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VA HEALTH CARE DELIVERY

Top Management Leadership Critical to Success of Decision Support System

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The Honorable Bob Stump
Chairman
The Honorable G.V. (Sonny) Montgomery
Ranking Minority Member
Committee on Veterans' Affairs
House of Representatives

One of the primary missions of the Department of Veterans Affairs (VA) is the delivery of health care services to eligible veterans. The Veterans Health Administration (VHA), within VA, operates the largest health care system in the nation, with an annual budget in excess of $16 billion. Despite its size and complexity, however, VHA lacks detailed, reliable information on the operating costs of its 172 hospitals. Consequently, as we previously reported,[1] it could not determine which of its facilities were working well and where procedures were or were not cost-effective.

This report responds to the former Chairman's June 6, 1994, request and subsequent discussions with the Committee's staff that we assess VHA's efforts to implement a medical decision support system. Such a computer-based system has provided hospitals in the private sector with improved data on patterns of patient care and the cost of providing health care services. As of July 31, 1995, VA had started implementing its decision support system (DSS) at 38 hospitals. Our objectives were to assess (1) the kinds of benefits that such a system can provide VA, (2) whether VA is pursuing the comprehensive business strategy needed to achieve these benefits, and (3) whether VA is establishing an adequate information infrastructure for DSS.

Results in Brief

DSS has the potential to be an effective management tool for improving the quality and cost-effectiveness of VHA health care operations. This has already been demonstrated in the private sector. VA, however, has not yet developed the comprehensive business strategy necessary to achieve such potential benefits. Business goals and a comprehensive implementation strategy have not been formulated to clearly define how VA will use DSS-generated information or prioritize its limited resources to implement DSS. VA also has not established the information infrastructure needed to support DSS. Some of the data provided to DSS from other VA information

[1]GAO Transition Series, Financial Management Issues (GAO/OCG-93-4TR, December 1992).

systems are incomplete and inaccurate, limiting VA's ability to rely on DSS-generated information to make sound business decisions.

VA's Under Secretary for Health recently announced support of DSS and strong commitment to making it a priority system within VHA. These are steps in the right direction. Sustaining top management leadership and commitment within VHA is critical to the successful implementation and use of DSS. VHA recognizes that its day-to-day management culture needs to be transformed to one with much greater attention to cost-effectiveness and the need for adequate management information to balance cost containment, quality of care, and accountability. Greater top management involvement will help ensure that the benefits offered by the much needed system are realized, including an adequate return on a projected $132 million DSS investment.

Background

Decision support systems provide managers with information on business operations to assist decision-making. In the health care industry, these systems can provide managers and clinicians with data on patterns of patient care and patient health outcomes, which can then be used to analyze resource utilization and the cost of providing health care services. A number of vendors offer various types of decision support systems for the health care industry.

Decision support systems can compute the costs of services provided to each patient by combining patient-based information on services provided during episodes of care with financial information on the costs and revenue associated with those services. For example, a private sector hospital performing cataract surgery collects information on the services provided to each patient, including the laboratory tests performed and the medications supplied, through its billing system. The hospital then collects revenue and cost information through its accounting systems, incorporating the collections from the insurance companies and applicable parties, such as Medicare, and expenditures for utilities and equipment.

Using a decision support system to combine the clinical and financial information from the billing and accounting systems, the hospital can, for example, (1) calculate the specific cost of providing cataract surgery to a patient, (2) compare revenue received to costs incurred to determine profitability for this type of service, (3) compare costs incurred for different physicians and for surgery performed at different locations,

(4) evaluate patient outcomes, and (5) perform analyses on ways to increase the quality of service, reduce costs, or increase profitability. Decision support systems can also support the comparison of patient care to predefined health care standards.

VHA's Plans for a Decision Support System

In light of VHA's lack of cost information on its hospitals and at the urging of your Committee, VHA conducted a study resulting in the acquisition of a decision support system. In September 1993, it awarded a contract to a commercial vendor to implement this system at 10 VA hospitals. VHA has since increased the total number of hospitals/sites currently implementing DSS to 38. As shown in figure 1, VA's interest in acquiring DSS dates back to 1983.

Figure 1: History of DSS at VA

1983	VA's Chief Medical Director sees need to develop management information system.
1984	Three VAMCs selected to develop different prototype approaches to a decision support system to be implemented VA-wide. Hines (Chicago, IL) and Long Beach (CA) sites to develop custom systems; Brockton (MA) to implement commercial software.
1986	Commercial software implementation project begins at Brockton VAMC.
1987	VA committee reviewing prototype approaches says future decision support system development should follow the Brockton/West Roxbury model.
1988	Brockton/West Roxbury wins national VA competition over two other systems; VA requires additional evaluation/competition period.
1991	VA awards contract to test commercial DSS software at Brockton/West Roxbury and White River Junction (VT) VAMCs.
1992	VA evaluation committee established to review the test sites.
1993	June - Report to the Chairman, Committee on Veterans Affairs, U.S. House of Representatives, recommends VA select a decision support system by September 1993 and states belief that the commercial software will provide the most effective means for VA to obtain medical cost information. June - VA evaluation committee releases report recommending VA fully implement commerical DSS software under test at Brockton/West Roxbury VAMC. September - VA awards contract to implement DSS software installed at Brockton/West Roxbury at 10 DSS sites.
1994	February - DSS implementation begins at the 10 sites. April - Director of the DSS Program Office hired. November - Deputy Directors for DSS Program Office hired
1995	January - DSS implementation begins at 22 additional sites including the 2 test sites at Brockton/West Roxbury and White River Junction VAMCs. July - DSS implementation begins at six additional sites.

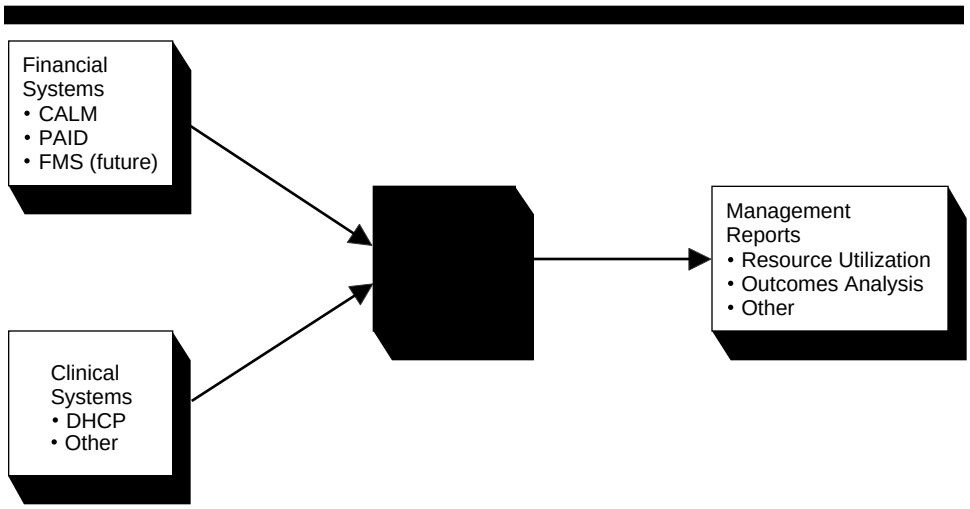
VAMC - Veterans Administration Medical Center

VA believes that DSS can help it effectively manage the cost and quality of health care provided to an estimated 2.5 million veterans annually. It also

expects that DSS can help it remain a viable option in national health care delivery as the country moves towards a managed care environment focusing on cost-effectiveness.

In implementing DSS, VA plans to use its existing information systems as the primary source of clinical and financial information. Although VA does not have a billing system analogous to the private sector, VA's Decentralized Hospital Computer Program (DHCP) captures clinical workload information. VA also has accounting systems, the Personnel and Accounting Integrated Data, and Centralized Accounting for Local Management systems, which capture financial information on labor and supplies, respectively. The systems providing information to DSS, as shown in figure 2, are sometimes referred to as feeder systems. VA has also developed software to extract information from the feeder systems for input to DSS. Standard cost accounting information, such as allocations of indirect material and labor, are entered directly into DSS by hospital personnel.

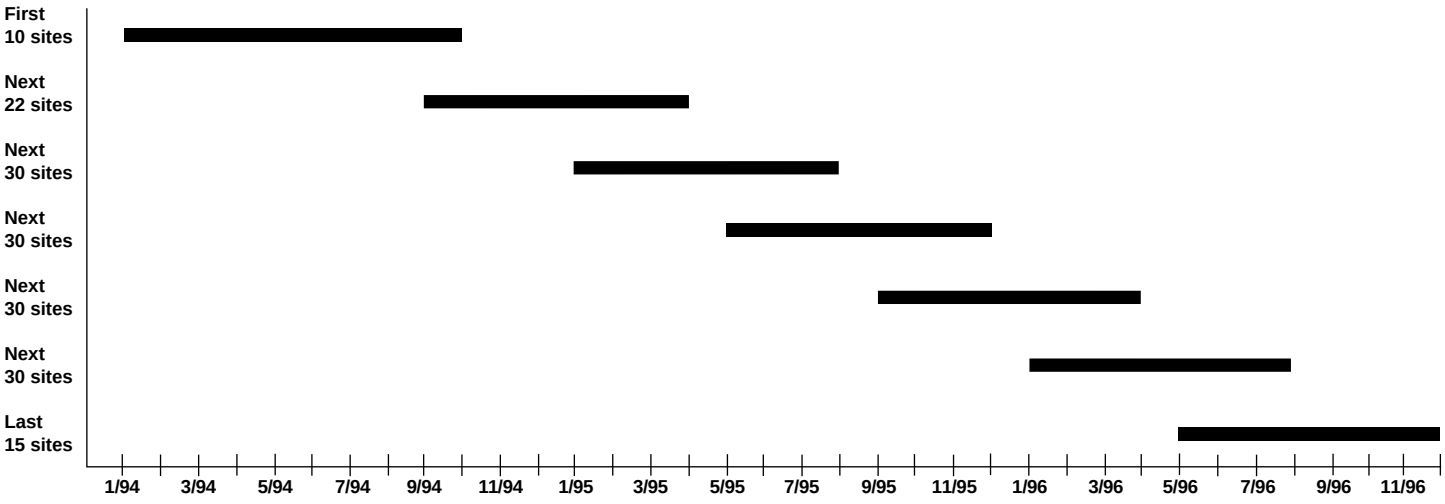
Figure 2: DSS Information Flow



CALM - Centralized Accounting for Local Management
PAID - Personnel Accounting and Integrated Data
FMS - Financial Management System

VA plans to implement DSS at 161 of its hospitals.[2] This is a major undertaking for the vendor—the DSS project is the largest implementation of the vendor's product to date. The vendor's next largest implementation involved 20 private sector hospitals. As shown in figure 3, the implementation was initially planned over a 3-year period from January 1994 through December 1996. The implementation was recently slowed to allow VA to address critical implementation issues.

Figure 3: DSS Implementation Plan as of September 1994

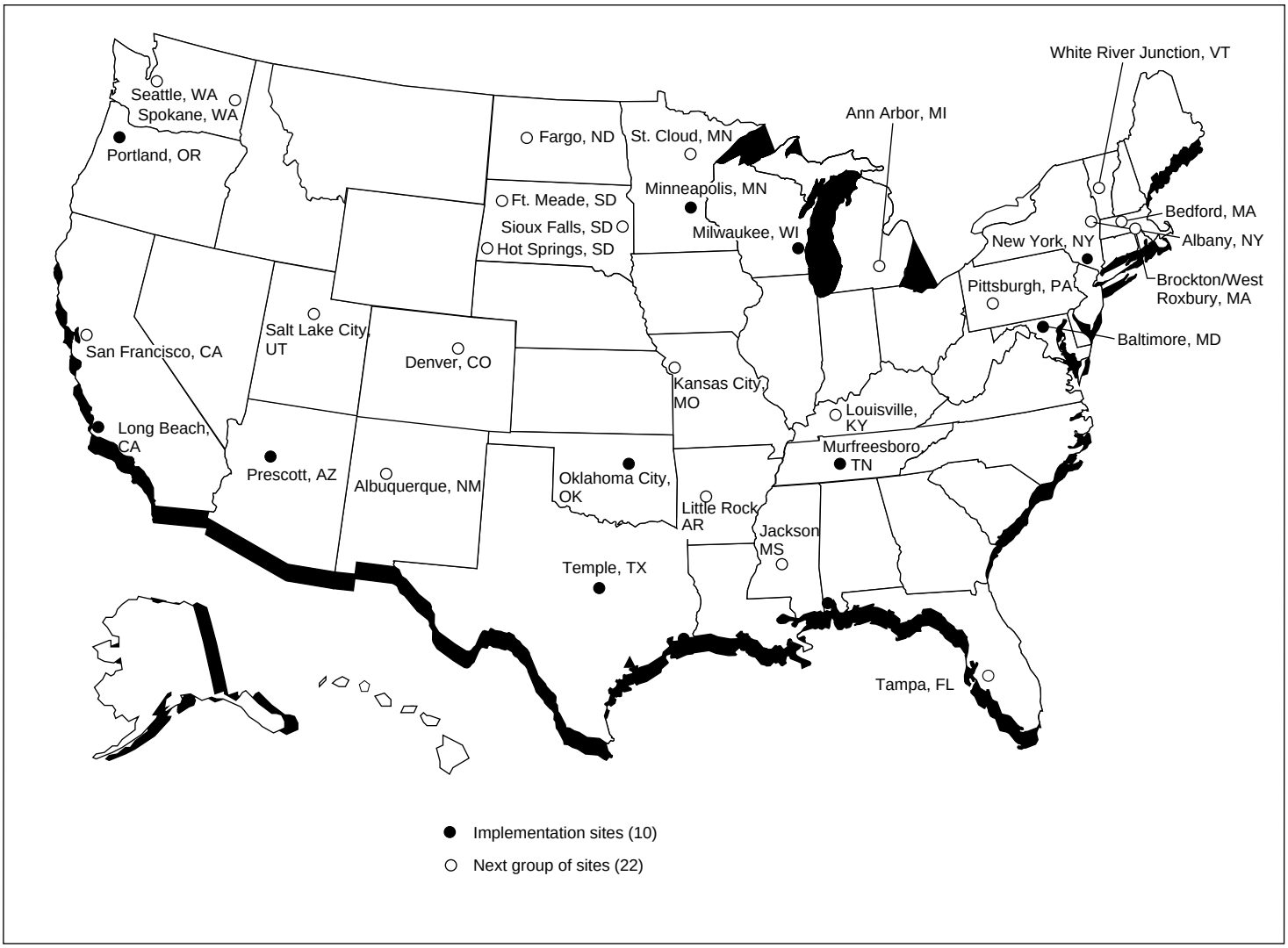


As of June 1, 1995, VA had started implementing DSS at the 32 sites shown in figure 4. VA implemented another 6 hospitals in July. VA estimates that the total cost of implementing DSS will be about $132 million.[3] Also, according to VA officials, as of July 20, 1995, they had spent about $30 million on the DSS project.

[2]VA has stated that it has 172 hospitals; 11 of these are part of other hospitals, leaving 161 hospitals at which to implement DSS.

[3]The overall implementation cost for DSS is comprised of vendor costs and internal VA costs. Of the $132 million, $22 million is estimated for the vendor costs, covering software, software maintenance, and consulting services. VA's internal costs cover personnel, facilities, hardware, training, and travel.

Figure 4: Location of First 32 DSS Implementation Sites



Operational responsibility for the DSS project lies with the DSS Program Office in Kansas City, Missouri,[4] which reports to the VHA Chief Financial Officer in Washington, D.C. The program office is responsible for coordinating and directing the implementation of DSS at the hospitals. In June 1995, the program office was headed by an acting project director,[5]

[4]In July 1995, the DSS Program Office relocated from Kansas City, Missouri, to Washington, D.C.

[5]A new DSS Program Director was appointed in July 1995.

who was assisted by an acting deputy director for operations and a deputy director for information resource management. Assisting the program office on technical and quality issues are the deputy directors for technical implementation, data systems development, administration and resource management, and quality management.

Under VHA's March 1995 restructuring plan, which is expected to begin implementation on October 1, the program office will report to the new position of VHA Chief Information Officer, instead of the Chief Financial Officer. The Chief Information Officer will report to the Under Secretary for Health. While it is unclear at this time what role the Chief Financial Officer will have over DSS in the future, we believe that the DSS project will benefit from having this individual serve in an advisory capacity to the Under Secretary regarding DSS.

Scope and Methodology

To determine the potential benefits to be gained from VA implementing DSS and whether VA was pursuing a coordinated business strategy, we discussed these issues with the Under Secretary for Health, the VHA Chief Financial Officer, the DSS Project Director, the Director of Medical Information Resources Management Office (MIRMO), and representatives of private sector hospitals who use the vendor's software. We also reviewed relevant VHA organizational plans and related management documents.

To determine whether VA was establishing an adequate information infrastructure for DSS, we interviewed key DSS program officials in Washington, D.C.; Kansas City, Missouri; the National DSS Training and Education Office in Cleveland, Ohio; and the Technical Office located in Bedford, Massachusetts. We reviewed DHCP documentation, DSS processing information, and extract software design information. We had extensive discussions with MIRMO staff at the Information System Center in Birmingham, Alabama, involved in developing DSS extract software. Additionally, we met with staff at the Austin Automation Center in Austin, Texas, involved in processing DSS and DHCP information.

To determine whether VHA was implementing DSS in a manner likely to maximize success, we visited VHA Medical Centers implementing DSS in Brockton, Massachusetts; New York, New York; Oklahoma City, Oklahoma; and Temple, Texas. We met with members of the DSS implementation team at each location as well as with top management personnel. We also compared VA's effort to implement DSS against the best practices of leading private and public organizations for strategic

information management identified in our publication entitled, Executive Guide: Improving Mission Performance Through Strategic Information Management and Technology, (GAO/AIMD-94-115, May 1994). We met with the vendor providing the DSS software and had discussions with other vendors who market similar software. We also had discussions with private sector health care providers who are using the vendor's DSS software regarding their successes and problems in using DSS. We reviewed VA's DSS implementation plans, the contract between VA and the vendor, and other DSS implementation project documents.

In addition, we obtained oral comments on a draft of this report from the VHA Chief Financial Officer. His comments are summarized in the "Agency Comments and Our Evaluation" section of this report. We conducted our work between June 1994 and June 1995 in accordance with generally accepted government auditing standards.

DSS Holds Promise for VA

VA believes that DSS can provide it with an opportunity to gain control of its health care costs and increase the efficiency of health care delivery. With DSS, VA can calculate the cost of its health care services and use this information to assess its financial competitiveness in changing health care markets and improve its operations. For example, DSS can provide VA with a basis for maximizing third-party reimbursements through the Medical Care Cost Recovery (MCCR)[6] program, improving the quality of health care delivery and allocating VHA resources on the basis of workload and local efficiencies.

As we reported in December 1992, VA lacks information on the costs of providing health care services at each of its 172 hospitals. The availability of this information would be a major step toward financial accountability at VA. DSS is expected to provide hospital managers and health care providers with variance reports identifying areas for reducing costs and improving patient outcomes and clinical processes. Private sector hospitals already use decision support systems to achieve these objectives. For example, a private sector health care organization used information from its decision support system to reduce the costs associated with surgical supply packs. Staff there determined that the supply packs for a gall bladder procedure varied greatly in price, yet the higher cost packs did not improve patient outcomes. The organization was able to work with a

[6]The mission of VA's MCCR program is to maximize the recovery of funds due VA for the provision of health care services to veterans, dependents, and others using the VA system. VA is authorized to submit claims to veterans' third-party insurance carriers and collect co-payments from veterans for treatment and medications for nonservice-connected conditions.

vendor to reduce the price of the packs, saving $600,000 annually. According to representatives of another private sector health care organization, the vendor's software enabled them to competitively price medical services and win contracts for these medical services.

VA officials have also stated that DSS can help them collect more MCCR revenue by providing them with itemized cost information on which to base bills to third-party payers. An itemized bill would identify the costs of all medical services and supplies provided to the patient. Because VA currently lacks a cost accounting system, it is unable to prepare itemized bills. VA currently bills third-party payers on a flat-rate basis, regardless of the level of services provided or the cost of these services. For example, these payers are billed a flat rate of $1,350 per day for inpatient surgery, regardless of the type of surgery performed. As such, VA may not be billing third-party payers for all applicable costs associated with the patient.

Aside from enhancing financial management, VA can use DSS to improve the quality of its health care services. For example, a private sector hospital used the vendor's software to conduct a pilot study, comparing the treatment of heart failure patients with medical treatment standards defined by hospital experts and identified some treatment practices requiring modification by physicians. By adopting these treatment modifications, the hospital reduced its patient length of stay by an average of half a day and treatment costs by $250,000. According to a hospital official, mortality rates for these patients decreased by 2.6 percent, and readmissions decreased by 3.3 percent.

When fully implemented, DSS should be able to provide valuable information on the costs of medical services and patterns of patient care and patient outcomes at the regional and national levels of VHA. DSS also has the capability to "roll-up" information to the corporate level. For example, a private sector organization with multiple hospitals used the vendor's software to analyze the cost and profitability of its cardiology services at different locations. The decision support software enabled the manager to determine that one of its hospitals was purchasing expensive catheterization lab services, which reduced the profitability at that hospital. Similarly, VHA can use DSS to assess the relative performance of specific hospitals, both within and across its networks, and make necessary adjustments, such as reallocation of personnel resources, based on workload and local efficiencies. VHA can also use DSS, which allows it to model the patient case mix, volume, resource cost, and reimbursement changes, to assist in preparing its budget request.

Comprehensive DSS Business Strategy Lacking

VHA has not developed a business strategy for effectively utilizing DSS as a management tool. Top managers have not defined the business goals to be achieved and measured using DSS, nor have they historically assumed the leadership necessary to ensure that DSS is successfully implemented. Lack of goals and leadership has put the DSS project at risk. Correcting these problems will not be easy because VA's culture has not traditionally focused on the cost-effectiveness of hospital operations. The Under Secretary for Health, however, has recently demonstrated a strong commitment to DSS, and has taken initial steps to develop business goals and address cultural issues.

Business Goals Not Established

Business goals are the foundation from which organizations develop strategic plans and strategic information management plans. These goals and associated plans guide the organization, determine how and where resources will be used, and provide a framework for using management tools such as DSS. Additionally, performance measures based on clearly defined goals provide a mechanism for identifying problems and assessing progress.

The Under Secretary for Health told us that VHA does not have business goals. While he was unable to explain why VHA had not established business goals earlier in the project,[7] the Under Secretary acknowledged the importance of business goals and said that they were a necessary prerequisite for developing performance measures.

The lack of business goals for VHA has contributed to a lack of clear goals for the DSS project. Without clear business goals for DSS, the individuals involved with the project set their own personal objectives for DSS. These varied and sometimes conflicted. For example, the Project Director's goal was simply to implement DSS at the 161 VA hospitals—how each hospital used DSS was up to each hospital. The objective of the Deputy Director for Technical Implementation was for DSS to accurately capture all clinical episodes of care. The Deputy Director for Quality Management's goal was to achieve health care delivery improvements. Clear business goals could incorporate these objectives into a common framework to enhance VHA health care delivery.

IRM Leadership Essential to DSS Implementation

The senior information resource management (IRM) executive in an organization should play a critical role in seeing that business and

[7]The current Under Secretary came to VHA during the fall of 1994.

information strategies are carefully coordinated to achieve organizational goals. The VHA organizational structure currently does not have an executive in a position to coordinate competing priorities between DHCP and DSS and effectively allocate limited IRM resources. For example, no one at VHA is setting priorities on the critical data elements needed in DHCP to support the DSS information infrastructure. As we discuss later, DSS requires some key data not currently captured in DHCP. To obtain the data from DHCP would require VHA top management to direct MIRMO, responsible for managing DHCP and related projects, to work on DSS priorities. However, the DSS Project Office and MIRMO report to different individuals. While both offices are organizationally under the Deputy Under Secretary for Health for Administration and Operations, this position has been vacant since January 31, 1995.

VA Culture Constrains Progress

As we have previously stated,[8] VHA does not operate as a centrally managed health care system but as individual medical centers competing with each other to provide as wide a range of services as possible. Medical center directors' performances are generally judged by what new facilities, services, and equipment they bring to the medical centers. During the initial DSS test period, several directors at one VA hospital did not see DSS as needed, were not interested in using DSS, and did not attempt to understand it.

VHA is in the process of replacing its current regional system, which is comprised of four regions, with 22 Veterans Integrated Service Networks. VHA's vision, according to its March 1995 restructuring plan, is to improve customer satisfaction, quality of care, access, and cost-effectiveness. The plan also states that "VHA has instilled certain behaviors and attitudes in its employees that are not compatible with this new direction." The Under Secretary for Health recognizes that this transformation will take time, and that it will not be easy to change VHA's decades-old culture. He further stated that if the veterans health care system is to remain viable it must fundamentally change its approach to providing care.

Recent Developments

We met with the Under Secretary for Health on March 10, 1995, and expressed our concerns about the lack of a comprehensive business plan for DSS, including a lack of leadership, goals, and performance measures. In response to our concerns, the Under Secretary for Health recently initiated steps to address the need for a coordinated business strategy for

[8] VA Health Care: Challenges and Options for the Future (GAO/T-HEHS-95-147, May 9, 1995).

DSS. In a May 18, 1995, memorandum, he stated that DSS is one of VHA's top information systems priorities. In addition, VHA plans to reorganize its IRM organizational structure. Specifically, it plans to place DSS and clinical feeder systems such as DHCP under the newly created position of VHA Chief Information Officer, which reports to the Under Secretary. These actions should help address the lack of leadership and competing IRM priorities. Finally, to help address some of the cultural issues, the Under Secretary for Health plans to implement a performance-based pay system. According to VHA's restructuring plan, managers have historically been evaluated on a variety of inconsistent, often changing performance indicators that were frequently subjective. In contrast, the performance-based system is expected to hold field units and senior managers accountable for objective, measurable achievements. However, VHA has not yet articulated clear business goals or formulated a comprehensive business plan for DSS.

Information Infrastructure Inadequate

Accurate and complete data from VA's feeder systems are also critical to the success of DSS. Anything less will result in the "garbage in-garbage out" analogy. If inaccurate and incomplete data are input to DSS, DSS either will not be used because its data will not be credible, or managers and health care providers relying on DSS will make poor decisions based on incorrect data. We found that some of the key clinical data in DHCP and other clinical feeder systems[9] are being collected completely and provided to DSS. For example, general laboratory test information is collected by DHCP's laboratory software and provided to DSS. The lab software collects all needed pieces of information to define a billable event. Radiology is another clinical area in which DHCP collects all needed information for input to DSS.

However, as shown in figure 5, we also found that some clinical data are incomplete, inaccurate, or inconsistent. For analysis and decision-making purposes, DSS must have information on all relevant clinical events or clinical workload. This information is equivalent to data describing the clinical services billed the payor in the private sector. For VA, the following information is needed from DHCP and other clinical feeder systems, to define a clinical billable event:

- patient identification;
- provider identification—who ordered or provided the treatment;
- time and date of treatment;
- description of service provided, for example, type of x-ray or lab test; and

[9]Other clinical feeder systems include the Patient Treatment File and Outpatient Clinic File.

- location where the service was provided.

These data must be captured as needed to support the specific management decisions to be made using DSS.

Our review showed that some clinical data provided to DSS from DHCP and other clinical feeder systems are incomplete or inaccurate. These problems stem from the fact that DHCP was not designed to capture itemized clinical billing information and feed this information to a billing or decision support system. Moreover, as we discussed earlier, VHA management has not identified specific decisions that DSS is to support, which is a critical factor in determining the data needed for DSS.

Figure 5: Examples of Clinical Data Problems

Issue	Specific problem	Example of specific problem
Incomplete clinical data	Data not captured by DHCP	No DHCP software written to capture psychiatry, psychology, or rehabilitative medicine patient treatment information.
		No DHCP software written to capture patient-specific medications and special supplies in surgical, medical, and cardiac intensive care units.
		"Events capture" software capable of capturing billable event information, from areas such as respiratory therapy and psychiatry, are not installed at most VA hospitals.
	Data partially captured by DHCP	Nursing software does not capture specific procedure information in all cases.
		Outpatient clinic visit software does not capture what procedure was performed or who provided service for each visit.
	Data captured by DHCP but not passed to DSS	Anatomic pathology, internal medicine, and blood bank data not provided to DSS.
Inaccurate clinical data	Over-reporting of workload	According to a 1989 VA Office of the Inspector General audit of outpatient clinic file visits, 14 percent of reported clinic visits did not occur. A representative of this office estimates that, based on more recent work, over-reporting of clinic visits is down to 6 percent in fiscal year 1994.
Inconsistent clinical data	Codes differ for same data	Gender codes differ. For example, gender is coded as "1" or "2" for outpatients and "M" or "F" for inpatients.

Incomplete clinical data make it difficult to perform detailed analysis of clinical costs and activities and make appropriate improvements regarding cost-effectiveness and quality of care. Inaccurate clinical data could cause decisions to be made on the basis of erroneous information. Inconsistent clinical data make efforts to consolidate data across VA medical centers for corporate roll-up difficult.

In addition, VHA needs to properly record clinical events in the correct time period and reconcile these events to ensure accuracy and completeness of data—a process called close out. The use of DSS is based on data flowing from the feeder systems to DSS on a monthly basis. Implicit in this transfer is the availability of accurate and complete information at the end of each month. To accomplish this, private sector facilities reconcile, or close out, their clinical workload records monthly. In contrast, VA closes out its records on an annual basis only, at the end of each fiscal year. Timely monthly close out would allow VA to know the cost of medical care provided within discrete time frames. This would facilitate periodic cost analyses, faster identification of trends and patterns, and more timely adjustment of health care practices— key DSS benefits. Failure to close out in a timely manner can adversely affect the usefulness of the data for decision-making and result in an administrative burden in making necessary adjustments to clinical workload records. For example, at VA's fiscal year 1994 annual close out, it had to correct 8 million outpatient visits, out of a total of 23 million visits documented in its computerized outpatient clinic file. These records would need to be accurate and complete at the end of each month to support DSS. Adopting monthly close out will require fundamental restructuring of administrative activities at VA facilities.

Finally, VA recognizes deficiencies with its financial systems that feed DSS. For example, the audits of VA's consolidated financial statements for fiscal years 1994 and 1993, which were conducted by the Office of the Inspector General, reported that real property, plant, and equipment, and related depreciation account balances captured in the Centralized Accounting for Local Management system were unreliable because some accounting personnel at the VHA hospitals lacked sufficient training and oversight. Additionally, according to VA's 1994 and 1993 Federal Managers' Financial Integrity Act reports, the Personnel Accounting Integrated Data System cannot support mission-critical resource accounting functions necessary to support initiatives such as the National Performance Review, MCCR, and DSS.

Without accurate and complete financial information, VHA cannot determine the cost of clinical events. VA is currently in the process of replacing its Centralized Accounting for Local Management system with a new system, known as the Financial Management System, which is expected to be fully functional in October 1995.

During our March 10, 1995, meeting with the Under Secretary for Health, we expressed concerns about the integrity of data being provided to DSS,

and the fact that VHA was going ahead with the scheduled DSS implementations in light of these problems and others, such as the lack of business goals and performance measures. We also suggested that VHA consider selecting a small number of sites to pilot the use of DSS by management before the system is implemented throughout VA. By piloting DSS at selected sites, VHA can (1) document the kinds of benefits that have been gained from using the system and (2) identify the problems that have occurred at the pilot test sites requiring top management's attention and resolution.

To address our concerns, the Under Secretary for Health took several actions. Specifically, in his May 18, 1995, memorandum, the Under Secretary reduced the number of additional hospitals scheduled for July implementation from 30 to 6 and established a team to ensure that some data elements are consistent across VA medical centers. In addition, he told us VHA plans to have a system in place to collect all billable outpatient care information by October 1996. While these actions begin to address some of our concerns, VHA still does not have a comprehensive plan to (1) identify what data are needed to achieve its business goals, (2) correct known flaws in its data, or (3) ensure that its feeder system software will collect the data needed by DSS. In addition, VHA has not identified specific DSS sites to pilot the use of the system as a management tool, documenting the benefits gained and the problems encountered from using DSS.

Conclusions

Top management leadership is crucial if VHA is to effectively use DSS as a management tool—and DSS is essential if health care costs, quality, and reimbursement are to be effectively managed by VHA. A comprehensive, proactive DSS strategy that establishes business goals, leadership, and accountability would provide a framework within which management could improve health care delivery and cost recovery. This will not be easy and will take time. If VA is to achieve the benefits associated with DSS, it must change a decades-old culture in which business is conducted without enough focus on delivering high quality health care at minimal cost.

In addition, for DSS to be useful for decision-making, it will require a complete and accurate information infrastructure. We are encouraged by the recent steps taken by the Under Secretary for Health. He has demonstrated an understanding of the issues and a willingness to respond. However, unless the Under Secretary's actions are sustained and expanded to fully address the organizational and information

infrastructure issues identified, including piloting DSS at a small number of sites, the millions of dollars invested in DSS to date are at risk.

Recommendations

To increase the likelihood of DSS' success, we recommend that the Secretary of Veterans Affairs direct the Under Secretary for Health to develop a comprehensive business strategy to

- identify the specific business goals (for example, reduction of cost in a specific area by a specific percentage), performance measures, and key decisions that DSS will be required to support;
- give high priority, by allocating appropriate resources, to establishing a complete, consistent, and accurate DSS information infrastructure; and
- identify data that are needed to support decision-making and ensure that these data are complete, accurate, consistent, and reconciled monthly.

We also recommend that VA not implement DSS at any site beyond the 38 already begun until (1) defined business goals and a supporting information infrastructure supporting key decisions are in place and (2) VA's capability to use DSS effectively as a management tool can be demonstrated.

Agency Comments and Our Evaluation

The VHA Chief Financial Officer provided oral comments to our draft report. He stated that the report was a fair, open, and honest assessment of VA's efforts to implement DSS and that VA concurred with most of the recommendations in the report. VA concurred with our recommendation to establish a business strategy and specific business goals and has already taken several actions in this regard. The Under Secretary for Health recently established a work group on performance measures that will be a key component to this effort. In addition, VA recently appointed a new DSS Program Director, and his first priority is to draft and implement a detailed DSS business plan. The Under Secretary for Health also authorized establishing a DSS Corporate Advisory Board to oversee implementation of major systemwide policies and a Field Advisory Board to identify, prioritize, track, and resolve issues that arise from pilot site experience. VA also concurred with our recommendation to allocate appropriate resources to support the DSS information infrastructure. The new VHA Chief Information Officer will oversee both DHCP and DSS. This individual and the VHA Chief Financial Officer will address resource allocation needs relating to these systems.

VA concurred with our recommendation to identify data needed to support decision-making and ensure that these data are complete, accurate, and consistent. However, VA did not agree that monthly reconciliations of clinical or workload records were necessary in light of its future data improvement plans. Specifically, VA plans to establish a national patient care database, which is expected to be implemented in October 1996, that would provide the agency with patient-unique encounter data so that individual changes can be monitored and used in an automatic reconciliation process. The VHA Chief Financial Officer stated that VA's efforts to establish the database would be hampered if scarce resources were diverted to performing monthly reconciliations.

To ensure accuracy and completeness of data, we believe that VA should reconcile its clinical workload records on a monthly rather than annual basis because VA plans to use DSS on a monthly basis. As we pointed out in this report, timely monthly reconciliation or close out would allow VA to know the cost of medical care provided within discrete time frames. This would also facilitate periodic cost analyses, faster identification of trends and patterns, and more timely adjustment of health care practices. Failure to close out in a timely manner can adversely affect the usefulness of data in DSS for decision-making purposes and result in an administrative burden in making necessary adjustments to clinical workload records at fiscal year-end.

Furthermore, the VHA Chief Financial Officer did not clearly explain how the national patient care database would eliminate VA's need to perform monthly reconciliations. We believe that until this database is implemented and providing complete and accurate data to DSS and until the automated reconciliation process is defined and operating effectively, VA should perform monthly reconciliations. Also, it is crucial that as VA begins to develop this database, it ensures that adequate internal control policies and procedures are in place so that the database captures, maintains, and generates timely, accurate data.

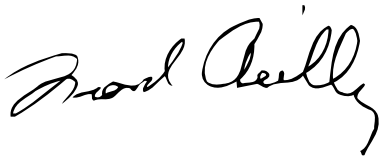
Lastly, the VHA Chief Financial Officer did not agree that DSS should not be implemented beyond the 38 sites already begun until (1) defined business goals and a supporting information infrastructure are in place and (2) VA has demonstrated its ability to use DSS effectively. He indicated that VA has made progress and is confident that it will be able to effectively use DSS as a management tool. He also indicated that private sector hospitals that use DSS did not always have good, reliable data after 1 year and that

expectations for VA's implementation should be realistic. He felt that slowing down the implementation of DSS could jeopardize its success.

While we agreed with the VHA Chief Financial Officer that private sector hospitals implementing DSS may not necessarily have complete and accurate data after 1 year, these hospitals generally have other controls in place, such as billing systems, which provide them some degree of financial accountability. VA, in contrast to the private sector, does not have a billing system. Also, no private sector hospital has implemented DSS at as many sites or as rapidly as VA plans to do. For example, one private sector health care organization told us that it implemented DSS at four sites over a period of 18 months.

In addition, the likelihood of DSS's success will be jeopardized by deploying it to 161 sites before a complete and accurate information infrastructure and effective procedures for its use are in place. We believe that a more appropriate course of action is to pilot DSS at a small number of sites capable of such an undertaking, ensuring that it is free from significant data integrity problems, that supporting procedures and controls are in place, and that the system is useful to management before it is deployed across 161 sites.

We are sending copies of this report to the Chairman, Subcommittee on Veterans Affairs, Housing and Urban Development, and Independent Agencies, Senate Committee on Appropriations; the Secretary of Veterans Affairs; the Director, Office of Management and Budget; and other interested parties. Copies will also be made available to others upon request. Please contact me at (202) 512-6252 if you or your staffs have any questions concerning this report. Major contributors to this report are listed in appendix I.



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