

DEPARTMENT OF THE TREASURY

SURVEY INSTRUMENT

# Survey of Private Sector Council Performance Measures

## INTRODUCTION

The Private Sector Council is collaborating with the Financial Management Service's Project USA staff to develop models of excellent management practices for the financial improvement of the Federal government. Government leaders have recognized the need for Federal agencies to measure program performance and to use these measures to improve program management and to annually report on progress toward agency goals and objectives.

We have developed this survey to identify key performance measurement practices used in the private sector. As a Private Sector Council member, your company's experience and expertise would provide us with a valuable illustration of effective performance measurement that could be applied to the Government.

In this survey we are attempting to obtain the following information: 1) a description of performance measures used in your organization, 2) an understanding of how performance measures are used in conjunction with your organization's planning efforts, and 3) an indication of how satisfied you are with your performance measures.

## INSTRUCTIONS

Most of the questions in this questionnaire can be answered by checking boxes or making short written entries. Please be assured that all replies will be kept confidential. Throughout the survey, the term "your organization" refers to all divisions of your corporation, not just the finance function.

Please return this survey by April 3, 1992 to Karen Pedone at the Financial Management Service by mail or by FAX. The address and FAX information are located on the last page of the survey.

If you have any questions about the survey, please contact Karen Pedone at (202) 874-7074.

We **THANK YOU** for taking time from your busy schedule to complete this survey and we sincerely appreciate your continued commitment to our Government's effectiveness.

### Performance Measures

"Performance measures" are a composite of key indicators of a product's or service's inputs, outputs, outcomes, productivity, timeliness, and/or quality. They are means of evaluating products or services by measuring the results against agreed upon goals or standards.

If your organization does not have product or service delivery responsibilities, please substitute the term "organizational performance measures" for "product or service performance measures."

Name of corporation:

\_\_\_\_\_

## RESPONDENT INFORMATION

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone Number:

( ) \_\_\_\_\_

**PRIVATE SECTOR COUNCIL  
SURVEY OF PERFORMANCE MEASURES  
(continued)**

**I. TYPES OF MEASURES**

1. For the following types of performance measures, please indicate whether the measure is currently in active use in your organization, whether it is under development in your organization, or whether it is neither in use nor under development in your organization.

|                                                                                                                                                                                                                 | Performance<br>Measure<br>Currently<br>In Use | Performance<br>Measure<br>Under<br>Development | Neither<br>In Use<br>Nor Under<br>Development |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|------------------------------------------------|-----------------------------------------------|
| <b><u>Performance Measures and Definitions</u></b>                                                                                                                                                              |                                               |                                                |                                               |
| <b>Resource Inputs</b> - Recurring resources provided for your organization's product or service activities (e.g. dollars, staff, materials, etc.)                                                              | 39                                            | 0                                              | 2                                             |
| <b>Work/Activity Level</b> - Work measures that assess intermediate steps in producing outputs (e.g. number of applications in process, usage rates, inventory levels, etc.)                                    | 35                                            | 4                                              | 3                                             |
| <b>Complexity of Work Processes</b> - Measures of level(s) of difficulty associated with work processes or activities (e.g. product refinement vs. new product development.)                                    | 16                                            | 4                                              | 22                                            |
| <b>Internal Measures of Quality of Products or Services</b> - Measures of quality from <u>internal</u> sources (e.g. quantitative scores by quality reviewers, error rates, etc.)                               | 37                                            | 6                                              | 2                                             |
| <b>External Customer Needs</b> - Measures of product or service expectations and enhancements by users.                                                                                                         | 37                                            | 5                                              | 1                                             |
| <b>External Customer Satisfaction</b> - Measures of quality and timeliness from <u>external</u> sources (e.g. external customer surveys, levels of complaints, etc.)                                            | 37                                            | 6                                              | 1                                             |
| <b>Timeliness of Product or Services</b> - Measures of intervals required to complete a task or measures based on past trends.                                                                                  | 31                                            | 3                                              | 7                                             |
| <b>Outputs or Final Products</b> - Products or services produced, distributed, or provided to service population (e.g. number of customers served, number of forms processed, quantity of goods produced, etc.) | 38                                            | 2                                              | 1                                             |
| <b>Financial Indicators</b> - Comparison of planned vs. actual expenditures, costs, obligations, receipts, allocations, or losses.                                                                              | 41                                            | 1                                              | 0                                             |
| <b>Efficiency Measures</b> - Measures such as cost per unit, productivity measures, ratios of direct to indirect costs, etc.                                                                                    | 40                                            | 2                                              | 0                                             |

# Survey Instrument with Responses - Appendix B

## PRIVATE SECTOR COUNCIL SURVEY OF PERFORMANCE MEASURES (continued)

2. Who are the current users of the performance measures that currently exist in your organization? (CHECK ALL BOXES THAT APPLY.)

Note: Line units are those involved in the production of a product or service for an external customer e.g. Sales, Engineering, Research and Development, and Purchasing. Staff units provide internal corporate support for Line functions e.g. Accounting, Human Resources, or Information Resources.

|                                                                   | Field/<br>Plant<br>Line<br>Unit | Field/<br>Opera-<br>tions<br>Staff<br>Unit | Head-<br>quarters<br>Staff<br>Organ-<br>ization | Chief<br>Finan-<br>cial<br>Officer<br>(CFO) | Chief<br>Execu-<br>tive<br>Officer<br>(CEO) | Customers | Stock-<br>holders |
|-------------------------------------------------------------------|---------------------------------|--------------------------------------------|-------------------------------------------------|---------------------------------------------|---------------------------------------------|-----------|-------------------|
| <b>Types of measures<br/>that exist in<br/>your organization:</b> |                                 |                                            |                                                 |                                             |                                             |           |                   |
| Resource Inputs                                                   | 36                              | 34                                         | 33                                              | 29                                          | 24                                          | 4         | 7                 |
| Work/Activity Level                                               | 38                              | 34                                         | 28                                              | 19                                          | 10                                          | 2         | 0                 |
| Complexity of Work<br>Processes                                   | 19                              | 16                                         | 14                                              | 2                                           | 1                                           | 0         | 0                 |
| Internal Measures<br>of Quality of<br>Products or Services        | 37                              | 35                                         | 26                                              | 12                                          | 14                                          | 4         | 1                 |
| External Customer<br>Needs                                        | 33                              | 33                                         | 31                                              | 13                                          | 18                                          | 10        | 2                 |
| External Customer<br>Satisfaction                                 | 32                              | 32                                         | 32                                              | 16                                          | 21                                          | 12        | 2                 |
| Timeliness of<br>Product or Service                               | 34                              | 31                                         | 23                                              | 12                                          | 10                                          | 7         | 1                 |
| Outputs or Final<br>Products                                      | 39                              | 37                                         | 31                                              | 18                                          | 19                                          | 4         | 4                 |
| Financial Indicators                                              | 40                              | 37                                         | 39                                              | 41                                          | 40                                          | 9         | 23                |
| Efficiency Measures                                               | 39                              | 37                                         | 37                                              | 34                                          | 34                                          | 6         | 10                |

**PRIVATE SECTOR COUNCIL  
SURVEY OF PERFORMANCE MEASURES  
(continued)**

**II. MEASUREMENT DEVELOPMENT**

**3. Does your organization currently have performance measures under development?**

A. 27 Yes —> (CONTINUE WITH QUESTION 4.)

B. 14 No —> (SKIP TO QUESTION 5.)

**4. For those performance measures currently under development in your organization, please indicate the reasons why they are being developed.**

| <b>Performance Measures:</b>               | <b>Unit-Initiated Improvement Efforts</b> | <b>Company Mandated</b> | <b>Customer Driven</b> | <b>Other (Please Specify)</b> |
|--------------------------------------------|-------------------------------------------|-------------------------|------------------------|-------------------------------|
| Resource Inputs                            | 7                                         | 8                       | 4                      | 1                             |
| Work/Activity Level                        | 12                                        | 5                       | 2                      | 2                             |
| Complexity of Work Processes               | 8                                         | 2                       | 2                      | 1                             |
| Internal Measures of Quality               | 16                                        | 7                       | 8                      | 3                             |
| External Customer Needs                    | 14                                        | 6                       | 10                     | 3                             |
| External Measures of Customer Satisfaction | 16                                        | 9                       | 9                      | 2                             |
| Timeliness of Product or Service           | 12                                        | 7                       | 7                      | 1                             |
| Outputs or Final Products                  | 9                                         | 7                       | 5                      | 1                             |
| Financial Indicators                       | 9                                         | 8                       | 3                      | 3                             |
| Efficiency Measures                        | 12                                        | 12                      | 3                      | 1                             |

## Survey Instrument with Responses - Appendix B

### PRIVATE SECTOR COUNCIL SURVEY OF PERFORMANCE MEASURES (continued)

5. In your organization, which performance measures are generally developed by the following people or processes? (CHECK ALL BOXES THAT APPLY.)

| Performance Measures:                      | By staff managers | By line managers | By employee focus groups | By customer/client input | Other (Please specify) |
|--------------------------------------------|-------------------|------------------|--------------------------|--------------------------|------------------------|
| Resource Inputs                            | 29                | 33               | 8                        | 2                        | 1                      |
| Work/Activity Level                        | 25                | 33               | 10                       | 1                        | 2                      |
| Complexity of Work Processes               | 16                | 20               | 7                        | 1                        | 0                      |
| Internal Measures of Quality               | 33                | 37               | 21                       | 8                        | 2                      |
| External Customer Needs                    | 27                | 28               | 18                       | 30                       | 3                      |
| External Measures of Customer Satisfaction | 27                | 27               | 18                       | 31                       | 2                      |
| Timeliness of Product or Service           | 25                | 31               | 15                       | 17                       | 2                      |
| Output or Final Product                    | 28                | 36               | 13                       | 8                        | 2                      |
| Financial Indicators                       | 38                | 26               | 5                        | 2                        | 5                      |
| Efficiency Measures                        | 37                | 37               | 12                       | 3                        | 5                      |

### III. USE OF PERFORMANCE MEASURES IN PRODUCT/SERVICE AND ORGANIZATIONAL PLANNING

6. Please indicate whether your organization prepares written plan(s) that set long-term product or organizational goals, standards, or objectives. (CHECK ALL THAT APPLY.)
- A. 3 A single long-term plan that sets goals, standards, or objectives for the entire organization or product.
  - B. 14 Individual long-term plans that set goals, standards or objectives for the organization or product are prepared by the organization's sub-units.
  - C. 24 No written plan(s) are prepared that set long-term product or organizational goals, standards, or objectives.

**PRIVATE SECTOR COUNCIL  
SURVEY OF PERFORMANCE MEASURES  
(continued)**

7. Considering all of the goals, standards, or objectives contained in your plan(s), how many are written in terms that are measurable or quantifiable? (CHECK ONE.)
- A. 6 All  
B. 27 Most  
C. 5 About half  
D. 3 Some  
E. ☐ Few or none
8. Considering all of the goals, standards, or objectives contained in your long-term plan(s), how many are translated into annual or semi-annual operating plans? (CHECK ONE.)
- A. 19 All  
B. 19 Most  
C. 1 About half  
D. 2 Some  
E. ☐ Few or none
9. How many of your organization's goals, standards, or objectives included in your plan(s) have related measures of progress? (CHECK ONE.)
- A. 4 All  
B. 24 Most  
C. 8 About half  
D. 5 Some  
E. ☐ Few or none
10. Does your organization require the following to be reflected in senior management performance appraisals? (CHECK ALL THAT APPLY.)
- A. 39 Goals, standards, and objectives in your organization's plan(s)  
B. 38 Performance Measures  
C. 21 Total Quality objectives
11. Does your organization relate the following to its management incentive plans? (CHECK ALL THAT APPLY.)
- A. 39 Goals, standards, and objectives in your organization's plan(s)  
B. 38 Performance measures  
C. 21 Total Quality objectives
12. Is there a central office in your organization that is responsible for managing or monitoring the collection, internal distribution of all or most performance measures for the entire organization? (CHECK ONE)
- A. 28 No  
B. 13 Yes —> Please provide the following:
- Name of Central Office: \_\_\_\_\_
- Person responsible: \_\_\_\_\_
- Title: \_\_\_\_\_
- Phone Number: (\_\_\_\_) \_\_\_\_\_

Survey Instrument with Responses - Appendix B

PRIVATE SECTOR COUNCIL  
SURVEY OF PERFORMANCE MEASURES  
(continued)

IV. REPORTING AND USE OF MEASURES

13. Are current performance measures distributed internally as a single report to top organization management? (CHECK ONE.)

A. 8 Yes --> How many times per year is the report issued?

11(1) 12(6) ?(1) \_\_\_\_\_ Times per year

B. 28 No, there are multiple reports

C. 5 No, there are no reports

14. What key performance measurement indicators and ratios does your corporation use? e.g. number of errors per volume, projects completed per time elapsed, net assets/sales, etc. (If possible, please attach copies of your organization's indicators and ratios. Confidentiality is guaranteed.)

(See Appendix C)

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15. Does your corporation benchmark? (Benchmarking is defined as searching for the best practices that will help define superior products, services, or support processes.)

A. 34 Yes --> (CONTINUE WITH QUESTION 16)

B. 7 No --> (SKIP TO QUESTION 18)

16. Does your corporation benchmark the following?

A. 3 Indicators and Ratios

B. 1 Methods or Processes

C. 30 Both

17. To what does your organization compare its performance measures? (CHECK ALL THAT APPLY.)

A. 32 To historical trends within the same product service line.

B. 33 To product or service goals, standards, objectives (e.g. in annual operating or strategic plans.)

C. 26 To other units or regions within the organization.

D. 32 To alternative suppliers or similar operations (e.g., other companies or competitors.)

E. 23 To the best domestic organizations.

F. 27 To world class organizations.

G. 3 Other (Please specify) \_\_\_\_\_

H. 0 No comparisons are made

18. Does your corporation use automated measurement information systems?

A. 29 Yes --> If so, is the system:

3 An off the shelf variety?

22 Custom designed?

4 No answer

B. 12 No

**PRIVATE SECTOR COUNCIL  
SURVEY OF PERFORMANCE MEASURES  
(continued)**

**V. SATISFACTION WITH USE OF PERFORMANCE MEASURES IN MANAGEMENT PROCESS**

19. How satisfied or dissatisfied are you with your current performance measures as a tool to help your organization do the following?

|                                                | Very<br>satisfied | Somewhat<br>satisfied | Neither<br>satisfied nor<br>dissatisfied | Somewhat<br>dissatisfied | Very<br>dissatisfied |
|------------------------------------------------|-------------------|-----------------------|------------------------------------------|--------------------------|----------------------|
| Make budget<br>decisions                       | 7                 | 21                    | 9                                        | 3                        | 1                    |
| Manage products<br>or services                 | 5                 | 21                    | 7                                        | 8                        | 0                    |
| Assure accountability                          | 10                | 16                    | 8                                        | 7                        | 0                    |
| Measure product/service<br>results or outcomes | 7                 | 22                    | 7                                        | 5                        | 0                    |

20. Overall, how satisfied or dissatisfied is your organization with the timeliness, reliability, and level of detail of the information produced by your organization's current performance measures?

|                                                                      | Very<br>satisfied | Somewhat<br>satisfied | Neither<br>satisfied nor<br>dissatisfied | Somewhat<br>dissatisfied | Very<br>dissatisfied |
|----------------------------------------------------------------------|-------------------|-----------------------|------------------------------------------|--------------------------|----------------------|
| Timeliness of the<br>information produced<br>by the measures         | 8                 | 21                    | 6                                        | 5                        | 1                    |
| Reliability of the<br>information produced<br>by the measures        | 15                | 14                    | 10                                       | 2                        | 0                    |
| Level of detail of<br>the information<br>produced by the<br>measures | 8                 | 16                    | 10                                       | 7                        | 0                    |

**PRIVATE SECTOR COUNCIL  
SURVEY OF PERFORMANCE MEASURES  
(continued)**

**VI. APPLICABILITY OF PERFORMANCE MEASUREMENT TO GOVERNMENT**

21. Do you think the federal government should implement a performance measurement system?

A. 39 Yes —> (CONTINUE WITH QUESTION 22.)

B. 2 No —> (SKIP TO QUESTION 23.)

22. Please indicate the types of performance measures that you would recommend be used for the following purposes:

| Performance Measures:                      | Measure Products/ Services | Manage Products/ Services | Assure Account-ability | Make Budget Decisions |
|--------------------------------------------|----------------------------|---------------------------|------------------------|-----------------------|
| Resource Inputs                            | 25                         | 28                        | 30                     | 33                    |
| Work/Activity Level                        | 23                         | 30                        | 25                     | 22                    |
| Complexity of Work Processes               | 14                         | 21                        | 10                     | 10                    |
| Internal Measures of Quality               | 29                         | 30                        | 28                     | 10                    |
| External Customer Needs                    | 29                         | 30                        | 21                     | 22                    |
| External Measures of Customer Satisfaction | 29                         | 28                        | 29                     | 19                    |
| Timeliness of Product or Service           | 28                         | 32                        | 29                     | 14                    |
| Outputs or Final Products                  | 26                         | 31                        | 27                     | 24                    |
| Financial Indicators                       | 19                         | 31                        | 33                     | 36                    |
| Efficiency Measures                        | 24                         | 33                        | 31                     | 34                    |

**PRIVATE SECTOR COUNCIL  
SURVEY OF PERFORMANCE MEASURES  
(continued)**

23. Do you have any other recommendations for implementing performance measurement in the Federal Government?

(See Appendix D)

24. Please provide any additional comments you may have.

(See Appendix E)

**PLEASE RETURN THIS SURVEY BY APRIL 3, 1992 TO:**

**Mailing Address:**

Karen Pedone  
Financial Management Service  
Room 313 Liberty Center  
401 14th St. S.W.  
Washington D.C. 20227

**Fax numbers:**

(202) 287-0735  
(202) 874-6743

**Thank you VERY MUCH for your time and assistance.**

## APPENDIX 6

### MEDCOM PERFORMANCE MEASURES SURVEY

## APPENDIX 6

### MEDCOM PERFORMANCE MEASURES SURVEY

#### INTRODUCTION

The U.S. Army Medical Command, (MEDCOM), in an effort to provide meaningful information to commanders at all levels, is currently exploring options to re-engineer the current MEDCOM Performance Measures. We have developed this survey to identify key performance measurement practices used in MEDCOM activities. As a part of the MEDCOM, your organization's experience and expertise will provide us with a valuable illustration of useful, effective performance measurement that can be applied throughout the MEDCOM.

In this survey we are attempting to obtain the following information: 1) a description of performance measures used in your organization, 2) an understanding of how performance measures are used in conjunction with your organization's planning efforts, and 3) an indication of how satisfied you are with your performance measures.

#### INSTRUCTIONS

Most of the questions in this questionnaire can be answered by checking boxes or making short written entries. When completing the survey, we ask that you refer to activities of all divisions within your organization, not just the Resource Management function. As you complete the survey, we ask that you take time to especially consider new and innovative performance measures used in your organization, especially those related to process and outcomes evaluation. This instrument is not intended to measure compliance with existing MEDCOM guidance, but rather to share good ideas and best practices.

**Please return this survey by December 8, 1995 to CPT Gregory Swanson at the Plans, Analysis, and Evaluation Directorate of the MEDCOM by mail or FAX.** The address and FAX information are located on the last page of the survey. If you have any questions about the survey, please contact CPT Swanson at Commercial (210) 221-7142 or DSN 471-7142.

We THANK YOU for taking time from your busy schedule to complete this survey and we sincerely appreciate your continued commitment to the MEDCOM's effectiveness.

Name of Activity:  
RESPONDENT INFORMATION

Name:

Title:

Address:

Telephone Number:

## I. TYPES OF MEASURES

1. For the following types of performance measures, please indicate whether the measure is currently in active use, under development, or neither in use nor under development in your organization.

|                                               |                                                |                                               |
|-----------------------------------------------|------------------------------------------------|-----------------------------------------------|
| Performance<br>Measure<br>Currently<br>In Use | Performance<br>Measure<br>Under<br>Development | Neither<br>In Use<br>Nor Under<br>Development |
|-----------------------------------------------|------------------------------------------------|-----------------------------------------------|

### Performance Measures and Definitions

**Resource Inputs** - Recurring resources provided for your organization's product or service activities (e.g. dollars, staff, materials, etc.)

**Work/Activity Level** - Work measures that assess intermediate steps in producing outputs (e.g. number of applications in process, usage rates, etc.)

**Complexity of Work Processes** - Measures of level(s) of difficulty associated with work processes or activities (e.g. new patient vs. follow up visit.)

**Internal Measures of Quality of Products or Services** - Measures of quality from internal sources (e.g. quantitative scores by quality reviewers, error rates, etc.)

**External Customer Needs** - Measures of product or service expectations and enhancements by users.

**External Customer Satisfaction** - Measures of quality and timeliness from external sources (e.g. external customer surveys, levels of complaints, etc.)

**Timeliness of Product or Services** - Measures of intervals required to complete a task or measures based on past trends.

**Outputs or Final Products** - Products or services produced, distributed, or provided to service population (e.g. number of customers served, number of forms processed, quantity of goods produced, etc.)

|                                               |                                                |                                               |
|-----------------------------------------------|------------------------------------------------|-----------------------------------------------|
| Performance<br>Measure<br>Currently<br>In Use | Performance<br>Measure<br>Under<br>Development | Neither<br>In Use<br>Nor Under<br>Development |
|-----------------------------------------------|------------------------------------------------|-----------------------------------------------|

**Financial Indicators** - Comparison of planned vs. actual expenditures, costs, obligations, receipts, allocations, or losses.

**Efficiency Measures** - Measures such as cost per unit, productivity measures, ratios of direct to indirect costs, etc.

**2. Who are the current users of the performance measures that currently exist in your organization? (CHECK BOXES THAT APPLY.)**

Note: Line units are those involved in the production of a product or service for an external customer e.g. clinics. Staff units provide internal support for Line functions e.g. Human Resources or Logistics.

|                                            |                                             |                                      |                       |           |
|--------------------------------------------|---------------------------------------------|--------------------------------------|-----------------------|-----------|
| Operating<br>Agency<br><u>Line</u><br>Unit | Operating<br>Agency<br><u>Staff</u><br>Unit | MEDCOM<br>Head-<br>quarters<br>Staff | Activity<br>Commander | Customers |
|--------------------------------------------|---------------------------------------------|--------------------------------------|-----------------------|-----------|

**Types of measures:**

Resource Inputs

Work/Activity Level

Complexity of Work  
processes

Internal Measures  
of Quality of  
Products or Services

External Customer  
Needs

External Customer  
Satisfaction

Timeliness of  
Product or Service

Outputs or Final  
Products

Financial Indicators

Efficiency Measures

## II. MEASUREMENT DEVELOPMENT

3. Does your organization currently have performance measures under development?

A. Yes ---> (CONTINUE WITH QUESTION 4.)

B. No ---> (SKIP TO QUESTION 5.)

4. For those performance measures currently under development in your organization, please indicate the reasons why they are being developed.

|                                            | Unit-<br>Initiated<br>Improvement<br>Efforts | MEDCOM<br>Mandated | Customer<br>Driven | Other<br>(Please<br>Specify<br>Below) |
|--------------------------------------------|----------------------------------------------|--------------------|--------------------|---------------------------------------|
| Performance Measures:                      |                                              |                    |                    |                                       |
| Resource Inputs                            |                                              |                    |                    |                                       |
| Work/Activity Level                        |                                              |                    |                    |                                       |
| Complexity of Work Processes               |                                              |                    |                    |                                       |
| Internal Measures of Quality               |                                              |                    |                    |                                       |
| External Customer Needs                    |                                              |                    |                    |                                       |
| External Measures of Customer Satisfaction |                                              |                    |                    |                                       |
| Timeliness of Product or Service           |                                              |                    |                    |                                       |
| Outputs or Final Products                  |                                              |                    |                    |                                       |
| Financial Indicators                       |                                              |                    |                    |                                       |
| Efficiency Measures                        |                                              |                    |                    |                                       |

5. In your organization, which performance measures are generally developed by the following people or processes? (CHECK ALL BOXES THAT APPLY.)

|                      |                     |                             |                              |                              |
|----------------------|---------------------|-----------------------------|------------------------------|------------------------------|
| By staff<br>managers | By line<br>managers | By employee<br>focus groups | By customer/<br>client input | Other<br>(Please<br>Specify) |
|----------------------|---------------------|-----------------------------|------------------------------|------------------------------|

**Performance Measures:**

Resource Inputs

Work/Activity Level

Complexity of Work  
Processes

Internal Measures of  
Quality

External Customer Needs

External Measures of  
Customer Satisfaction

Timeliness of Product  
or Service

Output or Final Product

Financial Indicators

Efficiency Measures

**III. USE OF PERFORMANCE MEASURES IN PRODUCT/SERVICE AND ORGANIZATIONAL PLANNING**

6. Please indicate whether your organization prepares written plan(s) that set long-term (greater than one year) product or organizational goals, standards, or objectives. (CHECK ALL THAT APPLY.)

A. A single long-term plan that sets goals, standards, or objectives for the entire organization or product.

B. Individual long-term plans that set goals, standards or objectives for the organization or product are prepared by the organization's sub-units.

C. No written plan(s) are prepared that set long-term product or organizational goals, standards, or objectives.

7. Considering all of the goals, standards, or objectives contained in your plan(s), how many are written in terms that are measurable or quantifiable? (CHECK ONE.)

- A. All
- B. Most
- C. About half
- D. Some
- E. Few or none

8. Considering all of the goals, standards, or objectives contained in your long-term plan(s), how many are translated into annual or semi-annual operating plans? (CHECK ONE.)

- A. All
- B. Most
- C. About half
- D. Some
- E. Few or none

9. How many of your organization's goals, standards, or objectives included in your plan(s) have related measures of progress? (CHECK ONE.)

- A. All
- B. Most
- C. About half
- D. Some
- E. Few or none

10. Are achievement of goals, standards, and objectives in your organization's plan(s) reflected in senior management performance appraisals?

- A. All
- B. Most
- C. About half
- D. Some
- E. Few or none

11. Are organizational performance measures reflected in senior management performance appraisals?

- A. All
- B. Most
- C. About half
- D. Some
- E. Few or none

12. Are achievement of Total Quality objectives reflected in senior management performance appraisals?

- A. All
- B. Most
- C. About half
- D. Some
- E. Few or none

13. Does your organization relate the following to employee or management incentive plans? (CHECK ALL THAT APPLY.)

- A. Goals, standards, and objectives in your organization's plan(s)
- B. Performance measures
- C. Total Quality objectives

14. Is there a central office in your organization that is responsible for managing, monitoring, collecting, or internally distributing all or most performance measures for the entire organization? (CHECK ONE)

- A. No
- B. Yes-- Please provide the following:

Name of Central Office:  
Person Responsible:  
Title:  
Phone Number:

#### IV. REPORTING AND USE OF MEASURES

15. Are current performance measures distributed internally as a single report to top organization management? (CHECK ONE.)

- A. Yes -- How many times per year is the report issued?

\_\_\_\_\_ Times per year

- B. No, there are multiple reports
- C. No, there are no reports

16. What key performance measurement indicators and ratios does your organization use? e.g. number of errors per volume, projects completed per time elapsed, net cost/patient, etc. (If possible, please attach copies of your organization's indicators and ratios. Confidentiality is guaranteed.)

17. Does your organization benchmark? (Benchmarking is defined as searching for the best practices that will help define superior products, services, or support processes.)

A. Yes ----> (CONTINUE WITH QUESTION 16)

B. No ----> (SKIP TO QUESTION 18)

18. Does your organization benchmark the following?

A. Indicators and Ratios

B. Methods or Processes

C. Both

19. To what does your organization compare its performance measures?  
(CHECK ALL THAT APPLY.)

A. To historical trends within the same product or service line.

B. To product or service goals, standards, or objectives (e.g. in annual operating or strategic plans.)

C. To other units or regions within the MEDCOM.

D. To alternative suppliers or similar operations (e.g., other companies or competitors.)

E. To the best domestic organizations.

F. To world class organizations.

G. Other (Please specify)

H. No comparisons are made

20. Does your organization use automated measurement information systems?

A. Yes --- If so, is the system:

An off the shelf variety?

Custom designed?

Military procured?

B. No

#### V. SATISFACTION WITH USE OF PERFORMANCE MEASURES IN MANAGEMENT PROCESS

21. How satisfied or dissatisfied is your activity with your current performance measures as a tool to help your organization do the following?

|                                                    | Very<br>Satisfied | Somewhat<br>Satisfied | Neither<br>Satisfied Nor<br>Dissatisfied | Somewhat<br>Dissatisfied | Very<br>Dissatisfied |
|----------------------------------------------------|-------------------|-----------------------|------------------------------------------|--------------------------|----------------------|
| Make budget<br>decisions                           |                   |                       |                                          |                          |                      |
| Manage products<br>or services                     |                   |                       |                                          |                          |                      |
| Assure<br>accountability                           |                   |                       |                                          |                          |                      |
| Measure product/<br>service results<br>or outcomes |                   |                       |                                          |                          |                      |

22. Overall, how satisfied or dissatisfied is your activity with the timeliness, reliability, and level of detail of the information produced by your organization's current performance measures?

| Very<br>Satisfied | Somewhat<br>Satisfied | Neither<br>Satisfied Nor<br>Dissatisfied | Somewhat<br>Dissatisfied | Very<br>Dissatisfied |
|-------------------|-----------------------|------------------------------------------|--------------------------|----------------------|
|-------------------|-----------------------|------------------------------------------|--------------------------|----------------------|

Timeliness of the  
information produced  
by the measures

Reliability of the  
information produced  
by the measures

Level of detail of  
the information  
produced by the  
measures

## VI. APPLICABILITY OF PERFORMANCE MEASURES TO MEDCOM

23. Please indicate the types of performance measures that you would recommend be used for the following purposes:

| Measure<br>Products/<br>Services | Manage<br>Products/<br>Services | Assure<br>Account-<br>ability | Make<br>Budget<br>Decisions |
|----------------------------------|---------------------------------|-------------------------------|-----------------------------|
|----------------------------------|---------------------------------|-------------------------------|-----------------------------|

Performance Measures:

Resource Inputs

Work/Activity  
Level

Complexity of Work  
Processes

Internal Measures  
of Quality

External Customer  
Needs

External Measures of  
Customer Satisfaction

Timeliness of  
Product or Service

Outputs or Final  
Products

Financial Indicators

Efficiency Measures

24. Do you think the MEDCOM should re-engineer the current performance measurement system?

- A. Yes
- B. No

25. Do you have any other recommendations for implementing performance measurement in the MEDCOM?

26. Please provide any additional comments you may have.

Upon Completion, please mail to:

Headquarters, USAMEDCOM  
ATTN:MCCG-PAE (CPT Swanson)  
2050 Worth Road  
Fort Sam Houston, TX 7823-6000

or FAX to:

Commercial:(210) 221-7901  
DSN: 471-7901

## REFERENCES

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