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COMPUTER-BASED PATIENT RECORDS

Short-Term Progress Made, but Much Work Remains to Achieve a Two-Way Data Exchange Between VA and DOD Health Systems

Statement of Linda D. Koontz, Director
Information Management Issues





Highlights of [GAO-04-271T](#), a report to the Subcommittee on Oversight and Investigations, House Committee on Veterans' Affairs

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Why GAO Did This Study

For the past 5 years, the Departments of Veterans Affairs and Defense have been working to exchange health care data and create electronic records for veterans and active duty personnel. Such exchange is seen as a means of reducing the billions of dollars that the departments spend annually on health care services and making such data more readily accessible to those treating our country's approximately 13 million veterans, military personnel, and dependents. This is especially critical when military personnel are engaged in conflicts all over the world, and their health records can reside at multiple locations.

GAO has reported on these efforts several times, most recently in September 2002. At the request of the Subcommittee, GAO is updating its observations on the departments' efforts, focusing on (1) the reported status of the ongoing, one-way exchange of data, the *Federal Health Information Exchange*, and (2) progress toward achieving the longer term two-way exchange under the *HealthePeople (Federal)* initiative.

What GAO Found

Access to medical data that includes information on the entire lives of veterans and active duty military personnel represents an enormous step toward enhanced and more effective medical care. VA and DOD are pursuing this goal in two stages.

- Federal Health Information Exchange.** This current, one-way transfer of health care data from DOD to VA is already allowing clinicians in VA medical centers to make faster, more informed decisions through ready access to information on almost 2 million patients, thereby improving their level of health care delivery. The program's fiscal year 2003 cost was just over \$11 million.
- HealthePeople (Federal).** The realization of this longer term strategy to enable electronic, two-way information sharing is farther out on the horizon. The departments are proceeding with projects that are expected to result in a limited two-way exchange of health data by the end of 2005. However, VA and DOD face significant challenges in implementing a full data exchange capability. Although a high-level strategy exists, the departments have not yet clearly articulated a common health information infrastructure and architecture to show how they intend to achieve the data exchange capability or what they will be able to exchange by the end of 2005. In addition, critical to achieving the two-way exchange will be completing the standardization of the clinical data that these departments plan to share. Without standardization, the task of sharing meaningful data could be more complex and may not prove successful.

VA, DOD Systems to Support Two-Way Data Exchange Strategy

VA Initiatives	Projected Completion	DOD Initiatives
	2005	Graphical User Interface, General Dentistry
Health Data Repository, Billing Replacement	2006	Pharmacy, Laboratory, Radiology, Immunizations
Laboratory	2007	Inpatient and Scheduling
Pharmacy	2008	Additional Capabilities as Defined
Imaging	2011	
Appointment Scheduling Replacement	2012	

Source: VA and DOD.

www.gao.gov/cgi-bin/getrpt?GAO-04-271T.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Linda D. Koontz at (202) 512-6240 or koontzl@gao.gov.

Mr. Chairman and Members of the Subcommittee:

Thank you for inviting us to testify on actions of the Department of Veterans Affairs (VA) and the Department of Defense (DOD) to achieve the ability to exchange patient health care data and create an electronic record for veterans and active duty personnel. VA and DOD, collectively, provided health care services to approximately 13 million veterans, military personnel, and dependents at a cost of about \$47 billion in fiscal year 2002. While in military status and later as veterans, many patients tend to be highly mobile and, consequently, their health records may be at multiple federal and nonfederal medical facilities, both in and outside of the United States. Thus, having readily accessible data on active duty personnel and veterans is important to facilitate providing quality health care to them.

VA and DOD have been pursuing ways to share data in their health information systems and create electronic records since 1998, their actions following the President's call for the development of an interface to allow the two departments to share patient health information.¹ Since undertaking this mission, however, the departments have faced considerable challenges, leading to repeated changes in the focus of their initiative and the target dates for its accomplishment. Our prior reports supporting the initiative² noted disappointing progress, exacerbated in large part by inadequate accountability and poor planning and oversight, which raised doubts about the departments' ability to achieve an electronic interface among their health information systems. When we last reported on the initiative in September 2002,³ VA and DOD had taken some actions aimed at strengthening their joint efforts. For example, they had

¹In 1996, the Presidential Advisory Committee on Gulf War Veterans' Illnesses reported on many deficiencies in VA's and DOD's data capabilities for handling service members' health information. In November 1997, the President called for the two agencies to start developing a "comprehensive, life-long medical record for each service member," and in 1998 issued a directive requiring VA and DOD to develop a "computer-based patient record system that will accurately and efficiently exchange information."

²U.S. General Accounting Office, *Computer-Based Patient Records: Better Planning and Oversight by VA, DOD, and IHS [Indian Health Service] Would Enhance Health Data Sharing*, [GAO-01-459](#) (Washington, D.C.: Apr. 30, 2001); *VA Information Technology: Progress Made, but Continued Management Attention Is Key to Achieving Results*, [GAO-02-369T](#) (Washington, D.C.: Mar. 13, 2002); and *VA Information Technology: Management Making Important Progress in Addressing Key Challenges* [GAO-02-1054T](#) (Washington, D.C.: Sept. 26, 2002).

³[GAO-02-1054T](#).

clarified key roles and responsibilities for the initiative and begun executing revised near- and long-term strategies for achieving the electronic information exchange capability.

My statement today will discuss our observations regarding VA's and DOD's continued actions over the past year to further their implementation of the electronic information exchange, including an update on (1) the status and reported benefits of the ongoing near-term initiative, the Federal Health Information Exchange (FHIE), and (2) the departments' progress and challenges in achieving the longer term, two-way exchange of data under the HealthePeople (Federal) initiative.

In conducting this work, we obtained and reviewed relevant documentation and interviewed key agency officials regarding VA's decisions and actions, in conjunction with DOD, to develop an electronic medical record for exchanging patient information. We analyzed the departments' plans and strategies for the HealthePeople (Federal) initiative and data on patient information that is currently being transmitted by DOD to VA. In addition, to observe data retrieval capabilities of the Federal Health Information Exchange, we conducted a site visit at the VA medical center in Washington, D.C. We performed our work in accordance with generally accepted government auditing standards, from March through November 2003.

Results in Brief

The current one-way transfer of health information resulting from the departments' near-term solution—the Federal Health Information Exchange—represents a positive undertaking that has begun enabling information sharing between DOD and VA. As part of the initiative, electronic health data from separated (retired or discharged) service members contained in DOD's Military Health System Composite Health Care System are being transmitted monthly to a VA FHIE repository,⁴ which VA clinicians access through the department's current health system, the Veterans Health Information Systems and Technology Architecture. As a result, VA clinicians now have more readily accessible DOD health data, such as laboratory, pharmacy, and radiology records, on almost 2 million patients and have noted the benefits of this current capability in improving health care delivery. Further, although not

⁴A repository is an information system used to store and access data.

originally included in the FHIE plan, VA officials have stated that efforts are underway to provide access to outpatient and retail pharmacy data.

Realizing the departments' longer term strategy—HealthePeople (Federal)—is farther out on the horizon. VA officials have stated that the departments are on schedule to provide a limited capability for an electronic, two-way exchange of patient health information by the end of 2005. However, VA and DOD face significant challenges in implementing a full data exchange capability. Although a high-level strategy exists, the departments have not yet clearly articulated a common health information infrastructure and architecture to show how they intend to achieve the data exchange capability or what exactly they will be able to exchange by the end of 2005. In addition, critical to achieving the two-way exchange will be completing the standardization of the clinical data that these departments plan to share. Without standardization, the task of sharing meaningful data is made more complex, and may not prove successful. Until these essential issues are resolved, the departments cannot be assured that the HealthePeople (Federal) initiative will deliver expected benefits within established time frames.

Background

In 1998, VA and DOD, along with the Indian Health Service (IHS), began the Government Computer-Based Patient Record (GCPR) project—an initiative to share patient health care data. At that time, each agency collected and maintained patient health information in separate systems, and their health facilities could not electronically share patient health information across agency lines. GCPR was envisioned as an electronic interface that would allow physicians and other authorized users at VA, DOD, and IHS health facilities to access data from any of the other agencies' health facilities. The interface was expected to compile requested patient information in a “virtual” record that could be displayed on a user's computer screen.

In reporting on the initiative in April 2001,⁵ we raised doubts about GCPR's ability to provide expected benefits. We noted that the project was experiencing schedule and cost overruns and was operating without clear goals, objectives, and consistent leadership. We recommended that the participating agencies (1) designate a lead entity with final decision-making authority and establish a clear line of authority for the GCPR

⁵[GAO-01-459](#).

project, and (2) create comprehensive and coordinated plans that included an agreed-upon mission and clear goals, objectives, and performance measures, to ensure that the agencies could share comprehensive, meaningful, accurate, and secure patient health care data. VA, DOD, and IHS agreed with our findings and recommendations.

In March 2002, however, we again reported that the project was continuing to operate without clear lines of authority or a lead entity responsible for final decision-making.⁶ Further, the project continued to move forward without comprehensive and coordinated plans, including an agreed-upon mission and clear goals, objectives, and performance measures. In addition, the participating agencies had announced a revised strategy that was considerably less encompassing than the project was originally intended to be. For example, rather than serve as an interface to allow data sharing across the three agencies' disparate systems, as originally envisioned, the revised strategy initially called only for a one-way transfer of data from DOD's current health care information system to a separate database that VA hospitals could access. In further reporting on this initiative in June 2002, we recommended that VA, DOD, and IHS revise the original goals and objectives of the project to align with their current strategy, commit the executive support necessary to adequately manage the project, and ensure that it followed sound project management principles.⁷

When we last testified on the initiative in September 2002,⁸ VA had reported some progress toward achieving shared patient health care data and the two departments had formally revised both the name and the strategy for the initiative. Specifically, the two departments had renamed the project the Federal Health Information Exchange (FHIE) Program. In addition, consistent with our prior recommendation, they had finalized a memorandum of agreement designating VA as the lead entity in implementing FHIE.

With this agreement, FHIE became a joint effort between VA and DOD to achieve the exchange of health care information in two phases. The first

⁶[GAO-02-369T](#).

⁷U.S. General Accounting Office, *Veterans Affairs: Sustained Management Attention Is Key to Achieving Information Technology Results*, [GAO-02-703](#) (Washington, D.C.: June 12, 2002).

⁸[GAO-02-1054T](#).

phase, completed in mid-July 2002, enabled the one-way transfer of data from DOD's existing health care information system to a separate database that VA hospitals could access.

Further, the revised strategy envisioned VA and DOD pursuing a longer term, two-way exchange of clinical information.⁹ This initiative, known as *HealthePeople* (Federal), is premised upon the departments' development of a common health information infrastructure and architecture comprising standardized data, communications, security, and high-performance health information systems. The departments developed the strategy for achieving the two-way exchange in September 2002 and anticipated achieving a limited capability by the end of 2005.

VA AND DOD Continue to Report Success in Implementing the Federal Health Information Exchange Near-Term Solution

Over the past year, VA and DOD have continued to realize success in the implementation and use of FHIE. In achieving the exchange of health care information, electronic data from separated (retired or discharged) service members contained in DOD's Military Health System Composite Health Care System (CHCS) are being transmitted monthly to a VA FHIE repository, which VA clinicians access through the Computerized Patient Record System (CPRS) in the Veterans Health Information Systems and Technology Architecture (VistA), VA's current health care system. This information exchange capability is currently available to all VA medical centers and has given VA clinicians the ability to access and display the data through CPRS remote data views¹⁰ about 6 weeks after the service member's separation. VA and DOD reported spending about \$11 million in fiscal year 2003 to cover completion and maintenance of FHIE.

According to program officials, FHIE is showing positive results by providing a wide range of health care information to enable clinicians to make faster and more informed decisions regarding the care of veterans. The officials stated that the repository presently contains data on almost 2 million patients. This includes clinical data on almost 1.8 million personnel who separated from the military between 1987 and June 2003. The data consist of over 23 million laboratory records, 24 million pharmacy records, and over 4 million radiology records. A second phase of the FHIE

⁹IHS, which had been a part of the early efforts, was not included in FHIE, but was expected to assume a role in the longer term project—*HealthePeople* (Federal).

¹⁰CPRS remote data views is an application that allows authorized users to access patient health care data from any VA medical facility.

initiative, completed in September 2003, added to the base of health information available to VA clinicians by including discharge summaries;¹¹ allergy information; admissions, disposition, and transfer information; and consultation results. A clinician at VA's Washington, D.C. medical center noted that the information provided through FHIE has proved particularly valuable for treating emergency-room and first-time patients by providing ready access to information on patients' existing medical conditions and current drug prescriptions.

The program manager added that FHIE is providing ready access to health information. It is currently capable of accommodating up to 800 queries per hour, with an average response rate of 4 seconds per query. For the month of September 2003, VA clinicians made over 1,900 authorized queries to the database. Further, as we observed during an FHIE demonstration at the medical center, the capability has resulted in an almost instantaneous display of DOD patient data in the same format as other data residing in CPRS, thus facilitating its use.

Although nearing completion, VA officials indicated, additional patient information from DOD will be added to the FHIE database. For example, they stated that efforts are currently under way to add, by the end of December, outpatient pharmacy data (such as mail order and retail pharmacy profiles) that are housed in DOD's Pharmacy Data Transaction Service, and by the end of February 2004, other outpatient records.

Actions Toward a Common Health Information Infrastructure Are Progressing, but Significant Challenges Remain

Beyond FHIE, VA and DOD are proceeding with a joint, long-term strategy involving the two-way exchange of clinical information. Under this strategy, VA and DOD plan to seek opportunities for sharing existing systems and technology and explore the convergence of VA and DOD health information applications consistent with mission requirements. According to the Veterans Health Administration's Acting Deputy Chief Information Officer (CIO) for Health, and the Military Health System's CIO, this joint VA/DOD initiative is expected to allow the secured sharing of health data required by their health care providers between systems that each is currently developing—DOD's Composite Health Care System II (CHCS II) and VA's HealtheVet VistA. Critical to achieving this capability is an interface to allow the exchange of patient health information between each system's data repository.

¹¹Discharge summaries will include inpatient histories, diagnoses, and procedures.

Under the HealthePeople (Federal) strategy, upon entering military service, a health record for the service member will be created and stored in DOD's CHCS II clinical data repository. The record will remain in the clinical data repository and be updated as the service member receives medical care. When the individual separates from active duty and, if eligible, seeks medical care at a VA facility, VA will then create a medical record for the individual, which will be stored in its health data repository. Upon viewing the medical record, the VA clinician would be alerted and provided access to clinical information on the individual also residing in DOD's repository. In the same manner, when a veteran seeks medical care at a military treatment facility, the attending DOD clinician would be alerted and provided access to the clinical information existing in VA's repository. According to VA and DOD, the planned approach would make virtual medical records displaying all available clinical information from the two repositories accessible to both departments' clinicians.

VA and DOD Are Making Progress, but Full Implementation of Joint Strategy Is Years Away

VA's and DOD's joint strategy for accomplishing the two-way exchange of health information, developed in September 2002, depends on successfully implementing and achieving an electronic interface between individual health information systems that each department is currently developing. These systems development efforts began as separate, department-specific initiatives in which VA aimed to enhance its existing health information system utilizing modern tools and languages, and DOD aimed to replace several of its health information systems to achieve cost efficiencies and a computer-based patient record. Work on modernizing VA's new system, HealtheVet (VistA), began in 2001, and development of DOD's new system, CHCS II, began in 1997.

Since establishing the strategy, VA and DOD have made some progress on systems development efforts that will support achieving health data exchange. Currently, VA and DOD are in different stages of completing their systems. As shown in table 1, VA began work on one of the key initiatives intended to support HealthePeople (Federal)—the health data repository—in June 2001; it is currently testing the design of this database. VA plans to complete the repository by July 2006; it projects completing all six initiatives comprising HealtheVet (VistA) over the next 9 years, with a final module on scheduling replacement expected in May 2012.

Table 1: HealtheVet (VistA) Initiatives

HealtheVet Initiative	Purpose	Initiative Start Date	Projected Completion Date
Health Data Repository (HDR)	Establish a repository of clinical information normally residing on one or more independent platforms	June 2001	2006
Billing Replacement	Obtain a modern, high- performance billing system that will support an increase to third- party payments	April 2002	2006
Laboratory	Clinically oriented system designed to provide data to health care personnel	February 2003	2007
Pharmacy	Facilitate improved VA pharmacy operations, customer service, and patient safety, concurrent with the pursuit of full reengineering of VA pharmacy applications	April 2002	2008
Imaging	Provide complete online data to healthcare providers, to increase clinician productivity, facilitate medical decision-making, and improve quality of care	October 2002	2011
Appointment Scheduling Replacement	Provide VistA users with a redesigned scheduling capability to better meet the needs of VHA facility staff and patients	May 2001	2012

Source: VA.

As table 2 reflects, DOD is incrementally deploying CHCS II in five blocks, with each block providing additional capabilities to its system. The department is currently proceeding with limited deployment of its graphical user interface for clinical outpatient processes. In addition, DOD has completed its clinical data repository, and a department official stated that as each site implements CHCS II, data in CHCS will be converted to the new system. DOD expects to complete deployment of all of its major system capabilities by September 2008.

Table 2: CHCS II Deployment Information

Block Number	Major Capabilities	Status	Projected Completion Date
1 (release 1)	Adds a graphical user interface for clinical outpatient processes	Limited deployment underway	September 2005
2 (release 2)	Support for general dentistry	Deployment to Operation, Test & Evaluation sites during the 2nd Qtr of FY04	September 2005
3 (releases 3&4)	Provides pharmacy, laboratory, radiology, and immunizations capabilities	Plan under way to award a contract for Block 3 in 2nd Qtr FY 04 and begin requirements analysis by 4th Qtr FY04	September 2006
4 (releases 5&6)	Provides inpatient and scheduling capabilities	Begin requirements development and analysis in 2nd Qtr FY 04	September 2007
5 (release 7)	Additional Capabilities as Defined	Begin requirements development and analysis in early 1st Qtr FY05	September 2008

Source: DOD.

Although VA and DOD officials do not expect their departments' systems to be fully implemented until 2012 and 2008, respectively, they anticipate being able to exchange some degree of clinical information through an interface between DOD's clinical data repository and VA's planned health data repository by the end of calendar year 2005. VA officials explained that by that time, they expect to have developed the HealtheVet (VistA) health data repository to a point at which it will have limited data. However, the departments have not yet articulated exactly what data will be available.

Also critical, VA and DOD have begun adopting data standards. Data standardization is essential to allowing the exchange of health information from disparate systems and improving decision-making by providing health information when and where it is needed. In accordance with the Consolidated Health Informatics Initiative,¹² in March 2003, VA and DOD, along with the Department of Health and Human Services, announced the adoption of four standards to allow the transmission of messages and one standard that allows laboratory results to be presented uniformly in any system. In addition, VA officials stated that the departments have examined and concluded that their existing legislation and policies meet the intent of the Health Insurance Portability and Accountability Act.

VA and DOD Face Challenges in Moving Toward HealthePeople (Federal)

VA and DOD face key challenges to completing HealthePeople (Federal) that raise doubts as to when and to what extent a true virtual health record will be achieved. Although a high-level strategy exists, the HealthePeople (Federal) joint work group faces the challenge of clearly articulating a common health information infrastructure and architecture to show how they intend to achieve the data exchange capability, or just what they will be able to exchange by the end of 2005. Such an architecture is necessary for ensuring that the departments have defined a level of detail and specificity needed to build the data repository interface, including interface requirements and design specifications. For example, having detailed specifications would assist VA in making critical decisions such as the manner in which it will store its electronic data. According to VA officials, they have not yet determined whether one central or several regional data repositories would best facilitate access to the patient

¹²The Consolidated Health Informatics Initiative, created under the President's Management Agenda, identified a portfolio of 24 target areas for data and messaging standards that would enable all agencies in the federal health enterprise to more readily exchange clinical health information.

information and achieve the timely response rates required by clinicians at its medical facilities.

Another critical challenge to successfully implementing HealthePeople (Federal) will be completing the standardization of the data elements of each department's health records. While standards for laboratory results were adopted in 2003, VA and DOD face a significant undertaking to standardize the remaining health data. To lend perspective to the enormity of this task, according to the joint strategy that VA and DOD have developed, VA will have to migrate over 150 variations of clinical and demographic data to one standard, and DOD will have to migrate over 100 variations of clinical data to one standard. VA officials have indicated that as various HealtheVet (VistA) applications are developed, they plan to incorporate clinical data standards. Further, they and DOD officials maintain that their departments, along with the Department of Health and Human Services, are actively pursuing the development and adoption of such data standards. Nonetheless, they remain uncertain as to what degree of standardization (beyond the laboratory result standard that has been adopted) will be achieved by the 2005 milestone for implementing the two-way exchange of health information.

In summary, in pursuing an electronic exchange of patient health information, VA and DOD are taking a vital step toward facilitating services to our nation's active duty personnel and veterans. The ability to readily access medical records covering the lifecycle of service members and veterans would enhance the effectiveness of care to these individuals. In working toward this capability, VA and DOD have achieved a measure of success in sharing data, as evidenced by VA clinicians now having access to military health records for veterans through FHIE. However, a virtual medical record based on the two-way exchange of data between VA and DOD is far from being achieved. The departments face significant challenges in realizing this longer term strategy. Without having clearly articulated a common health information infrastructure and architecture, the departments lack the details and specificity essential to determining how they will achieve the data exchange capability.

Mr. Chairman, this concludes my statement. I would be pleased to respond to any questions that you or other members of the Subcommittee may have at this time.

Contacts and Acknowledgments

For information regarding this testimony, please contact Linda D. Koontz, Director, or Valerie Melvin, Assistant Director, Information Management Issues, at (202) 512-6240 or at koontzl@gao.gov or melvinv@gao.gov, respectively. Other individuals making key contributions to this testimony include Barbara S. Oliver, Eric L. Trout, Michael P. Fruitman, and J. Michael Resser.

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