The Veterans Health Administration: Quality, Value, Accountability, and Information as Transforming Strategies for Patient-Centered Care

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The Veterans Health Administration is the United States' largest integrated health system. Once disparaged as a bureaucracy providing mediocre care, the Department of Veterans Affairs (VA) reinvented itself during the past decade through a policy shift mandating structural and organizational change, rationalization of resource allocation, explicit measurement and accountability for quality and value, and development of an information infrastructure supporting the needs of patients, clinicians, and administrators. Today, the VA is recognized for leadership in clinical informatics and performance improvement, cares for more patients with proportionally fewer resources, and sets national benchmarks in patient satisfaction and for 18 indicators of quality in disease prevention and treatment.

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The Veterans Health Administration (VHA), one of three administrations within the Department of Veterans Affairs (VA), is the largest integrated health system in the United States. Suffering deservedly or not during the 1980s and early 1990s from a tarnished reputation of bureaucracy, inefficiency, and mediocre care, the VA sought to reinvent itself beginning in 1995 as a model system characterized by patient-centered, high-quality, high-value healthcare. This reinvention mandated structural and organizational changes, rationalization of resource allocation, measurement and active management of quality and value (and clear accountability for quality and value), and an information infrastructure that would increasingly support the needs of patients, clinicians, and administrators.

Although predating the US Institute of Medicine's recent recommendations for a more ideal health system,[1] the VA's improvement using strategies remarkably similar to those enunciated in the report provides increasing evidence for the utility of the recommendations in closing the "quality chasm." Through adoption of evidence-based practices, proactive approaches to patient safety, and use of advanced technologies (eg, a fully deployed electronic health record, bar-coded medication administration), the VA's success in improving quality, safety, and value have allowed it to emerge as an increasingly recognized leader in healthcare.[2,3]

HISTORY OF THE VETERANS HEALTH ADMINISTRATION

Origins of the Veterans Health Administration

Although health and social support for aged or disabled soldiers has existed in the United States since Colonial times, the spectrum of national programs for American veterans was consolidated with the establishment of the Veterans Administration in 1930. Resources for social services expanded rapidly following World War II with the Servicemen's Readjustment Act of 1944 (better known as the GI Bill of Rights), and a hospital system that specialized in meeting the rehabilitative needs of more than 1 million returning troops who had experienced physical and emotional trauma expanded and evolved. The Veterans Administration was elevated to Cabinet status and became the Department of Veterans Affairs in 1989, with financial support programs such as pensions administered under the aegis of the Veterans Benefits Administration and health services consolidated in the Veterans Health Administration (VHA). The Secretary of Veterans Affairs directs the activities of the department, and the Under Secretary for Health serves as the chief executive officer of VHA.

Structural and Organizational Transformation Since 1995

Until the mid-1990s, the VA operated largely as a hospital system providing general medical and surgical services, specialized care in mental health and spinal cord

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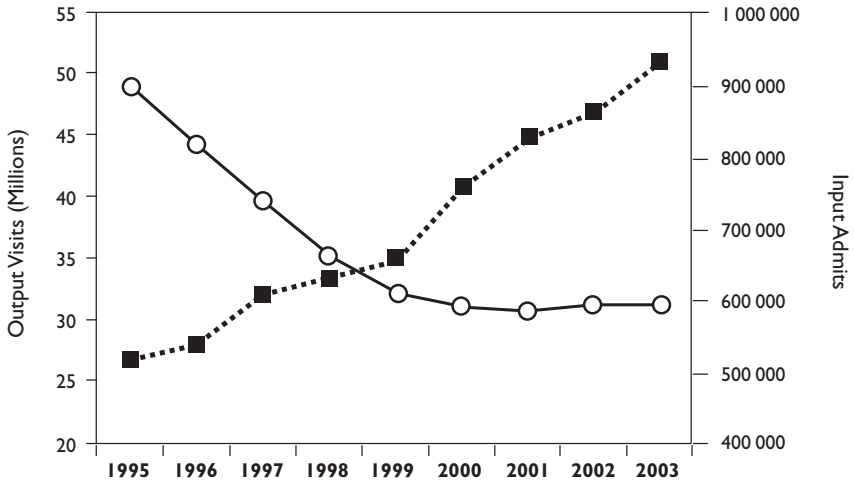
injury, and long-term care through directly operated or indirectly supported facilities. Medical centers and other facilities operated relatively independently of each other, even competitively duplicating services. Anachronistic laws required virtually all healthcare services to be provided in hospitals, counter to the movement of care into the ambulatory environment. In 1996, the Veterans Health Care Eligibility Reform Act enabled the system to be restructured "from a hospital system to a health care system," as directed by then Under Secretary for Health, Kenneth W. Kizer, MD. The structural changes were predicated on the assumption that providing the most effective, efficient care required coordination among facilities and synergy of resources, including that care be provided in the most appropriate environments.

Figure 1. Decrease in Hospital Admissions (solid line) and Increase in Outpatient Visits (dashed line) in the Department of Veterans Affairs, From 1995 to 2003



The structural transformation was characterized by creation of 22 geographically defined Veterans Integrated Service Networks (VISNs) in 1995. In addition to redirecting resources allocations to follow the geographically shifting veteran population, resources were allocated to each network rather than to each facility. Within VISNs, this created financial incentives for coordination of care and resources among previously competing facilities. Although the portfolio of medical centers still exists today, medical centers now belong to 1 of 21 VISNs (2 VISNs were recently merged), as do community-based outpatient clinics, which increased from fewer than 200 in 1996 to more than 850 today, and more than 300 other long-term care facilities, domiciliaries, veterans' counseling centers, and home-care programs. This structural transformation facilitated shifting care from the hospital to ambulatory-care facilities and the home environment, allowing a reduction of authorized hospital and long-term care beds from approximately 92 000 to 53 000, with a concomitant decrease in hospitalizations and an increase in ambulatory-care visits and home care services (**Figure 1**).

It should be noted that from 1996 to 2003, the number of veterans treated annually increased by 75% from approximately 2.8 to 4.9 million. The appropriated budget to care for those increasing numbers of patients remained flat at $19 billion from 1995 to 1999, and has increased to approximately $25 billion for fiscal year 2003, or about 32% cumulatively over 6 years.

INTRODUCTION OF ACCOUNTABILITY FOR PERFORMANCE

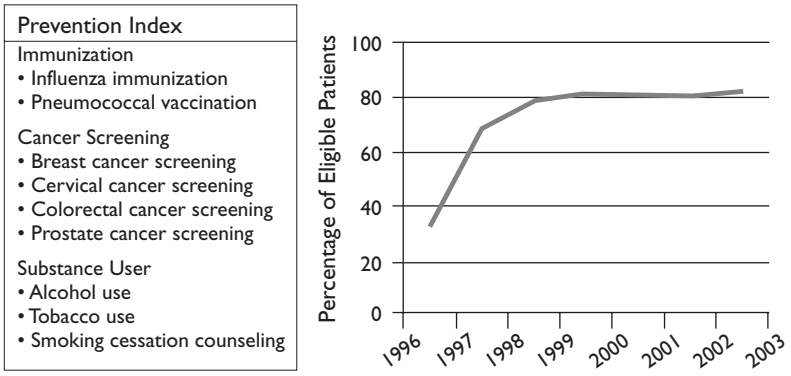
Quality and Value as Organizing Strategies

Because of its public nature, the VA is perhaps the most scrutinized health system in the United States. In the late 1980s and early 1990s, the VA was beset by increasing public anxiety about the quality of care. A 1992 movie titled *Article 99,* made in Hollywood by Orion Pictures, parodied the VA as a hapless and dangerous bureaucracy, and the challenging US economy at the close of the 1980s and opening of the next decade raised concern about the economic viability of the system. The broader American healthcare context saw the increasing emergence of managed care, offering the hope of improved quality and the promise of a mechanism for controlling healthcare cost inflation. At the extremes, a tension emerged between the desire to maintain a system dedicated to veterans' health needs and vouchering out (contracting for) care for presumably greater quality and efficiency. It was increasingly apparent that if the VA were to survive, it would need to prove its value to Congress and its quality to veterans themselves.

Two documents entitled *Vision for Change* and *Prescription for Change,* published in 1995 and 1996, respectively, outlined the challenges facing the VA and served as the strategic outline for organizational restructuring and a new strategy for systematizing quality and value.[4,5]

The VA sought to operationalize value in terms of the relationship of outputs to inputs, in contrast to the more

Figure 2. Components of the Department of Veterans Affairs Prevention Index and Performance Over Time



simplistic, prevalent, and less meaningful concept of unit cost. Expanding on the definition of "value" as the relationship of quality to cost,[6] the VA objectified quality as a constellation of outcomes of interest to veterans and stakeholders that were known as the value domains. The value domains now include 6 dimensions of effectiveness that the VA holds itself accountable for through performance measurement. The first 5 can be construed as the outputs of the system, and include technical quality of care, access to services, patient functional status, patient satisfaction, and community health. The inputs are the resources, ultimately financial, that the VA works with. The sixth value domain, cost-effectiveness, emerges as the ratio of outputs to inputs, a relationship sometimes referred to as the "value equation."

The objectification of quality and value serves as the basis for internal performance improvement efforts, and both internal and external accountability. Measures are determined in each of the value domains. In the arena of quality, performance measures largely are derived from rates of providing evidence-based healthcare services (processes and intermediate outcomes) in the areas of preventive health, disease treatment, and palliation. Novel composite measures, known as the prevention index (see **Figure 2**), chronic disease index, and palliative care index, serve to focus provider attention on these areas and summarize performance. Examples of measure topics in each domain are described in **Table 1.**

Accountability Through a National Performance Contract

The VA operates with both formal external and internal accountability for performance. As part of the Government Performance and Results Act, major federal agencies now engage in a performance agreement with the White House, administered through the Office of Management and Budget. Internally, since 1995, an annual performance contract has been in place between the Under Secretary for Health and senior network (VISN) leaders. The content of this performance contract has been constructed around the value domains, now known as the "strategic goal areas."

Measures are developed by using an evidence-based approach that extends the principles of evidence-based medicine to the administrative arena, a concept that might be termed "evidence-based quality management." Thus, the VA's accountability and improvement system is both rigorous and data intensive. Operating in parallel with the Performance Measurement Program is the National Advisory Council for Clinical Practice Guidelines. In the clinical arena, the VA has the strategic advantage of affiliation with 107 academic health systems and the Department of Defense Military Health System; and in conjunction with its own directly employed professional work force, expertise in specific clinical disciplines and evidence synthesis is robust. Many professionals are involved in VA Health Services Research and Development Service as well as the VA's 8 Quality Enhancement Research Initiatives (or QUERI programs), each of which focus on either highly prevalent diseases such as diabetes or heart failure, or on conditions conferring unique vulnerability such as mental illness and spinal cord injury. The collective efforts serve to systematically translate the best evidence into recommendations for best practice.[7] Although more analysis is required to determine what aspects of the translational process may contribute to performance improvement, it has been suggested that the process of engaging health systems in this critical analysis of the evidence and outcomes creates awareness of performance gaps and defensible approaches to improvement.[8]

The VA's clinical performance measures are generally constructed to determine compliance with evidence-based clinical guidelines or other recommendations in the areas of preventive medicine, disease treatment, and palliative care. In the remaining domains of satisfaction, access, function, community health, and cost-effectiveness, experts similarly reconcile data to identify and support areas for improvement. The guiding principle for determining which measures are selected for inclusion in the performance contract is to choose measures which are ambitious and "transforma-

tive," helping the VA and its care of veterans to meaningfully move forward.

The performance contract is created as a collaborative process involving central management and field leaders. The Performance Measurement Work Group is both cochaired by and comprised of central and field leaders, and it includes both clinicians and administrators. The group serves as a mechanism for vetting and prioritizing measures for inclusion in a performance contract recommended to the Under Secretary for Health. Thus, the ultimate contract established between the Under Secretary and VISN leaders, and then cascaded to clinicians and managers throughout the system, is a collaborative product, which is thought to reduce the traditional "us-them" tension between central and field leadership or between administrators and clinicians.

Table 1. Representative Measures in the VA's Value Domains*

Value Domain	Representative Measures
Quality (effective, safe)	• Prevention index (immunization, cancer and substance use screening) • Chronic disease index (heart, lung, endocrine diseases, including heart failure, COPD, diabetes) • Palliative care index (pain screening and management)
Access (timely)	• Wait times for new primary care appointments • Wait times for new specialty care appointments • Percentage of patients seen within 20 minutes of scheduled appointment
Satisfaction (patient centered)	• Perception of quality as very good or excellent • Performance on Picker-based satisfaction survey†
Function (patient centered)	• Percentage of spinal cord injury patients discharged to independent living • Percentage of homeless patients discharged to independent living
Community health (equitable)	• Accreditation of research programs • Learner perception survey
Cost-effectiveness (efficient)	• Days in accounts receivable and other fiscal measures • Value equation

*Similar "aims of a more ideal health system" as later established by the US Institute of Medicine are shown in parentheses.[1] COPD indicates chronic obstructive pulmonary disease; VA, Department of Veterans Affairs.
†Derived from Picker surveys of inpatient and outpatient care, Picker Institute, Boston, Mass, 1995-2003.

Results of the performance contract form the basis for quarterly management reviews. Although extremely modest management incentives exist, the performance results are broadly distributed within the VA and are known to key stakeholders such as Congress, veteran advocacy groups, and the Office of Management and Budget. The performance data that result are published in hard copy quarterly and annually and, since 2002, are increasingly available as they accrue in real time on Intranet sites.

INFORMATION SYSTEMS TO MONITOR AND SUPPORT PERFORMANCE

Performance Data for the Value Domains

Effective information systems are the prerequisite for the effective delivery of services that maximize value in each of the domains, as well as the source of data for operation of the Performance Management Program. The VA's clinical information system is remarkably well designed to support patient care; however, the system's capacity for national "roll-up" of all discrete data elements desired is currently limited. So, although most clinical data and patient records are fully electronic, the VA has invested in an audit program to assess clinical performance. Using VA performance criteria, audits are performed by an independent external contractor under the External Peer Review Program (EPRP). This program provides data to support measurement primarily in the more clinical domains of quality and function, as described elsewhere.[9] The VA's new health data repository will markedly expand the capacity for automated aggregation of national performance data.

In the domain of satisfaction, traditional event-driven surveys of satisfaction with ambulatory-care visits, hospitalizations, or other services (eg, prosthetics, spinal cord injury, pharmacy) have been used. However, recognizing that satisfaction is only 1 component of the patient experience, a new omnibus Survey of Health Experiences of Patients has been introduced to acquire data about general healthcare experiences (eg, waiting times) and satisfaction, patient functional status (the veterans SF-12[10]), and health risk behaviors (eg, nutrition, exercise, tobacco) that link with clinical information acquired through external peer review. These pooled data more richly support improvement,

program planning, policy development, and (with all identifying information redacted) health services research. Corporate data from scheduling and fiscal systems (and some survey information) are used to support measurement and improvement in the domains of access, cost, and community health.

The VA's approach to both improvement of healthcare delivery and improvement of information systems is reflected well in models identifying the convergence of patients, providers, and the health system for optimal outcomes, as articulated by Glasgow and colleagues.[11] These models suggest that the most productive interactions occur when prepared, proactive providers and informed, activated patients interact in the context of a supportive, informed health system.[11] The VA's clinical information system provides support for improvement for the system, for providers, and for patients. Standardized data elements can be aggregated to assess performance on a clinical measure at the team, clinic, facility, network, or system level. These same data elements serve as the basis for implementing clinical reminders used to support immediate feedback and improvement for care providers. Finally, these data increasingly will serve as the basis for online health assessment and education for patients and caregivers, who ideally will use that knowledge for more effective management of their health needs.

The Electronic Health Record for Clinical Data Management

The VA has had automated information systems providing extensive clinical and administrative capabilities in all of its medical facilities since 1985, when its decentralized hospital computer program began operating. The veterans health information systems and technology architecture (VistA), which supports ambulatory, inpatient, and long-term care, provided significant enhancements to the original system with the release of the computerized patient record system for clinicians in 1997. The computerized patient record system (CPRS) was developed to provide a single, highly graphical interface for healthcare providers to review and update a patient's medical record and to place orders for various items including medications, procedures, x-rays and imaging, patient care nursing orders, diets, and laboratory tests. The computerized patient record system is flexible enough to be implemented in a wide variety of settings, both inpatient and outpatient, ranging from home and long-term care to operating rooms and intensive-care units. It serves a broad range of healthcare workers, and provides a consistent, event-driven, Windows-style interface across functions and locations.

The computerized patient record system organizes and presents all relevant patient data in a way that directly supports clinical decision making. Its comprehensive cover sheet displays timely, patient-centric information including active problems, allergies, current medications, recent laboratory results, vital signs, hospitalization, and outpatient clinic history. This information is displayed immediately when a patient is selected and provides an accurate overview of the patient's current status before any clinical interventions are ordered.

Today, the CPRS is fully operational at all medical centers and most other VA sites of care. VistA Imaging, which provides a multimedia, online patient record that integrates traditional medical chart information with medical images of all kinds (eg, x-rays, pathology slides, video views, scanned documents, cardiology exam results, dental images, endoscopies) is also now operational at VA medical centers (**Figure 3**).

Electronic Health Information to Support Performance Improvement

Beyond serving as a complete electronic health record, other capabilities in the CPRS support performance improvement, including computerized provider order entry, critical alerts, remote data view to access health information from other VA facilities, and a clinical reminder system to provide real-time decision support.

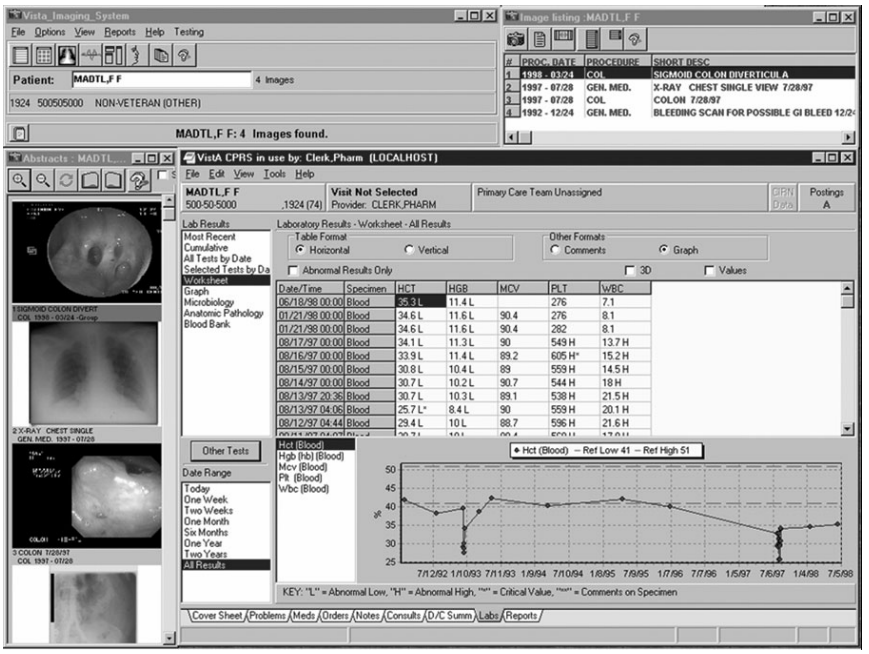
Computerized provider order entry has been shown to decrease rates of adverse drug events.[12] The VA's computerized provider order entry, with real-time order-checking system, alerts clinicians during the ordering session that a possible problem could exist if the order is processed (eg, drug–drug interactions, duplicate laboratory values). Since implementation, order checking has required some reengineering to ensure that attention to important alerts is not diminished by frequent, trivial messages. Currently, 94% of all pharmacy orders throughout the VA are electronically entered directly by the prescriber.

Other features of CPRS include a notification system that immediately alerts clinicians about clinically significant events such as abnormal test results, a strategy that helps prevent errors by requiring an active response for critical information.[13] A patient posting system, displayed on every CPRS screen, alerts clinicians to issues related to the patient, including crisis notes, special warnings, adverse reactions, and advance directives. The remote data view functionality allows clinicians to view a veteran's medical information from another VA facility or from Department of Defense medical treatment facilities to ensure the clinician has

access to all clinically relevant data.

The clinical reminder system allows caregivers to track and improve preventive healthcare and disease treatment for patients and to ensure that timely clinical interventions are initiated. The clinical decision support it provides is context sensitive (eg, it recognizes that the patient has a particular diagnosis such as diabetes), and time sensitive (eg, 12 months have elapsed since the service, such as an influenza vaccination, was last provided). The clinical reminder system is now the VA's preferred mechanism for implementing clinical practice guidelines, and facilitates linking the evidence with the real-time clinical reminder, with the action (eg pneumococcal vaccination in elderly or chronically ill patients), and with the automatically generated documentation as well as with a trail of standardized performance data (**Figure 4**).

Figure 3. Actual Record of Patient (Identifying Information Changed) with Diverticulosis and a Diverticular Hemorrhage, Demonstrating Graphical Data Presentation Showing Endoscopy Images and Radiographs, Including a Bleeding Scan



A more recent addition to CPRS provides a multipatient view for follow-up on clinical interventions. A list of patients can be generated based on abnormal test results, or based on a clinic schedule, inpatient ward census, or team roster. Using this new care management software, clinicians can manage a group of patients—seeing and taking action on test results, signing notes, or generating new tasks.

NEW DEVELOPMENTS TO SUPPORT CONTINUING TRANSFORMATION

Health*e*Vet and My Health*e*Vet

The VA is currently transforming the architecture underlying its health information systems to more effectively serve the needs of patients, providers, and the health system. The new architectural strategy, known as Health*e*Vet, fully integrates a health data repository with registration systems, provider systems, management and financial systems, and information and education systems.

The health data repository creates a true longitudinal healthcare record including data from VA and non-VA sources, supporting research and population analyses, improving data quality and security, and facilitating patient access to data and health information. With an emphasis on "eHealth," a secure patient portal known as My Health*e*Vet provides patients access to their personal health record, online health assessment tools, mechanisms for prescription refills and making appointments, and access to high-quality consumer health information. The consumer information is evidence based, consistent with clinical practice guideline recommendations (made proactive through clinical reminders), and ideally, inspires the patient to act. Although deployed nationally, a major barrier to the complete penetration of CPRS and Health*e*Vet extensions at every VA site is the challenge of an inadequate high-speed telecommunications infrastructure in more remote and rural parts of the country. Otherwise, My Health*e*Vet is available to veterans wherever Internet access is possible.

Patient-centered Care Coordination

Safety and effectiveness are fundamental expectations for healthcare services, but do not independently constitute patient-centered care. VHA aspires to provide healthcare that is safe, effective, and meaningfully patient centered. Such care is organized so that the locus of control is the patient and the experience of care

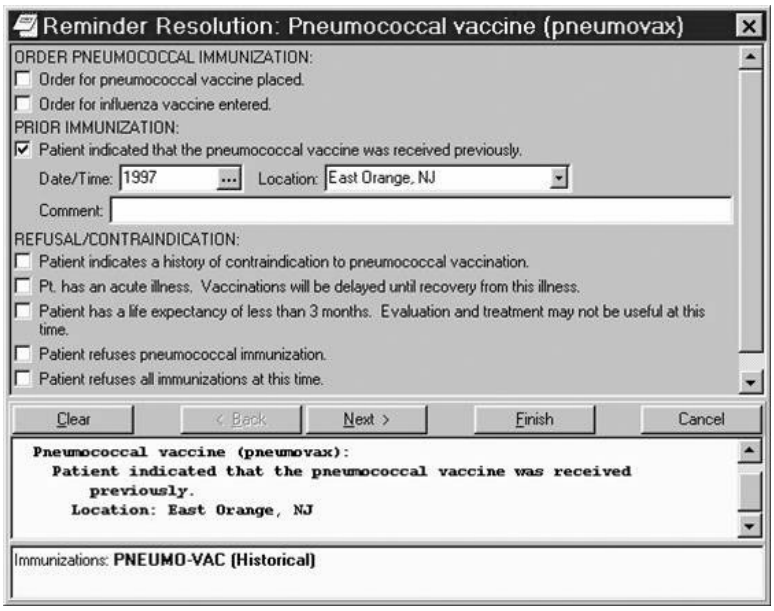
is seamless across environments. Furthermore, the environment of care now extends beyond the provider-centric domains of the hospital and clinic to the patient's home, work place, and community.

Patient-centered care coordination extends the focus of disease management to better and more efficiently integrate every patient's disease-specific and general health needs with the resources of the health system. A patient with diabetes and heart failure is no longer managed with separate but overlapping services for each disease; instead, care coordination seeks to rationalize and unify the care approach. In an environment of constrained resources, care coordination also seeks to ensure that healthcare is provided when the patient needs it, and is not determined by arbitrary, provider-based rules.

The VA's approach to care coordination uses technology to support patients' ability to successfully age and manage disease in their own homes. Using its broadly deployed electronic health record as a foundation, the VA has the unique capacity to use advanced technologies to enable the patient to be seen "just in time" rather than "just in case." Using My HealtheVet, a patient with heart failure can enter her daily weight from home for review by a care coordinator. Should her weight exceed a critical threshold, she would then be called to visit a clinic or even be visited at home. Some pilot programs in the VA now use electronic scales attached to the patient's computers or phone systems to forward weight recordings automatically to care coordinators. Thus, a patient with advanced heart failure is most ideally seen just as she begins to retain fluid, not on an arbitrary schedule that typically fails to identify an impending crisis. The VA's pilot programs in Florida have demonstrated improved patient satisfaction as well as improved physical and mental health functional status for patients enrolled in care coordination.[14]

Given the VA's older population and the trebling of the numbers of veterans more than 85 years old from 380 000 to 1.2 million by 2010, the VA has identified care coordination and supportive technologies as its preferred mechanisms to preserve functional independence and postpone or even obviate the need for institutional care for many who are frail from chronic illness or advanced age. Unlike institutionalization, this approach will allow veterans to maintain their relationship with their spouse and their social roles in their communities. In addition, this approach is more cost-effective than institutional care, especially when combined with simple supportive technologies. Currently, the VA uses standard telephone service for simple, daily voice or text queries (with an interactive "caller ID" type device) to assess the patient's status, compliance with medications, and symptoms. The VA defines this emerging strategy of coordinated, patient-centered care as care that is both safe and effective, and is delivered in the time, place, and manner that the patient prefers.

Figure 4. Clinical Reminder for Pneumococcal Vaccination



SUMMARY AND CONCLUSION

The active management of quality and value through performance measurement, timely data feedback, and information systems that increasingly support clinicians, managers, and patients in achieving the benefits of evidence-based practice has improved the VA's outcomes in each value domain. For example, in the domain of quality, pneumococcal vaccination of at-risk patients is an evidence-based practice that reduces excess morbidity, mortality, and cost.[15] In 1995, the rate of pneumococcal vaccination in eligible VA patients was 29%. Today, it is 90%. The trends are identical in each of the preventive services encompassed by the prevention index (Figure 4).

Performance improvement and achievement have similarly occurred in

the areas of disease treatment encompassed by more than 20 clinical practice guidelines such as coronary artery disease, heart failure, diabetes, and major depressive disorder. Increasingly, VA performance compares favorably with the best performers in areas where performance is, in fact, measured and performance data are available (**Table 2**).[19]

Veterans are increasingly satisfied by changes in the VA health system. On the American Customer Satisfaction Index,[20] the VA bested the private sector's mean healthcare score of 68 on a 100-point scale, with scores of 80 for ambulatory care, 81 for inpatient care, and 83 for pharmacy services for the past 3 years. Similar improvements have been achieved in each value domain.

It also is worth emphasizing that since 1996, improved outcomes have been achieved in each of the value domains, while simultaneously reducing the cost per patient by more than 25%. Returning to the value equation, it would seem evident that the numerator (outputs) rose while the denominator (resource inputs) dropped, signifying enhanced value.

Although the VA healthcare system has changed substantially over the past 8 years, the specific basis of improvements cannot be causally inferred. Two important limitations to understanding the basis of improvement must be noted. First, change was initiated as a strategic and operational imperative, and not structured as an experimental design. Interventions such as new information technologies and performance measurement were not isolated as discrete interventions, but occurred simultaneously. Thus, it is difficult to understand their independent effects. Second, although information technologies such as computerized decision support and provider order entry have been shown to improve quality and decrease adverse events in other environments,[12,13] more analysis of their specific impact on quality in the VA is needed.

Nevertheless, it is likely that some aspects of the contribution of the electronic health record are self-evident. For example, patient records are available virtually 100% of the time today, in contrast to approximately 60% of the time in 1996. Similarly, in circumstances where quality indicators were measured, the VA's clinical performance (eg, in diabetes care) has improved more rapidly and substantially than the clinical performance in other healthcare settings.[21] Measured performance also improved more substantially than unmeasured performance, even within the VA.[22,23]

Table 2. VA, Medicare, and Best Measured non-VA, non-Medicare Performance for 18 Comparable Performance Quality Indicators (US benchmarks are bolded)*

Clinical Indicator	VA 2003	Medicare 2003[16]	Best non-VA or Medicare
Advised tobacco cessation (VA ×3, others ×1)	75	63	68[17,†]
Beta-blocker after MI	98	93	94[17,†]
Breast cancer screening	84	74	75[17,†]
Cervical cancer screening	90	NA	81[17,†]
Cholesterol screening (all patients)	91	NA	73[18]
Cholesterol screening (post-MI)	94	80	79[17,†]
LDL-C < 130 mg/dL post-MI	78	67	61[17,†]
Colorectal cancer screening	67	50	49[18]
Diabetes HbA_{1C} checked past year	94	88	83[17,†]
Diabetes HbA_{1C} > 9.5% (lower is better)	15	NA	34[17,†]
Diabetes LDL-C measured	95	91	85[17,†]
Diabetes LDL-C < 130 mg/dL	77	68	55[17,†]
Diabetes eye exam	75	65	52[17,†]
Diabetes kidney function	70	54	52[17,†]
Hypertension: BP ≤ 140/90	68	61	58[17,†]
Influenza immunization	76	74	68[18,‡]
Pneumococcal immunization	90	NA	63[18]
Mental health follow-up 30 days postdischarge	77	60	74[17,†]

*All measures are directly comparable, except for mental health follow-up, because the VA accepts telephonic follow-up. All data are from 2002 and were published by the sources noted.
BP indicates blood pressure; HbA_{1C}, glycosylated hemoglobin; LDL-C, low-density lipoprotein cholesterol; MI, myocardial infarction; NA, data not available; VA, Department of Veterans Affairs.
†Patients were of all ages and were in private managed care programs.
‡Rhode Island is the benchmark for influenza immunization.

It should be noted that this period of transformation was not without difficulties and performance challenges. The VA experienced unprecedented growth, with more than 800 000 new enrollees in 2002 alone. As of July 2002, the VA had accumulated 317 000 nonurgent new patients waiting 180 days or more for their first visit. Deploying advanced clinic access techniques and performance measurement as the primary strategies, the VA eliminated the entire backlog by March 2004.[24] The VA now measures in terms of average waits, with the goal and actual performance averaging under 30 days for new appointments.

In summary, electronic health records, performance management, and a patient-centric focus have been critical transformational strategies for the VA. They have been utilized to support achievement and are associated with measurable progress in each of the VA's value domains. The VA's value domains are remarkably consistent with the ideal health system aims recommended in the *Crossing the Quality Chasm*,[1] providing additional evidence for the report's premise that adoption of these aims will result in more effective healthcare delivery.

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