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Report to Congressional Requesters

July 2008

ELECTRONIC HEALTH RECORDS

DOD and VA Have Increased Their Sharing of Health Information, but More Work Remains

GAO-08-954

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Highlights

Highlights of GAO-08-954, a report to congressional requesters

Why GAO Did This Study

Under the National Defense Authorization Act for Fiscal Year 2008, the Department of Defense (DOD) and the Department of Veterans Affairs (VA) are required to accelerate the exchange of health information between the departments and to develop systems or capabilities that allow for full interoperability (generally, the ability of systems to use data that are exchanged) and that are compliant with federal standards. The act also established a joint interagency program office to act as a single point of accountability for the effort, whose function is to implement such systems or capabilities by September 30, 2009.

Further, the act required that GAO semi-annually report on the progress made in achieving these goals. For this first report, GAO describes the departments' progress to date in sharing electronic health information, developing electronic health records that comply with federal standards, and setting up the joint interagency program office. To do so, GAO reviewed its past work, analyzed agency documentation, and conducted interviews with agency officials.

What GAO Recommends

GAO is recommending that the departments give priority to fully establishing the program office and finalizing the implementation plan. Commenting on a draft of this report, DOD and VA concurred with GAO's recommendations and described actions planned or being taken to address them.

To view the full product, including the scope and methodology, click on GAO-08-954. For more information, contact Valerie Melvin at (202) 512-6304 or melvinv@gao.gov.

What GAO Found

DOD and VA are sharing some, but not all, electronic health information at different levels of interoperability. Specifically, pharmacy and drug allergy data on about 18,300 patients who receive care from both departments are exchanged at the highest level of interoperability—that is, in computable form; at this level, the data are in a standardized format that a computer application can act on (for example, to provide alerts to clinicians of drug allergies). In other cases, data can be viewed only—a lower level of interoperability that still provides clinicians with important information. However, not all electronic health information is yet shared, and information is still captured on paper at many DOD medical facilities. According to the departments, a DOD/VA Information Interoperability Plan (targeted for approval in August 2008) is to address these and other issues and define tasks required to guide the development and implementation of an interoperable electronic health record capability. If properly developed and implemented, the plan could help the departments achieve the goal of seamless sharing of health information.

DOD and VA have agreed upon numerous common standards that allow them to share health data, which include standards that are part of current and emerging federal interoperability specifications. This collaboration provided the essential foundation for the departments to begin sharing computable health data. The departments are currently participating in recent initiatives led by the Office of the National Coordinator for Health Information Technology (within the Department of Health and Human Services) that are aimed at promoting the adoption of federal standards and broader use of electronic health records. These initiatives include identifying relevant existing standards, identifying and addressing overlaps and gaps in the standards, and developing interoperability specifications and certification criteria based on these standards. The involvement of the departments in these activities is an important mechanism for aligning their electronic health records with emerging federal standards.

In establishing the joint interagency program office, Congress directed the departments to develop an implementation plan for setting up the office and carrying out related activities (such as validating and establishing requirements for interoperable health capabilities). The departments' effort to set up the program office is still in its early stages. Leadership positions in the office are not yet permanently filled, staffing is not complete, and facilities to house the office have not been designated. Further, the implementation plan is currently in draft, and although it includes schedules and milestones, dates for several activities have not yet been determined (such as implementing a capability to share immunization records), even though all capabilities are to be achieved by September 2009. Without a fully established program office and a finalized implementation plan with set milestones, the departments may be challenged in meeting the required date for achieving interoperable electronic health records and capabilities.

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Abbreviations

AHLTA	Armed Forces Health Longitudinal Technology Application
BHIE	Bidirectional Health Information Exchange
CHCS	Composite Health Care System
CHDR	Interface between DOD's Clinical Data Repository (CDR) and VA's Health Data Repository (HDR)
CIS	Clinical Information System
DOD	Department of Defense
FHIE	Federal Health Information Exchange
HHS	Department of Health and Human Services
HITSP	Healthcare Information Technology Standards Panel
IT	information technology
LDSI	Laboratory Data Sharing Interface
OMB	Office of Management and Budget
SNOMED CT	Systematized Nomenclature of Medicine Clinical Terms
VA	Department of Veterans Affairs
VistA	Veterans Health Information Systems and Technology Architecture

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Congressional Committees

For the last decade, the Department of Defense (DOD) and the Department of Veterans Affairs (VA) have been pursuing initiatives to share data between their health information systems. The departments' efforts have included working toward a long-term vision of a single "comprehensive, lifelong medical record"[1] that would allow each service member to transition seamlessly between the two departments, as well as more short-term efforts focused on meeting immediate needs to share health information, including responding to current military crises.

However, the two departments cannot yet share all essential health information,[2] prompting continuing calls for progress in this area. In May 2003, a presidential task force recommended that DOD and VA develop and deploy bidirectional electronic health records by fiscal year 2005. In July 2007, the President's Commission on Care for America's Returning Wounded Warriors reported that the departments had continued to develop independent, stand-alone systems and recommended that the two departments move rapidly to make all essential health information available to clinicians.[3]

To expedite the departments' efforts to exchange health care information, Congress included in the National Defense Authorization Act for Fiscal Year 2008 provisions that DOD and VA jointly develop and implement

[1]In 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, lifelong medical record for each service member," and in August 1998, issued a directive requiring VA and DOD to develop a "computer-based patient record system that will accurately and efficiently exchange information."

[2]We recently testified that DOD and VA have only partially achieved the goal of developing interoperable electronic health records. GAO, *Information Technology: VA and DOD Continue to Expand Sharing of Medical Information, but Still Lack Comprehensive Electronic Medical Records*, GAO-08-207T (Washington, D.C.: Oct. 24, 2007).

[3]The commission recommended that DOD and VA work toward a "fully interoperable information system that will meet the long-term administrative and clinical needs of all military personnel over time."

electronic health record systems or capabilities and accelerate the exchange of health care information.[4] The act also required that these systems or capabilities be compliant with applicable interoperability[5] standards, implementation specifications, and certification criteria of the federal government. The act established a joint interagency program office to act as a single point of accountability for the effort, with the function of implementing, by September 30, 2009, electronic health record systems or capabilities that allow for full interoperability of personal health care information between the departments.

In addition, the act required that GAO semi-annually report on the progress that DOD and VA have made in achieving the goal of fully interoperable personal health care information. As agreed with the committees of jurisdiction, our objectives for this first report are to describe (1) the departments' progress to date on developing electronic health records systems or capabilities that allow for full interoperability of personal health care information between the departments; (2) steps taken by the departments to ensure that their health records comply with applicable interoperability standards, implementation specifications, and certification criteria of the federal government; and (3) efforts to set up the joint interagency program office.

To carry out these objectives, we reviewed our past work in this area;[6] analyzed agency documentation (including schedules and benchmarks for the establishment of the joint interagency program office, program documents, and health information standards); and conducted interviews with officials from DOD, VA, and the Department of Health and Human Services' Office of the National Coordinator for Health Information Technology. We also visited two medical sites (Walter Reed Army Medical Center and the Washington, D.C., VA Medical Center) to observe the sharing capabilities of the electronic health information systems that are currently in place.

[4]The National Defense Authorization Act for Fiscal Year 2008, Pub. L. No. 110-181, Section 1635, required "Fully Interoperable Electronic Personal Health Information for the Department of Defense and the Department of Veterans Affairs."

[5]Interoperability is the ability of two or more systems or components to exchange information and to use the information that has been exchanged. Further discussion of levels of interoperability is provided later in this report.

[6]See *Related GAO Products* at the end of this report for previous GAO reports and testimonies on DOD/VA health information sharing and national health information technology issues.

We conducted this performance audit from March 2008 through July 2008 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. For more details on our scope and methodology, see appendix I.

Results in Brief

DOD and VA have established and implemented mechanisms to achieve interoperable sharing of some, but not all, electronic health information. This information is shared at different levels of interoperability. Specifically, pharmacy and drug allergy data on about 18,300 shared patients (that is, patients who receive care from both departments) are exchanged at the highest level of interoperability—that is, in computable form. At this level, the data are in a standardized format that a computer application can act on (for example, to provide alerts to clinicians of drug allergies). In other cases, data that are shared cannot be acted upon by an application but can be viewed—a lower level of interoperability that nonetheless provides clinicians with important health information. Viewable data that are currently shared include, among other things, microbiology results, cytology reports, and chemistry and hematology reports. However, not all electronic health information is yet shared; for example, immunization records and history, data on exposure to health hazards, and psychological health treatment and care records. Finally, although VA's health information is all captured electronically, not all health data collected by DOD are electronic—many DOD medical facilities use paper-based health records. According to the departments, a DOD/VA Information Interoperability Plan (targeted for approval in August 2008) is to address issues including future sharing and paper records and define tasks required to guide the development and implementation of an interoperable electronic health record capability. If this plan includes the essential elements needed to guide the departments in achieving their long-term goal of seamless sharing of health information, it could improve the prospects for the achievement of this goal.

DOD and VA have agreed upon numerous common standards that allow them to share health data, which include standards that are part of current and emerging federal interoperability specifications. The foundation built by this collaborative process has allowed DOD and VA to begin sharing computable health data (the highest level of interoperability). Continuing their historical involvement in efforts to agree upon standards for the

electronic exchange of clinical health information, the departments are also participating in recent ongoing initiatives led by the Office of the National Coordinator for Health Information Technology (within the Department of Health and Human Services) that are aimed at promoting the adoption of federal standards and broader use of electronic health records.[7] As federal standards evolve and are put into place, the involvement of the departments in these initiatives is an important mechanism for ensuring that their electronic health records are aligned with emerging standards.

To accelerate DOD's and VA's ongoing interoperability efforts, Congress directed that a joint interagency program office be developed and required the departments to develop an implementation plan for setting up the office and carrying out related activities (such as validating and establishing requirements for interoperable health capabilities). However, the departments' effort to set up the program office is still in its early stages. Leadership positions in the office are not yet permanently filled, staffing is not complete, and facilities to house the office have not been designated. Further, the implementation plan is currently in draft, and although it includes schedules and milestones, dates for several activities have not yet been determined (such as implementing a capability to share immunization records), even though all capabilities are to be achieved by September 2009. Without a fully established program office and a finalized implementation plan with set milestones, the departments may be challenged in meeting the required date for achieving interoperable electronic health records and capabilities.

To better ensure the successful attainment of interoperable electronic health record systems or capabilities, we are recommending that the Secretaries of Defense and Veterans Affairs give priority to fully establishing the joint interagency program office and finalizing the draft implementation plan.

In providing written comments on a draft of this report, the Assistant Secretary of Defense for Health Affairs and the Secretary of Veterans Affairs concurred with the report's recommendations. (The departments' comments are reproduced in app. II and app. III, respectively.) The

[7]These initiatives include identifying relevant existing standards, identifying overlaps and gaps in the standards, developing recommendations to address overlaps and gaps, and developing interoperability specifications and certification criteria based on these standards.

Assistant Secretary of Defense for Health Affairs stated that high priority will be given to fully establishing the Joint Interagency Program Office, with specific focus on expanding efforts related to permanent leadership, staff, and facilities. VA's comments describe actions that begin to address our recommendations. Among the actions, the department noted that it plans to appoint the Deputy Director for the Joint Interagency Program Office by October 2008, and to hire permanent program staff by December 2008. In addition, VA stated that by October 31, 2008, the departments expect to identify the milestones and timelines for defining requirements to support interoperable health records. If the actions planned are properly implemented, they should help ensure that DOD and VA will be successful in meeting their goals for sharing interoperable health information.

Background

As we have reported,[8] the use of information technology (IT) to electronically collect, store, retrieve, and transfer clinical, administrative, and financial health information has great potential to help improve the quality and efficiency of health care and is critical to improving the performance of the U.S. health care system. Critical health information for a patient seeking treatment (such as allergies, current treatments or medications, and prior diagnoses) has, historically, been scattered across paper records kept by many different caregivers in many different locations, making it difficult for a clinician to access all of a patient's health information at the time of care. Lacking access to these critical data makes it challenging for a clinician to make the most informed decisions on treatment options, potentially putting the patient's health at greater risk. The use of electronic health records can help provide this access and improve clinical decisions.[9]

Electronic health records are particularly crucial for optimizing the health care provided to military personnel and veterans. While in military status and later as veterans, many DOD and VA patients tend to be highly mobile and may have health records residing at multiple medical facilities within

[8]GAO, *Health Information Technology: HHS Is Pursuing Efforts to Advance Nationwide Implementation, but Has Not Yet Completed a National Strategy*, GAO-08-499T (Washington, D.C.: Feb. 14, 2008).

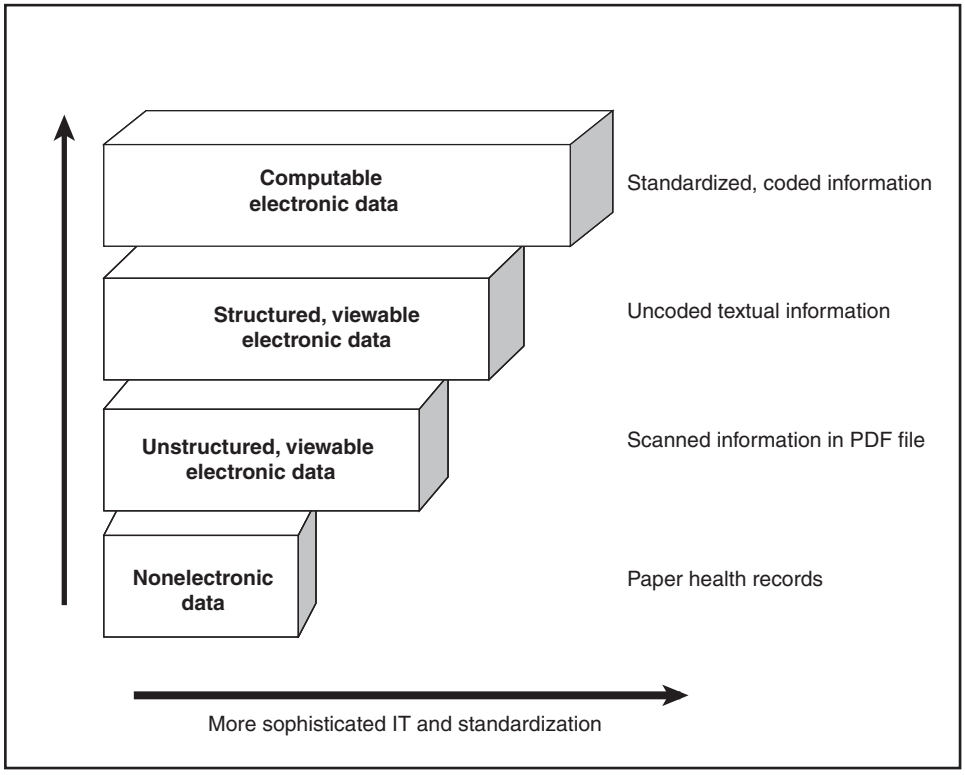
[9]An electronic health record is a longitudinal collection of information about the health of an individual or the care provided, such as patient demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data, and radiology reports.

and outside the United States. Making such records electronic can help ensure that complete health care information is available for most military service members and veterans at the time and place of care, no matter where it originates.

Key to making health care information electronically available is the ability to share that data among health care providers—that is, interoperability. Interoperability is the ability for different information systems or components to exchange information and to use the information that has been exchanged. This capability is important because it allows patients' electronic health information to move with them from provider to provider, regardless of where the information originated. If electronic health records conform to interoperability standards, they can be created, managed, and consulted by authorized clinicians and staff across more than one health care organization, thus providing patients and their caregivers the necessary information required for optimal care. (Paper-based health records—if available—also provide necessary information, but unlike electronic health records, paper records do not provide decision support capabilities, such as automatic alerts about a particular patient's health, or other advantages of automation.)

Interoperability can be achieved at different levels. At the highest level, data are in a format that a computer can understand and operate on, whereas at the minimum type of interoperability, the data are in a format that is viewable, so that information is available for a human being to read and interpret. Figure 1 shows various levels of interoperability and examples of the types of data that can be shared at each level.

Figure 1: Levels of Interoperability



Source: GAO analysis based on data from the Center for Information Technology Leadership.

As the figure shows, paper records can be considered interoperable in that they allow data to be read and interpreted by a human being. In the remainder of this report, however, we do not discuss interoperability in this sense; instead, we focus on electronic interoperability, for which the first level of interoperability is unstructured, viewable electronic data. With unstructured data, a clinician would have to find needed or relevant information by scanning uncategorized information. The value of viewable data is increased if the data are structured so that information is categorized and easier to find. At the highest level, as shown, the computer can interpret and act on the data.

Not all data require the same level of interoperability. For example, in their initial efforts to implement computable data, VA and DOD focused on outpatient pharmacy and drug allergy data because clinicians gave priority to the need for automated alerts to help medical personnel avoid administering inappropriate drugs to patients. On the other hand, for such narrative data as clinical notes, viewability may be sufficient. Achieving

even a minimal level of interoperability is valuable for potentially making all relevant information available to clinicians.

Efforts to Adopt and Implement Federal Interoperability Standards Are Ongoing

Any type of interoperability depends on the use of agreed-upon standards to ensure that information can be shared and used. In health IT, standards govern areas ranging from technical issues, such as file types and interchange systems, to content issues, such as medical terminology. Developing, coordinating, and agreeing on standards are only part of the processes involved in achieving interoperability for electronic health records systems or capabilities. In addition, specifications are needed for implementing the standards, as well as criteria and a process for verifying compliance with the standards.

In December 2001, an effort to establish federal health information standards was initiated as an Office of Management and Budget (OMB) e-government project to enable federal agencies to build interoperable health data systems. This project, the Consolidated Health Informatics initiative, was a collaborative agreement among federal agencies, including DOD and VA, to adopt a common set of health information standards for the electronic exchange of clinical health information. Under the Consolidated Health Informatics initiative, DOD, VA, and other participating agencies agreed to endorse 20 sets of standards to make it easier for information to be shared across agencies and to serve as a model for the private sector. For example, standard medication terminologies were agreed upon, which DOD and VA then began to adopt in developing their data repositories.

Recognizing the need for public and private sector collaboration to achieve a national interoperable health IT infrastructure, the President issued an executive order in April 2004 that called for widespread adoption of interoperable electronic health records by 2014.[10] This order established the Office of the National Coordinator for Health Information Technology within the Department of Health and Human Services (HHS) with responsibility, among other things, for developing, maintaining, and directing the implementation of a strategic plan to guide the nationwide implementation of interoperable health IT in both the public and private

[10]Executive Order 13335, *Incentives for the Use of Health Information Technology and Establishing the Position of the National Health Information Technology Coordinator* (Washington, D.C.: Apr. 27, 2004).

health care sectors. Among its responsibilities as the chief advisor to the Secretary of HHS in this area, the Office of the National Coordinator is to report progress on the implementation of this strategic plan.

Under the direction of HHS (through the Office of the National Coordinator), three primary organizations were designated to play major roles in expanding the implementation of health IT:

- the American Health Information Community,
- the Healthcare Information Technology Standards Panel, and
- the Certification Commission for Healthcare Information Technology.

All three are involved in various processes related to electronic health records interoperability standards. The functions of these organizations are described in the following.

American Health Information Community

The community is a federal advisory body created by the Secretary of HHS to make recommendations on how to accelerate the development and adoption of health IT, including advancing interoperability, identifying health IT standards, advancing nationwide health information exchange, and protecting personal health information. Formed in September 2005, the community is made up of representatives from both the public and private sectors.

The American Health Information Community determines specific health care areas of high priority and develops "use cases"[11] for these areas, which provide the context in which standards would be applicable. For example, the community has developed a use case regarding the creation of standardized, secure records of past and current laboratory test results for access by health professionals. The use case conveys how health care professionals would use such records and what standards would apply.

[11]Use cases are descriptions of events that detail what a system (or systems) needs to do to achieve a specific mission or goal; they convey how individuals and organizations (actors) interact with the systems. For health IT, use cases strive to provide enough detail and context for follow-up activities to occur, such as standards harmonization, architecture specification, certification consideration, and detailed policy discussions to advance the national health IT agenda.

Healthcare Information Technology Standards Panel (HITSP)

Developed in October 2005, the Healthcare Information Technology Standards Panel (HITSP) is a public-private partnership, sponsored by the American National Standards Institute[12] and funded by the Office of the National Coordinator. (HITSP is the successor to the Consolidated Health Informatics initiative, which was dissolved and absorbed into the panel on September 30, 2006.) The panel was established to identify competing standards for the use cases developed by the American Health Information Community and "harmonize" the standards. (Harmonization is the process of identifying overlaps and gaps in relevant standards and developing recommendations to address these overlaps and gaps.)

For example, for the three initial use cases developed by the American Health Information Community, HITSP identified competing standards by converting the use cases into detailed requirements documents; it then examined and assessed more than 700 existing standards that would meet those requirements. From those 700 standards, the panel identified 30 named standards and produced detailed implementation guidance describing the specific transactions and use of these named standards. This guidance is codified in an interoperability specification for each use case that integrates the standards.

Each of the interoperability specifications developed by HITSP includes references to the identified standards or parts of standards and explains how they should be applied to specific topics. For example, among the standards referred to in one interoperability specification[13] is the Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT).[14] This standard is to be used in the "Lab Result Terminology Component" of the specification.

Once developed, the specifications are presented to the American Health Information Community, which assesses them for recommendation to the Secretary of HHS. The Secretary publicly "accepts" recommended

[12]The American National Standards Institute is a private, nonprofit organization whose mission is to promote and facilitate voluntary consensus standards and ensure their integrity.

[13]IS 01, Interoperability Specification for Electronic Health Record Laboratory Results Reporting.

[14]SNOMED CT, a comprehensive health and clinical terminology, was established by the International Health Terminology Standards Development Organisation, a not-for-profit association that develops and promotes use of SNOMED CT so as to support safe and effective health information exchange.

specifications for a 1-year period of implementation testing, after which the Secretary can formally "recognize" the specifications and associated guidance as interoperability standards. This two-step process is intended to ensure that software developers have adequate time to implement recognized standards in their software. The year between acceptance and recognition allows the panel to refine its implementation guidance based on feedback from actual software implementation.

Table 1 shows the current status of the interoperability specifications developed by HITSP.

Table 1: Current and Emerging Interoperability Specifications

Interoperability specification	Description	Status[a]
IS 01. Electronic Health Record (EHR) Laboratory Results Reporting	To define specific standards to support the interoperability between electronic health records and laboratory systems and secure access to laboratory results and interpretations in a patient-centric manner.	Version 2.1 recognized Version 3.0 released (panel approved)
IS 02. Biosurveillance	To define specific standards that promote the exchange among healthcare providers and public health authorities of biosurveillance information (that is, information on areas such as human health, hospital preparedness, state and local preparedness, vaccine research and procurement, animal health, food and agriculture safety, and environmental monitoring).	Version 2.1 recognized Version 3.0 released (panel approved)
IS 03. Consumer Empowerment	To define specific standards needed to enable the exchange of data between patients and their caregivers.	Version 2.1 recognized Version 3.0 accepted (retitled Consumer Empowerment and Access to Clinical Information via Networks)
IS 04. Emergency Responder Electronic Health Record (ER-EHR)	To define specific standards required to track and provide on-site emergency care professionals, medical examiner/fatality managers and public health practitioners with needed information regarding care, treatment, or investigation of emergency incident victims.	Version 1.1 accepted
IS 05. Consumer Empowerment and Access to Clinical Information via Media	To define specific standards needed to assist patients in making decisions regarding care and healthy lifestyles (that is, registration information, medication history, lab results, current and previous health conditions, allergies, summaries of healthcare encounters and diagnoses).	Version 1.0 accepted
IS 06. Quality	To define specific standards needed to benefit providers by providing a collection of data for inpatient and ambulatory care and to benefit clinicians by providing real-time or near-real-time feedback regarding quality indicators for specific patients.	Version 1.0 accepted

Interoperability specification	Description	Status[a]
IS 07. Medication Management	To define specific standards to facilitate access to necessary medication and allergy information for consumers, clinicians, pharmacists, health insurance agencies, inpatient and ambulatory care, etc.	Version 1.0 released (panel approved)

Source: GAO analysis of HITSP data.

[a]"Recognized" means that the specifications and associated guidance have been recognized by the Secretary of HHS as interoperability standards.

"Accepted" means that the specifications and associated guidance have been accepted by the Secretary for a 1-year period of implementation testing.

"Released (panel approved)" means that HITSP has completed and approved the specifications and associated guidance.

Each of the interoperability specifications in the table is associated with one of the seven use cases developed by the American Health Information Community in 2006 and 2007. The community is also developing six use cases for 2008, for which interoperability specifications have not yet been released:

- Remote Monitoring,
- Patient–Provider Secure Messaging,
- Personalized Healthcare,
- Consultation and Transfers of Care,
- Public Health Case Reporting, and
- Immunizations & Response Management.

Certification Commission for Healthcare Information Technology

The commission is an independent, nonprofit organization that certifies health IT products. HHS entered into a contract with the commission in October 2005 to develop and evaluate the certification criteria and inspection process for electronic health records. According to HHS, certification is to be the process by which the IT systems of federal health contractors are established to meet federal interoperability standards. Certification helps assure purchasers and other users of health IT systems that the systems will provide needed capabilities (including ensuring security and confidentiality) and will work with other systems without reprogramming. Certification also encourages adoption of health IT by assuring providers that their systems can participate in nationwide health information exchange in the future. In 2006, the commission certified the first 37 ambulatory—or clinician office-based—electronic health record

products as meeting baseline criteria for functionality, security, and interoperability. In 2007, the commission expanded certification to inpatient—or hospital—electronic health record products, which could significantly increase patients' and providers' access to the health information generated during a hospitalization. To date, the commission has certified over 100 electronic health record products.

Our Previous Work Has Emphasized the Importance of a National Strategy

Since 2005, we have reported and testified on the various actions that HHS and the Office of the National Coordinator have taken to advance nationwide implementation of health IT, which include the establishment of the American Health Information Community and related activities, selection of initial standards to address specific health areas, and the release in July 2004 of a framework for strategic action.[15] We pointed out in 2005 that this framework did not constitute a comprehensive national strategy with detailed plans, milestones, and performance measures needed to ensure that the outcomes of the department's various initiatives are integrated and its goals are met.[16] As a result, we recommend that HHS establish detailed plans and milestones for each phase of the framework for strategic action and take steps to ensure that those plans are followed and milestones met.

In this regard, in June 2008, the Office of the National Coordinator released a four-year strategic plan. Although we have not yet fully assessed this plan, if its milestones and measures for achieving an interoperable national infrastructure for health IT are appropriate, the plan could provide a useful roadmap to support the goal of widespread adoption of interoperable electronic health records.

DOD and VA Have Been Pursuing Efforts to Exchange Health Information for a Decade

DOD and VA have been working to exchange patient health data electronically since 1998. However, the departments have faced considerable challenges in project planning and management, leading to repeated changes in the focus of their initiatives and target completion dates. In reviews in 2001 and 2002, we noted management weaknesses, such as inadequate accountability and poor planning and oversight, and

[15]GAO-08-499T.

[16]GAO, *Health Information Technology: HHS Is Taking Steps to Develop a National Strategy*, GAO-05-628 (Washington, D.C.: May 27, 2005). See also *Related GAO Products* at the end of this report.

recommended that the departments apply principles of sound project management.[17] In response, by July 2002, DOD and VA had revised their strategy to pursue two initiatives: (1) sharing information in existing systems and (2) developing modernized health information systems—replacing their existing (legacy) systems—that would be able to share data and, ultimately, use interoperable electronic health records.

In their shorter-term initiatives to share information from existing systems, the departments began from different positions. VA has one integrated medical information system—the Veterans Health Information Systems and Technology Architecture (VistA)—which uses all electronic records and was developed in-house by VA clinicians and IT personnel. All VA medical facilities have access to all VistA information.

In contrast, DOD uses multiple legacy medical information systems (table 1 illustrates selected systems), all of which are commercial software products that are customized for specific uses. Until recently, these systems could not share information. In addition, not all of DOD's medical information is electronic: certain records are paper-based.

[17]GAO, *Computer-Based Patient Records: Better Planning and Oversight by VA, DOD, and IHS Would Enhance Health Data Sharing*, GAO-01-459 (Washington, D.C.: Apr. 30, 2001) and *Veterans Affairs: Sustained Management Attention Is Key to Achieving Information Technology Results*, GAO-02-703 (Washington, D.C.: June 12, 2002).

Table 2: Selected DOD Legacy Medical Information Systems and Databases

System name	Description
CHCS: Composite Health Care System	Formerly DOD's primary health information system; still in use to capture pharmacy, radiology, and laboratory information[a]
CIS: Clinical Information System	Commercial health information system customized for DOD; used by some DOD facilities for inpatients
ICDB: Integrated Clinical Database	Health information system used by many Air Force facilities
TMDS: Theater Medical Data Store	Database to collect electronic medical information in combat theater for both outpatient care and serious injuries; also tracks the movement of patients as they are transferred from location to location

Source: GAO analysis of DOD data.

[a]According to DOD, CHCS applications are now accessed through its modernized health information system, Armed Forces Health Longitudinal Technology Application (AHLTA). The department no longer considers AHLTA as an acronym but as the official name of the system.

As we have reported,[18] the departments' efforts to share information in their existing systems eventually included several sharing initiatives and exchange projects:

- The Federal Health Information Exchange (FHIE), completed in 2004, enabled DOD to electronically transfer service members' electronic health information to VA when the members left active duty.
- The Laboratory Data Sharing Interface (LDSI), a project established in 2004, allows DOD and VA facilities to share laboratory resources. This interface, now deployed at nine locations, allows the departments to communicate orders for lab tests and their results electronically.
- The Bidirectional Health Information Exchange (BHIE), also established in 2004, was aimed at allowing clinicians at both departments viewable access to records on shared patients (that is, those who receive care from both departments—for example, veterans may receive outpatient care from VA clinicians and be hospitalized at a military treatment facility).[19]

[18]GAO, *Information Technology: VA and DOD Are Making Progress in Sharing Medical Information, but Are Far from Comprehensive Electronic Medical Records*, GAO-07-852T (Washington, D.C.: May 8, 2007); and GAO-08-207T.

[19]To create BHIE, the departments drew on the architecture and framework of the information transfer system established by the FHIE project. Unlike FHIE, which provides a one-way transfer of information to VA when a service member separates from the military, the two-way interface allows clinicians in both departments to view, in real time, limited health data (in text form) from the departments' existing health information systems.

Another benefit of the interface is that it allows DOD sites to see previously inaccessible data at other DOD sites.

In the long term, each of the departments aims to develop a modernized system in the context of a common health information architecture that would allow a two-way exchange of health information. The common architecture is to include standardized, computable data; communications; security; and high-performance health information systems: DOD's Armed Forces Health Longitudinal Technology Application (AHLTA)[20] and VA's HealtheVet. The departments' modernized systems are to store information (in standardized, computable form) in separate data repositories: DOD's Clinical Data Repository (CDR) and VA's Health Data Repository (HDR). For the two-way exchange of health information, the two repositories are to be linked through an interface named CHDR,[21] which the departments began to develop in March 2004; implementation of the first release of the interface (at one site) occurred in September 2006.

Beyond these initiatives, in January 2007, the departments announced a further change to their information-sharing strategy: their intention to jointly determine an approach for inpatient health records. On July 31, 2007, they awarded a contract for a feasibility study and exploration of alternatives.[22] According to the departments, one of the options would be adopting a joint solution, which would be expected to facilitate the seamless transition of active-duty service members to veteran status, and make inpatient health care data on shared patients more readily accessible to both DOD and VA. In addition, the departments believe that a joint development effort could enable them to realize cost savings; however, no decision on a joint system has yet been made. According to the departments, they expect to receive recommendations on possible approaches at the end of July 2008.

In our previous work (see *Related GAO Products*), we pointed out that in view of the many tasks and challenges associated with the departments' long-term goal of seamless sharing of health information, it was essential that the departments develop a comprehensive project plan to guide these efforts to completion. Accordingly, in 2004, we recommended that the

[20]AHLTA was formerly known as CHCS II.

[21]The name CHDR, pronounced "cheddar," combines the names of the two repositories.

[22]The contract for this study is still ongoing.

departments develop such a plan for the CHDR interface and that it include a work breakdown structure and schedule for all development, testing, and implementation tasks.[23] Subsequently, the departments began work on the short-term initiatives described, and we raised concerns regarding how all these initiatives were to be incorporated into an overall strategy toward achieving the departments' goal of a comprehensive, seamless exchange of health information.

In response to our concerns, the departments began to develop such a comprehensive plan, which they called the DOD/VA Information Interoperability Plan. To provide input to the plan and determine priorities, in December 2007, the departments established the Joint Clinical Information Board, made up of senior clinical leaders from both departments. The board is responsible for establishing clinical priorities for electronic data sharing between the departments, determining essential health information to be shared, and further identifying and prioritizing data that should be viewable and data that should be computable.

The departments produced a draft DOD/VA Information Interoperability Plan in March 2008. According to DOD and VA officials, the draft defines the technical and managerial processes necessary to satisfy the departments' requirements and guide their activities to completion. According to these officials, review of this draft by senior DOD and VA officials is currently ongoing and is scheduled to be completed by August 2008.

[23]GAO, *Computer-Based Patient Records: VA and DOD Efforts to Exchange Health Data Could Benefit from Improved Planning and Project Management*, GAO-04-687 (Washington, D.C.: June 7, 2004).

DOD and VA Are Currently Sharing Health Information at Different Levels of Interoperability, but More Work Remains to Share All Health Information

DOD and VA have established and implemented mechanisms for electronic sharing of health information, some of which is exchanged in computable form, while other information is viewable only. However, not all electronic health information is yet shared (for example, immunization records and history, data on exposure to health hazards, and psychological health treatment and care records). Further, although VA's health information is all captured electronically, not all health data collected by DOD are electronic—many DOD medical facilities use paper-based health records.

Computable data. Data in computable form are exchanged through the CHDR interface, which links the modernized health data repositories for the new systems that each department is developing. Implementing the interface required the departments to agree on standards for various types of data, put the data into the agreed standard formats, and populate the repositories with the standardized data.[24] Currently, the types of computable health data being exchanged are limited to outpatient pharmacy and drug allergy data. The next type of data to be standardized, included in the repositories, and exchanged is laboratory data.[25]

These data are not shared for all patients—only those who are seen at both DOD and VA medical facilities, identified as shared patients, and then "activated."[26] Once a patient is activated, all DOD and VA sites can access information on that patient and receive alerts on allergies and drug interactions for that patient. According to DOD and VA officials, outpatient pharmacy and drug allergy data were being exchanged on more than 18,300 shared patients as of June 2008; however, officials stated that they are unable to track the number of shared patients currently receiving care

[24]DOD has populated CDR with information for outpatient encounters, drug allergies, and order entries and results for outpatient pharmacy and lab orders. VA has populated HDR with patient demographics, vital signs records, allergy data, and outpatient pharmacy data; in July 2007, the department added chemistry and hematology, and in September 2007, added microbiology.

[25]Standardizing the data involves different tasks for each department. That is, although VA's health records are already electronic, it must still convert them into the standardized format appropriate for its repository. DOD must convert and standardize current records from its multiple systems, but it must also address health records that are not automated.

[26]That is, they are matched on certain identifiers—first name, last name, date of birth, Social Security number—in both agencies' health information systems and established as "active" shared patients.

from both departments, so the number of patients for whom data could potentially be shared is unknown.

Viewable data. Data in viewable form are shared through the BHIE interface. Through BHIE, clinicians can query selected health information on patients from all VA and DOD sites and view current data onscreen almost immediately. Because the BHIE interface provides access to up-to-date information, the departments' clinicians expressed strong interest in expanding its use. As a result, the departments decided to broaden the capability and expand its implementation. For example, the departments completed a BHIE interface with DOD's Clinical Data Repository in July 2007, and they began sharing viewable patient vital signs information through BHIE in June 2008. Extending BHIE connectivity could provide both departments with the ability to view additional data in DOD's legacy systems, until such time as the departments' modernized systems are fully developed and implemented. According to a DOD/VA annual report[27] and program officials, the departments now consider BHIE an interim step in their overall strategy to create a two-way exchange of electronic health records.

Table 1 summarizes the types of health data currently shared via the departments' various initiatives (including FHIE and LDSI), as well as additional types of data that are currently planned for sharing.

[27]December 2004 DOD and VA Joint Strategic Plan.

Table 3: Data Elements Made Available and Planned by DOD/VA Initiatives

Initiative	Data elements		Interoperability level	Comments
	Available	Planned		
CHDR	Outpatient pharmacy Drug allergy	Laboratory data	Computable data	Data are exchanged between one department's data repository and the other's. As of June 2008, computable pharmacy and medication allergy data were being exchanged on over 18,300 shared patients.
BHIE, Bidirectional Health Information Exchange	Outpatient pharmacy data Drug and food allergy information Surgical pathology reports Microbiology results Cytology reports Chemistry and hematology reports Laboratory orders Radiology text reports Inpatient discharge summaries, emergency room notes, inpatient consultation, operative reports, and history and physical reports from CIS at 17 DOD sites (about 40% of inpatient beds) and all VA sites Provider notes Procedures Problem lists Vital signs	Scanned images and documents Family history Social history Other history questionnaires Radiology images Psychological health treatment and care records Rollout of CIS at additional DOD sites; expansion to include additional CIS documentation: initial evaluation notes, procedure notes, evaluation and management notes, preoperative and postoperative evaluation notes	Structured, viewable data Unstructured, viewable data from scanned documents	Data are not transferred but can be viewed. Limitations: Inpatient data are available only from a portion of DOD inpatient hospitals, not all military hospitals.

Initiative	Data elements		Interoperability level	Comments
	Available	Planned		
FHIE, Federal Health Information Exchange	Patient demographics Laboratory results Radiology reports Outpatient pharmacy information Admission discharge transfer data Discharge summaries from CHCS[a] Consult reports Allergies Data from the DOD Standard Ambulatory Data Record Pre- and postdeployment health assessments Postdeployment health reassessments	None	Structured, viewable data	Noncomputable text data are transferred to VA and stored in VA's FHIE database, making it accessible to all VA clinicians. One-way batch transfer of text data from DOD to VA occurs weekly if discharged patient has been referred to VA for treatment; otherwise monthly. Limitations: Discharge summaries from CHCS only[a] are transferred, not from other DOD systems (see table 2).
LDSI, Laboratory Data Sharing Interface	Laboratory orders Laboratory results (chemistry, hematology, toxicology, and serology at all LDSI sites; anatomic pathology and microbiology at two localities)	Additional sites as business need arises	Structured, viewable data	Noncomputable text data are transferred and captured in the individual's health record.

Source: GAO analysis of VA and DOD data.

[a]According to department officials, the discharge summary module of CHCS is used at a limited number of sites.

As depicted in table 3, DOD and VA are sharing or plan to share a wide range of health information; however, other health information that the departments currently capture has not yet been addressed (for example, immunization records and history and data on exposure to health hazards). Further, although VA's health information is all captured electronically, many DOD medical facilities continue to rely on paper records. Also, clinical encounters for those enrolled in the military's

TRICARE health care program[28] are not captured in DOD's electronic health system unless care is received at a military treatment facility.[29]

According to the departments' officials, the DOD/VA Information Interoperability Plan (targeted for approval in August 2008) is to address these and other issues and define tasks required to guide the development and implementation of interoperable, bidirectional, and standards-based electronic health records and capabilities for military and veteran beneficiaries. DOD and VA are in the process of finalizing the plan, and we have not yet performed an assessment. However, if it includes the essential elements needed to guide the departments in achieving their long-term goal of seamless sharing of health information, it could improve the prospects for the successful achievement of this goal.

DOD and VA Have Adopted Standards to Allow Sharing and Are Taking Steps to Follow Federal Standards, Which Continue to Evolve

DOD and VA have agreed upon numerous common standards that allow them to share health data, which include standards that are part of current and emerging federal interoperability specifications. The foundation built by this collaborative process has allowed DOD and VA to begin sharing computable health data (the highest level of interoperability). Continuing their historical involvement in efforts to agree upon standards for the electronic exchange of clinical health information, the departments are also participating in recent ongoing standards-related initiatives led by the Office of the National Coordinator for Health Information Technology (within the Department of Health and Human Services). In addition, DOD is taking steps to arrange for certification of its modernized health information system (a customized commercial system) against current standards.

The standards agreed to by the two departments are listed in a jointly published common set of interoperability standards called the Target DOD/VA Health Standards Profile. This profile resulted from an effort that took place beginning in 2001, in which the two departments compared their individual standards profiles for compatibility and began converging them. First developed in 2004, the Target Standards Profile is updated

[28]Those eligible are active-duty service members, National Guard and Reserve members, retirees, their families, survivors and certain former spouses.

[29]According to DOD officials, about 7.29 million individuals are enrolled in TRICARE. These people can seek care in both the direct care system (military medical facilities) and the purchased care system (nonmilitary medical facilities).

annually and is used for reviewing joint DOD/VA initiatives to ensure standards compliance. According to the departments, they anticipate continued updates and revisions to the Target Standards Profile as additional federal standards emerge and are in varying stages of recognition and acceptance by HHS (as previously presented in table 1).

The current version of the profile, dated September 2007, includes federal standards (such as data standards established by the Food and Drug Administration and security standards established by the National Institute of Standards and Technology); industry standards (such as wireless communications standards established by the Institute of Electrical and Electronics Engineers and Web file sharing standards established by the American National Standards Institute); and international standards (such as SNOMED CT, which was mentioned earlier, and security standards established by the International Organization for Standardization). The profile also indicates which of these standards support the HHS-recognized use cases and HITSP interoperability specifications. For example, for clinical data on allergy reactions, the departments agreed to use SNOMED CT codes (mentioned previously), which are included as part of HITSP interoperability specifications.

In particular, for the two kinds of data now being exchanged in computable form through CHDR (pharmacy and allergy data), DOD and VA adopted National Library of Medicine data standards for medications and drug allergies,[30] as well as SNOMED CT codes for allergy reactions. According to officials, the departments rely on published versions of the library standards, and they can also submit new terms to the National Library of Medicine for inclusion in the standards. Also, the departments can exchange a standardized allergy reaction as long as it is mapped to a SNOMED CT code in each department's allergy reaction file. If a coded term is not available in the files, clinicians can exchange descriptions of allergy reactions in free text. This standardization was a prerequisite for exchanging computable medical information—an accomplishment that, according to the National Coordinator for Health IT, has not yet been achieved in any other sector.

Continuing the departments' historical involvement in efforts to agree upon standards for the electronic exchange of clinical health information,

[30]These data standards are known as RxNorm and Unified Medical Language System (UMLS) for medications and drug allergies.

health officials from both DOD and VA participate as members of the American Health Information Community and HITSP. For example, the 18-member community includes high-level representatives from both DOD (the Assistant Secretary of Defense for Health Affairs) and VA (the Director, Health Data and Informatics, Veterans Health Administration). DOD and VA are members of the HITSP Board and are actively working on several committees and groups (Provider Perspective Technical Committee; Population Perspective Technical Committee; Security, Privacy and Infrastructure Domain Technical Committee; Care Management and Health Records Domain Technical Committee; Administrative and Financial Domain Technical Committee; Harmonization Committee; and Foundation Committee). The National Coordinator indicated that such participation is important and stated that it would not be advisable for DOD and VA to move significantly ahead of the national standards initiative; if they did, the departments might have to change the way their systems share information by adjusting them to the national standards later, as the standards continue to evolve.

In addition, according to DOD officials, the department is taking steps to ensure that the electronic health records produced by its modernized health information system, AHLTA, which is a customized commercial software application, are compliant with standards by arranging for certification through the Certification Commission for Healthcare Information Technology. Specifically, version 3.3 of AHLTA, which is still undergoing beta testing,[31] was conditionally certified in April 2007 against 2006 outpatient electronic health record criteria established by the commission. DOD officials stated that AHLTA version 3.3 has been installed at three DOD locations[32] for beta testing and has met specific functionality, interoperability, and security requirements. The commission cannot fully certify this version of AHLTA until it has verified that the system has been in operational use at a medical site.

The departments' efforts to share data and to be involved in standardization activities are important mechanisms for ensuring that their electronic health records are both interoperable and aligned with emerging standards and specifications.

[31]Beta testing is testing of a prerelease version of software by selected cooperating users.

[32]These sites are the Naval Medical Center in Portsmouth, Va.; Eisenhower Army Medical Center in Fort Gordon, Ga.; and Goodfellow Air Force Base in San Angelo, Tex.

DOD and VA Have Taken Steps to Establish the Joint Interagency Program Office, but the Office Does Not Yet Have Permanent Leadership, Staff, or Facilities

To accelerate the departments' ongoing interoperability efforts, Congress included provisions establishing a joint interagency program office in the National Defense Authorization Act for Fiscal Year 2008. Under the act, the Secretary of Defense and the Secretary of Veterans Affairs were required to jointly develop schedules and benchmarks for setting up the DOD/VA Interagency Program Office, as well as for other activities for achieving interoperable health information (that is, establishing system requirements, acquisition and testing, and implementation of interoperable electronic health records or capabilities). The schedules and benchmarks were due 30 days after passage of the act (February 28, 2008).

The departments developed a draft implementation plan defining fiscal years 2008 and 2009 schedules and milestones; the date of the draft was April 25—almost 2 months after the due date. In the effort to set up the program office, the departments appointed an Acting Director from DOD and an Acting Deputy Director from VA on April 17, 2008.[33] According to the Acting Director, they have also detailed staff and provided temporary space and equipment to a transition team.

According to this official, through the efforts of the transition team, the departments are currently developing a charter for the office, defining and approving an organizational structure, and preparing to begin recruiting permanent staff for the office, who are expected to number about 30. According to the implementation plan, the departments expect to appoint a permanent Director and Deputy and begin recruiting staff by October 2008. According to the Acting Director, program staff are expected to be in place, and the office is expected to be fully operational by December 2008. According to the departments, $4.94 million was requested to fund the office for fiscal year 2008, which is expected to be received this July. Funding requirements of $6.94 million for fiscal year 2009 were submitted in June.

The draft implementation plan includes schedules and milestones for achieving interoperable health information in two stages. The first stage—Interoperability I, to be completed by September 2008—is to address those health data most commonly required by health care providers, as validated by the Joint Clinical Information Board.[34] The first milestone for

[33]Before these appointments, both the officials had been involved in the planning and implementation of the departments' current sharing capabilities.

[34]These data were defined in response to the recommendation by the President's Commission on Care for America's Returning Wounded Warriors.

Interoperability I, sharing vital signs information, has been achieved. The remaining milestones (sharing questionnaires and forms, family history, social history, and other history) are all due September 2008.

The second stage—Interoperability II, to be completed by September 2009—is to address additional health information enhancements. However, the information to be covered by these enhancements has not yet been fully defined, and milestone dates are not fully established:

- According to the plan, the requirements for the Interoperability II enhancements are to be validated by the Joint Clinical Information Board, which sets the clinical priorities for what electronic health information should be shared next. This validation, followed by approval by senior department leadership, was to be complete by June 2008. However, according to department officials, the completion date is now expected to be the end of July 2008.

- Of 52 milestone dates for Interoperability II, 19 are yet to be determined. For example, milestone dates have not been identified regarding capabilities to share data on exposures to health hazards, immunization records and history, family history, and psychological health treatment and care records.

  Officials stated that decisions on these milestone dates will depend on clinical priorities, technical considerations, and policy decisions. For example, the exchange of psychological health treatment and care records requires policy decisions regarding appropriate access. Further, according to the implementation plan draft, the plan is intended to serve as a "living document" that will be updated and refined as more detailed information becomes known on planned fiscal year 2008 and fiscal year 2009 initiatives, and as health care information needs change.

  According to the Acting Director, the draft implementation plan has not been finalized because of remaining uncertainties regarding such issues as space and staffing needs. For example, although the scope of the office's responsibility is to be for electronic health records and capabilities, the departments' leadership may broaden its scope to include sharing of personnel and benefits data, which would affect the number of staff required. However, although the implementation plan (as a planning tool) is appropriately a living document, it is nonetheless important to complete the planning and make the decisions needed to finalize the initial plan, particularly in view of the fast approaching September 2009 deadline.

Further, according to department officials, the joint interagency program office will play a crucial role in coordinating the departments' efforts to accelerate their interoperability efforts. An important aspect of this coordination will be managing the further development and implementation of the DOD/VA Information Interoperability Plan, currently under review by senior management. According to these officials, having a centralized office to take on this role will be a primary benefit. However, the effort to set up the program office is still in its early stages. The positions of Director and Deputy Director are not yet permanently filled, permanent staff have not yet been hired, and facilities have not yet been designated for housing the office. Until the program office is fully established, it will not be able to play this crucial role effectively.

Conclusions

DOD and VA are currently sharing more health information than ever before, including exchanging some at the highest level of interoperability, that is, in computable form. The departments also have efforts under way to share additional information. Additional issues remaining to be addressed include electronic sharing of the information in paper-based health records and the completion of their long-range plans to develop fully interoperable health information systems. According to the departments, the DOD/VA Information Interoperability Plan is to address these and other issues. Once the plan is finalized and approved by DOD and VA officials, we intend to perform an assessment of the plan. However, if the plan includes the essential elements needed to guide the departments in achieving their long-term goal of seamless sharing of health information, it could improve the prospects for the successful achievement of this goal.

Further enhancing interoperability depends on adherence to common standards. The two departments have agreed on standards and are working with each other and federal groups to help ensure that their systems are both interoperable and compliant with current and emerging federal standards.

The joint interagency program office is to play a crucial role in accelerating the departments' efforts to achieve electronic health records and capabilities that allow for full interoperability. However, it is not expected to be fully set up until the end of the year, after which only 9 months will remain to meet the goal of full interoperability between the departments by September 2009. The implementation plan, which was almost 2 months late, remains in draft, with many milestone dates yet to

be determined. In view of the short timeframes, without a fully established program office and a finalized implementation plan with set milestones, the departments may be challenged in meeting the required date for achieving interoperable electronic health records and capabilities.

Recommendations for Executive Action

To better ensure that the effort by DOD and VA to achieve fully interoperable electronic health record systems or capabilities is accelerated, we recommend that the Secretaries of Defense and Veterans Affairs give priority to fully establishing the Joint Interagency Program Office by expediting efforts to

- put in place permanent leadership, staff, and facilities and
- make the necessary decisions to finalize the draft implementation plan.

Agency Comments and Our Evaluation

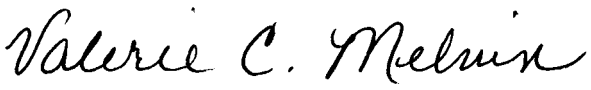
In providing written comments on a draft of this report, the Assistant Secretary of Defense for Health Affairs and the Secretary of Veterans Affairs agreed with our recommendations. (The departments' comments are reproduced in app.II and app. III, respectively.) DOD stated that high priority will be given to fully establishing the Joint Interagency Program Office, with specific focus on expanding efforts related to permanent leadership, staff, and facilities. DOD also provided technical comments on the draft report, which we incorporated as appropriate.

VA's comments described actions planned or being taken that respond to our recommendations. For example, according to VA, the Deputy Director of the Interagency Program Office is expected to be appointed by October 2008. In addition, VA stated that the departments collaboratively determined the number and type of staff required for the new office and expect to hire permanent staff by December 2008. In this regard, DOD has taken the lead on securing permanent facilities for the program office and is currently working with the General Services Administration to find suitable space. In addition, VA stated the departments are in the process of finalizing the implementation plan and that by October 31, 2008, they expect to identify the milestones and timelines for defining requirements to support interoperable health records. The department noted that the Joint Clinical Information Board is expected to identify, by July 31, 2008, the specific data types and format for sharing that must be achieved by September 2009. If the actions planned or currently under way are properly implemented, they should help ensure that DOD and VA will be

successful in meeting their goals for sharing interoperable health information.

We are sending copies of this report to the Secretaries of Veterans Affairs and Defense, appropriate congressional committees, and other interested parties. We will also make copies available to others upon request. In addition, the report is available at no charge on the GAO Web site at http://www.gao.gov.

If you or your staffs have questions about this report, please contact me at (202) 512-6304 or melvinv@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix IV.



Valerie C. Melvin
Director, Human Capital and
Management Information Systems Issues

List of Congressional Committees

The Honorable Daniel K. Inouye
Chairman
The Honorable Ted Stevens
Ranking Member
Subcommittee on Defense
Committee on Appropriations
United States Senate

The Honorable John P. Murtha
Chairman
The Honorable C.W. Bill Young
Ranking Member
Subcommittee on Defense
Committee on Appropriations
United States House of Representatives

The Honorable Tim Johnson
Chairman
The Honorable Kay Bailey Hutchison
Ranking Member
Subcommittee on Military Construction, Veterans' Affairs, and Related Agencies
Committee on Appropriations
United States Senate

The Honorable Chet Edwards
Chairman
The Honorable Zach Wamp
Ranking Member
Subcommittee on Military Construction, Veterans' Affairs, and Related Agencies
Committee on Appropriations
United States House of Representatives

The Honorable Carl Levin
Chairman
The Honorable John McCain
Ranking Member
Committee on Armed Services
United States Senate

The Honorable Ike Skelton
Chairman
The Honorable Duncan Hunter
Ranking Member
Committee on Armed Services
United States House of Representatives

The Honorable Daniel K. Akaka
Chairman
The Honorable Richard M. Burr
Ranking Member
Committee on Veterans' Affairs
United States Senate

The Honorable Bob Filner
Chairman
The Honorable Steve Buyer
Ranking Member
Committee on Veterans' Affairs
United States House of Representatives

Appendix I: Scope and Methodology

To describe the progress of the Department of Defense (DOD) and Department of Veterans Affairs (VA) to date on developing electronic health records systems or capabilities that allow for full interoperability of personal health care information between the departments, we reviewed our previous work on DOD and VA efforts to develop health information systems, interoperable health records, and interoperability standards to be implemented in federal health care programs. Additionally, we reviewed information gathered from agency documentation and interviews with cognizant DOD and VA officials relating to the departments' efforts to share electronic health information. Further, we visited a DOD military treatment facility and a VA medical center (Walter Reed Army Medical Center and the Washington, D.C., VA Medical Center), chosen because they were accessible and allowed us to observe the sharing capabilities and functionality of the two departments' electronic health information systems.

To describe steps taken by the departments to ensure that their health records comply with applicable interoperability standards, implementation specifications, and certification criteria of the federal government, we analyzed information gathered from DOD and VA documentation and interviews pertaining to the interoperability standards and implementation specifications that the two departments have agreed to for exchanging health information via their health care information systems. We reviewed documentation and interviewed agency officials from the Department of Health and Human Services' Office of the National Coordinator for Health Information technology to obtain information regarding the defined federal interoperability standards, implementation specifications, and certification criteria. We also reviewed documentation and interviewed DOD and VA officials from the Joint Clinical Information Board to determine the extent to which the departments have adopted federal interoperability standards, implementation specifications, and certification criteria.

To describe efforts to set up the joint interagency program office, we analyzed documentation regarding the establishment of the office and interviewed responsible officials.

We conducted this performance audit at VA and DOD sites in the greater Washington, D.C., metropolitan area from March 2008 through July 2008 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence

obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Comments from the Department of Defense

THE ASSISTANT SECRETARY OF DEFENSE
1200 DEFENSE PENTAGON
WASHINGTON, DC 20301-1200

HEALTH AFFAIRS

JUL 2 2 2008

Ms. Valerie C. Melvin
Director, Human Capital and
Management Information Systems Issues
U.S. Government Accountability Office
441 G Street, N.W.
Washington, DC 20548

Dear Ms. Melvin:

This is the Department of Defense's (DoD) response to the recommendations enclosed in the Government Accountability Office (GAO) Draft Report, "ELECTRONIC HEALTH RECORDS: DOD and VA Have Increased Their Sharing of Health Information, but More Work Remains," dated July 14, 2008 (GAO-08-954).

DoD acknowledges receipt of the draft audit report and concurs with the overall findings and recommendations. We have provided several suggested technical corrections in the enclosed formal response.

Thank you for the opportunity to review and comment on the draft report. My points of contact for additional information are Ms. Lois Kellett, who may be reached at, (703) 681-9530, or Lois.Kellett@tma.osd.mil, and Mr. Gunther Zimmerman, who may be reached at, (703) 681-4360, or Gunther.Zimmerman@tma.osd.mil.

Sincerely,

S. Ward Casscells, MD

Enclosure:
As stated

Government Accountability Office Draft Report-Dated July 14, 2008
"Electronic Health Records: DOD and VA Have Increased Their Sharing Of Health Information, But More Work Remains"
(Project No. GAO-08-954)
Department of Defense Concurrence

RECOMMENDATION 1: The Government Accountability Office (GAO) recommended that the Secretary of Defense give priority to fully establishing the Joint Interagency Program Office by expanding efforts to put in place permanent leadership, staff, and facilities. (p. 31/GAO Draft Report)

DoD RESPONSE: Concur. The Department of Defense (DoD) will continue to give high priority to fully establishing the Joint Interagency Program Office, with specific focus on expanding efforts related to permanent leadership, staff, and facilities.

RECOMMENDATION 2: The GAO recommended that the Secretary of Defense give priority to fully establishing the Joint Interagency Program Office by expanding efforts to make the necessary decisions to finalize the draft implementation plan. (p. 32/GAO Draft Report)

DoD RESPONSE: Concur. DoD will give high priority to fully establishing the Joint Interagency Program Office, with specific focus on expanding efforts to make the necessary decisions to finalize the draft implementation plan.

Appendix III: Comments from the Department of Veterans Affairs

THE SECRETARY OF VETERANS AFFAIRS
WASHINGTON

July 18, 2008

Ms. Valerie Melvin
Director
Information Technology
U. S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

2008 JUL 21 AM 10:03
US GAO

Dear Ms. Melvin:

The Department of Veterans Affairs (VA) has reviewed your draft report, ***ELECTRONIC HEALTH RECORDS: DOD and VA Have Increased Their Sharing of Health Information, but More Work Remains*** (GAO-08-954), and agrees with its conclusions and concurs with its recommendations.

VA and the Department of Defense (DoD) have made significant progress in complying with the requirements of the National Defense Authorization Act of Fiscal Year 2008. The Interagency Program Office (IPO) was established, and an Acting Director and Deputy Director were appointed, temporary staff has been detailed to the office and temporary space and equipment have been provided. VA expects to appoint a permanent Deputy Director by October 2008, and hire permanent program staff by December 2008. On April 25, 2008, the IPO submitted to Congress a draft Implementation Plan discussing planned activities to achieve interoperable health records by September 2009.

Although we have made significant progress to date, VA acknowledges that there are difficult challenges ahead of us. VA and DoD leadership remain committed to the sharing of electronic health information and fully expects to achieve this objective by September 2009.

The enclosure addresses GAO's recommendations. VA appreciates the opportunity to comment on your draft report.

Sincerely yours,

James B. Peake, M.D.

Enclosure

Enclosure

Department of Veterans Affairs (VA) Comments to
Government Accountability Office (GAO) Draft Report
ELECTRONIC HEALTH RECORDS: DOD and VA Have Increased Their Sharing of Health Information, but More Work Remains
(GAO-08-954)

To better ensure that the effort by DOD and VA to achieve fully interoperable electronic health record systems or capabilities is accelerate, GAO recommend that the Secretaries of Defense and Veterans Affairs give priority to fully establishing the Joint Interagency Program Office by expediting efforts to:

- **Put in place permanent leadership, staff, and facilities.**

Concur - Under the National Defense Authorization Act of Fiscal year 2008 the Secretary of Defense and the Secretary of Veterans Affairs were required to jointly develop schedules and benchmarks for setting up the Department of Defense (DoD)/Department of Veterans Affairs (VA) Interagency Program Office (IPO). VA/DoD developed a draft implementation plan defining fiscal year 2008 and 2009 schedules and milestones. In the effort to set up the IPO, VA/DoD appointed an Acting Director from DoD and an Acting Deputy Director from VA on April 17, 2008. VA/DoD have detailed temporary staff and provided temporary space and equipment.

In order to fully implement the IPO, VA/DoD considered several key decisions regarding permanent the IPO structure and scope. The IPO was placed under the governance of the DoD/VA Joint Executive Council. VA/DoD have also agreed to what the IPO scope of responsibilities should be over the next 9 to 12 months. These key decisions enabled the departments to complete staffing plans and conduct physical space planning for the permanent IPO structure.

To date, the departments have completed and approved a staffing plan and staff organization chart. VA and DoD worked collaboratively to determine the number and type of staff required to man this new office and have developed position descriptions. Those position descriptions were submitted to the human resources office at the end of June. Human Resources is classifying the position and once complete will issue job announcements. VA anticipates that the positions will be approved for hiring actions no later than August 2008. VA expects to appoint a permanent Deputy Director by October 2008, and hire permanent program staff by December 2008.

Once the staff issues (as to numbers and types) had been dealt with then the space requirement could be developed. DoD has taken the lead on securing the permanent facilities to house the new program office and are currently working with the General Services Administration to find suitable space.

Enclosure

Department of Veterans Affairs (VA) Comments to
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The IPO meets three times every week and has established a standing agenda that includes tracking hiring actions, locating permanent physical space for the IPO, and development of key IPO documents.

- Make the necessary decisions to finalize the draft implementation plan.

Concur – The purpose of the DoD/VA Information Interoperability Plan (targeted for approval in August 2008) is to define tasks required to guide the development and implementation of interoperable, bidirectional, and standards-based electronic health records and capabilities for military and veteran beneficiaries. DoD and VA are in the process of finalizing the plan.

On April 25, 2008, the IPO submitted to Congress a draft Implementation Plan discussing planned activities to achieve interoperable health records by September 2009. VA/DoD have formed the Joint Clinical Information Board (JCIB) to ensure that clinicians treating patients determine the key information that must be interoperable by September 2009. The JCIB has validated that the information currently shared meets the Dole-Shalala target to share essential information in viewable format. Additionally, VA and DoD anticipate that by July 31, 2008, the JCIB will have identified the specific data types and format for sharing that must be achieved by September 2009 for interoperable electronic health records. By August 31, 2008, VA and DoD will obtain formal approval from the Health Executive Council on the data elements identified by the JCIB. By October 31, 2008, VA and Dod will identify the milestones and timelines for requirements definition to support interoperable health records. The JCIB's findings and subsequent requirements activities will be used to update the Implementation Plan. The JCIB has determined that not all information needs to be shared in computable format. JCIB is determining what must be computable and what will be shared beyond September 2009 and this will provide the framework for completion of the Implementation Plan.

VA/DoD will meet the target identified by the Dole-Shalala commission to share essential health information in viewable format by October 2008 when we begin sharing family and social history information on patients. Essential health information currently shared includes outpatient pharmacy and allergy information, outpatient and inpatient laboratory orders and results, radiology reports, progress reports and inpatient information such as discharge summaries, operative reports and consults from key DoD military treatment facilities, and vital signs. DoD also sends clinical theater information

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which is available to all VA hospitals and scanned inpatient records and radiology images from key military treatment facilities to the VA polytrauma centers. VA and DoD are working on expanding a bidirectional image sharing pilot and are finalizing an enterprise-wide plan for sharing images that will be delivered on October 2008.

Appendix IV: GAO Contact and Staff Acknowledgments

GAO Contact

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Staff Acknowledgments

In addition to the contact named above, key contributions were made to this report by Barbara S. Oliver (Assistant Director), Barbara Collier, Kelly Shaw, and Robert Williams, Jr.

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