

Assuring Quality in the Department of Veterans Affairs: What Can the Private Sector Learn?

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The Department of Veterans Affairs (VA) has an irregular reputation based on years of anecdotal reporting, inconsistent presentation of the "VA story" from one political administration to the next, and a system-wide defensiveness about criticism. Yet, the VA actually has made remarkable strides in the past 5 years. One important improvement has been to recognize the limitations of the term "quality assurance," which, correctly applied, relates only to direct patient care. The VA now routinely includes quality management, quality improvement, quality assessment, and performance measurement as more descriptive terms to describe its functions. Other changes and advances include new tools for measuring quality health care and patient satisfaction, a working definition of quality, and the development of data bases that can serve as important milestones in health care.

STEP ONE: MAKE QUALITY A CORPORATE OBJECTIVE

Until 1990, quality assurance in the VA—as in most of the health care industry—consisted mostly of risk management activities (tort claim reviews, incident reporting, and occurrence screening), use of patient satisfaction surveys, and the periodic accreditation review by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Most physicians and nurses were unimpressed with quality assurance activities in hospitals. These activities were seen as consuming inordinate amounts of time, producing little or no new information, and often leading to a punitive action. Most of the information seemed to be used to eliminate "bad apples" [1], and clinicians were wary and defensive about the data, its collection, and its interpretation.

In 1990, the VA Central Office in Washington, DC, was reorganized so that the function of overseeing quality assurance activities was moved to the top of the corporate structure. From that vantage point, the key objective was to define and accurately measure the VA's quality of care, beginning with determining the current status of the system and identifying areas needing improvement. The VA's quality assurance function was renamed the Office of Quality Management (OQM) and the new office openly stated its creed:

- Quality is assured at the point of patient contact
- Quality is improved at the point of patient contact
- Quality improvement is data driven
- All data must go to the point of patient contact

Close examination of the flow of data in the VA from 1990 to 1991 indicated that virtually all data collected for quality assurance flowed away from the point of patient care. Data was collected in quality assurance offices in the hospitals; graphed, tabulated, and sent to the regional office; reviewed and commented on; and finally sent to the central office where it was collated and filed. Rarely, if ever, did data or information flow back down the chain to those who initiated the collection.

In early 1991, the OQM began sending individual hospitals timely, trended comparative reports based on some of the collected data, including reports of the incidence of acquired pressure sores in long-term care settings and the average preoperative length of stay for several elective

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surgical procedures. The reports were generated from data routinely collected by the hospital staff and transmitted to a national data base, and the information was displayed to show individual hospitals their own data trended over time (usually the past four quarters of the year) and compared to a national average of VA experience. Initially, the hospital staff responded with skepticism to the return of data, questioning both the validity of the information ("your data are wrong") and how it would be used. Once they accepted that the data reports were intended for their own use and not as part of a high level oversight program, the staff became increasingly interested in the data collection activity and, over the next year, pressure sore rates in VA nursing homes decreased to levels lower than those seen in the private sector [2]. Hospital staff began asking for other data to be similarly configured and sent to them.

In response, the OQM began to look at what would be the most appropriate data for feedback and concluded that it should focus on encounter data and outcome data. Encounter data are data collected while the patient is being evaluated or treated. Coupled with outcome data, encounter data can provide important information about the effectiveness of a clinical encounter. The OQM then looked at what would be the important encounter and outcome data to address in the report. Here, the conclusion was that it should return data that would best allow the hospital staff to measure and assess their quality of care.

STEP TWO: DEFINE QUALITY HEALTH CARE

To determine which data elements are important, the OQM developed a definition of quality health care as care that is *needed* and delivered in a manner that is *competent*, *caring*, *cost-effective*, and *timely* and which *minimizes risk* and *achieves achievable benefits*.

- **Needed** implies that the care provided was appropriate for that patient at that time. There is also a clear implication that needed care was available and accessible to those who needed it. This means "doing the right thing."
- **Competent** means that the care was delivered according to accepted standards or guidelines of care where such standards or guidelines exist. This means "doing the thing right."
- **Caring** means that the patient judged the care or services to be satisfactory.
- **Cost-effective** means cost was factored into the decision-making process to use resources sparingly to accomplish the outcome.
- **Timely** means that the care was given at the right

time to accomplish the outcome (eg, thrombolytic therapy for myocardial infarction) or to meet patient expectations (eg, pain medication delivered promptly after a request).

- **Minimizes risk** means that the care process protects patients against harm and limits the likelihood of injury to the caregivers and the community.
- **Achieves achievable benefits** means that an achievable positive outcome was accomplished. This factor requires considerable physician knowledge about the science and natural history of disease as well as active patient participation. For example, a patient who will not allow a surgical approach to a solitary pulmonary nodule significantly alters the achievable outcome if the nodule is a squamous cell cancer.

Assessment of Existing Data Sources

The OQM definition of quality health care was then applied to the various data sources and measurements routinely used in the name of quality to determine which aspect of the definition they reflected. Among measures examined were mortality rates for the most frequent discharge diagnoses, findings from incident reports regarding patients, and findings from using occurrence screens (eg, returns to the operating room). A matrix was created to display information about these measures of care to hospitals, with the various aspects of quality placed along the vertical axis and the types of care placed along the horizontal axis (Figure 1).

Findings

Placing the various measures of quality into the matrix led to three distinct findings. First, not all the common measures fit comfortably into the matrix. For example, the routine reporting of incidents involving patients suspected of having fallen but in whom there was no evidence of injury did not seem to reflect any useful information—certainly not enough to justify the time and effort to collect the information and report it to headquarters. This finding led to removal of the mandate that such information be collected and reported, thus reducing the amount of work required by caregivers in the name of quality assurance.

The matrix also allowed a better understanding of why information about certain measures of quality were collected. The clear relationship between a measure and the two axes became an easy way to explain to busy clinicians why a particular measure may have meaning and ultimate usefulness to the patients they serve.

Finally, and possibly most important, the pattern of the display revealed an abundance of measures in some of the

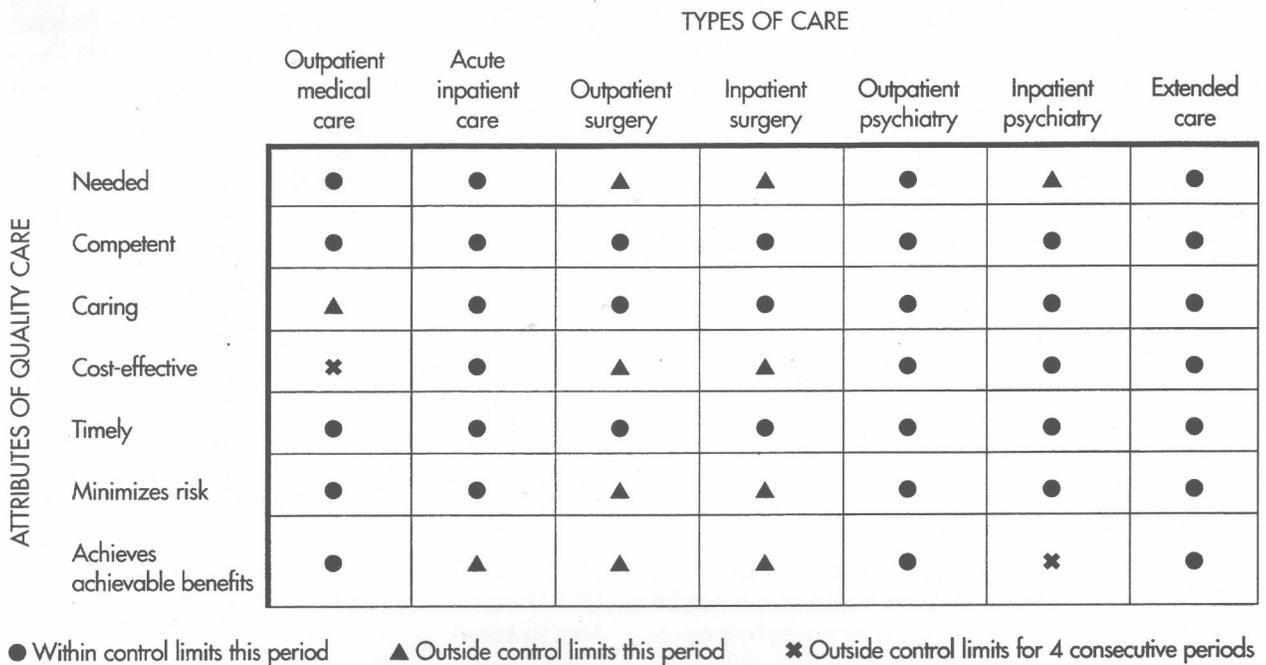


Figure 1. The quality matrix created by the Department of Veterans Affairs (VA) is used to apply the seven attributes of quality health care—taken from the VA’s definition of quality—to various types of care provided at VA facilities. “Outpatient procedures” and “inpatient procedures” refer to surgery; “extended care” refers to nursing home, intermediate medicine, and hospice care. Each cell of the matrix contains discrete measures of quality for the two dimensions represented (eg, postoperative mortality rates for several inpatient procedures are contained in the cell formed where “competency” and “inpatient surgery” intersect). Overall, the VA applies this matrix to and follows up on more than 200 quality measures.

matrix cells and virtually none in others. For example, there were 114 measures easily placed in the cell reflecting the competency of acute medical care but no measures to judge the cost-effectiveness of outpatient psychiatric care. This imbalance in the measures available to reflect quality in all dimensions across the range of care types led the OQM to take the next step in the quality measurement and quality improvement cycle: planned development of tools to measure specific aspects of quality in particular areas of care.

STEP THREE: EVALUATE CURRENT QUALITY ASSESSMENT TOOLS

The VA is peculiarly suited to the development, use, and evaluation of quality care tools. The VA is a national system of hospitals—173 of them, averaging almost 300 beds each—with at least one in every state. This system of health care delivery accounts for nearly 1 million discharges per year and 24 million outpatient visits. The system is further unified by a common computerized data base, the Decen-

tralized Hospital-based Computer Program (DHCP) [3] using the American National Standards Institute (ANSI) standard MUMPS language; the various programs allow communication across all functions of the hospital (eg, administrative, laboratory, and clinical). Such a large system with a common data base provides an opportunity for developing and evaluating new tools for measuring quality health care.

The VA has other attributes that contribute to its capability as a developing ground. Of its 173 hospitals, 125 are actively affiliated with medical schools. This long-standing relationship between the federal health care delivery system and America’s medical education system has fostered an attitude of inquiry and interest in education. The VA’s commitment to excellence includes involvement in active quality assurance activities for more than 25 years, including patient satisfaction surveys and JCAHO accreditation of every VA hospital. Finally, this large, complex system is underpinned with an integrated, automated data-handling system to facilitate information gathering from diverse sites. The design allows networking among thousands of health care professionals both within and outside the VA.

STEP FOUR: DEVELOP AND USE NEW TOOLS

Since 1991, the VA has developed four tools for evaluating the quality of the care it delivers. Each tool was conceived to fit a specific need, as shown by the matrix display. The development process included frequent consultation with end-users of the tool (ie, caregivers at the point of patient contact), and an evaluation component was included in the design. User involvement in the design was part of the VA-wide institution of total quality improvement (TQI) and was coupled with the planned educational offerings to emphasize use of the data by local practitioners to improve care processes and outcomes.

The Quality Improvement Checklist

Developed in 1991, the quality improvement checklist (QUIC) is an automated data-retrieval system to evaluate an individual hospital's performance in certain clinical areas by measuring clinical indicators of process or outcome [4]. The system uses the DHCP data base to feed a specific reporting tool that automatically calculates incidence rates and occurrences for 36-40 indicators. The reporting tool is locally checked, electronically signed, and sent to a national center for collation with all other data for the hospital. A national report, in hard copy, is produced and mailed to each hospital. The report graphically displays the national responses in each of the measured areas and allows each hospital to compare its own activity with that of other VA hospitals. The QUIC has been collecting data at 6-month intervals since the first data collection and reporting period in November 1991. The concept and mechanism of the QUIC are very similar to those of the indicator measurement system (IMS) of the JCAHO [5]. National and individual hospital data displays can be trended over time to demonstrate changes (Figure 2).

Data and reports from the QUIC are valuable to the clinical and quality management staff at the VA hospitals, because they indicate where improvement is needed. An area cited for improvement at one of the western facilities was the time it took to administer thrombolytic therapy to patients presenting to the emergency room with chest pain (the time reflected in the QUIC for the hospital staff's response to such patients was approximately 90 minutes). The staff formed a team of care providers drawn from the intensive care committee to evaluate their process and make improvements. The team—composed of physicians, nurses, and quality management staff—uncovered problems at nearly every step in the diagnostic and treatment process. Diagnosis was delayed by the absence of a full-time cardiac physician in the admission area after midnight; treatment was delayed by a policy restricting administration of throm-

bolytic drugs to nurses in the intensive care unit with specific privileges. The team revised their process by including a policy that allows nurses in the admitting area to administer the drugs and by placing a facsimile machine in the home of the staff cardiologist for use during off-hours. The treatment time of these patients decreased to 40 minutes (Figure 2A).

In one of the major tertiary VA centers, QUIC data disclosed a high mortality rate for patients admitted with upper gastrointestinal bleeding. The quality improvement team at the facility included the surgical and medical staff and the resident staff, who often were the first to see such patients. The staff at this VA center developed an ideal flow chart of the process of care for such patients and discussed it with all involved personnel throughout the hospital (nursing, laboratory, and blood bank). After providing education and training for employees, the changes were instituted and monitored by weekly review of deaths due to upper gastrointestinal bleeding. Subsequent data collections for the QUIC have shown a remarkable drop in mortality that has been sustained.

The External Peer Review Program

Begun in 1992, the external peer review program (EPRP) was developed to evaluate the quality of VA care by objective standards. The program addresses two of the major detractors from peer review as an appropriate gold standard of care: the use of implicit criteria and the lack of correlation between findings of isolated, single reviewers [6]. The program measures VA care against clinical pathways devised by non-VA physicians (putative community standards). Measurements are made by trained medical record review personnel who review the complete record in the treating facility. Cases not meeting the standard of the pathway are reviewed by a panel of board-certified physicians for final decision.

The system has shown that VA care meets or exceeds the putative community standard 97%-99% of the time in areas of acute medical and surgical care [7]; now, the program is shifting attention to measurement of outpatient, nursing home, and psychiatric care. Some facilities have used the data to focus on specific issues, to measure their improvement. For example, a primarily psychiatric facility in the Southeast discovered through the educational efforts of the on-site EPRP reviewer, who was an accredited records technician (ART), that they had a problem with medical record coding accuracy. The facility arranged for the ART to provide the necessary training for the hospital staff and was rewarded by seeing a major improvement in the rate of accurate coding.

The EPRP program also identified some major system-wide areas in need of improvement. In the first year, it was discovered that only 19% of patients seen with pneumonia had

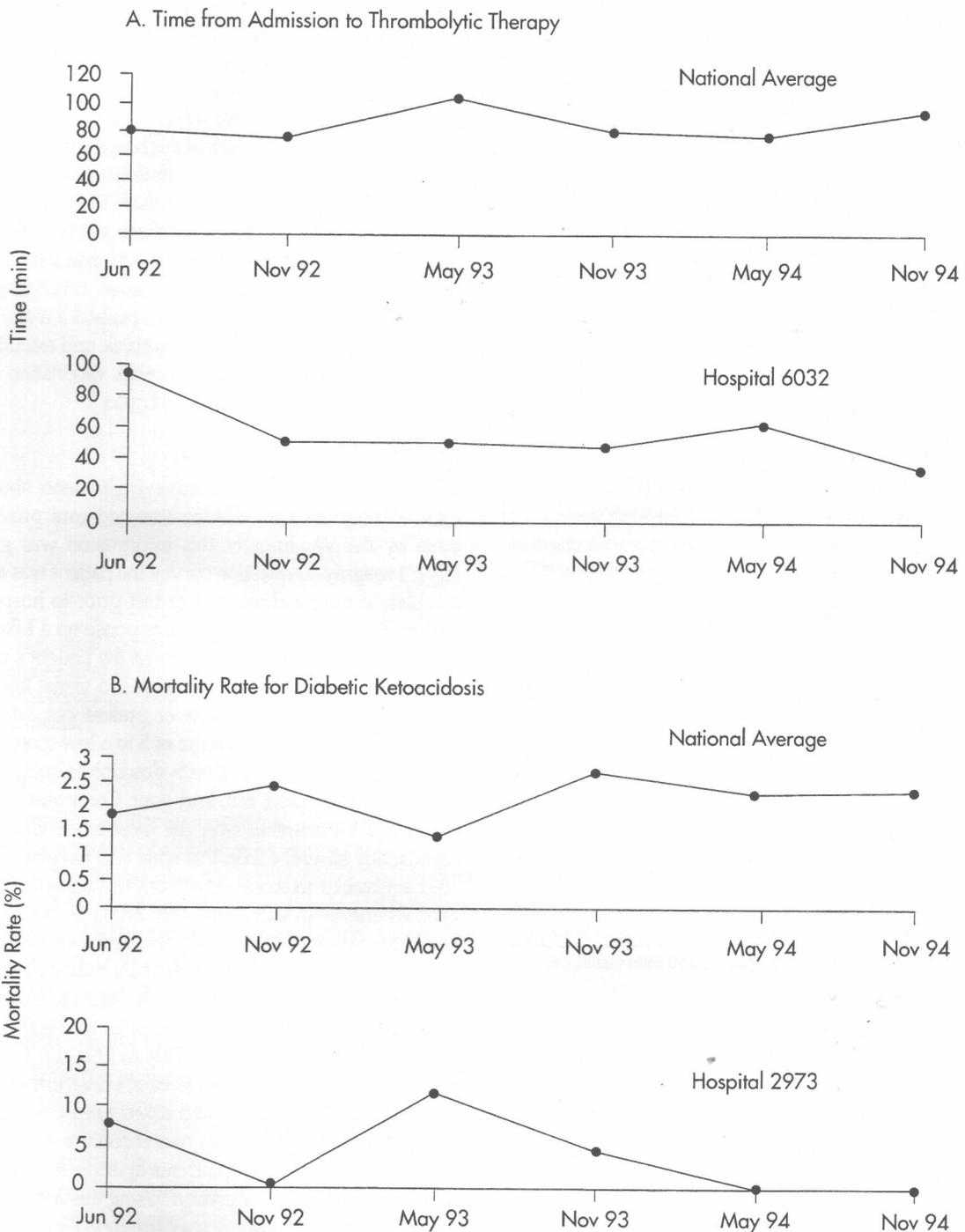


Figure 2. This figure shows how data from the quality improvement checklist (QUIC) are displayed for individual hospitals. (A) This data plot shows how long it takes before a patient who complains of chest pain in the admitting area of a hospital is appropriately administered a thrombolytic agent. The national average has centered around 90 minutes for nearly 3 years (*top graph*); hospital 6032 (*bottom graph*) has taken specific actions to improve its time, with a resultant reduction of almost 1 hour (to 40 minutes) in the time to treatment. (B) This data plot shows hospital mortality rates for patients with a diagnosis of diabetic ketoacidosis. The national average has been approximately 2.5% since June 1993 (*top graph*), yet hospital 2973 (*bottom graph*) has at times had mortality rates that were three times the national average. This hospital has directed attention to this area, and, since May 1993, has had a steady decline in deaths due to diabetic ketoacidosis to nearly zero.

Table 1. Sample Questions from the VA's Patient Feedback Survey

Yes/No Questions

Communication

- Sometimes, in the hospital, one doctor or nurse will say one thing and another will say something quite different. Did this ever happen to you?
- When you had important questions to ask a doctor, did you always get answers you could understand?
- Did a doctor or nurse always explain test results in a way you could understand?
- Did someone on the hospital staff explain the purpose of the medicines you were to take at home in a way you could understand?

Emotional support

- If you had any anxieties or fears about your condition or treatment, did a doctor or nurse discuss them with you?
- Did the doctors and nurses give your family, or someone close to you, all the information they needed to help you recover?

Preferences

- Did you have enough say about your treatment in the hospital?
- Did you have enough privacy?
- Did you feel you were treated with dignity and respect?

Physical comfort

- Do you think you would have had less pain if the hospital staff had acted faster?
- When you needed help with eating, bathing, or getting to the bathroom, did you usually get help in time?

Scaled Response Questions*

- How satisfied were you with the care you received at this hospital?
- How would you rate the care you received at this hospital?
- Would you choose to be hospitalized here again?
- Would you recommend this VA hospital to other veterans?

*Usually on a five-point scale of excellent, very good, good, fair, or poor or on a four-point scale of definitely would, probably would, probably would not, or definitely would not.

been offered pneumococcal immunization during previous episodes of care. Although the literature indicated that the general rate of immunization in at-risk populations in the United States is 14% [8], the VA decided to make major efforts to improve this rate of vaccination in its patient population. The VA developed a partnership with the American Lung Association, the Centers for Disease Control, the Department of Health and Human Services, and the National Institute on

Aging to mount a national campaign for immunization of vulnerable people. Some individual VA hospitals made striking improvements. For example, another primary and extended care facility in the Southeast was alerted to its low rate of pneumococcal vaccine administration to susceptible patients through the EPRP review. Staff at this hospital formed an interdisciplinary team to improve the administration of the vaccine and the documentation of immunization. The team developed a preventive health information sheet, colored pink to be instantly noticeable in the medical record, and then launched a total hospital staff education program concerning adult immunization. Later, when the team pushed a major immunization campaign in the 272-bed geriatric and extended care section, it was able to document a 99% vaccination rate for influenza and a 90% rate for pneumococci.

The Patient Feedback Program

Since 1972, the VA has been surveying patients about how satisfied they are with the services and care provided to them by the VA. Initially, this information was gathered using a roughly 40-question survey the patient was asked to complete during a clinic visit or just prior to hospital discharge. The questions required a response on a Likert scale ranging from 1 to 5 and represented the patient's rating of the care or services. The Likert scale is a visual linear scale for displaying rating opinions or preferences; such scales usually range from a high score of 5 to a low score of 1 and correspond to rating scales with descriptors such as: excellent, very good, good, fair, and poor. Composite scores for individual VA hospitals over the most recent decade were consistently around 4.2 on this scale and have been considered equivalent to scores from non-VA hospitals [9]. However, whenever an individual item rating decreased significantly, the responsible hospital personnel often felt uncertain of the meaning; follow-up or specific remedies were rare and the subsequent scores usually returned to baseline.

Recent literature indicates that patients are far better at reporting than rating their care [10]. In 1992, the VA began to develop a different patient feedback instrument. Patient focus groups were formed and asked to discuss what they felt constituted a high quality care encounter. Initially, attention was aimed at the hospital care episode; later, the outpatient encounter also was probed. Using this information, an entirely new patient survey was developed and implemented nationwide in late 1994. **Table 1** lists some of the questions asked in the new survey.

The survey was mailed to a sample (10%) of recently discharged patients; 68% of the recipients responded by answering and returning the survey. The high response rate was viewed as evidence that the survey asks for feedback patients want to provide to the hospital and caregivers. A significant finding was that patients feel the VA hospital staff

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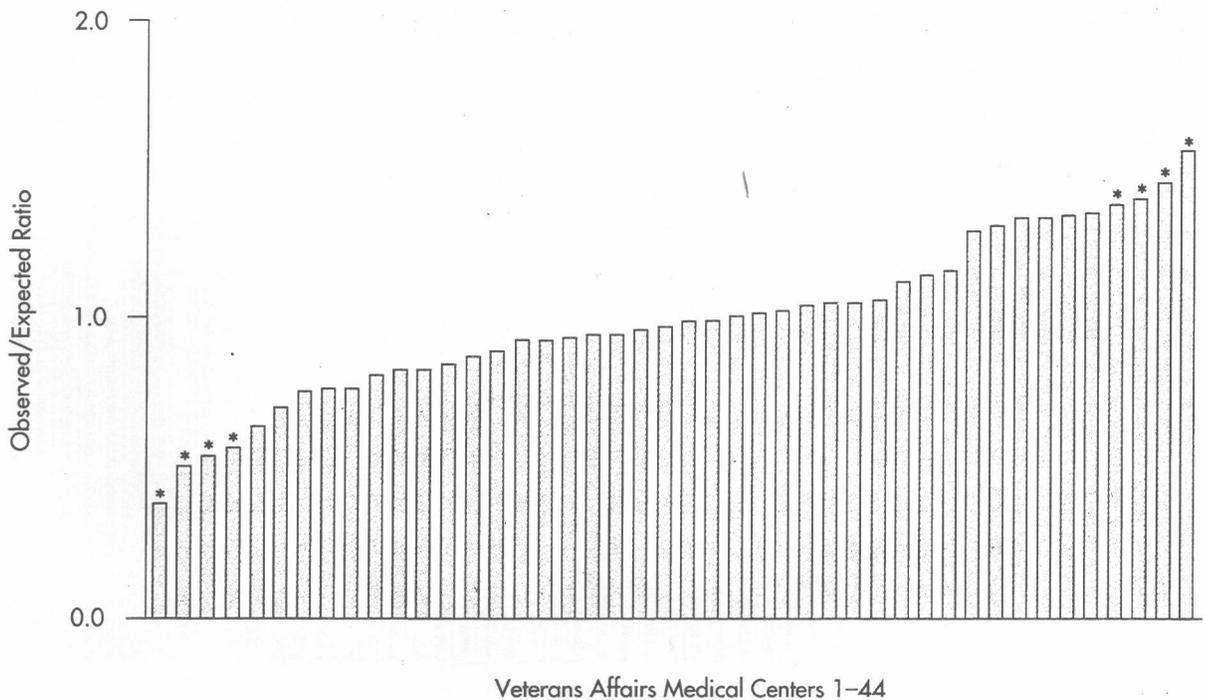


Figure 3. Individual hospital data on the ratio of the observed to the expected 30-day mortality rate following general surgery in 44 VA hospitals. Rates equal to or less than 1.0 indicate that the outcomes are better than expected. The asterisks indicate hospital rates that are outside the 95% confidence interval. This type of risk-adjustment of outcomes allows identification of sites with problems that are not due to patient attributes.

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are not readily available to provide emotional support during difficult times of admission or treatment. In addition to sparking a national plan for improvement, this finding has caught the interest and attention of those at the highest levels in the VA. The new patient satisfaction survey has provided the VA with useful information about weaknesses in the system and the system is mobilizing to use that data.

The Surgical Quality Improvement Program

Public Law 99-166 required the VA to compare its surgical outcomes data (ie, mortality and morbidity) with those of the private sector. This undertaking was complicated by the lack of any defined data base within the private sector; thus, the VA became involved over a 4-year period in developing a sample of private hospital discharge summaries from the Committee on Professional Hospital Activities for comparison with similar data from VA discharge summaries. These comparisons, involving 214,000 VA cases and 330,000 private hospital cases, revealed that the morbidity and mortality outcomes in the two systems were essentially the same [11,12]. However, several of the surgical consultants for the study voiced concern about the usefulness of such retrospectively collected data for use in making timely improvements in

care. Their call for better methodology led directly to the development of the Surgical Quality Improvement Program.

In 1991, the OQM supported the collection of prospective risk data from noncardiac surgical cases in large surgery programs throughout the system. By January 1994, more than 88,000 cases had been collected into the pilot data base and analysis of the findings began. The methodology for the study [13] has been rigorously evaluated, and the findings indicate that the methodology is accurate for the determination of "expected" events such as death or morbidity in risk-adjusted cohorts of patients. By comparing the "observed" events to "expected" events (O/E ratio), one can determine whether a surgical program is achieving achievable results (ie, a ratio of less than 1.0). The VA has now made the data collection and reporting part of this program available to all 132 VA hospitals that offer surgical services to patients; continued data entry will enlarge the data base and improve the predictability of outcomes. The information from the study provides perhaps the best explanation of why risk adjustment of postoperative mortality rates is essential to understanding which programs are performing well and which are not.

Figure 3 shows the O/E ratio for operative mortality in general surgery for each of the 44 programs participating in

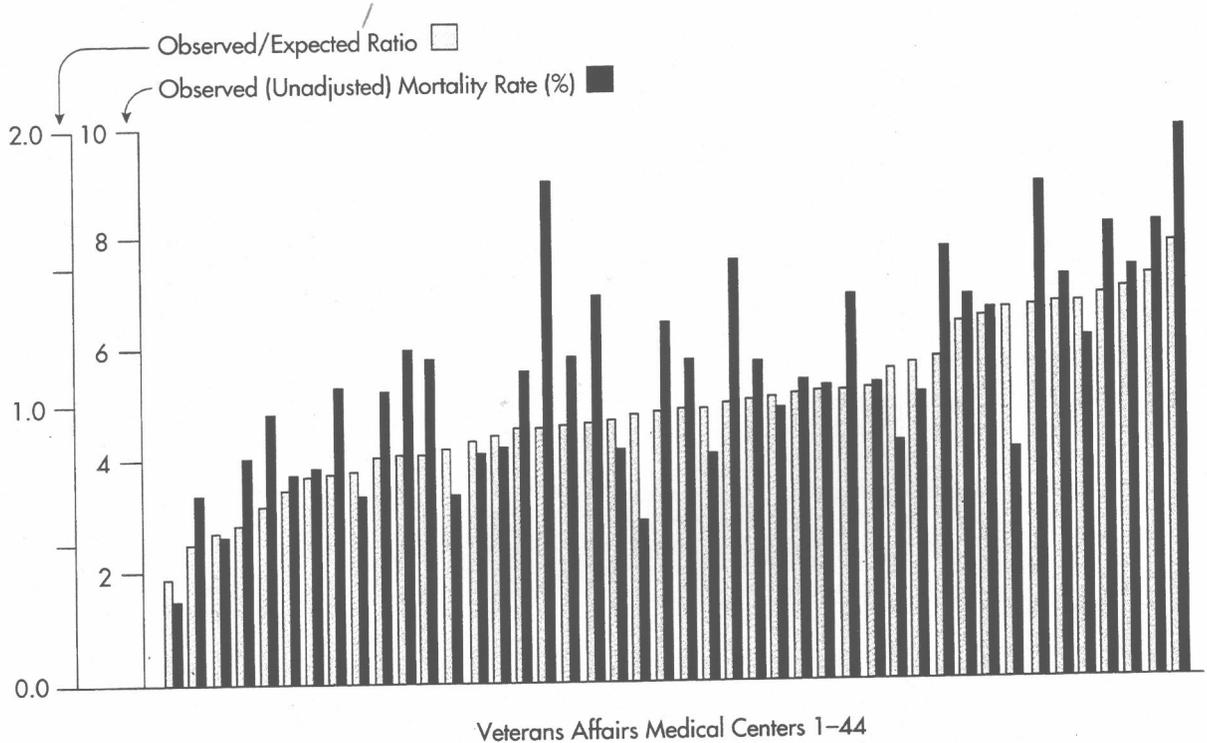


Figure 4. This graph combines data from Figure 3 with the raw, unadjusted general surgery mortality rates in the same 44 hospitals and arrayed in the same order as in Figure 3. Note the disparity between the raw rates and the adjusted rates; such disparity underscores the need for performing risk-adjusted calculations of mortality rate before identifying "problem" programs or practitioners.

the original study calculated on data collected over 20 months. The ratios are displayed in ascending order from the lowest to the highest; ratios greater than 1.0 identify hospitals that need to improve surgical care processes. The four hospitals at each end of the display marked with an asterisk indicate those facilities that lie outside the 95% confidence interval.

The same information is repeated in **Figure 4**, which also includes each hospital's *unadjusted* mortality rates to the figure while maintaining the same rank order. This comparison shows that, by focusing on raw, unadjusted mortality rates, attention may be inappropriately placed on programs with quite a good performance when the O/E ratio is calculated. Note that the hospital with one of the highest unadjusted mortality rates has a "corrected" rate less than 1.0. Also of interest is the data for the hospital located eighth from the high end of the curve. This facility has an unadjusted mortality rate that is tenth lowest overall; the O/E ratio, however, indicates that there is a probable quality problem at this facility. With increasing attention to outcomes following interventions such as surgery, there is great value to a method that correctly displays mortality in a risk-adjusted manner. The VA's data base represents the gold standard for

calculating risk-adjusted outcomes for general surgical procedures. A similar VA data collection method has been in place for more than 7 years for cardiac surgery [14,15].

Development of a Total Quality Improvement Approach

Also beginning in 1991, the VA adopted a positive, but not mandatory, stance toward the use of TQI principles. Virtually every hospital has taken advantage of training offered in the philosophy of TQI and the basis of how to implement its principles in the health care setting. In developing a TQI approach to needs assessment in the hospital, the tools and data mentioned above have been important for helping the hospital staff recognize their strengths as well as areas needing improvements.

CONCLUSION

Over the past few years, the VA has succeeded in developing and applying a definition of quality health care that focuses attention on the need for continuous improvement

Table 2. Steps to Improving Health Care System Performance

1. Make quality a corporate objective
2. Define quality in the system
3. Evaluate current quality assessment tools
4. Develop and use new tools designed to meet identified measurement needs
5. Provide information feedback to those who can make the improvements
6. Focus on changing processes, not on identifying poor performing individuals

Table 3. Exportable VA Quality Programs

- Quality matrix concept—useful for depicting the measurement needs and how the available tools provide for that need.
- Quality improvement checklist (QUIC) concept—useful for hospital systems with automated data capability; collects data easily and displays comparative reports.
- Patient feedback—questions based on patient focus group findings are the best measure of patient satisfaction with care and services.
- External peer review—explicit criteria-based review by panels of peers yields more credibility with practitioners.
- Surgical quality improvement program—the data are available for comparison use; cardiac and noncardiac surgery are included.
- Total quality improvement—system-wide implementation helps focus change on care processes at all levels and results in better use of data for improvement in health care systems.

in the care delivered to its patients. By comparing available measures to its newly defined standard for quality care, the VA recognized that new tools for measuring quality were needed (Tables 2 and 3). The construction, testing, and implementation of these new tools provided the VA with solid information about the high quality of care that it delivers and identified specific areas needing improvement. The availability of the new tools has enabled VA physicians and managers to document the value of changes they make in health care delivery processes. Substantial improvements are now being disseminated throughout the system to ensure more rapid implementation of changes that will continue to improve the care received by United States veterans.

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